



**ASANKA COMPOSITIONAL MODEL: AN AID TO COMPUTER ASSISTED GUITAR-BAND HIGHLIFE MUSIC COMPOSITION WITH “BATTERY 4” VIRTUAL STUDIO TECHNOLOGY INSTRUMENT**

**Emmanuel Obed Acquah<sup>1</sup> and Stephen Nyanteh Ayesu<sup>2</sup>**

<sup>1</sup>Senior Lecturer in the Department of Music Education, University of Education, Winneba, Ghana. E-mail: eoacquah@uew.edu.gh Tel: +233(0)502260039

<sup>2</sup>Senior Technician and a research associate in the Department of Music Education, University of Education, Winneba, Ghana.

E-mail: snkayesu@gmail.com Tel: +233(0)541155412

**ABSTRACT:** *The paper aimed at developing a music compositional model, Asanka, for guitar-band highlife composition with BATTERY 4 VSTi whereby traditional sound elements in guitar-band highlife are retained.. In establishing the model, concept of African Guitarism, creative ethnomusicology theory and the model of creative thinking were reviewed. Guitar-band highlife music creation with asanka model through MIDI configuration will assist composers avoid overreliance of foreign sound libraries and rather, feature traditional musical elements in their computer-assisted highlife compositions. The use of the model recommends simulation of Ghanaian traditional sound patterns in BATTERY 4 VSTi from its natural setting for guitar-band music creations.*

**KEYWORDS:** Asanka, BATTERY 4 VSTi, Highlife, Guitar-band, Compositional model

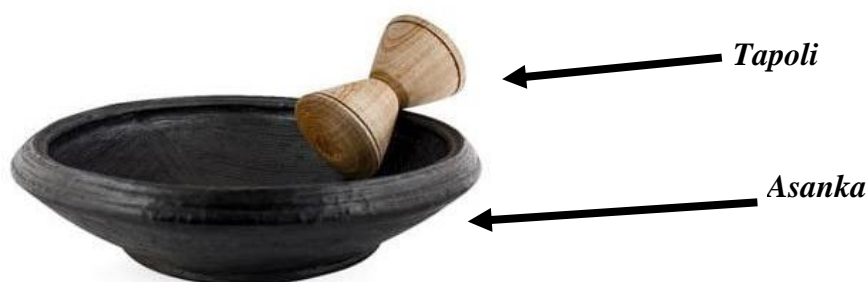
## **INTRODUCTION**

The use of Virtual Studio Technology's (VSTi's) has contributed to the development of highlife music in Ghana. VSTi's are software version of musical instruments with sound contents used on a computer through Musical Instrument Digital Interface (MIDI) configurations for music compositions and productions. Steinberg (1999) explained that VSTi's are Plug-ins that can receive MIDI events from the host application and then 'render' audio, however they please. Highlife musicians and composers like Felix Owusu, Wutah, Kuame Eugene and the others have their music created or composed with VSTi's like Addictive drums, Kontakt, Purity and BATTERY 4. Already, some Ghanaian guitar-band-highlife audience and scholars like Collins have expressed their displeasure with computer-assisted compositions. Ben Brako, a celebrated and renowned Highlife musician strongly believes that highlife can be used to promote the national identity of Ghana if the form of highlife music the country promotes is organic and based on more traditional instrumentation than synthetic and foreign-based instrumentation (Adjei, 2016). Ideally, composing and producing guitar-band-highlife music with VSTi's demands traditional sound library for guitar-band-highlife. Undeniably, many guitar-band highlife composers use BATTERY 4 VSTi for guitar-band highlife compositions although it is subjugated with hip-hop and electronic music sound libraries. This relegates the traditional elements in guitar-band highlife music. Evidently, highlife music variants are persistently influenced by foreign

musical culture as Collins (1996) revealed, however, it is expedient to encourage new forms of software-based guitar-band highlife music creation aided by a compositional model to help composers to use traditional libraries in VSTi's. Bouche, Nika, Chechile, and Bresson (2016) postulated that the formalization of compositional processes is the cornerstone of computer-aided composition (CAC). Experimenting with BATTEY 4 VSTi and guitar-band highlife music, some conceptual frameworks were reviewed to create a model that would support software-based guitar-band highlife compositions with traditional contents as well as bridge the gap between traditional musical elements in popular music and software musical instruments.

