

LEAD PAPER

PERCEPTIBLE PERCEPTION OF POLITICS AND GOVERNANCE IN NIGERIA THROUGH THE PRISM OF MIKE ASUKWO'S CARTOONS

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Introduction

Cartoons have evolved over the years, to the point that, they are now used for diverse things and reasons. From its very humble beginnings as simple caricature drawings used humorously to lampoon political personalities, to its evolution in film and advertisement. Cartoons' power, to exaggerate its subject and subject matter has been deployed, as a tool for socio-political, cultural and economic advocacy and criticism. However, it will appear that, its minimalist nature, has made it difficult for majority of people to discern its deeper meanings, beyond the humour they can readily grasp. Admittedly though, a large pool of educated elites does understand its immediate and deeper interrogations.

It is within the context of the difficulty a number of people still have, in understanding such deeper meanings that this paper is necessitated. The aim therefore, is a subjective enumeration of some perceived issues that will be extrapolated from selected cartoons herein, for the benefit of the majority. Methodology will be by simple descriptive and contextual analysis of the cartoons. The paper is therefore, structured in a way that a brief background of the cartoonist, Mike Asukwo, is considered important, to establish his evolution as a cartoonist. Subsequently the paper will subjectively focus on the subject matter of politics and governance in Nigeria, as glimpse from the cartoons and thereafter, draw conclusions that will rely on the subjective perspectives enumerated.

The cartoonist Mike Asukwo

Asukwo was born on the 27th of May 1965, and named Etim Bassey Asukwo, at Idua Assan, Oron in Akwa Ibom State. According to Amsayaro (2011), Asukwo as reported by himself states that, he was later christened Michael; Hence, his popularity as Mike Asukwo. Amsayaro further records that, Asukwo started his primary education in an undisclosed school, but was to later complete it at an Army Children School. After passing his common entrance examination, he was enrolled at St. Vincent College Oto-Oron, Akwa Ibom State. On completion of his secondary education at St. Vincent College, he got admitted at the Calabar Polytechnic, now known as Cross River State University of Technology (CRUTECH), to read Business Administration. It was at the polytechnic that he sat for his O-Level Fine Art examination and got an A1. Perhaps, that spurred him to abandon his programme at the polytechnic. He subsequently enrolled for Fine Art studies at the Yaba College of Technology Lagos, graduating in 1996 with specialization in sculpture.

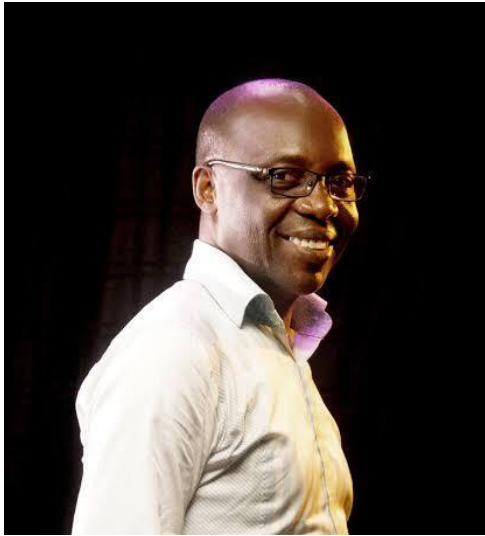


Plate I, Mike Asukwo

Asukwo started cartooning practice at a young age, according to him and as recorded by Amsayaro (2011), he joined the press club at St. Vincent College during his 3rd year there, from where he started cartooning. He was to continue with that practice again at the Calabar polytechnic, still as a member of the press club then also. Though a sculptor by training and practice, he has found cartooning a viable platform to creatively air his views on socio-political, economic and cultural happenings in his society (Nigeria largely and to some extent, the world). Consequently, he has produced numerous cartoons on a wide range of issues. His cartoons have been widely published in newspapers, magazines, journals, books, and social media platforms such as Facebook, Instagram and blogs among others. He is a recipient of several awards right from his days at Yaba College and is currently, the chief Editorial Artist of BusinessDay Newspaper. In Asukwo's words, as reported by Amsayaro (2011),

"In cartoon, I find a way to communicate on a different level. It is a part of me that yearns for a better society, for justice and good governance. I seek an egalitarian society and believe, there is always the need to let some people, especially people in power, know their decisions affect those they govern"

Hence, this paper focuses on his cartoons.

Perspectives on Politics and Governance in Nigeria Through Asukwo's Cartoons;

The surge on political activities and governance issues, occasioned by the preparation for yet another election cycle in Nigeria (i.e., the 2023 general election), has provided food, for the consumption of artists. One of such artists is the cartoonist Mike Asukwo, the creator of the cartoons that are the subject matter of this discuss. The cartoons selected are in no particular order, neither were they selected based on specific themes, other than that, the adduce, evoke or provoke political or governance issues. Thus, they have been randomly selected by way of chance encounter. Four have been considered sufficient, for the purpose of this paper.

Plate II is a cartoon by Asukwo that characterizes the Nigerian president at a dining table, with obviously a political associate/aide, both getting ready to enjoy a sumptuous meal. In the cartoon, someone is shown desperately trying to bash into the room, in order to participate in the meal. However, the over-zealous aide/political associate of the president, uses his leg to further block the door, which was already firmly secured with a broom lock, symbolising trade mark logo of the current ruling party in Nigeria.

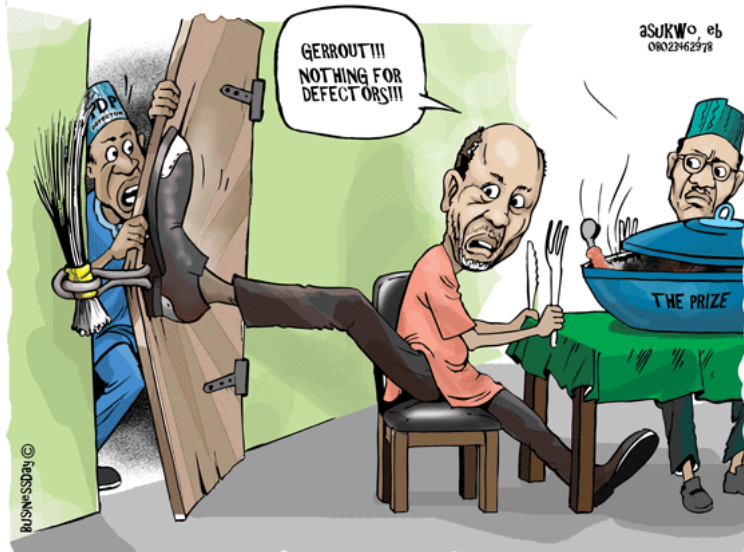


Plate II

The message as deduced from the president's aide/political associate's comment, suggests the reason for blocking anymore participants to the meal. The intruding guest being stopped, is a supposed defector from another party, whom the aide/ political associate believes defected in order to benefit from "their sumptuous meal", and for which the defector did not contribute anything to. This cartoon must have been informed by the usual practice of politicians in Nigeria, defecting to a party in power. Most times after the defectors party had failed in an election. The general feeling is usually that, such persons cannot stay away from the privileges of being in power, as the meal represent in the cartoon. Hence, they will defect to the winners and therefore, the ruling party in order to benefit. However, such actions are also not usually welcomed by some members of the wining party, as they view a defector as a parasite, who wants to reap where they did not sow.

