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Towards the Standardisation of African Musical Instruments: The Atɛntɛbɛn in Perspective

Stephen Aidoo Department of Music , University of Ghana, Legon

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Abstract

This paper interrogates the concept of standardisation in the development of the Ghanaian atɛntɛbɛn (bamboo flute) as an indigenous African musical instrument. The paper draws a clear distinction between the concepts of 'Standardisation' and 'Westernisation 'as it applies to the development of indigenous African musical instruments like the atɛntɛbɛn. The paper further explores the challenges (tuning, finishing and packaging) that the Atɛntɛbɛn and some other Ghanaian musical instruments face outside their primordial origins. To this end, ethnographic and case study designs were employed. The paper makes the point that applying Western sense of standardisation to the development of African musical instruments is bound to create problems in construction, usage and appreciation both within and outside the cultural context of the instrument.

Keywords: African traditional instruments, Atɛntɛbɛn, Standardisation, Westernisation, Innovation

Introduction

Issues of standardisation and Westernisation of African traditional musical instruments have raised many questions in the ethnomusicology of African music (Abiam, 2016; Baumann, 2000; Hien, 2016; Stillman, 1999). This is a result of how to conceptualise and contextualise the phenomenon of standardisation and Westernisation. The conceptualisation and contextualisation of standardisation can be perceived as an interdisciplinary issue. While some scholars are struggling to differentiate between standardisation (extension/uniformity) and adaptation (localisation), others are arguing about the implementation of these concepts (Ansah, 2016). If borrowed knowledge is extended into a tradition without indigenisation or localisation, then how is this concept different from Westernisation? Considering traditional African musical instruments, the question arises: which standardisation concept these musical instruments should embrace? However, traditional musical instruments made in Ghana face many challenges, including tuning and finishing, which makes these instruments static and difficult to sell and perform in the international market and world stage.

One major issue of standardisation in Africa, particularly Ghanaian traditional musical instruments, is that musical instruments made by the same manufacturer may not always sound in the same key (Dankwa, 2018). Consequently, my experience as a teacher-performer who purchases musical instruments for students motivated me to conduct this research. Whenever I go to town to purchase *atɛntɛbɛn* or request a manufacturer to supply pieces of the instrument, I spend a significant amount of time testing for the standardised or uniform pitch for my student ensemble. Despite these efforts, I still encounter challenges with pitch accuracy during performances. The situation worsens when the instruments have been stored for a long before being used on stage. Abiam (2016) shares the same experience by explaining that because the *atɛntɛbɛn* is not fully standardised, a buyer or a player must play all *atɛntɛbɛn* in a particular music shop before making the right choice as seen in figure 1. Hence, getting a standardised *atɛntɛbɛn* for a group or ensemble performance is usually hectic. One of the worst moments of purchasing atɛntɛbɛn was during the outbreak of COVID-19, where the circulation of carbon dioxide and saliva was highly protected to the extent that wearing a face mask became a 'hegemonised' costume across the globe.

Figure 1 :A buyer (left) testing a number of atɛntɛbɛn before purchasing. Photograph by researcher.

Figure 2: A buyer/performer (right) interrogating an atɛntɛbɛn maker (left) on how his products are not of the same pitch. Photograph by researcher.

In the same vein, Bebey (1975), in his research into African musical instruments, concludes that professional musical instrument makers are "extremely rare in Africa". Therefore, every maker produces the instrument to suit their understanding of tonality and personal preference; hence, the same musical instrument made by different ethnic groups sounds different. On the other hand, looking at the time of Francis Bebey in the 1970s to this current generation, the issue of standardisation in African traditional musical instruments still exists in our communities. Meanwhile, 'professional' makers of these instruments are not rare compared to the 1970s when Bebey made this argument. Although most traditional musical instruments are tuned utilising tonal inflexion, those who choose to tune their

instruments based on their comprehension of tonality and spiritual intuitions introduce inconsistency into their mass production. This has given rise to complications and has caused a perplexing situation between indigenous markers and institutions including schools that employ the instrument in an ensemble or with accompaniment. The institutions are advocating for uniform standards, while the indigenous makers are perplexed by the overt concept of standardisation. In light of this, the study sheds light on the complexities of standardising Ghana's indigenous musical instruments, focusing on the atɛntɛbɛn as I navigate the intersection between cultural preservation and globalisation.

2. Review of Related Literature

This review is situated within a wider framework that considers the historical and organological examination of the ***atɛntɛbɛn***, along with the concept of standardisation and Westernisation in the context of developing Ghanaian traditional musical instruments.