### Conceptual Framework

A conceptual framework is a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied (Camp, 2001). Appropriating a native process for preparing a product to describe the study among various compositional standards was needful. The concept for creating the *Asanka* Compositional Model was developed from the Ghanaian traditional way of grinding ingredients to prepare soup or stew or sauce to aid eating. In the Ghanaian context, *Asanka* is the local name for earthenware bowl among the Akan communities in Ghana. Earthenware bowl is used to blend different types of food ingredients to prepare a meal. It looks like a small mortar with a small wooden carved reflective conical shape pestle that is used to crush, grind and mince the ingredients or substances into a fine paste for use. The *asanka* (earthenware bowl) is made with ceramic clay while the grinder is usually made with hardwood in a twin conical shape. In some ethnic groups in Ghana, the *asanka* is made with hardwood, metals or hard stones.



**Figure 1: Asanka**

*Asanka*. [Photograph]. 2020. Retrieved from <https://ethnicdistrict.com/product/asanka/>

This is a Ghanaian traditional concept for cooking. The *asanka* compositional model for creating musical artefact emerged from this concept. With this concept, the ingredients are musical instruments (Western and local), project studio setup, traditional sound library, MIDI configurations, and local themes and traditional singing styles. The model treats all these ingredients as instruments to aid guitar-band highlife compositions. According to Chen (2006), Music software and hardware can be considered as an instrument rather than merely

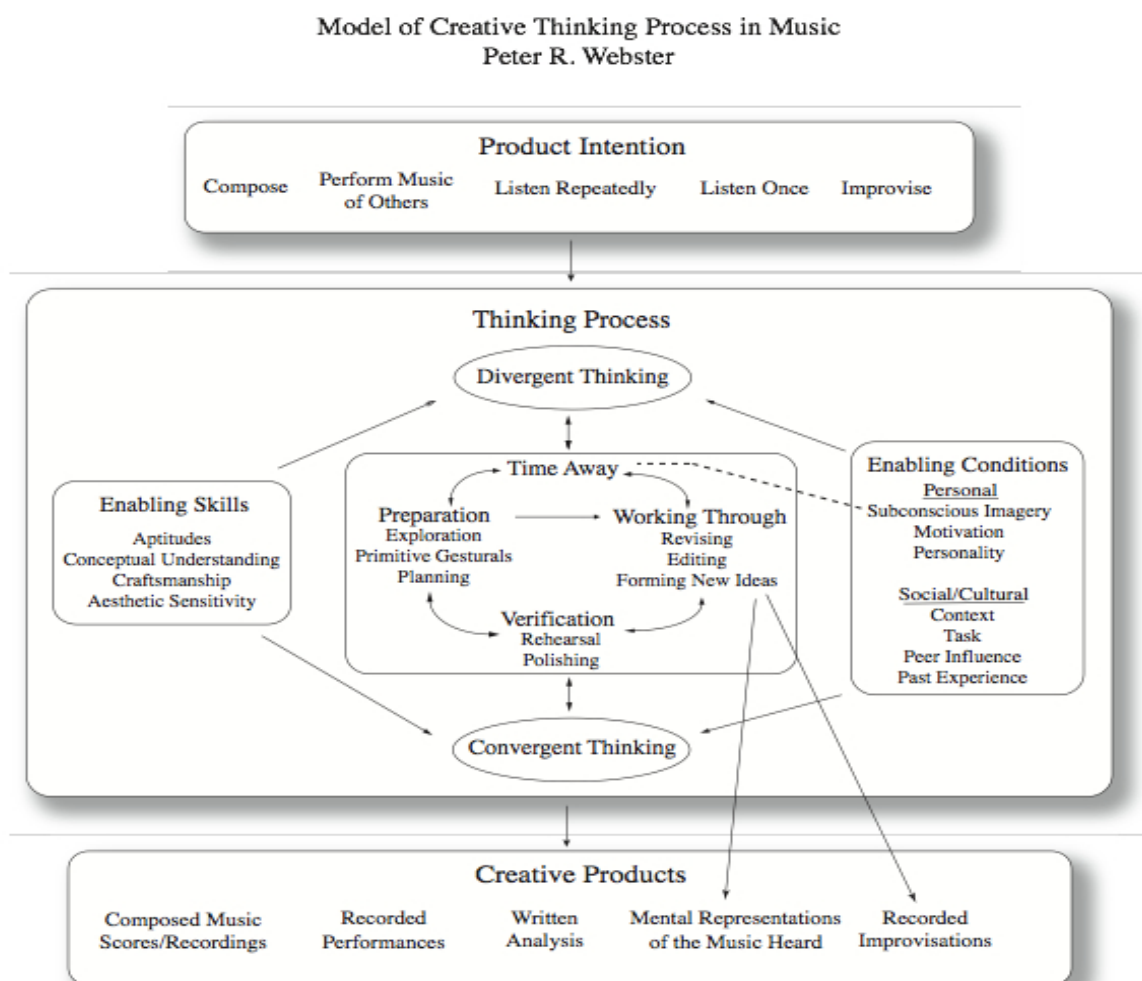
computer technology. Realistic employment of this concept assures a creative product made possible by the local *asanka* mechanism for cooking whereby varied ingredients are blended for a meal. This concept of cooking in the Ghanaian traditional context is linked with some theoretical frameworks of creativity in music and music composition.

