



ACOUSTIC CONSIDERATIONS IN THE FABRICATION AND PERFORMANCE OF THE SEKERE (GOURD RATTLE)

Adegorioye Oluwole ADEYEYE¹ & Atinuke Ruth AKPECHEME²

Department of Music Technology, The Federal Polytechnic Ilaro, Ogun State, Nigeria.

Email: adegorioye.adeyeye@federalpolyilaro.edu.ng¹ ; atinuke.ajose@federalpolyilaro.edu.ng²

Abstract

The sekere, which is also known as the gourd rattle is a musical instrument of great importance in traditional and secular musical performances, as it is being used to accompany other musical instruments, be it western or traditional, and in its own ensemble of only sekere. The sound achieved during its performance is however dependent on various factors resulting from the way it is fabricated and performed. In view of the aforementioned, this research thus explores the acoustic considerations in the fabrication of the sekere (gourd rattle), adopting the qualitative research method with data gathered through interviews, library sources, and participant observation among other ethnographic sources. Findings reveal that, the performance technique, performance arena, and the size, type and shape of materials used in fabricating the Sekere affect its sound output. And for a good performance of the instrument to be achieved, acoustic details must be well considered. This research thus concludes that, the choice of materials used in the fabrication of the sekere, is a determinant factor of the sound that will be achieved during the performance of the instrument. On the other hand, a performer of the sekere however, needs to pick the qualities that best suit his intending performance.

Keywords: Sekere, Fabrication, Acoustics, Materials, Sound.

Introduction

The sekere which is popularly known as the gourd rattle is from the idiophone family of African musical instruments as classified by Curt Sachs and Eric Von Hornbostel. Musical instruments that are referred to as idiophones are self-sounding, that is, they produce sound through the vibration of their main body parts which is usually a result of the beating, striking, tapping, or slapping them with the hand, stick, clapper or other objects. The sound of the sekere is usually influenced by diverse factors such as the shape of the gourd, the size of the gourd, the thickness of the gourd, the mouth circumference of the gourd, the type, size and shape of the beads used, the texture of the thread used in holding the beads, the spacing of the beads, the performance technique used in playing it during a performance, and the spacing of performers among many other factors. On the description of the sekere, Adeyeye opined that:

The sèkèrè is an African traditional musical instrument and is also wide-spread all over the world with similar and different names and origin can be traced to the Yoruba people of southwest Nigeria. It is made of a gourd and netted beads of various types, it is of two types which are the sèkèrè ikanyere and the sèkèrè Aje (made of the cowry). The sèkèrè ikanyere has now been modernized and the use of plastic beads, ceramic beads, ivory beads, button beads are now in use among others as opposed to the traditional ikanyere or esun seed. (2022:4)

In view of the foregoing, this research focuses not on the types of sekere, but on how the type, size, and performance techniques among other factors affect the sound of the sekere.

This research adopted the ethnographic method of data gathering which engaged the key informant interview method, the participant observation method as well as consultation of library sources and books among other ethnographic methods. This research is however aimed at exploring the acoustic considerations in the fabrication of the sekere (gourd rattle). The research questions guiding this work are as listed:

Research Questions

1. What are the acoustic implications of the type, size and thickness of gourds used in the fabrication process of the sekere?
2. How does the type or size of beads used in fabricating the sekere affect the sound production achieved?

3. How does the rope type used during the stringing and beading process of the *sekere* affect its sound?
4. To what extent does the performance technique and performance arena affect the sound and tone production of the *sekere*?

Research Objectives

The main objective of this research is to explore the acoustic considerations in the fabrication of the *sekere* (gourd rattle). The specific objectives of the study are therefore:

1. To examine the type, size and thickness of gourds used in the fabrication process of the *sekere*.
2. b. To explore how the type and size of beads used in fabricating the *sekere* affect the sound production achieved.
3. To investigate how the rope type used during the stringing and beading process of the *sekere* affect its sound.
4. To study how the performance technique and performance arena affect the sound and tone production of the *sekere*.