2.1 A Brief History of the Atɛntɛbɛn

The name *atɛntɛbɛn* came from the word *atɛntɛ,* which is associated with the Akan community (the largest ethnic group in Ghana), specifically the Kwahu tradition of the Eastern region of Ghana. *Atɛntɛ* or o*tɛntɛ* (plural) is a name for an Akan traditional drum, while the *bɛn* or *abɛn* refers to a flute or horn. Hence, *Atɛntɛbɛn* means the flute played by the *atɛntɛ* drum ensemble. (Abiam, 2016). According to Abiam, the instrument was initially made from bamboo without any cork like the modified *atɛntɛbɛn* we have currently. Traditionally, the instrument had five holes with a horizontal or transversal playing position, just like the Western flute. Several myths associated with this instrument position the Akan as the originator. While some argue that the instrument came from Sampa in the Brong Ahafo region of Ghana as a tool for worshipping their gods, others are of the view that the instrument came from Yendi during the Kwahu-Asante and Yendi war (Ebeli, 2018). Ebeli based her argument on oral tradition and explains that the people of Twenedurase (a town at Kwahu in the Eastern Region of Ghana) went as far as Sampa in the Brong Ahafo region to search for a god called Senya Kopo. According to Ebeli 2018), the people of Sampa used the instrument to worship their gods; hence, the Twenedurase people started performing on the instrument upon their arrival. The author also comments on another myth that authenticates the Kwahu people as the

originators of the *atɛntɛbɛn*:

> ‘Information from yet another source alleged that when the Asante and Kwahu fought in Togoland, a woman suggested they should celebrate their victory with a new kind of music from a bamboo instrument. It could be inferred from these historical accounts that the origin of *atɛntɛbɛn* is linked to the Kwahu and the Asante states. (p.13)

Figure 3: Atɛntɛbɛn

Based on my research, I have not come across any argument debunking the origin of the *atɛntɛbɛn* as an Akan musical instrument. Though Adjahoe (2017) gave a different myth about the *atɛntɛbɛn*, the origin is still attributed to the Akan tradition, specifically Kwahu. The *atɛntɛbɛn* family in the Akan tradition is grouped into three categories based on the size and length of the instrument. We have the *Atɛntɛbɛn* (grandson), which is the smallest; *Odurogyaba* (son), which is the medium size; and *Odurogya* (Father), the biggest among the flute family. The family terms or names linked to these instruments give a gist of being the smallest of all in size.

The Oduragya assumed its function in the Asante Kingdom during the welcoming ceremony of the Asante King, Otumfo) Agyeman Prempeh

II during his return from Seychelles in 1926. The court musicians of Kukuomhene (the paramount chief of Kukuom) played the instrument during his welcoming and greeting performance to pay homage to the Asantehene (the king of the Asante kingdom). One of the court musicians at the Asante palace, Nana Yaw Opoku Mensah, dedicated his time to following Kukuomhene to Kukuom in the Brong Ahafo region to study the playing of Oduragya after the ceremony (Ampene & Nyantakyi III, 2016). Yaw Opoku Mensah made the instrument very popular in the Akan tradition during his performance as a solo or sometimes duet with other instruments, including a voice in the Asante Palace till its development by Ephraim Amu (Ghanaian Composer and Musicologist). The *Odurogya* functioned as a praise or appellation instrument to the Asantehene. “As a solo instrument, the player stands behind the King and, with his poetry, recounts history and praise poetry. The *Odurogya* sometimes plays music, so strictly speaking, it can and does play music” (Ampene & Nyantakyi III, 2016, p. 216). During the time of Opanyin Mensah, Amu developed an interest in learning how to play Oduragya under Mensah’s tutelage after seeking permission from the Asantehene (Vordzorgbe, 2013).

Figure 4: Nana Yaw Opoku Mensah on the left and Ephraim Amu on the right with the transverse atɛntɛbɛn.

