A SYSTEMATIC APPROACH TO THE TECHNIQUES OF CONSTRUCTING DUNDUN

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Introduction

Global growth, development and technological advancements affect music as well as musical instruments in use at any particular point in time. Twenty-first century music has been witnessing tremendous growth as new instruments are being discovered and produced. One of the old instruments used in Yoruba popular music is the African talking drum popularly called the *Dundun*. This instrument has been handed down from generation to generation among the Yoruba people of Nigeria and has remained an indispensable instrument in the performance of Yoruba traditional African music. This is as a result of the many qualities peculiar to the *dundun* drum. It is saddening to note however, that despite the obvious qualities of the *dundun* drums, many people have failed to pay attention to the magic behind the ability of the *dundun* drum to stand out amongst its equals even in contemporary times.

Music can said to be an abstract or non-figurative art that comes as an expression of emotional feelings to create diverse reactions in the heart of any listener depending on how it is performed. Africans believe that music has magical powers embedded in it and could be used to invoke spirits. It is necessary to note that the kind of music performed at any point in time depends largely on the individual or group performing such music, as a result, there exists a thick wall of difference between the kinds of music performed in African traditional societies and those of the western world; as well as the kinds of instruments involved in their performances. Music started right from the existence of man through the sounds they perceived and the things that went on in their immediate surroundings. This gave birth to the production of rhythms through clapping of hands and stamping of feet which later evolved to the making of drum-like structures and many more like flutes and string instruments. According to ethno-musicological research findings, the musical instruments that existed in those primitive times could be classified into four categories namely:

(a) Membranophones _____ Drum (*dundun*)
(b) Aerophones _____ Blown instruments (kakaki)
(c) Chordophones _____ String instruments (Goje)
(d) Idiophones _____ Self sounding instruments (Sekere)

In line with these classifications, a researcher called Curt Sachs (1959) was a German musicologist known for his extensive study and expertise on the history of musical instruments. Sachs worked alongside Erich Moritz von Hornbostel (1877-1933) an Austria musicologist and expert on the history of non-European music. Their collaborative work is now known as the Sachs-Hornbostel system, a method of classifying musical instruments according to the type of vibrating material used to produce sound.

Aim and Objectives

The aim of this study is to explore the constructional techniques of *dundun* drum. The objectives include:

- To know the origin and development of the *dundun* drum in Nigeria in order to emphasize its socio-cultural significance.
- To encourage the construction and use of the *dundun* drum in the field of music technology.
- To create general awareness on the steps and technicalities involved in its construction and performance.
- To enhance the appreciation of locally made instruments.
- To help spread the knowledge of the richness of the *dundun* drum to other parts of the country thereby fostering unity.
- To promote African heritage in the world of Music.
- To examine the various wood and animal skins used in construction.
- To document the acoustic consideration in the construction of *Dundun* drum.

Methodology

BOOKS

For research purpose, various Literature / books were consulted so as to obtain relevant information concerning the *dundun* drum of the Yoruba.

OBSERVATION

I have derived additional information via observation of stage performances (music circles) watching and listening to itinerant musicians in the Ibadan Metropolis and its environs as well as observing instrument producers while they worked on the *dundun* drum.

The Talking Drum

Yoruba language is a tonal language that speaks in proverbs where a word alone will not suffice. The talking drum speaks in tones that are adjusted with leather cord that run the length of the drum body. As it is played, its tones have the ability to mimic the spoken word; hence it is actually a talking drum. Several other cultures play beautiful instruments visually resembling the talking drum, yet the range of tones is not achieved. A master of the Nigerian talking drum conveys a litany through the power of its "spoken word" The talking drum has been an important presence in all aspect of African life, especially the Yoruba. The drum is used at birth, in ancestral worships, rites of passages, healing, storytelling, warrior's rites, and initiation, at the time of death and as an important means of communication. According to Nketia (1998), in addition to membrane instrument, the sound of membranophone instrument may function as speech surrogates or as signals (call signals, warning signals, etc). An important consideration in the design and construction of drums is the question of tone quality and pitch. The choice of different shapes and sizes of drums as well as the choice of drum heads and methods of holding the head are generally made with this in mind. Sometimes additional devices are used to get specific qualities of sound. For example, seeds or beads may be deposited in the shell of a closed drum, as in Ethiopian *atamo* hand drum or the hourglass drum used by praise singers. Rattling metal, little bell may be used, as in Yoruba Iya ilu (*dundun*), a jingle may also be suspended across the drum head.

