

A Paradigm Shift in the Construction Process of the Samba Drum Using Medium Density Fiberboard (MDF)

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Abstract

The study discussed the procedural process, techniques, materials and tools employed in the construction process of the samba drum using the Medium Density Fiberboard. This was with a view of enhancing understanding in the building and construction of musical instruments. The study employed both primary and secondary sources of data. The primary source comprised oral interviews of selected artisans in the field where planks were sold and where tools and materials were sold. The secondary source consisted of books, journal articles and the internet. The data collected were analyzed within the Ethno-musicological framework. The study starts by looking at the cultural significance and historical background of the Samba drum. It next explores how fabrication techniques have changed throughout time and how artisanal skill has helped to preserve this cultural legacy. Thorough examinations of the materials utilized, such as traditional joinery techniques, matured goat skin, and MDF plywood, illuminated their importance in the fabricating process and their effect on sound quality. In addition, the research explores the audible qualities and acoustic attributes of Samba drums, contrasting conventional manufacturing techniques with contemporary methodologies to clarify the variables impacting auditory attributes. Findings from this study not only support the celebration and preservation of Yoruba cultural legacy, but they also provide guidance for future research and real-world implementations in the production and playing of Samba drums.

Keywords: Samba drum, Medium Density Fiberboard (MDF), Acoustics, materials.

Introduction

This is a musical instrument and a sign of cultural identity firmly anchored in history and tradition, the Yoruba Samba drum's rhythmic heartbeat reverberates strongly throughout her varied cultural landscape. The Samba drum, which is made with great care and expertise, captures the spirit of Yoruba music, folklore, and social events by expressing themes of resilience, unity, and joy. The ancient fabrication techniques that have been refined over decades by expert artisans are essential to comprehending the Samba drum's creation process. These techniques are a representation of craftsmanship, artistic expression, and cultural legacy in addition to being technical procedures (Gifford, 2019). These artisans have carried on the essence of Yoruba musical traditions by using complex techniques and a deep understanding of materials. But against the backdrop of quickening technical progress and changing socioeconomic environments, it becomes necessary to reconsider and improve upon these conventional approaches. This calls for an appreciation of the Samba drum's cultural relevance and historical background on a deeper level, as well as a readiness to seize new opportunities and challenges. By presenting Medium Density Fiberboard (MDF) as a novel material, this paper aims to investigate a paradigm shift in the Samba drum construction process. MDF is a material that is widely used and has been praised for its versatility, consistency, and affordability. It is a strong substitute for traditional hardwoods and metals. By examining the possible consequences of incorporating MDF into Samba drum construction, this study hopes to further conversations about sustainable craftsmanship, cultural innovation, and the preservation of the Yoruba musical heritage.

This paper's scope includes a detailed analysis of conventional fabrication techniques, a review of MDF's pertinent features and attributes for drum construction, and an investigation of the viability and consequences of using MDF in Samba drum manufacturing. We want to shed light on the transformative potential of this paradigm shift and its significance for the ongoing growth of African musical traditions through careful study and hands-on experimentation.

The samba used among the Yoruba is made from a rectangular frame. It belongs to the membranophones instruments, that is, instruments that are covered with animal skin. Blench (1987) noted that:

The word samba is applied to two types of recently introduced drum, borrowed from peoples living nearer the coast. The first is the rectangular frame-drum, described by Thieme (1969) for the Yoruba. It has a rectangular wooden frame and a tensioning mechanism inside and can be beaten either with sticks or with the hands. The second is a circular frame-drum, consisting of a single membrane stretched over a wooden hoop or an iron ring, and fixed either with laces or small wedges. Similar instruments are also used by the Yoruba under the name sakara*. Idoma men play them for 'klub', the name for informal dancing done by young people for their own amusement.

The former is the basis of this research; a rectangular wooden frame-drum covered with skin but with an artificial wood known as Medium Density Fiberboard (MDF). The shape of an instrument carries an important role in its aesthetic and sound production. The samba is rectangular in shape. Dean noted that Nigeria also have a square frame drums of about 14 inches without metal discs known as a samba drum. One important Yoruba exponent of native blues during the late 1920s was the banjo and guitar player Tunde King who was accompanied by fellow Saro musicians playing Yoruba 'sekere' maracas, triangle and the rectangular 'ashiko' or 'samba' drum. This native blues group became the first 'juju' band in 1932 when its ashiko/samba drum player Ahmeed 'Lamidi' George switched to a tambourine or locally made eight-cornered copies of it that was called a 'ju-ju drum.