Many scholars, including Ebeli, testify to the fact that *atɛntɛbɛn* gained its national recognition and academic grounds through the works of Ephraim Amu. “Similarly, some *atɛntɛbɛn* music composers and performers from the older generation came close to preserving *atɛntɛbɛn* heritage but did not adhere to rigorous academic models nor did they theorise their innovations. Amu ventured into the serious formalisation of the instruments to attain the current development” (Ebeli, 2018, p. 13). Readings on Amu’s biography show that the renowned musicologist relocated to Kumasi to continue teaching in 1959 after several years in Achimota (Agawu, 1996). Amu used this opportunity to explore more African music, specifically Akan traditional music, where he had the chance to learn to play the *Odurogya* from one Mr. Mensah. Having learnt from *Odurogyahene* (chief in charge of the Odurogya instrument) Nana Yaw Opoku Mensah, Amu started discovering how to expand the range of the instrument after his retirement as a teacher in 1960, which led to the development of the atɛntɛbɛn. Agawu highlights that Amu not only innovated the ***atɛntɛbɛn***, but also provided numerous compositions for this particular instrument (Agawu, 1996). Therefore, I posit that the national and academic recognition of the ***atɛntɛbɛn,*** was founded not solely on Amu’s organological modification of the ***atɛntɛbɛn***, but also on the compositions he created for this musical instrument.

2.2 Standardisation versus Westernisation

The use of Standardisation and Westernisation in studying African traditional musical instruments is problematic due to their historical antecedent in Western concept where the tuning of African musical instrument is being compared to that of western. Therefore, this section explains scholars’ views and appropriation of these terms against the backdrop of African music and identity. First and foremost, Kenyan law professor Patrick Loch Otieno Lumumba, in one of his 2019 lectures at the University of Cape Coast towards Agricultural Development and Innovation, discusses how attractive Africa is to the other world. He mentioned how globalisation existed in Africa long before Africa was colonised; however, it has never been in the interest of Mother Africa. This results from how African leaders perceived and defined the word globalisation. Consequently, he asserts that globalisation can be used to the advantage of Africa or the other world, depending on its conceptualisation and associated definition. (Lumumba, 2019)

Linking Lumumba's above proposition of globalisation to standardisation, one could argue that the efficacy and utility of universal structures are contingent upon the conceptualization and integration of such constructs within a given society's cultural framework. Focusing on multinational companies in a different cultural environment, Ansah (2016) describes standardisation as an 'extension' of knowledge while adaptation as 'localisation'. Based on Ansah's concept of standardisation (extension) and adaptation (localisation), he concludes that the implementation of adaptation helps improve business more than that of standardisation due to "changes in cultural dynamics" (Ansah, 2016, p. 14). On the other hand, Loukakou and Membe argue that implementing ingredients of both standardisation and adaptation is the best option for business promotion. They then describe standardisation as a "practice of setting identical characteristics for a particular good or service" (Loukakou & Membe, 2012, p. 19). This concept is well accepted in the school of business and economics, where issues of cultural identity are not a concern but rather how to promote and profit from a quality product. Hence, separating the concept of standardisation from localisation becomes a preference. However, taking issues of cultural identity, ownership and continuity of change by Nettl (1985, 2005) into consideration, differentiating the concept of standardisation (extension) from adaptation (localisation) opposes continuity of culture and self-identity in ethnomusicology and anthropology. Recreation or incorporating new ideas into a performance or a culture is classified as an extension of knowledge. However, this new idea must be measured and redefined to fit into the 'accepted pattern' of the performance or new environment. This idea conveys variation instead of changing into a new environment or musical performance.

Saighoe (1984) guided Blacking (1977) concept of change, explains that a musical change constitutes a change in the structure of the musical system, while variation brings change within the system. Therefore, if a new idea or change occurs in an environment without modification, it brings total change to the structure of the entire system, which easily distorts ownership and cultural identity. However, if these new ideas are modified or localised within the accepted pattern, it brings variation within the system but not total change. In a sense however, variation could be seen as a form of change but what Saighoe intends is total rather than partial change which might just represent slight modifications. Based on this review, one can propose that standardisation is a fusion of extension and indigenisation

of knowledge of a particular tradition to bridge the past and the present. This suggests also that the fusion of local and global have a common trait that serves as a model for steadiness. If knowledge or an idea is borrowed and incorporated into a particular tradition without indigenising it to fit the new environment, that could be considered Westernisation instead of standardisation. Hence, Westernisation is a total surrender to a foreign or Western knowledge or culture without alteration or redefinition. From a broader perspective, standardising African musical instruments aims to enhance their accessibility and familiarity worldwide, which may result in increased financial viability and wider recognition. Nonetheless, the process of Westernisation may pose a potential threat of diminishing the unique cultural character inherent in these instruments, therefore aligning them more closely with the musical aesthetic and sensitivities of the Western world.