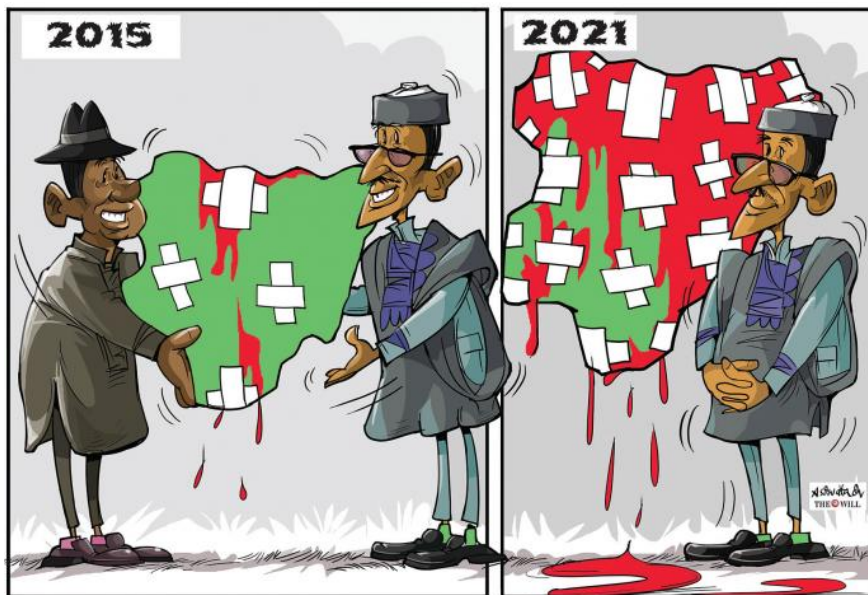


Plate III

Plate III; is another cartoon that characterizes Nigerian former president Goodluck Jonathan and the current president Muhammadu Buhari. Both characters are present in the first of the two cartoon strips. The first strip is showing Goodluck happily handing over Nigeria in 2015 to president Buhari. Nigeria is symbolically represented using its map, which is shown with a few patches of wounds dripping blood. The second strip which is marked 2021, presents president Buhari standing alone beside another symbolic map of (Nigeria) with several more patched wounds, scattered all over the country and almost covered in blood that is dripping and pooling around the feet of the satisfied expression of president Buhari.

This cartoon exemplifies the condition of Nigeria as at 2015 and six years later in 2021. It symbolically captured the manageable state of insecurity as at 2015, when the Jonathan's administration handed over governance to the Buhari's administration as at that time, few states of the country, as represented by the few patches, were experiencing insecurity. Consequently, the cartoonist went ahead to symbolically show also, that as at 2021, the security situation has escalated to the point that the entire country is suffering security challenges, with large scale bloodshed being experienced.

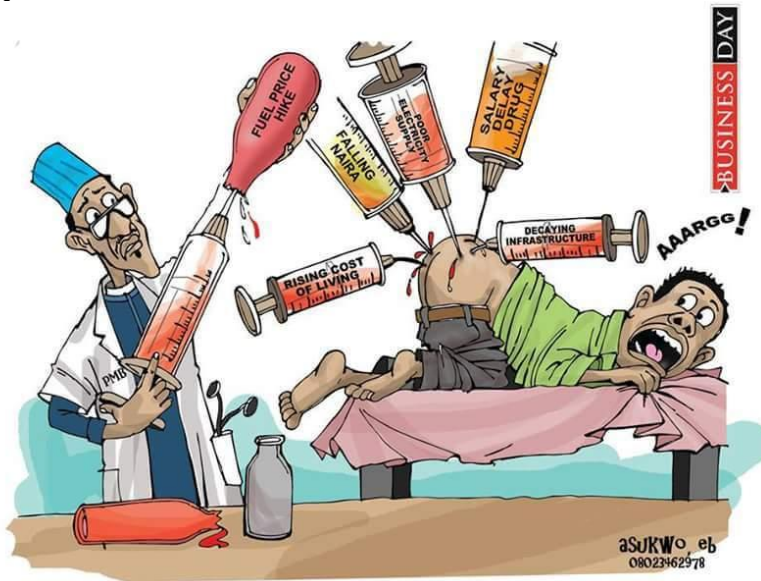


Plate IV

Plate IV: is yet another carton by Asukwo that captured the Nigerian president as a medical doctor attending to a patient, supposedly Nigeria. The patient “Nigeria” is awkwardly positioned on a hospital bed, with several injections being already applied on it, as medication designed to solve diverse, but specific ailments. The doctor (president) is indeed, as can be seen, trying his utmost best to bring relief to his patient, by preparing additional injection.

Ironically, the cartoonist message, as reflected through the types of injections being given to the patient and indeed, the patient's reaction shows the patient (Nigeria) is being wrongly treated by doctor Buhari. Therefore, the patient is clearly not going to get any form of relief soon. This is because, instead of injecting Nigeria with policies that will strengthen the Naira, the government is bringing policies that ensure the Naira, continues to weaken. Instead of injecting the country with the relevant infrastructure that will help jump start the economy, it is decaying infrastructure that is being experienced. For instance, instead of increasing electricity supply capacity, the country is constantly being told of a collapsed national grid, among several other areas of underperformance. Yet, doctor

Buhari (the president) finds it expedient to inject the country's populace with more hardship, through his yet another attempt to increase fuel price.



Plate V

Plate V; is the last, but not the least cartoon to be discussed in this paper. The cartoon presents again, supposedly, the Nigerian president receiving symbolically, captured flags (representing different sectors), as presented by his field commander which is, synonymous with military traditions. The commander, as presented in the cartoon, represents the coordinating officer of the country's diverse sectors. Hence, the sectors are symbolically represented by the different flags put together. Indeed, the commander is presented reporting to the president and commander in chief, that the "war is over" while emphasizing that, all key sectors have been captured.

It is particularly interesting to see how this cartoon captures the sycophantic foolery, that is characteristic of the present-day governance system in Nigeria. Governance structures have been deliberately kept distant from the people, such that, there is a disconnect between what the government is doing from what the people want and the governments' position on matters/issues and what is really on ground. For instance, the inability of government officials, all through the ranks, up to the president, to establish contact and understanding with the people they represent, lead or govern, on issues that affect them, as exemplified in several of their actions. In most instances, they rely on their sycophants, who tell them what they selfishly want to hear, in order to justify their actions.

Conclusion

The character of cartoon, to provide humour, right from its beginning has remained consistent ever since. Its ability to humorously evoke discuss on serious issues is another of its character that has been sustained over the years. However, its minimalist forms and conceptualised way of presenting issues, is what this paper has tried to break down, for easy understanding. To that extent, four cartons were presented, descriptively analysed and discussed.

From the perceptible analysis and discussions made on the four cartoons, the following submissions are made:

- i. The negative implications of politicians making government and governance an opportunity to settle "us" and exclude "them", rather than serving the people is perceived, from the cartoon in plate I. That perhaps accounts for the several corruption allegations made on many former governors and their officials in Nigeria. Also, are the several

- corruption allegations made on the federal government officials. For instance, the recent allegation of corruption on the federal accountant general in Nigeria is one example.
- ii. Plate III contained a strip cartoon that paradoxically presents the reality of Nigeria's security situation as at 2015, which has regrettably become worse at 2021. The frequent and consistent attacks in Kaduna, Zamfara, Katsina, and Niger states, aside from the established situation in the North east region of Nigeria are examples. Indeed, the June 2022 attack on the church in Ondo state, and the continuous attacks in the south east states like Imo and Anambra, are well known and therefore, justifies the cartoonist compositional claim.
 - iii. Again, Asukwo satirically captures the current state of Nigeria's socio-political and economic life, in plate III. It exemplified most of the areas that represents the hardship and difficulties Nigerians face. This can be attributed to the flawed constitution, being used in Nigeria. The situation can further be attributed to the lack of a proper thought out socio-economic and political blue print for the country, as represented by the several wrong injections that are being given to the "patient".
 - iv. Plate IV lampoons the ineffective monitoring mechanisms used by the country's leaders, as it relates to those they appoint or, that are elected to carry out specific responsibilities. Indeed, most of it, though traceable to the constitution, can be ameliorated, if the leaders go beyond patronage to monitor real time government activities.