Historical Context and Cultural Significance

The evolution of the samba drum within Yoruba culture: According to Ojo (2015), the Yoruba people of Southwest Nigeria have a rich cultural legacy that includes the samba drum. Its creation dates back to antiquity, when local natural resources were used to craft it. In the beginning, Yoruba societies used the drum mostly for ceremonial purposes and rituals as a way to show their spirituality, celebrate, and communicate. The Yoruba people have used the Samba drum as a central component of many traditional rituals and ceremonies throughout history (Falola & Genova, 2005). The drum's rhythmic beats have accompanied festivals, social activities, and significant rites of passage in both religion and society. Its resonating tones are thought to call up ancestor spirits, convey messages to the divine realm, and bring people together in shared feelings of awe, joy, and grief. The Samba drum is an important component of Yoruba social fabric, even outside of its ceremonial context (Ogunleye, 2017). Drumming has always been a social activity that unites people of different ages and socioeconomic backgrounds. The ability to learn drumming rhythms and methods has long been valued as a talent that can only be acquired via apprenticeship and oral traditions, giving practitioners a sense of pride and community. In addition, the Samba drum has represented Yoruba cultural expression's adaptability to change while being a fundamental emblem of continuity and resilience.

Materials and tools used in samba drum fabrication

Materials

- 1. MDF Plywood:** Wood carries a very important role in the construction of musical instruments, which comes in different species and types. Wood commonly used in the construction of musical instruments are determined by their ability to resonate and produce good sound as well as their durability, that is, ability to last long without getting damage or affected by pest. Such wood used include the omo, mahogany (*swieteniamacrophylla*), obeche (*Triplochitonscleroxylon*), rosewood, opepe (*Naucleadiderrichii*), apa (*Afzeliaafricana*) among others. Types of wood used in the construction of musical instruments are either hard or soft

wood. In the construction of the Samba, hardwood or matured soft wood can be used for the construction of the frame, while hard wood is used for the pegs.

However, for the purpose of this research, Medium Density Fiberboard (MDF) was used due to the reason that it offers a durable and resonant base for the Samba drum. Its uniform density and smooth surface provide an ideal canvas for attaching the drum's components and tuning hardware. This material acts as the drum's base, offering resonance and structural stability for the best possible sound projection.

2. **Animal Skin (Matured Goat Skin):** The selection of matured goat skin for covering one side of the drum ensures optimal sound quality and durability. The natural properties of goat skin, such as flexibility and resilience, contribute to the drum's ability to produce rich and nuanced tones. It defines the drum's tonal qualities, adding to its distinct responsiveness and timbre.
3. **Nails/Screws:** Essential for joining the various parts of the drum frame together, nails or screws provide structural integrity and stability. Their secure attachment ensures that the drum remains tightly constructed, allowing for consistent sound production and performance. It maintains the integrity of the drum's construction by stopping parts from coming free or moving while in use.
4. **Adhesive:** It is used to tape a Vernier to the open part of the MDF plywood so as prevent the wood from swelling and damaging through contact with water or moisture. It also facilitates the attachment of the different joints of the wood in use for a tightly fitted joinery.

Tools

The following tools as listed and explained below are used in the construction process of the samba drum. It is worthy of note that, these tools are used by traditional instrument makers. However, there are sophisticated machines that can be used for a speedy and well finished final outcome of the Samba drum.

Hammer- The hammer is used in driving nails into woods when constructing the frame of the samba. It is also used in tapping out wood that are not well joined together. It is of different types which include the claw hammer and round end hammer.

Hand Saw- The hand saw is used in cutting wood to accurate measurement, as this makes all the edges fits together correctly, and also helps for smooth edges. It also helps for consistency in sizes of the pieces of wood used for the frame.

Hack Saw- The hack saw is used in cutting both wood and metal, it has more fine or tiny toothed blade unlike the hand saw.

Try Square- The try square is used in getting accurate edges before the wood are cut into pieces, it is an L-shaped metal ruler. It is also used in marking beveled edges. It is also used in marking a straight line before cutting the wood into accurate measurement or sizes.

Steel Rule- The steel rule is a measuring tools used in different crafts and workshops. It is used for getting accurate measurements of materials during construction process. It varies in lengths ranging from 5 meters and above.

Chisel- The chisel is used in chopping off unwanted materials on the wood, it is also used in making grooves. It is used by placing its sharp end on the piece and then hit at the end or handle using the hammer or anvil.

Rasp File- The rasp file is made from metal and it has a coarse surface. It is used in reducing or shaping edges of wood by scrubbing it against the wood.

Flat file- The flat file, like the rasp file is made from metal but with a smooth surface. It is used for smoothening the edges of wood after its been cut with the hand saw. It is also used in shaping the edges of wood.

Sand Paper- A sandpaper is a coated abrasive sheet of paper or cloth used for smoothening the surface of the wood or materials generally as required. It comes in different grades and shapes. It is often attached to an electric circular machine or grinder while using it to smoothen the surface of a wood.



Researchers using hand tools during field work.