The implementation of standardised teaching methods, notations, and production techniques has the potential to facilitate the integration of an African musical instrument into global music education and performance contexts. This, in turn, would contribute to the instrument's sustainability and adaptability within a constantly evolving global landscape (Axelsson & Grady, 2022; Polak et al., 2016). However, may a decline in cultural value offset the increase in commercial benefits? A comprehensive response to this query necessitates a precise differentiation between standardisation and Westernisation, a distinction that this research aims to establish. Standardisation is widely regarded as a means of streamlining, harmonising, and establishing a shared foundation in various businesses and academic domains, facilitating universal accessibility and comprehensibility of products or knowledge. This phenomenon can be interpreted within musical instruments as implementing standardised manufacturing processes, dimensions, tuning systems, and performance approaches. These standardised elements expand the target audience and enhance the commercial viability of musical instruments globally.

3. Methodology

A study of this nature needs a qualitative research method to examine issues in its traditional context against the backdrop of globalisation. Cropley (2023) states that, "the core property of qualitative research is that it examines the way people make sense out of their concrete real-life

experiences in their own minds and in their own words". Based on Cropleys concept, using qualitative research method will enable me to use my five senses and experience as a music technician and wind player to interpret my collected data for a critical analysis. Thus, a critical observations of the musical instrument's manufacture process were looked at, according to the nature of the qualitative research approach. Therefore, in order to get a better knowledge and a relevant, nuanced interpretation, questions pertaining to the instrument's manufacture process were posed during oral interviews. Along with conducting interviews with the producers of the chosen instrument, ensemble and solo musicians were also surveyed as part of the qualitative research approach.

The best sampling method that suits this research is non-probability sampling method. Taherdoos (2016) refers to non-probability sampling as a case study that does not need a random selection but rather "a clear rationale is needed" for every sampling in research work. Taherdoos classifies purposive or judgmental sampling under non-probability sampling whereby deliberate selection or sampling occurs to provide the exact information the research is up to. This is the kind of approach I used in gathering my information as I focused on particular manufacturers, performers, sellers, and institutions that are associated with my selected musical instruments. Because of the innovative nature of my research, emphasis was placed on the urban and rural manufacturers who sell their instrument to urban consumers. Additionally, companies that have advanced in the production of standardised and maintenance of musical instruments like the African Music Industry and Stitching Hou Schoon Die Saxophone based in South Africa and Holland respectively were focused. The table below give details information on the sampling method.

Table 1: Atɛntɛbɛn Builders

Informant	Product/ Services	Location
Kenneth Bonsu	*Atɛntɛbɛn*	Peki- Volta Region
Kwesi Kwaakye	*Atɛntɛbɛn*	Dantsi- Eastern Region

Table 2: International Instruments Makers

Informant	Product/Service	Location
Christian Carver	Karimba and Marimba	African Musical Instruments, Grahams Town, South Africa
Nico Bodewes	Wind Instrument Technician	Stitching Hou Schoon Die Saxophone, Amsterdam-Holland

Table 3: Performers

Informant	Instrument	Type of musician	Location
Aaron Bebe	*Gyil*	Professional/ Instructor	University of Ghana, Legon
Mark Millas	*Gyil*	Professional	University of Education, Winneba
Christopher Doozie	*Gyil*	Professional	Mempeasem-Accra
Alex Tseh	*Atɛntɛbɛn*	Professional	Labone-Accra
Dela Botri	*Atɛntɛbɛn*	Professional	
Timothy Andoh	*Atɛntɛbɛn*	Tutor	University of Ghana, Legon
Grace Takyi-Donkoh	*Atɛntɛbɛn*	Tutor	University of Ghana, Legon
Monica Ananga	*Atɛntɛbɛn*	Student	University of Ghana, Legon
Paa Kow Mensah	*Atɛntɛbɛn*	Student	University of Ghana, Legon

Table 4: Composers and Ensembles

Informant	Work Description	Location
Newlove Annan	Composer	University of Ghana, Legon
James Varrick Armaah	Composer	University of Ghana, Legon
Joshua Alfred Amuah	Theorist and Composer	University of Ghana, Legon
David Azaglo	Composer	The Hague Conservatory of Music, Holland

Martinj Padding	Composer	The Hague Conservatory of Music, Holland
The Ghana Big Shot Band	Ensemble	Ghana
University of Ghana, Department of Music *Atɛntɛbɛn* Ensemble,	Ensemble	University of Ghana
The Pan-African Orchestra	Ensemble	Accra
Ayekoo Drummers	Ensemble	Accra
Local Dimension	Ensemble	University of Ghana, Legon