Research Findings and Discussions

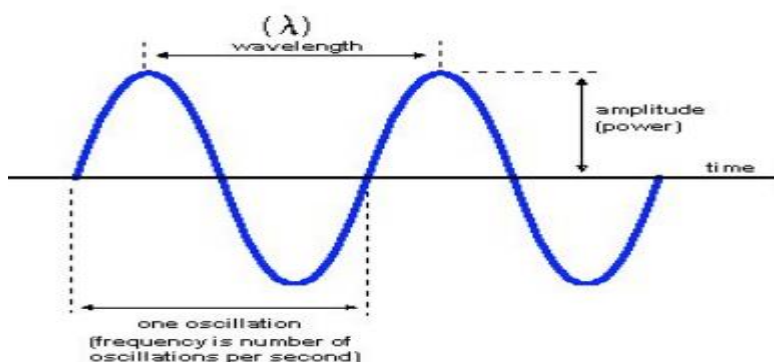
ACOUSTICS OF MUSIC

Acoustics is the science of sound. It is the study of systems that produce and propagate what we recognize as sound. The knowledge of acoustics is important for the construction of any musical instrument. Acoustics is what helps instrument makers and music technologists to understand the reason behind the way a musical instrument sounds and the various phenomenon that can change the sound achieved either during the fabrication or performance of musical instruments. There are basic terms that define musical acoustics and they are:

(a) Waves: A wave is a periodic disturbance of the particles of a substance that may be propagated without net movement of the particles. The types of waves we have are; the transverse wave and the longitudinal wave.

Transverse wave: In a transverse wave, the vibration of particle (up and down movement of the particle is in a direction perpendicular to the horizontal direction along which the wave travels. An example is that of water waves, when an object (e.g. stone) is dropped into a pool of water.

Longitudinal wave: In a longitudinal wave, the vibration of the particle (to and fro movement of the particle is in the same direction as the movement of the waves. An example of a longitudinal wave is the vibration that comes from the striking of a guitar string or other string instruments.



(b) Amplitude: The amplitude of vibration is the maximum distance moved by a vibrating object, away from any of the sides of its equilibrium position (original resting position). The unit of measurement of the amplitude of a vibrating object is in centimeters. An example to illustrate amplitude is when a string instrument is struck or plucked; it vibrates continuously through a distance on either side of its original undisturbed position.



(c) Wavelength: wavelength is the distance between two successive crests and troughs of a wave. It is measured in lambda.

(d) Frequency: Frequency (f) is the number of complete to and fro oscillations of a vibrating body when excited (i.e. struck, beaten, plucked, bow etc.). It is measured in cycles per second or Hertz (Hz).

(e) Vibration: Vibration is a periodic motion of the particles of an elastic body or medium in alternate and opposite directions from the position of equilibrium when that equilibrium has been disturbed. This is what causes a stretched string to produce musical tones which travel to the ear when the molecules of the air transmit the sound caused by the movement (vibration) of the body.

GOURDS' SIZE, TYPE AND THICKNESS

The gourd/calabash is itself the fruit of a vine-growing plant with the name, melon. It is the fruit housing the melon seeds. The gourd is the main body of the instrument called sekere. It is also used as resonators for an African musical instrument called the Marimba. The gourd is also used bare by some tribes in the south-western part of Nigeria without any adornment or beading on it, and it is used to play music called "igbo music".

On how the acoustics of the gourd affect the acoustics of the *sekere*, and as earlier mentioned, the size, type and thickness of the gourd choice a *sekere* maker picks determines the overall sound quality or specificity of the timbre of the sekere. Engaging the implication of gourd size on the sekere, the bigger the gourd, the lower the frequency or pitch of the sekere when played, and on the other hand, the smaller the gourd, the higher the frequency or pitch of the sekere. This means that for a performer who needs a bass sound from the sekere, the choice of gourd to be used must be a bigger sized one and vice-versa.

Talking about the type of gourds, there are diverse types of gourds that could be used in the fabrication of the sekere. The common and the most traditional one is the gourd that grows in the vine which produces melon fruits. But there are some other ones used in recent times and they are the glass gourds, plastic gourds, and fibre gourds among other materials used in the production of gourds for the sekere. Each of these gourds has unique ways of making the sekere sound during the performance of the instrument.

On the thickness of the gourd, it should be noted that the thicker the gourd, the lesser the vibration of the gourd and on the contrary, the thinner the gourd, the more the vibration of the gourds. This by implication indicates that, the more the vibration of the gourd, the louder the sound of the sekere and the lesser the vibration of the gourd, the softer the sound of the sekere.

Beads and Beading of the Sekere

The bead is the part of the sekere that gives the instrument the rattling sound it produces. It is usually hung on the main body of the gourd with the help of well-knitted thread or twine which prevents the beads from falling off the gourd's body. There are various bead types used in the fabrication of the sekere, ranging from seeds to cowries, plastic bead, glass beads, buttons, and animal shells among many others. All the aforementioned types of bead thus affect the tone colour of the sekere when played. However, the size of each of the beads also affects the intensity of the sound produced, as the bigger the beads, the harsher and the louder the frequency of the sound of the sekere. On the other hand, the smaller the beads used, the more subtle and soft the sound of the sekere.