## THEORETICAL FRAMEWORKS

As already stated Theoretical frameworks that underpinned the establishment of the *Asanka* compositional model included Webster's model of Creative Thinking in Music (2002), Collins' African Guitarism concept (2006) and Euba's Creative Ethnomusicology theory (2017).

### Webster's Model of Creative Thinking

Webster's Model of Creative Thinking, according to Chen (2006) refers to the procedure that a person is involved with when generating a creative product. This procedure may include problem-solving, collecting ideas, generating, selecting and rejecting, and verifying the creative product. In other words, this theory involves the organization of the creative process as the mind is engaged in producing an artefact.



**Figure 1: Webster's model of Creative Thinking in Music (2002)**



This model is designed to represent the three stages of creative thinking in music: Product Intention, Thinking Process and Creative Product. Composition, performance, improvisation, and analysis can be considered at the onset of creative thinking as the intentions of the creator. According to this theory, when the intention is established, the creator must rely on a set of skills that allow the thinking process to occur. The first among these skills is the divergent thinking skills. The theory explains that the creative thinking process involves certain inherent abilities of the creator and they are subject to development with training. These include imaginative skills; for example, musical extensiveness, flexibility, and originality. Indeed, the imaginative thinking process involves convergent thinking skill, which provides the ability to recognize rhythmic and tonal patterns, as well as musical arrangement, and this is very crucial in the creative process. Convergent thinking skills provides the foundation for divergent thinking. The ability to recognize rhythms, tonal patterns and musical arrangement informs divergence decisions in musical creation.

Furthermore, the enabling skills are built with conceptual understanding comprising knowledge of facts, craftsmanship and aesthetic sensitivity. It is worth stating that the enabling conditions are factors involved in the creative thinking process that are non-musical. This may include motivation, personality and environment. According to this theory, these factors vary from individual to individual yet combined with musical skills influence the creative process. The thinking process that is in the middle of the model indicates movement between divergent and convergent thinking which are linked to the enabling skills and enabling conditions. This phase comprises preparation, incubation, illumination and verification. Per the model, preparation is the conscious effort in discovering a problem and making an effort to systematically explore for a comprehensive solution. Conferring to this model, incubation is the mental relaxation that occurs after a conscious attempt for a solution becomes futile.

Again, this relaxation is followed by illumination, which is an ignition of an idea unprepared by the conscious mind to resolve the compositional problem. With verification, this idea is tested for its reliability and validity. Through these phases, the final creative product of composition, performance and analysis becomes a reality. Webster's model of creative thinking rekindled the preliminary constituents of the *Asanka* compositional model as it details the thinking process that instigates a guitar-band highlife composition. A guitar-band highlife composer who creates a composition with VSTi's will have to go through this process prescribed by Webster. After engaging in divergent and convergent thinking, enabling skills and conditions become necessary for the creation of the artefact. Guitar-band highlife composers with the necessary skill and ability in using computer-assisted technologies are then engaged in convergent and divergent thinking in the process of creation.

In this regard, the desire to create is then guided by the ability to use traditional instrumental tones and patterns in BATTERY 4 VSTi for guitar-band highlife composition as the mind goes through phases of the thinking process. With Webster's model of creative thinking, the guitar-band highlife composer is positioned to refine his creative tendencies with traditional tones and patterns in computer-assisted composition as it happens with the cooking process of using the *asanka* (earthenware).