This paper, even after highlighting some of the perspectives that can be perceived from the cartoons, does not present them, as the ultimate messages therein. Thus, viewers are free to extrapolate their own perceptions, as long as, they speak to the forms and conceptualizations presented by the cartoonist through his cartoons.

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30th May, 2022

Potentials of *Crescentia Cujete* Calabash Shell Ash (CCCSA) for Possible Pigmentation Ceramic Product Development

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Abstract

Ceramic materials are continually used for the production of traditional ceramics wares. Surface finishing of the wares had accordingly witnessed enrichments with either direct glaze (company) recipes or experimental treatments with oxides of different rock minerals. The search for more glaze effects derived from both organic and inorganic materials remains important to guaranteed esthetic surface qualities in ceramics product development. This paper investigates the chemical constituents of Crescentia Cujete Calabash. Shell Ash (CCCSA) in view of ceramic pigmentations. The approach to this investigation combines analysis of the sample (CCCSA) using X-ray Fluorescence (XRF) and the application of heat on the sample. The results of the mineralogical analysis of CCCSA indicated the presence of Silver (Ag_2O) in the composition having a value of up to 98.1%. Even more surprising, a blue-green colouration was observed when CCCSA was fired to $930^{\circ}C$ in an oxidizing atmosphere. CCCSA was further fired to a higher temperature (about $1100^{\circ}C$) in a reduced atmosphere to observe its effect on the ceramic body. At this point, the results indicated good organic fusion in the use of the material as well as an obvious connection between the material and the fired clay body. In conclusion, the presence of colour, stability and the fusion of CCCSA at $930^{\circ}C$ and $1100^{\circ}C$ temperatures is seen as an indication of the potentials of CCCSA for possible low-temperature pigmentation in ceramic product development. It is recommended that further experimentation into in-glaze/on-glaze/over-glaze treatment, on-glaze enamel, stains and ceramic inks using CCCSA should be encouraged.

Keywords: Potentials, *Crescentia Cujete*, Ceramics, Pigmentation, Composition

Introduction

The abundance of solid minerals, particularly those of the ceramic family in Nigeria, should have projected the country as a major exporter of ceramic raw and refined materials. However, raw materials development is relaxed to the success of the ceramic sector of the nation's economic and industrial growth. This could be due to the lack of standard beneficiation of the raw material from individuals, entrepreneurs, and companies who wants to produce good quality ceramic products to create wealth, but none want to prepare the raw materials (Datiri, 2012). However, the reality is that the country imports 65 million tons of ceramic wares and glaze materials annually (David, 2015). Reports also indicate that Nigeria spends Ninety-three Billion Naira (₦93bn) annually on ceramic imports, and in the recent report Nigeria spends Three hundred and twenty-five point eight Billion Naira (₦325.8bn) on importation of ceramics yearly (Jeremiah, 2019); thus leading to a loss in foreign exchange earnings. This is a source of worry and bring to light the need for the development of local ceramic materials. Nevertheless, no study has been carried out on the use of *Crescentia Cujete* Calabash Shell Ash as a ceramic material in an attempt to salvage this situation.

This paper is therefore intended to fill this gap by investigating the potentials of *Crescentia Cujete* Calabash Shell Ash (CCCSA) for possible pigmentation in ceramic product development.

Review of Related Literature

Brief History of the use of Ash and colourant

The earliest examples of ash glazes were produced in the Middle East. The advances made by the Chinese on kiln technology resulted in the development of kilns that fire up to 1200°C. Glaze produced in China within this period (Bronze Age) was an accidental reaction of the components of the wood ash and heat within the kiln chamber. Archaeological evidence found at the Shang site in ancient China revealed high-fired stoneware ceramics with hard, thin greenish wood ash glazes dated to the Bronze age (3500 years ago) (Wood, 1999).

Wood ash and clay glazes were used almost unchanged for a period of about 2000 years from 1000 BC – 1000 AD and include the well-known grey-green Yue wares. From the 10th century, AD limestone was used either with or instead of wood ash to provide calcium or lime (CaO) for glazes. The introduction of lime in glaze formulation led to a decline in the amount of wood ash used (Metcalfe, 2008).

However, in Britain, the use of ash glaze was credited to Bernard Leach in the early 20th century. While the practice of glaze in Nigeria was linked to the activities of a British potter Michael Cardew, who studied under Bernard Leach. Cardew travelled extensively and taught pottery around the world including Nigeria. The impact of pottery created by Cardew in Nigeria from 1950, resulted in the establishment of pottery centres and studios in many of our institutions of learning and towns across Nigeria, where wood ash glaze production was taught and produced.

Historically, potters made a glaze from feldspar, ash and whatever iron-rich clays were available locally. This usually meant brown pots, or occasionally another earth-tone colour. Then they began using metal oxides-like copper oxide, chrome oxide, manganese, iron oxides and blending them with opacifiers to create colours. There is a piece of historical evidence that coloured frits were used at least as early as 2600 BCE. Egyptian blue was a combination of silica, limestone, sodium, and copper oxides. This required a great deal of knowledge of glaze chemistry and firing to achieve the desired colours (Britt, 2021).

Permanent Markers

A marker can be classified as a permanent marker only if it adheres to most surfaces and/or is water-resistant. The pigment used, which gives the formulation a colour effect (colourants), determines how well a marking will resist fading and the combination of ingredients used in the formulation gives it permanent properties. All markers contain some basic ingredients that make up a marker. These ingredients dictate how they interact to deliver a reliable result. According to Andy (2018), a Permanent marker is composed of three elements: a colourant, a solvent, and a resin.

Colourant

The colourant is a pigment or dye that gives ink its specific colour. Whether black, blue, red, neon, pink, or any other hue, the colourant is what you see when you look at a line made by a permanent marker. The main difference between dye and pigment according to Andy (2018) is that dyes are water-soluble while pigments are generally insoluble in water or non-polar solvents unless the pigment is ground into very, very fine powder. Therefore, because of this property, pigments are usually the preferred colourant for markers, given their resistance to dissolution by humidity or other environmental agents.

Solvent

Solvent an important ingredient in the formulation of permanent markers. A solvent always differs in each type of marker while the other ingredient remains constant. Permanent markers use toluene

and xylene in their solvent which gives the markers their ability to leave a long-lasting mark. Manufacturers use xylene as a solvent, but switched in the 1990s to less toxic alcohols like ethanol and isopropanol (Andy, 2018).

Resin

Resin is a glue-like polymer, it ensures that a colourant sticks to the surface once the solvent evaporates. If ink were just colourant and solvent, the colourant would turn to dust and fall off the surface as soon as the solvent dried or evaporated (Andy, 2018).