Table 5: Sellers

Informant	Instrument	Location
Aunty Christy	*Atɛntɛbɛn*	Arts Centre, Accra
Gemma Tettey	*Atɛntɛbɛn*	University of Ghana, Legon
Grace Takyi-Donkoh	*Atɛntɛbɛn*	University of Ghana, Legon
Kwesi Kwaakye	*Atɛntɛbɛn*	Dantsi, Eastern Region
Christopher Dooxie	*Gyil/Atɛntɛbɛn*	Mempeasem-Accra

This research was conducted in three different countries which are Ghana, South Africa, and the Netherlands. The reason behind this was that the research advocates cultural development therefore, I visited two other countries who have advanced in technology in the production of musical instruments to understudy. June 2018 to August 2019 was dedicated for internal field trips in Ghana. My first field trip took place at the Ashanti palace (Manhyia Palace) at Kumasi in the Ashanti Region of Ghana. I visited Manhyia palace in June 2018 to investigate the life of Yaw Opoku Mensah (Oduragyahene of the Ashanti Palace). In January 2019, my next trip took place at the home town of Dr, Ephraim Amu, Peki Avetile in the Volta Region of Ghana. I spent three days in the forest documenting the manufacturing process of the *Atɛntɛbɛn*. Similarly, In August 2020 after I had returned from my field trip in Holland, I spent two days at Dansti a village in the Eastern Region of Ghana to participate, observe and record the manufacturing process of *atɛntɛbɛn.*

I visited the African Musical Instruments in August 2019 in Grahamstown (now Makhanda), the Eastern Cape, South Africa to understudy Christian

Carver (African Music Industry, under the International Library of African Music-South Africa) who has advanced in the standardisation of African traditional musical instruments. I also used the opportunity to visit the International Library of African music at Rhodes University Grahamstown to read, listen and take photographs of the African traditional musical instruments collected and recorded by Hugh Tracey (Anthropologist and the founder of the International Library of African Music ILAM)

Figure 5: Collection of African musical instruments by Hugh Tracey at the International Library of African Music Grahams town South Africa (2019): Photograph by the researcher.

I equally spent 6 months (between September 2019 and March 2020) in the Netherlands studying military band instrument repair to equip myself with the mechanism of wind musical instruments under Nico Bodowes. Nico is the founder of Stitching Hou Schoon Die Saxophone and Amsterdam and a wind instrument technician with over 45 years' experience in repairing and building.

Figure 6: Researcher in the bamboo forest with Mr. Bonsu (Atɛntɛbɛn maker) at Peki Aveteli (Volta Region, Ghana) gathering information on different types and sizes of bamboo for atɛntɛbɛn making (2019).

Figure 7: Researcher observing how to detect leakages in wind instruments at Stitching Hou Schoon Die Saxofoon-Amsterdam (2020).

4. Discussion of Findings

4.1 *The issues of standardising African traditional musical instruments*

The issue of standardisation can be well addressed by differentiating the instrument's functionality in its cultural context from outside the cultural context. African musical instruments, as aforementioned, are deeply ingrained within their respective cultures, often extending beyond mere musical functionality. The process of standardising these instruments has the potential to result in a homogeneity that may reduce their cultural relevance. Agawu (2016) argues that the study of African musical instruments can never be accurate without including their cultural context. Consequently, Agawu reject Hornbostel and Sach's classification of African musical instruments because the idea was not based on an African mindset. Likewise, Johnson (1995) emphasises this ideology by stating, "If there are objects used in making music, whether or not they are sound-producing objects of material culture, they must be studied as part of that event. The object's function can only be understood in the context of its primary environment and not in a secondary environment or conceptual framework" (Johnson, 1995, p. 260). All these statements emphasise cultural relativism, where culture is best understood in its context. This structure seems to be the critical factor that sustains the cultural identity, authenticity and socio-cultural function of African musical instruments. Therefore, the instrument's functionality at this stage does not call for standardisation; hence, any attempt within this context will be rejected and seen as a rebellion against tradition.

Conversely, due to cosmopolitanism and urbanisation, many traditional musical instrument makers and performers move along with their musical instruments and craftsmanship to migrate. As a result, patterns of human migration, interethnic trade, political domination, and cultural exchange, as described by Agawu (2016), have an immense impact on the musical instrument, duplicating its functionality. Saighoe (1984) describes these new interpretations as "Situational Change." For example, before Ephraim Amus's development, the atɛntɛbɛn was used by the Sampa people of the Brong Ahahfo region of Ghana to worship their gods (Ebeli, 2018). However, the present-day atɛntɛbɛn does not feature only in spiritual purposes alone but for occasional music (funeral dirges), educational programmes (practical instruments) and entertainment (dance bands and ensembles). These new interpretations call for a certain standard to blend the local (primary environment) and global (secondary environment) for cultural continuity and sustainability. The standard is then set as a trait for mass production.