## **African Guitarism**

The act of Africanizing Western musical instruments is not a new thing in African. Collins (2006) referring to the act of Africanizing the Western guitar, came up with a concept termed as African Guitarism. According to him, African Guitarism refers to the application of African principles to the Western guitar, and part of what Nketia (1973) calls the remodelling of tenacious traditional genres within West African highlife. Asserting on Collins (2006), African instrumental ideologies can be transferred to Western instruments to maintain an African content in music creation. Moreover, various writers have noted the Africanization (or de-westernisation) of various popular guitar music styles throughout the continent (Collins, 2006). The compositional model suggested the Africanisation of BATTERY 4 VSTi by creating a traditional sound library for it. African guitarism fortifies the intention of this study for the resolution of a compositional model which solicit for the employment of traditional tones and patterns in VSTi based guitar-band highlife composition.

## **Creative Ethnomusicology**

The study also conformed to the theory of creative ethnomusicology, a conception of composition informed by fieldwork and ethnography proposed by Euba (2017). Brukman (2017) described creative ethnomusicology as the act of emphasizing the connection between field research and original composition. The model prescribes a collection and recording of guitar-band highlife instrumental patterns from its natural setting to create a traditional library in BATTERY 4 VSTi for guitar-band highlife composition. The *Asanka* compositional model expands the need for collecting traditional instrumental tones and patterns from guitar-band highlife setting and hosting it in virtual musical instruments for creative reasons. These theoretical frameworks expound on the concept of the traditional way of cooking which was explained previously.

## **REVIEW OF RELATED LITERATURE**

The following bibliographical sources which are related to the study were reviewed to contextualize the asanka compositional model.

### **Ghanaian Guitar-Band Highlife**

Collins (1989) discussing the guitar in guitar-band highlife stated that "Indeed it was the Liberian Kru seamen who first pioneered the West African 'two-finger' palm-wine style of plucking the guitar, by applying the traditional African cross-rhythmic way of playing *seperewa* (the local lute or harp) to the guitar" (p. 222). Conferring with Collins (1989), the Kru people of Liberia transferred the African techniques of playing the local string instruments in Africa to the Western guitar. With their regular visit to the West African coast, they exposed Ghanaian guitar-band musicians to this style of playing the guitar in an African way. Relating to this, Matczynski (2011) explained that, the musical style and technique of *seprewa* playing were preserved and transferred onto the guitar. Creatively transforming the European guitar, Ghanaian musicians developed a new style, a unique Ghanaian guitarism, which was essentially an imitation of the *seperewa* music. To sum up, guitar-band highlife was created through the effort of Ghanaian musicians to utilize the musical opportunities presented by foreign influence to develop and preserve the Ghanaian musical traditions.





Likewise, making use of the computer technologies available presently in music composition demands thoughtful projection of traditional elements in guitar-band highlife music with computer software technology. In this case, the instrumental tones and patterns of guitar-band highlife could be collected and simulated into BATTERY 4 VSTi. Based on the importance of recognising indigenous contents in VSTi's the study considered instrumental tones and patterns of guitar-band highlife for the *Asanka* compositional model.

### **Guitar-Band Highlife Instruments**

According to Collins (1989), early guitar-band highlife music referred to as palm-wine music, made use of local percussive instruments, string instruments, and Western guitar. He further commented on palm-wine music (later guitar-band highlife) and revealed that it was created by coastal West African musicians who combined local stringed and percussion instruments (including the *gombe* frame-drums) with those brought by foreign sailors. These foreign sailors brought instruments such as the guitar, mandolin, banjo, harmonica, accordion, and concertina. Matczynski (2011) deliberating on instruments in guitar-band highlife stated, "Unlike the local palm wine music, the electric highlife of the 1970s incorporated electric guitars, organs, kit drum, and often a horn section". (p. 15) Agreeing with Matczynski (2011), it is obvious that the keyboards, drum set, electric guitar, and horns were not part of guitar-band highlife from its beginning, but as these instruments were introduced in Ghana, guitar-band highlife musicians relatively employed these instruments to enhance their music. It can therefore be established that guitar-band highlife music instrumentation is subject to improvement per global advancement in music technology. It is therefore not a new idea for guitar-band highlife composers to use Western created VSTi's but the idea of depending solely on the sound libraries in Western VSTi needs to be revisited. This inspires the development of the *Asanka* compositional model to aid the Africanisation BATTERY 4 VSTi by using traditional instrumental tones and patterns in computer-assisted composition.