Types of Ceramic Colourants

Colourants used in pottery making are generally of two types, the simple metal oxides and carbonates. These cover the colour spectrum through the blending of two or more simple colourants or the use of stains used singly or in combinations. Recent developments in the production of stains have been very useful in simplifying colour blends to achieve a wide range of colour experimentation. Stains can be used in combination with simple oxides and carbonates. Generally, stains are more stable in their reactions with the glazes; they may be used in underglaze and over glaze as well as in glazes fired as high as cone 11 without being destroyed. Although, others tolerate firing only to the low temperatures, and some of this yield quite saturated colourations (Behrens, 1981). The cadmium sulfide, selenium reds are an example of these low-fired colourant stains. However, of the hundreds of colourants available from the various companies engaged in their manufacture, Behrens (1981) found some widely used colourants with desired effects as shown in Table 1.

Table 1: Summary of Some Commonly Used Ceramic Glaze Colourants

Oxide	Firing Conditions	% Use	Colour Effects
1. Chromium	Not reported	Since it dissolves poorly in most glazes, the addition of less than 1% tends to produce transparent greens, while larger amounts tend to produce a dispersed pigment green appearance.	Green colours, brown, coral reds or yellows, transparent greens, dispersed pigment green. A large amount of chromium green in the glaze may increase the viscosity, much as alumina does.
2. Cobalt	Cobalt oxide pigments are among the most stable under both oxidation and reduction conditions	Generally, in the range of from 0.5 to 2.0%.	Cobalt blue.
3. Copper (black, red, carbonate)	Either oxidation or reduction.	Copper pigments generally are added to the glaze in increments of 1 to 4%.	Turquoise blue in strongly alkaline glazes and gives green in more acid type of glaze. In reduction, copper reds are produced.
4. Gold		The amount of gold chloride needed to create such effects lies in the range of from 0.25 to 0.50%	In some low- temperature glazes, gold may produce rosy- colours.

5. Iron Oxide (red, black)	Red iron is finer in particle size and is more stable. It is the form used in oxidation firing. Black iron oxide is usually preferred for reduction firing.	Amount of 2 to 7% for oxidation firing. In reduction firing 0.5 to 2.0%. Addition of 10% iron-red results during cooling in oxidation firing.	Both oxides produced hues ranging from tan to brown in oxidation firing. In reduction firing, celadon colours may be obtained.
6. Manganese (oxide, carbonate)	Not reported	From 2 to 4% of this colourant may be used in the average glaze.	Browns in strongly alkaline glazes, purple hues may result.
7. Nickle (green, black)	Not reported	Nickel oxide is added to the glaze in the amount of about 1 ¹ / ₄ %; depending upon the composition of the glaze.	The colourant may produce greys, browns, greens, ice blues, and rosy reds.
8. Opacifiers (the prime opacifying agents are: tin, zircon, and titanium.	Not reported	Not reported	Tin will provide the whitest opaque in most glazes. While titanium tends to form warm colour titanates with lead and several other materials which may give a cream or yellow tinge to the glaze. After solution in the molten glaze, titanium may produce a segregated flock in the glaze while cooling.
9. Rutile	Not reported	An addition of 5% usually is adequate for opacifying with tin, the addition of 5% or more of titanium or rutile is sufficient to influence opacity and patterning of the glaze containing them.	An impure form of titanium reacts in much the same as does the pure form but tends to produce warm colours due to the iron impurity in the mineral.

Source: (Behrens, 1981)

Ceramic Stains

Each colour is not guaranteed on all bases, and being aware of these reference notes will help you achieve greater success. Ceramic stains are not meant for all firing conditions and are generally designed for neutral or oxidation firing atmosphere (although some may work in reduction atmospheres). Because ceramic stains contain colouring metal oxides along with other ceramic materials like opacifiers, silica, and alumina, adding them to such glaze bases can cause a glossy glaze surface to turn matte. Ceramic stains are generally added at 5-8% in a glaze and 15-25% in slips and bodies. At 8% most of the glazes are opaque and flat but if you add a small amount of stain (1-3%) it

is possible to get transparent colours, including some very nice transparent celadon-coloured glazes, when fired in an electric kiln or similar neutral atmosphere (Britt, 2021).

Some Plants Species Identified to Have Been Used in Ash Glazes

In this review, Metcalfe (2008) listed out some plant's species identified to have been used in ash glazes, to increase our understanding of the use of organic glaze recipes. It was reported (see table 2) that the use of *Crescentia Cujete* Calabash Shell Ash as a ceramic glaze material has not been reported.

Table: 2 Plant species identified as having been used in ash glazes.

FAMILY	GENUS/SPECIES	COMMON NAME
Aceraceae	Acer pseudoplatanum	Sycamore
Betulaceae	Betula	Birch
Buxaceae	Buxus	Box
Compositae	Helianthus annuus	Sunflower
Cruciferae	Brassica napus	Oilseed rape
Fagaceae	Fagus	Beech
Fagaceae	Quercus	Oak
Gramineae	Zea mays	Maize (com cob)
Gramineae	Oryza	Rice
Gramineae	Triticum	Wheat
Grossulariaceae	Ribes nigrum	Blackcurrant
Hippocastanaceae	Aesculus hippocastanum	Horse chestnut
Labiatae	Lavandula	Lavender
Leguminosae	Vicia faba	Field bean
Leguminosae	Trifolium repens	Clover
Leguminosae	Pisum sativum	Combining pea
Leguminosae	Phaseolus vulgaris	Navy bean
Leguminosae	Glycine max. vulgaris	Soya bean
Linaceae	Linum grandiflorum	Linseed
Oleaceae	Fagus	Ash
Onagraceae	Oenothera biennis	Evening primrose
Philadelphaceae	Philadelphus	Philadelphus
Polygonaceae	Fagopyrum esculentum	Buckwheat
Pteridiophyta	Pteridium aquilinum	Bracken
Rosaceae	Malus	Apple
Rosaceae	Crataegus	Hawthorn
Rosaceae	Prunus	Plum and cherry
Rosaceae	Pyrus communis	Pear
Salicaceae	Populus	Poplar
Salicaceae	Salix	Willow
Ulmaceae	Ulmus glabra	Elm
Vitaceae	Vitis vinifera	Vine

Source: Metcalfe, 2008).

Summary of Some Current Studies on the Production of Ceramic Pigments and Applications

Rosado, L., Vanperenage, J., Vandenabeele, P., Candeias, A., da Canceicao Lope, M., Tavares, D., Alfenim, R., Schiavon, N., & Mirao, J. (2017) carried out a multi-analytical study of ceramic pigments application in Iron Age decorated pottery from SW Iberia. In the study, pottery fragments, plates, Illite, and common clay minerals were sourced using Optical microscopy, XRD, XRF, EDXS, Raman spectroscopy techniques. The results suggested that hematite and pyrolusite are the main mineral

carriers of the Fe and Mn chromophore irons, responsible for the red and black colour, while Illite a common clay mineral is giving the white colour at 1000°C.

Patricia, M.; Cavalcante, T.; Dondi, M.; Guarini, G.; Barros, F. M.; & Benvindo da luz, A. (2017) had a study on the ceramic application of mica titania Pearlescent pigments in Brazil and Italy, where commercial pigment, gold, and silver lustre were used through XRD, FTIR, SEM, XRF, and PSD methods. The results indicated that Titania mica pigments are stable into glossy coatings up to 900°C-1200°C, being any deterioration of their optical properties due to anatase to-rutile and muscovite-to-feldspar transformations occurring at higher temperatures or after a long firing time. Pigment type with a gold shine is particularly suitable for third fire decoration of ceramic tile, involving low temperature and fast-firing schedule where it can replace expensive metal lusters.