Mukuma (2010) discusses extensively the conceptualisation of musical instruments in world music using the mbira, kora, and xylophone to illustrate his argument. As regards globalisation, Mukuma outlines the three main steps or processes which musical instruments go through before being globalised or "integrated into a new culture". First and foremost, members of the new society must determine the musical instrument's capability with the existing practices in contemporary society. Secondly, there has to be a source of raw material in the area with which the instrument can be fabricated. Lastly, the instrument has to be re-interpreted by its new users. In addition to his last point, he asserts that the instrument must be attributed to the cultural functions and manifestation of the new culture. Mukuma concluded that to be able to attribute different cultural functions to one musical instrument; one must always consider the ecology, language and cultural manifestation of the new environment. In this case, a traditional musical instrument, the atɛntɛbɛn, finding itself in a new environment, has to conform to a particular structure in the secondary environment. This conformity comes with innovation and development, which aim to create a standard for easy communication.

Interestingly, while some scholars see the new interpretation or innovation as a way of developing a tradition for generational relevance (Aidoo, 2021; Emielu, 2018), others are concerned with how such an endeavour disrupts

the African identity (Adjei, 2019). This entails examining the potential consequences of such a decision on forthcoming cohorts of musicians, craftspeople, and cultural practitioners. Moreover, can standardisation effectively guarantee the instrument's durability, or would it potentially diminish cultural variation and richness? This argument comes from the struggle within the conceptualisation of standardisation as against Westernisation. The question, then again, is which standard should atɛntɛbɛn conform to? And how is this concept different from Westernisation?

4.2 Standardisation of the Atɛntɛbɛn

Ephraim Amu is known to be the first Ghanaian who started devoting time to the construction and development of the *atɛntɛbɛn* after he was called back into the Institute of African Studies, University of Ghana (Agawu, 1996). Amu contributed to the development of the *atɛntɛbɛn* by adding two extra holes, making seven (diatonic scale) instead of the original five holes (pentatonic scale). These extra holes intend to extend the range of the *atɛntɛbɛn* to standardise it to the diatonic scale for versatility. Aside from the diatonic scale, Amu's two extra holes added variation to the instrument's sonority by extending the range to cover two and a half octaves. Additionally, Amu changed the transverse playing position to the current vertical playing technique in the system by inventing a cork to fit the flue of the mouthpiece for easy blowing. In changing the playing position of the *atɛntɛbɛn*, a new flue was created on top of the instrument, partially closed by a cork. This addition made blowing the atɛntɛbɛn very easy compared to the transverse flute.

Figure 8: The cork introduced by Amu. Dantsi, Eastern Region (2020). Photograph by researcher.

Aside from Amu's contribution to the *atɛntɛbɛn*, other musicians, for example, Nana Danso Abiam (Leader and founder of Pan African Orchestra) and Dela Botri (Leader and founder of Hewale sound) have also developed diverse ways or techniques of playing chromatic notes and harmonics on the instruments for their versatility. These techniques include overblowing, cross-fingering and half-covering. Consequently, these additional techniques have aided the instrument to transcend or fuse into other musical cultures, including jazz and classical, which serves as a pragmatic explanation for Mukuma's concept of music globalisation (Mukuma 2010). Aidoo (2021) also contributed to the development of the atɛntɛbɛn by standardising the pitch of the atɛntɛbɛn for mass production. He also introduced a humidity control case to preserve and keep the instrument in tune. Additionally, Aidoo introduced wood dent to prevent insect bites and for beautification. Just like Amu, Aidoo also extended the range of the instrument by building atɛntɛbɛn in G and D for solo and ensemble performances.