According to Yekini (1984),

> *the role of dundun in the ensemble; the role of the drums are divided into, namely: Principal and Secondary role in their performance. Although, the dundun (Iya ilu) sometimes share its role as principle drum. The drum in the secondary role category includes Omele abo, Omele ako, and kudi. These drums are respondent to the principal drum and they are also supportive musical circumstances where the Iya-ilu displays its overall musical dexterity and by extension exhibits its control of the whole ensemble. They play repetitive passages to provide accompaniment for Iya – Ilu to improvise. (p.9)*

Acoustic Consideration

In acoustic construction of *dundun* drum, there are some basic parts of the drum that require special attention because of the important role they play on the sound produced by the drum. This is what is referred to as the acoustic of the drums.

What is Acoustics: This can said to be basically the science that deals with the characteristic of any building. But the study of acoustics also include the production, physical properties and behaviors of waveforms as well as the properties and characteristics of the enclosure from which is produced or heard . The study of acoustics involves the followings:-

a) The physiology of hearing.
b) The production and amplification of wave forms on mechano-acoustical and electro-acoustical instruments.
c) The physical properties of the waveforms produced by these instruments.
d) The behavioral characteristics of the pressure change produced by these waveforms during transmission.
e) The responding characteristics of the enclosure from which the waveforms are produced, transmitted and heard.
f) The psychological effect it has on the listener.

Having identified what acoustics is, it is necessary to state here that, musical instruments are classified into (i) Electro-acoustical instrument and (ii) Mechano-acoustical instruments.

The *dundun* is classified under mechano-acoustical instruments because mechano-acoustical instruments or mechanical instruments are instruments whose sound producing waveforms are produced mechanically by means of vibrating strings, reeds, circular plates, lib, air streams, rods and membranes. They resonate by means of the materials from which they are produced; and the air columns or resonating chambers which form the shape of the instrument. In view of the above mentioned facts, it is very helpful to consider the following factors that affect the acoustics of the *dundun* drum.

a. THE THICKNESS OF THE WOOD: The thicker the wood the deeper the sound, which is to say that when the shell is made to be thick, the sound produced, is low and deep, but when it is thin the sound is not very low, but high pitched. Hence, in constructing the *dundun* drum which is supposed to be louder than the other drums in *dundun* ensemble, one should avoid using very thick wood.
b. THE NATURE OF THE WOOD (APA WOOD "Techtona grandis"): When choosing a shell for the drum, one must check to see if the shell is cracked internally. This is done by knocking the shell and listening to the sound it produces. So also, one should put one side of the open surface of the shell over one ear and be sure that the sound heard is loud. This tells how good the sound produced on that drum will be.
c. GRAINS: This is the internal pattern of the shell. In the acoustic of the shell, the grains in the internal part of the shell should be straight and one should take note that the higher the grains, the better the resonance.
d. THE SIZE OF THE CIRCUMFERENCE: The is also a vital factor in the acoustic consideration of the drums because the size must be proportionate to the shell and quite long depending on the size of drum desired. The wider the circumference, the better the sound produced.
e. THE SIZE OF THE SHELL: The bigger the drums, the more pronounced the sound produced will be. Smaller shells sound thinner, while bigger shells are louder and deeper.
f. TYPES OF MEMBRANE: The two basic types of membranes used are the goat skin and the embryo. The adult goat skin produces good sound too but is of lower quality and pitch than the embryo which is the skin of a not fully developed goat embryo (genus capra). This embryo is thinner in texture which

makes it higher in pitch but must be played skillfully to prevent early tearing due to its fragile texture.

In considering the issue of acoustics as it borders on traditional African instrument, exposition will be made on how traditional musical instrument makers make use of available material resources and technically manipulate it to achieve the necessary acoustical sound that is associated with such instrument.