### **Computer-Assisted Composition**

Chen (2006) acknowledged that music technology can expand the horizons of musicality if it fulfils its potential of giving people direct access to creative decision-making with sounds, storage and instant retrieval of those sounds, and devices to alter and refine the previous decisions. This statement shows that judicious employment of music technological methods in music composition enhances the flexibility of interacting with sounds for composition. In this regard, using the possible musical technologies available to construct a sound library of African traditionally sampled tones and patterns for music compositions fulfils the potentials of technology in music. Certainly, using computer-assisted technologies to manipulate traditional musical instruments for software-based composition articulates the effectiveness of technology in music. Consequently, the *Asanka* compositional model is calibrated to use computer technologies to assemble traditional instrumental tones and patterns for musical compositions. There are few compositional models which respond to compositional problems in popular music compositions with computer-assisted technologies. Indisputably, the application of computer technologies in solving such compositional problems revolves around systematic procedures laid on compositional principles. This study strongly institutes the creation of the *Asanka* compositional model on defined compositional principles that ensures the manipulation of various computer technologies for the realization of an accredited artefact.

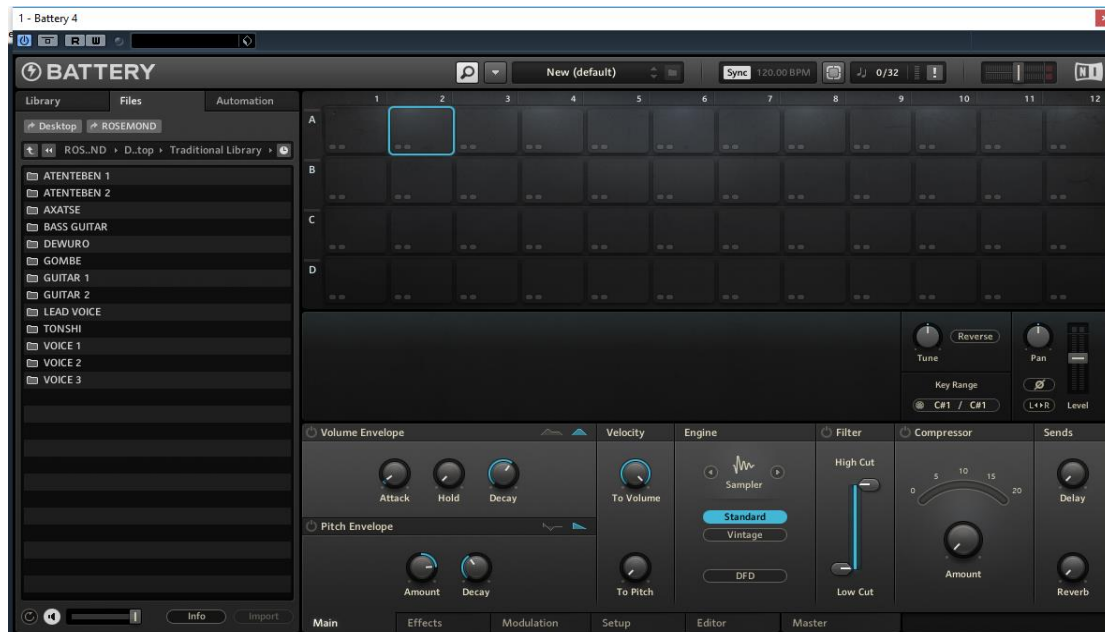


## **Virtual Studio Technology Instruments (VSTIs)**

According to Tanev and Bozinovski (2013) a few years later in 1999, Steinberg updated their VST specification allowing VST plugins to receive MIDI data. This changed the game even further, as it was now possible to recreate keyboards, synths, and drum machines. This upgrade saw the birth of the Virtual Studio Technology Instrument or VSTi for short. In agreement with Tanev and Bozinovski (2013), VSTi is a virtual musical instrument concealed like VST to be able to fit into the computer. Since MIDI was able to control VST, MIDI was used to manipulate VSTi's. Fundamentally, VSTi's are virtual musical instruments which rely on VST technology to produce emulated musical instruments that can be used on a computer. Examples of Virtual Studio Technology Instruments (VSTi's) include Hypersonic 2, Stylux RMS, Slate drums, Kontakt 5 and BATTERY 4. The study required a prominent exhibition of BATTERY 4 VSTi in an attempt to demonstrate the effectiveness of the *Asanka* compositional model in responding to a compositional problem. The model suggests the application of reliable VSTi's for such compositional expedition. The receptiveness of the VSTi to accommodate traditional sound libraries is key in realizing the objective of the *Asanka* compositional model.

### **Native Instrument Battery 4 VSTI**

BATTERY 4 VSTi is the computer software instrument selected to complement this study. This VSTi comes with default sound libraries but the compositional model recommends stocking BATTERY 4 VSTi with a locally created sound library for guitar-band highlife composition. BATTERY 4 VSTi has two modes of operation that is a stand-alone mode and plugin mode. Korman (2013) deliberated on the plug-in mode of BATTERY 4 and explained that, in plug-in mode, BATTERY 4 runs as a plug-in within a host application, which is usually a sequencer or Digital Audio Workstation (DAW) application such as Cubase, Ableton Live, or MASCHINE. The music can then be recorded, sequenced and synchronized to the host software's master clock — in sync with other plug-ins — and edited at a later point. Using MIDI systems to manipulate BATTERY 4 VSTi is possible in both stand-alone mode and plugin mode. This aspect of music technology was significant to create the model as it focused on BATTERY 4 VSTi in a plugin mode that resolves to a composition. BATTERY 4 in a plugin mode is hosted by a DAW which hosts and handles the audio streams. To add to that, Korman (2013) opined that, in plug-in mode, audio and MIDI streaming will be handled by the host application. In this case, it makes it possible to use BATTERY 4 VSTi in a DAW such as Cubase 5 for music composition and production. Like Korman (2013) reiterated, BATTERY 4 has a straightforward and flexible user interface, with designated areas for drum/sample programming, browsing, automation, modulation, effects and routing section.