Examining these contributions towards the development of *atɛntɛbɛn* concerning the concept of standardisation and Westernisation discussed earlier, the question is: is Amu, Danso Abiam and Aidoo's contribution gears towards standardisation or Westernisation? Were these contributions inspired by Western ideology or based on indigenous knowledge within the performance context of the instruments? Though it appears that the extension of the range is being standardised to the Western diatonic scale, which falls within the context of Westernisation, it is also within the context of Akan tonal inflection. The main idea of Amu's extension of the range is to use the atɛntɛbɛn to accompany his choral compositions. However, the Akan or Ewe traditional song not only centres on the pentatonic scale but also the heptatonic scale. Therefore, Amu's addition was to standardise the range of the atɛntɛbɛn to the tonal inflexion or tone-text relation of the Akan and Ewe languages. This development is far from Blacking (1974) concept of change, which aligns with Westernisation. Nonetheless, this addition is positioned in the context of variation, emphasising a system change.

All these mechanisms are basic scientific knowledge for development, which has nothing to do with Westernisation. Most traditional songs and choral compositions in the Akan language use the lowered seventh when descending and the seventh note ascending, which follows the tonal inflexion of the language. Based on this, Abiam developed a cross-fingering technique to play the lowered seventh, also serving as a chromatic note in

the Western scale. Unlike the Shona mbira, which uses a different scale pattern based on their tonal inflexion, most of the tone-text relationship of the Ghanaian languages, including the Akan, follows the Western heptatonic scale. This results from the proximity between the intervallic structure of the Ghanaian languages and the Western concept of tone and semitone interval. That is why Ghanaian art music composers efficiently use Western notation to represent their music. This has automatically influenced the development of music and musical instrument-making in Ghana. Hence, the chromatic scale, like the lowered third and raised fourth, has been indigenised to create variation and versatility in music composition and musical instrument making in Ghana. More importantly, the keywords of the concept of standardisation defined in this work are extension and indigenisation of knowledge into a particular tradition to bridge the past and the present. Dela Botri, one of the best players of the atɛntɛbɛn, has also figured out several ways of combining the fingers to ascertain overtones, harmonics and chromatic notes to fuse into other music genres. Though these terms have their antecedent in Western theory, it has become a globally accepted pattern for developing musical instruments. This keeps the younger generation closer to atɛntɛbɛn music performance in Ghana. An interview with Dela Botri by Sammy Flex states:

> I started when I resigned from the Pan-African Orchestra… So, I took the initiative to explore more of the traditional rhythms in Ghana... I always wanted to do my traditional music and instruments with contemporary fusion. I don't want to keep it the way it was. Because that is the reason why sometimes our people don't embrace traditional music. I take traditional music and instruments and modify them with a contemporary aspect. "…. What made Dela Botri is that I use this instrument to play the traditional music of Ghana, classical and jazz music. So, that means the instrument is unlimited in scale (Xylophone FM 102.1, February 12, 2019).

The research reveals that though there are consistency issues in the intervallic structure of the atɛntɛbɛn, the persistent issues have to do with the inconsistency in pitch. For example, you could have two pieces of atɛntɛbɛn with the same intervallic structure, but one could be in C major while the other is C# major. This makes it difficult for individuals and various groups in Ghana to perform as an ensemble. An interview

with Christopher Doozie, a traditional instrument maker explains that the instruments used in the Pan-African Orchestra are always reconstructed to conform to one standard tuning system before being used for performance. Through the works of Amu, the atɛntɛbɛn has become one of the leading traditional musical instruments studied in educational institutions, including basic schools and universities. Consequently, using a standardised tuning system enhances the efficiency and effectiveness of joint endeavours and educational pursuits.

Aidoo (2021) discovered ways and means of sustaining the tuning of the atɛntɛbɛn by introducing a humidity control case. The Pitch of the atɛntɛbɛn, just like any other woodwind reed, depends on the humidity and temperature of the environment. Sometimes, the markers may try as much as possible to have uniformity in their tuning; however, humidity and temperature change always affect the standardised pitch of the atɛntɛbɛn. Hence, the humidity control case helps maintain the standardised tuning of the instrument. Interestingly, Aidoo employs Ghanaian customary symbols, adinkra, as decorative elements on the casing to address the conflation of standardisation and Westernisation. This establishes a connection between the past and present, fostering cultural identity and ensuring continuity.

Figure 9: Humidity control case by Stephen Aidoo. Accra 2023. Photograph by researcher.

Another discovery that challenges the effectiveness of standardised calibration of the atɛntɛbɛn is the ingress of leakage caused by insect wounds. Like other wind instruments, leakage is one of the most significant factors that degrade the instrument's intonation and sound quality. Aidoo draws inspiration from the Japanese urushi lacquer to regulate insect bites and preserve sound clarity by incorporating wood dent and lacquer to deter insects from penetrating the wood. In a discussion with the renowned shakuhachi player Kiku Day at the 47th International Conference for Traditional Music (ICTM) Ghana, she explains that, urushi lacquer is

typically applied to the shakuhachi's interior pattern to produce a more distinct and powerful sound (July 18, 2023, University of Ghana).