According to Adeyeye (1993:5), "in constructing a musical instrument, the aesthetic part is uppermost in the mind of the instrument maker. There, every precaution is taken in making sure that materials are properly selected and manipulated to achieve the desired acoustic effect." Further attestation to the ingenuity of the African musical instrument maker in the knowledge of the acoustics of materials is in the making of membranophone instruments which employs wooden shell where *omo* and *apa* woods are commonly chosen or preferred by Yoruba people because of their resonance and durability. Forestry authority has rare *omo* and *apa* trees as being two of the best resonating wood in the world. It is the belief in the traditional circle that, trees very close to the path near villages where human voices are frequently heard; are always considered the best choice for making the drum shell, otherwise the drum will not "speak well". Thus, statements like *"ilu diti",* meaning "the drum is deaf" is not uncommon among Yoruba drummers where drum fails to produce the required acoustic sound expected by the drummer. But when the drum "speaks out", drummers in this same society refer to the beautiful sound coming out of the drum , exclaim "*Oku eran ti n fo'hun bi eeyan!"* meaning "a dead animal that talks like a human being" (Adeyeye*, 1993:6).*

Thus, the acoustic consideration on which an African instrument is constructed leans very heavily on certain factors some of which are enumerated below. They are:-

i. properties of various materials selected and used in the construction of the instruments.
ii. size of the selected materials selected and used in construction.
iii. shape of the selected materials.
iv. thickness of the walls (body).

v. the resonant cavity of the instrument.
vi. Acoustic effect of the various beating or stricking of the musical instrument *dundun.*
vii. ensemble interaction and pitch relationship between members of the family at performance.
viii. Acoustics of the space in which instructions are played.
ix. Sound result of the compositional technique employed. For example, hocket and antiphonal placement of musical instruction in performance.

Tools and Materials for the Construction of Dundun Drum

Materials and their uses

Materials used in constructing dundun drum can be classified into Organic and inorganic materials.

Organic materials: These are materials extracted from living organism (plant and animals. etc.)

- *OSAN (THONGS):* it refers to the tensioning thongs used to control the pitch and sound of the drum. It is arranged horizontally around the shell of the drum and tracked down by the *Ogan* and *Egi*. The number of *Osan* used depends on the size of the shell. It could either be made of goat skin or antelope skin; with the latter being more durable and weather resistant. It is also thicker than goat skin. The process of making the *Osan* is similar to *Ogan*.
- *AWO* (LEATHER MEMBRANE): This is the membrane used in covering the surface of the shell and it is made of either goat skin or embryo (ole) which is lighter and sounds acoustically better but can only be used by professional drummers due to its fragile nature.
- *IGI-ILU* (The shell): This is the carved wood which forms the frame of the drum. It is made by the "*Alapa"* family and commonly made of woods such as: *Apa* (Techtona grandis) or *Omo* (Spothodea campanulata).However, the *Omo* (Spothodea campanulata) wood is however most preferable due to its acoustic effect on sound and easy workability as well as resistance against pests and insects.

Inorganic Materials: These are materials extracted from non-living things.

- *OMI* (WATER): it is used to soak the membrane so that it will become softened enough for use.
- *OGAN (NIDDLE):* is a kind of thread used in sewing any part of the drum. It is made of skin which is cut into strands, soaked in water and twisted until it is folded to form a thread. It is the wrapped on wood and left in the sun to dry up. It is used to sew the membrane, *egi, Ileke* and *Osan* together.
- *ILEKE OR ASELE (SEWING CLOTH)*:- This is made of rags or used or used clothes which are tied around the circumference of the shell on which the membrane is placed, so that when one begins to sew the membrane, it will enable the membrane to withstand the effect of the needle. When an already used *Ileke* is cut off a damaged membrane, it is cut out with the membrane covering it and reused that way. This is when it is referred to as *Asele*.
- *ITALEKE (DRUM ROPE):* This is the rope used in positioning the membrane and *ileke* so as to prevent the unstable movement of the *ileke.* Thus, keeping it firm while sewing the membrane with the aid of *Oko-ilu*.
- *EGI (PEG):* This is made up of rag covered with membrane and it is sewn in a circular form to hold down the *osan* (tension-throngs) to the membrane around the surface of the shell.
- *ORI (*SHEABUTTER*):* Made of animal fat and used in coating the inner part of the shell to prevent cracking of the wood during harmattan and hinder insects from eating into the wood. It also aids smooth flow of sound through the shell.
- *OKO ILU (*HANGING ROPE*)*: This is a rope - like leather tied to the narrow part of the shell on which the *Italeke* is fixed and is subsequently used to hang the drum after completion.
- *IDELE* (LOCAL GUM): After the membrane has been sown to the shell, there are some parts of the membrane which are left hanging. These parts are gummed or glued to the edges of the drum with the aid of a traditional gum like the material known as *Idele*.