Another factor that affects the sound of the sekere as it concerns beads, is the beading pattern. There is the full beading pattern which is the beading of the whole gourd, and the sparsely beaded pattern which has only half of the gourd beaded. The full beaded sekere produces a louder sound than the sparsely beaded sekere.

Threading of the Sekere

The threading of the sekere which is also known as stringing is the part of the instrument that has thread or twine holding the beads into positions as arranged by the fabricator of the instrument. Twines come in different sizes and types. The threads used could be determined by the size of the hole of the bead type chosen which if too big will not allow an easy passage of the twine into the beads, thereby causing a waste of time in the construction process. The types of thread that we have includes: nylon and cotton thread among others. The cotton thread is usually used for the stringing of big beads while the nylon thread is used for smaller beads. This is the more reason why the sekere beaded



with cowries make use of the cotton thread, while the common small or medium-sized sekere are beaded using thin nylon threads.

Performance Techniques

There are different techniques used during the performance of the sekere which helps it to achieve unique sound feats that makes it enjoyable and interesting to the spectators of sekere performance. The various methods include: tapping, throwing, slapping, tossing and shaking among many other dynamic performance styles used by musicologists. These techniques of playing the sekere could be used singularly (that is, only one technique at a time), or at times a mixture of various styles used at the same time to give specific effect and sound, a brief description of these techniques are as expressed below.

Tapping: Tapping only requires that a performer hits the lower part of the sekere with just one finger (usually the middle finger) to give a 'dry' definite sound. And this is done by holding the neck of the sekere with the left hand, thereby hitting the lower part with the middle finger of the right hand to give the tapping sound. This technique could be to play strict continuous down rhythms/timing or used while improvising on the sekere in performance.

Throwing: The throwing method is a method mostly used by performers in the hit of the moment, when the performance is gradually climaxing. This technique requires great coordination and physical agility on the part of the performer as it involves throwing the sekere into a spin in the air and catching it at coordinated intervals. The performer during this period would exhibit dance moves that allow for an easy chase of the sekere when thrown into the air, as the spinning and air control at the moment of throwing could redirect the movement of the instrument which the performer has to follow for a safe landing of the instrument into his palms for further throws or techniques.

Slapping: To slap the sekere, the performer hits the side, neck or belly of the sekere with an open palm giving it an effect that sounds like a slap on something. Just like the tapping technique, the performer will hold the neck of the sekere with the left hand but then slaps with open palms any part of the sekere for desired effect. The part of the body of the sekere slapped determines the tone or pitch of the sound that will be achieved.

Tossing: The tossing technique entails that the performer tosses or shakes the sekere in-between the palms of both hands, and from left to right to play desired rhythmical patterns. In this technique the performer holds the chest region (but towards the neck) of the sekere with the left hand, while the right hand is placed at the bottom of the sekere, and with the flexibility of the palms and fingers toss the sekere to the left or right direction to create danceable rhythmic patterns.

On a final note, it will be good to observe that performers of the sekere Aje do use their right hand to hold the neck of the sekere while their left hand is used to play the base or lower part of the instrument. Therefore all the performance techniques discussed above are all described from the perspective of a smaller sekere or sekere ikanyere holding positions.

CONCLUSION

In conclusion, diverse factors affect the sound and performance output of the sekere as an African musical instrument, the choice of materials a fabricator uses is thus an integral part of the tone the sekere will give in performance. A performer must therefore understand the intricacies involved in the use of the various materials adopted by the fabricator, so as to make a proper choice of the instrument while buying it, for the best and most desired performance to be achieved.

References

- Adeyeye A. and Faniyi K. (2014). Cultural and Creative Arts Music, Drama and Dance, Nigeria: Rocket and Rocker Publishing Company
- Adeyeye A. (1999) *Technology of Sekere among the Yoruba*. A project submitted to the Institute of African Studies, University of Ibadan.
- Adeyeye, A. 2011. Acoustic consideration in the Construction of African Traditional Instrument. The Nigerian Example. A journal of Association of Nigeria Musicologists.

Journal of the Association of Nigerian musicologist 2010 No. 4. Published by the association of Nigerian Musicologists

Backus, J. (1969). *The Acoustical Foundation of Music*. California: University of Southern W.W.Norton & company Inc. Brace, G. and Burton, I. (1979). *Sounds, Signs and Language. Listen! Music and Nature*. Cambridge: Cambridge University Press.

Nketia, J.H.K. 1974. *The music of Africa*. W.W. Norton and company, New York, London.

Oluoma, O.L. 2010. *Nelson Functional Physics*. Nelson Publishers Limited, Jericho, Ibadan.

Terry E. Miller and Andrew Shahriari (2012) *World Music A Global Journey*. Routledge Taylor and Francis group, New York and London.

APPENDIX



F



Sekere Aje