**Figure 2: BATTERY 4 VSTi**

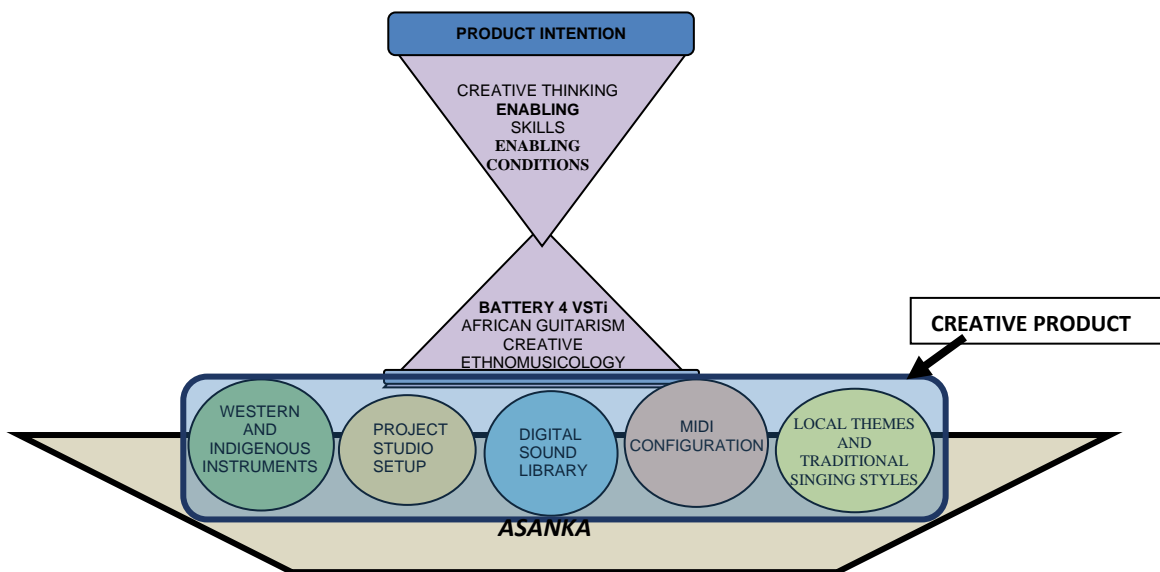
### Midi Compositional System

Reporting on MIDI composition systems, Huber (2007) disclosed that, MIDI is a digital communications language and compatible specification that allows multiple hardware and software electronic instruments, performance controllers, computers, and other related devices to communicate with each other over a connected network. MIDI establishes the possibility of connecting an electronic instrument like keyboard synthesizer to the computer for communication. With MIDI technology, the keyboard synthesizer can be connected to a VSTi to recall particular sound library in VSTi's by engaging the keys on MIDI keyboards. This effect is achieved by the use of MIDI cables designed for such purpose. Connecting a MIDI cable from a keyboard synthesizer to a computer system with DAW installed on it will enable the creator to use the VSTi's available in the DAW for music composition and production. This can easily be done by manipulating the keyboard synthesizer, and in this way, the traditional instrumental patterns in BATTERY 4 VSTi can be assessed for guitar-band highlife compositions. The use of MIDI configurations to engage BATTERY 4 VSTi is included in the compositional model. It is only through this that the traditional instrumental tones and patterns can be triggered for the composition of guitar-band highlife music.

### Asanka Compositional Model

The theories, concepts and the literature reviewed are substantial to the development of a compositional model that will urge composers of guitar-band highlife music in Ghana and elsewhere to use traditional library resources in the creation of their music. *Asanka* compositional model suggests a formal guide to computer-assisted guitar-band highlife music creation with BATTERY 4 virtual studio technology instruments (VSTi's).





**Figure 2: *Asanka* compositional model by S.N. Ayesu (2020)**

As already described in the conceptual framework, the novelty created is based on the *Asanka* (earthenware bowl) with *tapoli* (small wooden pestle) concept. As already indicated, this traditional tool is used in blending different kinds of food ingredients to prepare a meal. From the diagram (figure 2), the inverted trapezoidal shape represents the *Asanka* (earthenware bowl) while the reflexive conical shape represents the *tapoli* (small wooden pestle). The five (5) oval items in the