Tools and their uses

- *ABE FELE* (BLADE): It is used for cutting the leather to any size of the shell, and unwanted rope or leather after construction.
- *ABERE OPORO* (NEEDLE): It is a very large sized needle used in sewing any part of the drum like e.g sewing *Osan* (tensioning throngs) with *egi*
- *EMU* (PEGS): They are used to hold down the tensioning throngs (*osan)* during construction. They are also used to tune the drum after construction by using it to hold the tensioning throngs through the period of drying.
- *ILU* (Sharp Iron)*:* This is similar to a nail but is not a nail. It has a very sharp tip which is used in moving the *egi* or creating a hole so as to give place to the *osan* between the shell and the *egi*. In case of any hole which needle could not do , the *Ilu* (Sharp Iron) is used instead
- *OBE* (KNIFE): For cutting the ropes and some parts of the shell. Some part of the shell may not be smooth enough and knife could be used instead of needle for the cutting, likewise in a case whereby the tensioning throng is very strong the knife will also be used instead.
- *EEPIN (*SANDPAPER): This is used to smoothing the edge of the shell. Before laying of sking on the shell it is expected to smooth the edge of the shell very well to avoid quick tearing of the skin after construction, and this is done with *Eepin* (Sand paper)

These are various tools and materials needed for the construction of *dundun* drum.

Construction Process

This chapter outlines the process in which one could embark in other to construct *dundun* musical instrument of western Nigeria. The processes involved in constructing the *dundun* drum can be arranged in stages so as to aid easy understanding. The processes go thus:-

STAGE 1: After acquiring your shell from the market, you rub the inner part of it with your sheabutter known as *Ori* in Yoruba language in other to smoothing the inner part which has been file, and if that is not done it may result in getting particles of the wood which has not been smoothing and this might lead to early turn of the face of the drum

STAGE 2: Remove your already soaked leather from water and squeeze well to soften it after which it can be dropped on a flat wood or plastic for just 15 to 30 minutes in other to allow the skin which has been squeezed to stretch and not fully dry before placing it on the shell.

STAGE 3: Haven placed the skin on a flat wood to be stretched then the next stage is to lay the membrane over the surface of the shell. The skin must be placed well balanced on the shell for effective sewing.

STAGE 4: Place the *Ileke* (sewing cloth) over the membrane. This is done in other to enable the membrane lace on the shell to withstand the effect of the needle, and the *Ileke* (sewing cloth) must as well be covered with leather because it is only leather used to cover *Ileke* that would be physically seen while the real *Ileke* (sewing cloth) is inside.

STAGE 5: Overlap the remaining part of the membrane over the *Ileke* and place your *egi* (peg) on it, because egi (peg) will help to hold down the *Osan* (tension-throngs) to the membrane around the surface of the shell

STAGE 6: Then pick the *osan* (tensioning thongs) you want start with and place it beneath the *egi* and start sewing from the mark called the *Ojubo Ilu* with aid of the *Ogan* (niddle).

STAGE 7: While sewing one side, you hold down the other side of the *Osan* with the aid of pegs until you are through with first side because the shell must have two faces.

STAGE 8: Then glue remaining part of the membrane to the edge of the drum using the *Idele.* (Local gum) this is done for good aesthetics.

STAGE 9: This stage is to trim the unwanted part of Osan (tensioning thongs), Awo (leather membrane), Ileke (sewing cloth) using a blade in other to beautify it more.