In Turkey, Alasoy, A.; Can, E.; Sahin, O. (2017), conducted a study on the processing of ceramic pigment for higher temperature applications. They sourced their materials from black pigment and oxide Cr₂O₃, MnO and CuO. In the study, XRD, XRF was used for the analysis. The results indicated refractory pigment, which displays chemical stability at high-temperature application (1100°C-1200°C).

In Italy, Dondi, M.; Blosi, D.; Gardini, C.; & Zanelli, (2021) made experimentation on ceramic pigments for digital decoration inks. In this experiment organo-metallic complexes, micronized pigment, colloidal metal, nano-pigment and reactive sol precursors for in-situ synthesis. Five routes adopted in this study include soluble salt, micronized pigment, colloidal metal, nano-pigments, and precursors for synthesis in-situ. The main challenges for ink manufacturers are stability. The technological solutions to improve the colour performance are the Physico-chemical properties of inks, which affects the stability over time are turning critical with the increasing diffusion of digital decoration. From this standpoint, technologies that can control colloidal suspensions and design hybrid organic composites are rapidly gaining interest and application potentials.

In Nigeria, a study made by Fatile, B. O.; Lamidi, Y. D.; Ogundare, T. S.; & Sanya, O. T. (2018) involved the use of silica sand, metallic oxides, gum Arabic, and other fluxing materials for the production of enamel stains from Igbokoda silica sand. The materials used passed through the process of drying, milling, mixing, fritting at 1200°C, grinding, mixing, screen printing and reheating at 680°C. The results confirmed that colours of the composition -A- came out on the wares with brilliant colours than that of composition -B- that is matte in colour.

Methodology

This chapter presents material and methods, experimental procedures, data analysis, validation of results, and conclusion.

Crescentia Cujete Calabash Tree

Crescentia Cujete is an evergreen tree composed of long, spreading branches which create moderate shade beneath the tree. There is the emergence of large round fruit, with a smooth, hard shell, which hung directly beneath the branches of the tree (see Plate I). The fruit takes about six to seven months to ripen and eventually falls to the ground.



Plate I: Crescentia Cujete Calabash Tree
Source: Research Photograph Sheikh (2017)

Processing Crescentia Cujete Calabash Shell Ash (CCCSA)

The thin hard shell of the calabash makes it unusual in the family of Bignoniaceae; and brings forth the suspicion about the hard, Calabash-like might be useful in ceramics when transform into ash. Here, lighter was used to ignite the dried calabash in order to start the fire (see Plate II).



Plate II: Burning Crescentia Cujete Calabash Shell
Source: Research Photograph, Sheikh (2019)

In order to convert CCCSA into ash, the CCCSA collected from the tree was burnt. Before the burning, the CCCSA was heaped on a clean ground so that it will not contaminate with other impurities. Lighter was used to ignite and start the fire in an open air. With this controlled burning of CCCSA, it was possible to achieved complete combustion as much as possible (see Plate III). The CCCSA took three

hours due to the quantity to complete burning and allowed to cool after twenty four hours, which was then ready for sieving (see Plate IV).



Plate III: Burning CCCSA

Source: Research Photograph, Sheikh (2019)



Plate IV: CCCSA ready for sieving

Source: Research Photograph, Sheikh (2019)

The burnt CCCSA was grinded into finer particle sizes and sieved through 40-mesh sieve to convert it into powdered form (see Plate V). It was observed that CCCSA attracts moisture (Hygroscopic) from the surrounding atmosphere therefore, grinding and sieving has to be done under very dry atmospheric condition.



Plate V: CCCSA ready for sieving---Powdered through 40-mesh sieve
Source: Research Photograph, Sheikh (2019)

Experimental Procedures

The samples sourced from CCCSA, were analyzed using X-ray Fluorescence (XRF).

The chemical constituents of CCCSA were subjected to XRF analysis to identify the oxides (mineral content) present in CCCSA. The mineralogical analysis was done using x-ray Fluorescence (XRF) at the National Steel Raw Material Exploration Agency (NSRMEA) Kaduna, Kaduna State, Nigeria.

Method of Preparation and conduct of Analysis.

A certain amount of prepared ash was sieved, first through a kitchen sieve, then through a 40- mesh sieve, before sampling, mixing well at each stage of the process. A small amount of the prepared ash was compressed to form a smooth disc 15mm in diameter and approximately 3mm thick, which is then scanned by the SEM. A beam of electrons strikes the sample, and then secondary electrons are emitted to reveal the characteristics of the element that has been hit. The emitted electron beam output is analyzed by the XRF facility of the microscope, to register the presence of certain elements and quantify the relative amount of each one. It is very important to note, that this tiny sample of ash is homogenous and representative of the ash supply as a whole. The Mineralogical analysis of CCCSA indicated the presence of Ag_2O , Cs_2O , Ce_2O , Tb_4O_7 , and HfO_2 . The oxides obtained from the analysis are presented in Table 3.

Table 3: Oxides Contained in CCCSA

S/N	Oxides	Physical Characteristics
1	Silver (Ag_2O)	Lustrous, white metallic element; with atomic number 47, weight 107.87, melting point 962°C .
2	Cesium (Cs_2O)	Soft, gold-coloured, highly reactive alkali metal with atomic number 55, melting point 28.4°C .
3	Cerium (Ce_2O)	Very soft, ductile, silvery-white metal that tarnishes when exposed to air; atomic number 58, melting point 799°C .

- | | | |
|---|-----------------------|---|
| 4 | Terbium (Tb_4O_7) | Metallic chemical element; a soft, silvery-white, rare-earth metal that is malleable and ductile. Has an atomic number of 65, melting point $1360^{\circ}C$. |
| 5 | Hafnium (HfO_2) | Lustrous, silvery-grey tetravalent transition metal with atomic number 72, melting point $2200^{\circ}C$. |
-

Source: <https://www.lenntech.com.elements> (2021)

Application of Heat on the Sample (CCCSA)

Blue-green colouration was observed when CCCSA has fired alone in a reduced atmosphere to $800^{\circ}C$ as shown on Plate VI.



Plate VI: CCCSA fired to $800^{\circ}C$ at reduction atmosphere

Source: Research Photograph, Sheikh (2019)

The blue-green colouration changes to grey-white when CCCSA was cooled and exposed to an atmospheric temperature for 24hrs as shown on Plate VII.



Plate VII: Colour Changes to Grey white when exposed to the atmosphere for 24hrs

Source: Research Photograph, Sheikh (2019)

Nonetheless, when the same CCCSA was fired to 930°C in an oxidizing atmosphere colour was observed as shown on Plate VIII.



Plate VIII: Blue Green Colouration fired to 930°C

Source: Research Photograph, Sheikh (2019)

This suggests that, at above 900°C, CCCSA colour is stable. The presence of colour on the CCCSA is also an indication of the potential of CCCSA as a colourant for Ceramic pigmentation. Compared with other ash materials such as rice husk ash (RHA) (arrow), which showed no colouration when fired to the same temperature (930°C) with CCCSA as shown on Plate IX.



Plate IX: Inset: the colour of the rice husk did not change when fired to 930°C

Source: Research Photograph, Sheikh (2019)

Stability and Fusion of CCCSA at Earthenware Temperature

At this temperature, the material displays chemical stability at high-temperature applications. Similarly, a good organic fusion in the use of the material was observed as well as an obvious connection between the material and the fired clay body. Furthermore, the blue-green colouration survived high temperatures in a reduced atmosphere (see Plate X).



Plate X: CCCSA fired in a reduced atmosphere to 1100⁰ C
Source: Research Photograph, Sheikh (2019)

RESULTS

The result of the chemical constituents of *Crescentia Cujete* Calabash Ash was determined by the analysis of the mineral contents of *Crescentia Cujete* Calabash Ash. The values obtained from the analysis are presented in Table 4 and in the line graph see Table 5.