rectangle placed in the *Asanka* (earthenware bowl) represent the food ingredients and the blending of these ingredients results in the final meal (rectangular shape). Just as commonly used, a force is exerted on the *tapoli* (small wooden pestle) to blend the various food ingredients in the *Asanka* (earthenware bowl), this compositional model applies the same concept in the preparation of a musical artefact. The *tapoli* (small wooden pestle) embodies the various compositional concepts, theories and software which could manipulate the various compositional tools and computer technologies in the *Asanka* (earthenware bowl). The blending theoretically occurs in the *Asanka* with the outcome (creative product) as the creative product.

The model begins with the product intention (guitar-band highlife) with its associated Creative thinking that depends on the enabling skills and the enabling conditions suggested by Webster. This involves convergent and divergent thinking, allowing the thinking process to occur. The enabling conditions depict the non-musical conditions involved in the creative thinking process such as motivation, personality and environment describing the conditions of the creator or the composer such as media and societal expectations.

These circumstances compel the guitar-band highlife composer to engage BATTERY 4 VSTi for guitar-band highlife composition. Consulting African guitarism concept, the composer is guided in manipulating Western created VSTi for guitar-band highlife composition. This manipulation involves the restocking of BATTERY 4 VSTi with traditional sound library from guitar-band highlife settings. This activates creative ethnomusicology which involves field searching for guitar-band highlife idioms to inform musical creation. In this case, the



model prescribes the collection and recording of instrumental patterns of guitar-band highlife instruments from its settings to create a traditional library in BATTERY 4 VSTi.

The potency of the *tapoli* (small wooden pestle) establishes the prospects in blending the various compositional elements and technologies for guitar-band highlife composition. These compositional elements and technologies are engaged in the *Asanka* (earthenware bowl) for the creation of the artefact. This encompasses Western and indigenous instruments, local themes and traditional singing styles, project studio setup, digital sound library and MIDI configuration.