STAGE 10: After all these, dry the drum under the sun for at least five days or more, doing this properly will enable the drum to produce good sound and last longer and if not dried for at least five days if not, the drum will not last longer.

STAGE 11: When it is dry, pick your drum stick (*Igi ilu/ kongo*), put the drum at the armpit, beat it at tight and at loose. This is done to hear how high and low the sound is.

STAGE 12: After doing all the above, you can then tie your handle to the starting point which is known as the *Ipade* Ilu because you cannot pull your tensioning throngs (*Osan)* from the starting point so as to prevent it from cutting.

Having done all these, one has successfully constructed a traditional talking drum popularly known as *Dundun*

Dundun and Modern Technological Development in Nigeria

Technology is an advent of new knowledge; it modernizes and gives quick result. Today, technology development has improved to the level of producing exact sound of a particular musical instrument, either Western musical instrument or African musical instrument. Computer can easily give the sound of any musical instrument needed in the studio without the instrument or the instrumentalist. In depth research has proved the technological development abortive towards imitating *dundun* sound for effective use.

The role of *dundun* musical instrument in Western Nigeria music cannot be over emphasized; it plays a mother role during performance, improvised, and directs the rhythm of the performance. Presently, computer technology has an imitation of almost all the sound of traditional musical instrument, thereby pulling down the income of the instrument makers. The computer provides sounds of a various musical instruments by itself, plays it, mixes it, and only the vocal attention is often required. Other arms of the performance are rendered jobless due to the modern technology development provided by computer.

In the case of *dundun,* it plays a prominent role, directs the entire performance and has no rigid rhythm, thereby has not been over shadowed by modern technological system.

- Analog Performance - This is a musical performance whereby the entire instrumentalist and the instrument feature live in the studio.
- Digital Performance – This is a process whereby all the required instruments and instrumental work are been produce in the studio with the aid of computer.

So far, Dundun hasn't agree to leave its role to any technological development, it play its mother role even when other musical instrumental work has been done by computer (Digital), dundun does its role in Analog and if not suit role may either be drop and vacant.

Recommendations

This research has attempted to throw its search light on the constructional techniques of *dundun* and its values in the society, yet the instrument seems neglected in music scene. Thereby the following are needed to be done to eradicate negligent of such valuable musical instrument.

1. It is very obvious that *dundun* makers are not sufficient in our society and that has cultivated greatly to the loss of interest towards *dundun*. Therefore, there is need for *dundun* makers to spread across Nigerian States because this instrument is found all over the places in Nigeria but when broken, people find it difficult to locate repairer or an expert that would repair it for them and that brought down the passion which people have for the instrument drastically.
2. Nigerians seem to have lost so much interest in their cultural heritage and values, therefore encourage their youth to western musical instrument even at pre- primary to primary to secondary level of education in Nigeria. Many of our school has their school anthem which they love to accompany with either drum set or keyboard and that has encourage a lot of our youth to develop interest in performing on those western musical instrument and even been able to repair it. Therefore if *dundun* ensemble can be made compulsory to accompany at least secondary schools anthem both in primary and secondary level of education, the interest of youth toward it will increase and that will make them to learn the techniques of playing and how to construct *dundun*, and by this the problem of where and who to repair the instrument which has

always been the interest of people especially the youth will be reduced. In addition this will reduce the work load on the few makers currently available, mainly in Western Nigeria, because there will be *dundun* makers all around Nigerian States and there will also be no need of traveling to western Nigeria for repairs.

3. Maintenance is the key to longevity, therefore *dundun* musical instruments need to be well maintained in other to make it last longer. This can easily be achieved by hanging this musical instrument when not used.

Conclusion

Nature has bestowed on Africans a distinctive, rich culture which has over the years earned us a place in the world. Europeans have come and still come to African to witness and learn from this wealth of natural endowment in us. African music has also been able to retain this honor which is the best way to promote our culture. Therefore, the *dundun* drum is one of the richest African heritages that have stood the taste of time and so its preservation and promotion cannot be overemphasized. Hence, I would like to suggest that musicologists, the government as well as the general public should create forum that will boost the construction of locally made instruments one of which is the African talking drum, the *DUNDUN* DRUM

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