Table 4: Percentage concentration of oxides contained in CCCSA

Oxide	% Concentration
Ag ₂ O	98.1
Cs ₂ O	0.64
CeO ₂	0.58
Tb ₄ O ₇	0.47
HfO ₂	0.22

Source: Research Table, Sheikh (2019)

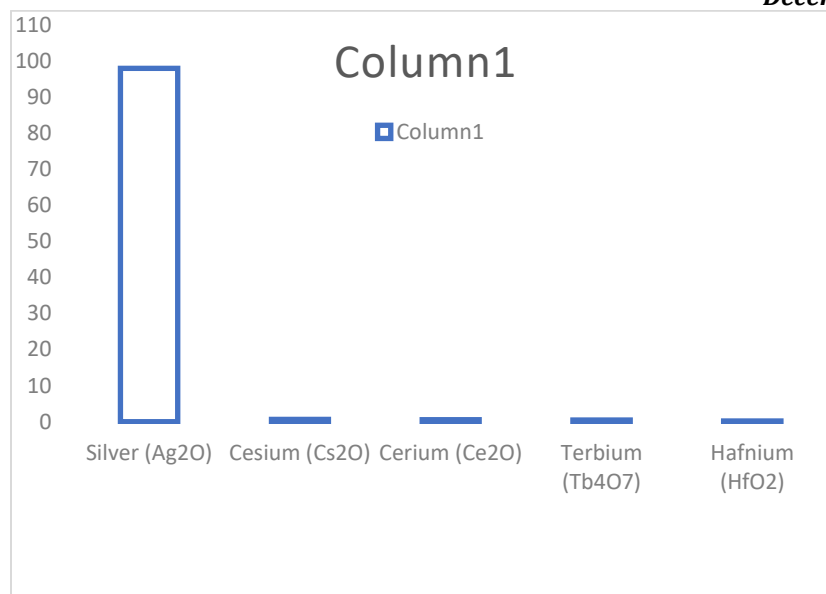


Table 5: Line Graph Showing Percentage concentration of oxides contained in CCCSA
Source: Research Graph, Sheikh (2019)

DISCUSSION OF RESULTS

Results obtained from the experiment conducted was discussed below.

Mineral content of *Crescentia Cujete* Calabash Ash (CCCSA)

Mineralogical analysis of CCCSA indicated the presence of Ag₂O, Cs₂O, Ce₂O, Tb₄O₇, and HfO₂. However, the significance is the percentage composition of Ag₂O, which has a value of up to 98.1%. Although the presence of Ag₂O in CCCSA is at variance with some studies conducted using ashes derived from wood, maize cob ash, rice husk ash, eucalyptus leaves ash (Birkhimer, 2006; Metcalfe, 2008; Ajala, 2009; Isa, 2018) where the major constituent of the ash is potassium (K) and sodium (Na). However, the researcher considers that silver (Ag₂O) which has a melting point of 962°C (<http://lenntech.com/period/element>, 2021) in agreement with the stability and fusion of CCCA at 930°C and 1100°C is an indication of the potentials of CCCSA for possible low-temperature pigmentation in ceramic product development.

Colour Changes

A blue-green colouration was observed when CCCSA was fired alone in a reduced atmosphere to 800°C as shown on Plate I. The blue-green colouration changes to grey-white when CCCSA was cooled and exposed to an atmospheric temperature for 24hrs as shown on Plate II. Nonetheless, when the same CCCSA was fired to 930°C in the oxidizing atmosphere no colour changes were observed as shown on Plate III. This suggests that, at above 900°C, CCCSA colour is stable.

The presence of colour on the CCCSA is also an indication of the potential of CCCSA as a possible colourant for ceramic pigmentation. Compared with other ash materials such as rice husk ash (RHA) which showed no colouration when fired to the same temperature (930°C) with CCCSA as shown on plate IV.

Conclusion

Given the over-dependence of Nigeria on the importation of foreign ceramics materials; the researcher considers that the successful development of ceramic colourants using *Crescentia Cujete* Calabash Shell Ash will not only reduce over-dependence on foreign ceramics materials but will also

increase the spectrum of organic research thereby increasing local content development. It is important to note that the presence of colour, stability and the fusion of CCCSA at 930°C and 1100°C temperatures is an indication of the potentials of CCCSA for possible low-temperature pigmentation in ceramic product development.

Recommendation

It is recommended that further experimentation into in-glaze/on-glaze/over-glaze treatment, on-glaze enamel, stains and ceramic inks using CCCSA, and other organic materials should be encouraged.

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EXPLORING THE AESTHETIC AND TECHNICAL ART OF NOK TERRACOTTA RELIEF MODELLING AS VISUAL TOOLS FOR MOOD DISORDER MANAGEMENT

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Abstract

Ceramics has been found to be valuable and efficient in fostering physical and mental engagements which sustain motor, process skills and improved health but its practice is grossly limited at most mental health facilities in Nigeria. With the rising rates of mental disorders, now a public health issue, the absence of studies, indigenous instructional guides, and requisite knowledge on ceramic applications for mood disorder management is a glaring void. The need to document indigenous ceramic processes and procedures with hands-on participation, emergent materials and definable end product may contribute to literature and practice. Concerned about the disappearing Nok Terracotta culture, and the indelible mark Nok Terracotta has made in the foundation of Nigerian art forms and practice, becomes the criterion for its choice to revitalize ceramics and Nok continuity. This research explores making/doing as critical design research methodology through a series of material experiments and design projects on Nok relief as a tool for mood disorder management. This exploration into Nok Terracotta relief modeling exposes the aesthetic, technical, and physical contexts of Nok as the first step undertaken in the study of ceramics in mood disorders. The research used observation and reflection on live performance, exploratory studio work and the physical presentation of fired Nok relief models. The Nok models and live performances by the researcher in recorded videos, and written text were designed to convey simple, replicable and adaptable production procedures to enhance observational skills for reproduction, and thereby boost the self-efficacy of persons with mood disorders at three mental health facilities in Jos, Nigeria. Qualitative research method was utilized to analyse the technical aspects of Nok Terracotta relief modeling, and the aesthetic quality of the performance, assemblage and adaptation of Nok figures presents the visual artist's re-imagination of Nok as souvenirs.

Keywords: *Aesthetic, Technical, Nok Terracotta figures, Relief Modeling, Visual Tools, Mood Disorder Management.*

Introduction

Since prehistoric times, ceramics and glass materials have had significant roles in most technologies in transportation, communication, energy, construction and manufacturing. The advancement in the field of ceramics has been from bricks to Nano technology. According to Gerhardt and Boccaccini (2010) high tech ceramics have always been associated to medical devices, used for heart valves, dental implants and restorations, bone fillers and scaffolds for tissue engineering. Hench (1991) lists out different types of ceramics used for therapeutic treatment of cancers, the repair and reconstruction of damaged parts of musculoskeletal system which include replacement of hips, knees, tendons and ligaments and repair of periodontal disease and maxillofacial surgery which have become unavoidable in the medical sector.

Current global discourse on the determinants of lifelong health, wellness, and fitness unravels startling evidence of the use of culture and the arts to solve the mental health puzzle (Corbin 2015). Schore (2002 and 2009), submits that, art making can aid the right brain in processing non-verbal communication and bodily-based affective information associated with various motivations. The Arts in Health logic model developed by Fancourt (2017) links art activities to aesthetic engagement, engaging imagination, sensory activation, evocation of emotion and cognitive stimulation. It further

enumerates social interaction, physical activity, well-being and interaction with health-care settings. Studies with clay include physical processes which increase body expression through movement, mental processes through modelling and product observation. Ceramists often combine primitive forms of design methods in human history and the echoes of the experiences of early human life in clay.