Step-by-Step Fabrication Techniques

1. **Frame Construction:** To start, artisans cut the MDF plywood to the exact measurements needed for the drum frame, which are usually squares with one side left open. After that, the parts are meticulously put together and fastened together with screws or nails to guarantee structural stability.
2. **Skin Preparation:** After being chosen, the goat skin is cleansed, treated, and stretched across the drum frame's exposed side. To attain the ideal tension and resonance, knowledgeable craftspeople combine soaking, stretching, and drying processes. The most suitable and traditionally accepted animal skin is that of a matured goat. And this is to ensure the right sound production from the drum when performed. Too thick a skin will dampen the desired sound production, while light animal skin will produce a dense sound in addition to being prone to easy tear.
3. **Attachment of Tuning pegs and Vernier:** To create a surface for the attachment of tuning pegs, a wooden tension rod will pass through a hole by the sides of the wooden frame of the Samba drum, and small triangular shaped wood will be used to peg down the rod at both sides. Hammers or sticks can then be used to hit it until a desired tone is achieved. Adhesive is then used to glue a Vernier to the exposed portion of the MDF plywood to prevent any of the parts of the wood from easy exposure to moisture.
4. **Finishing and Tuning:** After the tuning pegs are positioned, skilled craftsmen carefully modify the goat skin's tension by hitting the tuning keys to attain the required pitch and resonance. After that, the drum is examined for flaws and, if necessary, finished with ornamental features or protective coatings.

Worth noting is that generations of artisanal expertise and craftsmanship have been passed down to create Samba drums. Expert craftspeople are intimately familiar with materials, methods, and customs, which enable them to create drums with remarkable resonance and quality. Their excellent craftsmanship, dexterity, and proficiency with hand tools allow them to make instruments that not only sound great but also represent the Yoruba people's artistic sensibility and cultural legacy.

Examining Samba Drums' Acoustic Characteristics and Sound Quality

This research explores the complex interplay between material selection, fabrication methods, and sound creation in Samba drums. Through an analysis of the acoustical characteristics of various materials and their interplay within the drum framework, scientists can acquire a deeper understanding of how these elements impact the instrument's overall performance and sound quality.

The characteristic sound of the Samba drum is attributed to its unique acoustic design. The square drum body, which is usually composed of wood, serves as a resonant chamber to produce sound. The mature goat skin covering one side of the drum serves as the drumhead, while the other end of the drum is left free. When struck; the goat skin drumhead generates sound waves by functioning as a vibrating membrane. Pitch and timbre of the sound are affected by the dry skin surface, which is adjusted and tightened with pegs. A higher pitch is produced by tightening the skin, whereas a lower pitch is produced

by loosening the skin. Sound is usually projected and amplified because to the square shape of the drum body and its open end which serves as the resonating chamber for the drum. Furthermore, the resonance and sustenance of the sound generated are influenced by the materials used and the tension in the drumhead.

The Samba drum's acoustic characteristic is also affected by how it is being played and its interaction with various performing environments. The sound generated varies depending on the playing style used, whether sticks or human palms are used. Warmer and more resonant tones are produced while playing with the palms of the hands in direct contact with the drumhead. However, employing sticks or mallets emphasizes attack and articulation by producing sharper, and more percussive sounds.

The Samba drum's size has a big influence on the type of music it produces as larger drums have larger resonating chambers, which allow them to generate deeper, fuller tones and a lower frequency with more sustained sound compared to smaller drums which on the other hand, typically have a faster decaying sound that is brighter and with higher frequencies. The bigger the Samba drum, the lower the frequency, while the smaller the drum, the higher the frequency. The ease of mobility and playability of a drum, particularly in high-energy performance environments, is also influenced by its size.

The acoustics of the performance space or venue used determines how the audience perceives the sound of the Samba drum. A music hall that is enclosed allows sound to bounce off the walls, producing a richer, more reverberant soundscape during the listening experience. On the other hand, sound spreads more readily in an open pavilion or field, so in order to properly reach the audience, performers frequently need to project or amplify their performance. Additionally, outdoor venues may bring environmental influences such as wind and ambient noise, which can affect the clarity and projection of the drum sound.

The Samba drum is an essential part of the music and culture of the Yoruba people, because of its distinctively lively and robust sound, which is produced by the drum's square body, goat skin drumhead, tuning system, open end, playing technique, drum size and the performance arena. It is therefore a versatile and adaptable musical instrument in a variety of musical contexts, from quiet indoor performances to dynamic outdoor celebrations.

Conclusion

In conclusion, this study has offered a thorough examination of the customary methods and materials used in Yoruba culture to create Samba drums. Key discoveries and insights have been clarified through a step-by-step description of the fabrication process, an analysis of artisanal expertise, and an insight into the tools and materials used. It is impossible to exaggerate the significance of maintaining traditional fabrication techniques for the preservation of cultural heritage. These procedures serve as evidence of the rich cultural legacy of the Yoruba people in addition to guaranteeing the authenticity and integrity of Samba drums. We can guarantee that future generations have access to the information and abilities required to carry on the Samba drum-making legacy by preserving these processes.

This research also emphasizes the necessity of greater investigation and study in this area. Research on sustainable material sourcing methods, inventive production techniques, and the socio-cultural value of Samba drums in modern situations are among the recommendations for additional study. In addition, the research may have practical applications in the form of training programs for upcoming craftspeople, the creation of Samba drum production quality standards, and partnerships between researchers and craftspeople to advance cultural preservation and interchange. In the end, we may support the celebration and preservation of Yoruba cultural legacy for future generations by encouraging a deeper awareness of the methods, components, and cultural significance of Samba drum production.

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