Figure 10: on the left is an atɛntɛbɛn with insect attack and right is another atɛntɛbɛn with wood dent. Photograph by researcher.

The atɛntɛbɛn features a total of seven tone holes. However, scholarly investigation reveals that many individuals struggle to employ their little finger to effectively cover the last hole, producing a seventh note that is one octave lower. The observed phenomenon can be attributed to the spatial separation between the initial and subsequent musical tones. Hence, possessing a finger of greater length is necessary to access that specific tone hole. In Aidoo's efforts to facilitate mass manufacture, he devised a uniform positioning of the little finger tone hole, enhancing accessibility for all individuals. In an interview with Grace Takyi-Donkor (lecturer, University of Ghana), the inherent characteristics of her fingers have prevented her from ever performing the seventh note of the atɛntɛbɛn with her little finger. These many improvements play a role in the standardisation of tuning and preservation of the instrument, ensuring its continued relevance throughout generations, although without necessarily adhering to specific Western cultural idiosyncrasies.

Also, along with improving functioning, these developments have taken atɛntɛbɛn from infrequent music (dirge) to recreational and incidental music. As a result of this evolution, the atɛntɛbɛn has become relevant for a generation of Ghanaians by increasing its appearance in popular modern genres, including highlife, hip life, afro beat, and gospel that are well-known to the country's young. Ayikoo Drummers, Hawale Sound, The Ghana Bigshot Band and Pan African Orchestra, are a few of the groups and modern dance bands that have popularised atɛntɛbɛn in Ghana and outside

its heritage. Furthermore, one of the traditional musical instruments taught in practically all Ghanaian universities, senior high schools, and junior high schools that provide music courses is the atɛntɛbɛn. Ghanaian students can learn and examine atɛntɛbɛn as one of the practical instruments, according to the West African Examinations Council. Standardisation measures have resulted in economic improvements for contemporary producers of the atɛntɛbɛn, making it a lucrative profession for new generations to pursue.

Figure 11: Aidoo's workshop at Accra (left) and Opanyin Kwaakye's workshop (right) at Dantsi eastern region of Ghana. Photograph by research assistant.

5. Conclusion

Standardised instruments facilitate collaboration among artists within the same cultural context and beyond, enabling them to play together and enjoy the same music. From a pedagogical perspective, standardised instruments can be integrated into curricula worldwide, expanding opportunities for both students and teachers. The discourse ssurrounding the standardisation of traditional musical instruments is a nuanced topic intricately linked to cultural preservation, global accessibility, and the ever-evolving landscape of music. In conclusion, while standardisation presents a promising opportunity to globalise and make diverse instruments universally accessible, it also risks the homogenisation of rich cultural heritages. Therefore, it is crucial to approach this topic with a critical mind-set and a comprehensive understanding of the various factors involved. The value of standardisation in creating a shared musical language is undeniable. Standardised instruments facilitate collaboration among artists within the same cultural context and beyond, enabling them to play together and enjoy the same music. From a pedagogical perspective, standardised instruments can be integrated into the curricula worldwide, expanding the opportunities for both students and teachers.

Furthermore, including environmental factors introduces an additional level of complexity to the discussion. Traditional musical instruments like the atɛntɛbɛn profoundly connect with their natural environment. The acoustic quality of these materials, which are frequently organic, is influenced by environmental factors, particularly humidity and temperature. As the transition towards a standardised model ensues, there is a responsibility of fostering innovation while retaining the inherent acoustic qualities shown by numerous musical instruments. Therefore, implementing the humidity control case serves the purpose of maintaining the standard tuning of the instrument, thereby ensuring its preservation, durability and continuity.

Innovation, as history has shown, is inevitable. Traditional instruments have always been, and will continue to be, subjects of modification, adaptation, and evolution. As we incorporate technology, redesign structures, or even synthetic materials, it is crucial to do so with a deep reverence for the past. Each innovation must be a thoughtful blend of the old and the new, ensuring that while we enhance playability and versatility, we do not erase the instrument's existence. Therefore, standardisation and innovation should enhance, not erase, the cultural heritage from which these instruments have emerged. Through this mindful approach, we can ensure that traditional musical instruments continue to enrich our global musical setting while retaining their unique cultural identities and stories.

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