In the Ceramics Arts and Science field, Nigeria has played a leading role in promoting socio-cultural, economic development of many societies for generations through Nok Terracotta cultural history. Experts consider the Nok Culture an unparalleled archaeological phenomenon in Africa (Männel and Breunig 2016). Nok Terracotta represents Africa's oldest figurative terracotta, south of the Sahara, made by unknown producers, but their inventiveness, complexity of life and society in ancient times, clearly defines the beauty of antiquity of West African sculpture, (Posnansky 2011, Breunig and Rupp 2016). Despite the significance of Nok Terracotta which are highly priced in the international market for its antiquity. Nok remains a historic reference point with little or continuity.

The Post-Nok period presents a complete absence of Nok sculptures, and low-key pottery production with marked difference in decoration and clay choices. The ironworking and farming continued but there is nothing to connect it to the earlier Nok society cultural material. Breunig (2016) opined that the remnants of the Nok Culture would have been completely destroyed if archaeologists did not salvage the finds from the sites and document their original context.

The apparent low value for Nok Terracotta, and the non-application of ceramics in most psychiatric hospitals in Nigeria, means unexploited potentialities of ceramics, a clear indication of ignorance of several artists and the healthcare team on how to practice ceramics at mental health facilities. This study is a ceramist's attempt to extend Nok Terracotta culture by introducing new avenues to make Nok more replicable, accessible and bridge the ceramic production gaps at mental health hospitals. The new Nok Terracotta production strategy takes advantage of Nok Terracotta's prominence, international appeal and cultural potential to design Nok Terracotta images into two-dimensional, relief ware using emergent materials and equipment. In other to revitalize and capture the artful clay figures of Nok, this ceramics research sees Nok relief modeling as avenues to potentially illuminate the power of creativity in relief modelling to rekindle, inspire and empower persons with mood disorders at psychiatric hospitals.

In addition, studies assessing the contributions of ceramics sculpture to social life and healthcare are relatively new and there is paucity of studies undertaken in art and design fields seeking beneficial healthcare outcomes (Tubbs and Drake 2007, Sherwood 2007).

The Art of Nok Terracotta Relief Modelling

Typically, the most common Nok Terracotta sculptures are three dimensional which are nearly life size, depicting animals and human figures (Fagg 1990). Männel (2016) found the relief depiction to be represented in abstract form, with everyday life scenarios, an example is the boat manned by two peddlers discovered from Pangwari in 2013. One of the few relief wares exhibited at the Kaduna Museum, is the *Akura relief* ware in Plate 1. Breunig and Ameje (2016) report on the various processes involved in the hand building work undertaken by Audu Washi, who is known to be a skilled worker on three-dimensional Nok terracotta productions. In ethnographic studies to investigate how Nok Terracotta may have been practiced in the prehistoric times, fragment from ancient Nok were grounded and mixed with clay sourced around Nok village for reproduction.

The first step taken before the studio inquiry on Nok relief was the physical assessment of Nok Terracotta figurines, through field visits at National Museum Jos, National Museum, Nok, and

National Museum Kaduna respectively. The visits provided the researcher an opportunity to rub minds with the curators, other researchers and staff on the exhibits, and Nok antiquity. 12 figurines were selected to explore Nok relief from figurines at Kaduna and Nok Museum, and online sources.



Plate 1: Fragment of human portrayals in relief. Excavation 2006, Akura. Height 25 cm, Source: National Museum, Kaduna. 2020.



Plate 2: Jema'a Head, three-dimensional ware, Source: National Museum, Kaduna, 2020.



Plate 3: Jema'a Head, Nok Terracotta, Source: National Museum, Nok

The Technical Process of Nok Relief Modeling

The artistic technique employed for the Nok relief modelling process included relief casting, i.e. through press molding and enameling. The following procedures were adapted to replicate Nok Terracotta form, and features into Bas Relief: deploying Nok images on plaster mold, calving Nok images on Plaster of Paris (POP), press molding, firing, enameling and assemblage. Bisque firing was carried out using the Yoyang Refractory Brick Stove: this collapsible stove or mini kiln uses charcoal, wood or briquettes as its fuel. The enameling process was carried out using acrylic paints in a microwave oven. quality using locally sourced materials and equipment.

The purpose behind exploring and engaging in novel ceramic ways of enameling and firing was to provide quality and affordable ceramics, with easy but replicable methods of deploying images into two-dimensional relief, with an art practice which also enables access to parts of the psyche of inpatients which previously have gone unrecognized offering them new avenues for self-discovery and catharsis.

Considering the fact that Mood disorder severely impacts mood and its related functions, Sadock and Sadock (2013), opine that depression or bipolar disorders increase impairments, inability to function, diminish quality of life, exasperate emotional and social suffering which could lead to suicide. Uwakwe (2019) says mood disorders and suicidal thoughts often thrive with boredom, fear of failure, grief, and isolation. In fact, colossal losses, increased financial pressures, fear of uncertainty, breakdown of the family unit, substance use and isolation, may precipitate feelings of sadness, worthlessness, and restlessness which place heavy burden on the mental health of people. This study of ceramics in continuing care considers the ease of relief modeling, as an energizer that may stimulate the desire of subjects to learn through observation. The research took to account the potential of the Social Learning Theory (SLT), Social Cognitive Learning Theory (SCLT) and Art in Health outcomes to provide ceramics learning experiences. Social Learning Theory, theorized by Albert Bandura, posits that people learn from one another, via observation, imitation, and modeling.

He further opined, "The most important way of increasing self-efficacy is enactive mastery, this means gaining relevant experience with a task or job". He opined that if a job was performed

successfully in the past, it is likely that doing it in the future will be positive. Bandura (1977) in McLeod (2011) Says social learning or self-efficacy occurs when an observer's behavior changes after viewing the behavior of a model. An observer's behavior can be affected by the positive or negative display of behavior seen. The higher self-efficacy, means more confidence for one to succeed in any social learning process (Rendell, L., Boyd, R., Cownden, D., Enquist, M., Eriksson, K., Feldman, M. W., Fogarty, L., Ghirlanda, S., Lillicrap, T., & Laland, K. N. 2010).

The visual tools were meant for exhibition and used for teaching in-patients between ages eighteen (18) to sixty (60), male or female, undergoing treatment at the Department of Psychiatry, Jos University Teaching Hospital, Vom Christian Hospital, and Quintessential Healthcare Centre: Centre for Psychological Medicine, Rayfield, Jos, Nigeria. The recorded live performances and written text on relief modeling were to enhance self-efficacy, by so doing, in-patients were energized and empowered as 'modern Nok producers.

Deploying Nok Images into Bas-Relief Molds

Printed Nok images were utilized for the bas-relief i.e., low relief making process, first of all, the printed images were resized on the computer, then printed and placed on the Plaster of Paris (POP) molds and the images were traced using a dull pointed awl, pen or pencil.