The guitar-band highlife musician is expected to collect both Western and indigenous instruments for the creation of the library which will be used to create the composition. Guitar-band highlife instrumental patterns need to be collected by the composer from its natural setting. This involves instrumental patterns for Western instruments such as the guitar and the bass guitar and local musical instruments such as *gombe* framed-drums, *tsonshi* drums, *axatse* and *dawuro*. Since the model suggests the Africanisation (African Guitarism concept) of Western software instruments, collecting these instrumental patterns from a traditional setting for the creation of the traditional library will ensure the presence of indigenous distinctiveness.

It is suggested by the model to use a project studio setup to record the instrumental patterns. This setup involves a digital audio workstation, an audio interface, condenser microphones, direct injection box and studio monitors. The recording of these patterns needs the state of the art audio interface and microphones which will be able to accurately represent the sound of the musical instruments on a digital platform. The model recommends audio interface with a suitable sample rate and quantization values. Also, it strongly endorses the use of higher-fidelity microphones with a wider frequency spectrum. A commendable project studio setup with the necessary technical skills which are not musical will increase the prospect of obtaining a reliable sound recording of instrumental patterns.

The recorded patterns are then exported into a folder labelled traditional sound library to resource BATTERY 4 VSTi. Since guitar-band highlife music uses instrumental patterns, four (4) cycles of the instrumental patterns can be exported into the traditional sound library folder. BATTERY 4 VSTi can then be opened in any digital audio workstation (DAW) for the library to be loaded. Navigating from “files” at the sidebar of BATTERY 4 VSTi to the traditional sound library folder on the hard-disk will enable the composer to load the various cells in BATTERY 4 VSTi with the traditional sound library. These instrumental patterns will be used to replace the default sound libraries which comes with BATTERY 4 VSTi for the guitar-band highlife composition.

Also, creating the composition will require a MIDI configuration which will aid the guitar-band highlife composer to engage the traditional sound library in BATTERY 4 VSTi for the creation of the composition. The MIDI configuration involves the connection of a MIDI keyboard with a MIDI cable to the project studio setup. After the stocking of the cells in BATTERY 4 VSTi with the traditional sound library, the guitar-band highlife composer engages the keys on the MIDI keyboard to create the composition. By layering various instrumental patterns the guitar-band highlife



The local themes and traditional musical styles are intrinsic to guitar-band highlife compositions and its development in computer-assisted compositions confer legitimacy on the *Asanka* compositional model. Though the operational mechanism of the *Asanka* compositional model is within computational boundaries, it does not strip the compositional themes and musical styles from its traditional cohesions. The model suggests the effective application of local themes and traditional musical styles. The local themes involve traditional folk themes and traditional musical styles which involve traditional elements like call and respond and parallelism. Such elements compromised outwits the expectation of the *Asanka* compositional model which is poised to ensure local contents in computer-assisted guitar-band highlife compositions.

All these concepts, mechanisms and technologies come together to produce a VSTi-based guitar band highlife composition void of Western created sound library which does not reflect the traditional sonic nature of guitar-band highlife music. A precise application of this compositional model will result in uncompromised computer-assisted guitar-band highlife composition which embodies traditional musical elements of guitar-band highlife music.

## CONCLUSION

This study resulted in an establishment of a compositional model that aids computer-assisted guitar-band highlife music composition with “BATTERY 4” virtual studio technology instrument: *Asanka* compositional model. It details the elements involved in creating a computer-assisted composition with a traditionally created sound library in BATTERY 4 VSTi. The model makes use of other formal theories and concepts of music compositional processes that cut across Webster's model of Creative Thinking in Music (2002), Collins' African Guitarism concept (2006) and Euba's Creative Ethnomusicology theory (2017). It also encompasses using computer-assisted technologies in creating a popular composition with indigenous content. These theories were engaged to solicit for the Africanisation of Western musical items in music composition and recordings. The model prescribes the collection of instrumental patterns of both Western and local instruments from guitar-band highlife setting, creating digital samples of them and simulating them into BATTERY 4 VSTi for guitar-band highlife compositions through MIDI configurations. Indeed, rooted in the theories and the literature reviews, local themes and traditional singing styles were incorporated in the model to complement the creation of the composition. Beyond contributing to the literature in computer-assisted compositions in Ghana and guitar-band highlife music, the study has undoubtedly bridged the gap between traditional musical elements in popular music and software technology. The model involves collecting instrumental patterns in their natural setting, digitizing the instrumental patterns, simulating the patterns into a VSTi and engaging the patterns through MIDI configurations for composition.



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