Plate III: Printed Nok Terracotta Images used for Tracing on POP Block, Source: <https://africa.uima.uiowa.edu/>

Calving Nok images on Plaster of Paris (POP)

Once the image was properly traced, the calving process began by outlining the image first. The outline was achieved through incision on wet or dry plaster mold. However, dry plaster molds were preferred over wet plaster mold because waste plaster molds could be reused and up cycled for save cost and the process of mixing POP. The outlining on the POP was necessary so that the individual has a defined outline while carving. After the incision on plaster was done, the reduction process of etching away POP to create depth began. To achieve a replica of the traced Nok image into a relief modeled sample. Plate IV shows a sample of three Large POP Molds created using tracing, incision and carving steps, size 12" x 12".

12 Nok images were transferred unto 20 POP molds: 10 large molds of size 12" x 12" were utilized to make Nok paintings and table decorations. While 4 medium sized moulds of 6" x 5" and 6 small sized moulds of 3" x 2" were used to assemble decorative mugs, key rings, plaques, office tidy, corporate gifts and fridge magnets, and earrings, plaques. The images were calved on the plaster moulds,



Plate IV: Large POP Molds created using tracing, incision and carving steps. Size 12" x 12"
Source: Studio work, Dokyoung 2020.

Pressmolding

Press molding takes place after kneading clay properly, the clay is either flattened or rolled into a round ball and pressed down into the hollow POP mold with a mallet or any flat found object that has weight. A rib, scraper or knife is used to remove excess clay for wares that did not carry flanges, while those with flanges were trimmed using cookie cutters, to give a neat finish. Small or medium sized ware were quite fast to lift up from the mould when using leather hard clay, the relief ware was lifted up while removing the mallet; but longer periods are taken when using wet clay. The larger molds were press molded and left to harden for 10 – 15 minutes at room temperature before detaching from the molds. Plate V c - d shows the finished Nok Bas Relief adapted from Nok images. Plate V e and f shows the trimming process of a model using cookie cutters and trimmed Nok relief respectively.



Plate Va: Press molding process



Plate V b: Removing the model from the mold



Plate V c: Press molded green-ware from mold



Plate V d: Model and mold

Firing

The firing of large wares was simply done by rearranging the refractory bricks on the ground in an interlocking manner to create a retention wall. The green-wares were arranged horizontally, and covered with smaller pieces. This way, air was allowed into this self-made kiln and firings were successful with few broken pieces at some instances. The Yoyang stove was designed by Esther Dokyoung in 2014 as a mini kiln, incinerator, energy saving cook stove and room heater. The stove can be used indoors or outdoors. It was quite easy to move the mini kiln from one location to another from Jos, Abuja and to Bauchi. The bricks were either arranged in an interlocking style on the ground or used in a fabricated metal case as seen on plate VI a. The result of the firings showed a red terracotta colour, and the Nok reliefs were exact replicas of the printed and traced images (see Plate III) as seen on column 2 and 3 of Plate VII, column I are the Nok images.



Plate VI a: Yoyang Refractory Brick Stove in Fabricated Metal Case



Plate VI b: Arranging refractory Brick Stove for firing



Column 1
Nok Images

Column 2
Fired Nok Relief

Column 3
Fired Nok Relief (Vanished)

Plate VII: Nok figure, Bisque Fired and Nok Relief Vanished, Esther Dokyoung, 2020

Enameling

The visual tools meant for teaching were enriched with colour to create attractiveness, this is in line with what psychologists say about how colour plays a pivotal role in our choices, temperament, and

mood. Jasmine (2022) says colour affects and influences our physiology leading to anxiety, blood flow and stimulation in our brains.

The bisque fired wares were washed with water, sun dried and a water-based acrylic was applied to the ware. According to acrylic painting school, Folk Art Enamel Acrylic paints, Golden Heavy Body Artist Acrylic paint, and the painted acrylic should be allowed to dry for 24 hours before firing, so that it does not peel off. The painting began with the application of light to dark colours. Then, the wares were fired at low temperature with a microwave oven. Firing with the acrylic paints on bisque ware started with preheating, when the oven was completely cool. The lowest heat range was used for 40 minutes, after which the temperature was raised to 350°F for another 40 minutes.



Plate VIII a: Assortment of Miniature Nok Relief, Source: Dokyoung 2020



Plate VIII b: Application of Eight Lutscher, Source: Dokyoung 2020

Emergent Materials and Equipment

How to harness the huge clay deposits and its related resources remains huge field to be explored for functional, effective and efficient resources for mental health recovery. The process of painting ceramics with acrylic and firing with a microwave oven are emergent ways in the ceramics field in Nigeria. The result of the first enameling gave a powdery outlook after firing but subsequent test was done without adding water to the acrylic, and a light film of white glue was used to seal the acrylic

paints after firing, and thick lines of 3-D acrylic paints commonly known as 'Polymer' were added to increase intensity.

This exploratory inquiry into adaptation of Nok Terracotta images, sought ways to reduce production materials cost, production task was outlined, and the visual tools focused on very attractive Nok images, so as to appeal to the in-patients' mood based on the stance of Jack and Schyns (2015) that the face is used to transmit information for social communication. Body movements, vocalizations, clothing or scenery vocalizations, body posture, movements or shape, clothing and hairstyles can also alter meaning, for example, face information with tightly squeezed eyes, compared to one with bared teeth carry different meanings. They further claimed that the environment has been found to also play a key role in facial gestures, for example scenes in or outdoors, weather, season, time of day, buildings, occasion, culture and so much more can contribute to different social categorizations of reactions.

Aesthetic Presentation of Nok Models

Nok models are press molded, bisque fired bas relief with replicas of Nok Terracotta figures made with malleable natural clay. There are three categories of Nok models: Bisque fired, bisque fired and vanished, and bisque fired and enameled. Facilitated good bas reliefs and enhanced ceramics value chain in mass production. Nok relief models clearly represented the use of texture, tactile experience and colour therapy. Tactile exposure using clay has been found to improve cognitive skills (Dokyoung 2012). The visual tools were meant for teaching so as to enhance relaxation, self-expression, self-reflection and performance-based movement which translate into increased confidence, self-esteem and replication of observed performances. The purpose of enameling with assortment of water-based acrylic colours on the Nok models was meanly to understand if colour can increase confidence and energy level during the studio experience. Colouring the Nok models will also give in-patients an opportunity to freely use colour in concert with their mood, and behavior.

The large terracotta pieces were coated with wood varnish, or glitter paint to give a glossy outlook, while the miniature enameled pieces were painted using line, dots, colour, and etching to explore pointillism, action painting, collage, and expressionism. Beyond the application of colour on Nok models, coloured plastic, glass, metal and wooden backgrounds were used as complimentary colours on the souvenirs. Psychologists suggest that geographical location, socio economic background and religion play a dominant role in colour preferences. Understanding facial gestures, earlier discussed under emergent materials and colour preference in relation to mood during the ceramics learning and production process will enable the researcher assess and analyse data from the three mental health hospitals based on this understanding.

Friedmann (2003) opined that colour alone could inspire, heal, repel or demoralize any human being, so colour played a predominant role in the production of the Nok models. Friedmann further said that the eyes blink more frequently when exposed to the colour red than colour blue.

Meanwhile, the Swiss psychologist, Max Luscher, who studied the effect of colour on behavior, developed the eight Luscher colours in 1947, recognized as a major diagnostic aid. He placed blue, green, orange /red and yellow as the psychological primaries with special significance. He found violet, brown, black and gray to be auxiliary colours. Black, gray and brown indicate having a negative tendency towards life. He opined that the first colour preference represents what one seeks to achieve or attain, while number eight represents what one seeks to avoid. Table 1 below gives a more clarified picture. The use of colour in ceramics signifies the projection of the item.

Table1: Colour Choice on Personality

S/No	Colour	Effect on Personality
1	Blue	Peace, loyalty i.e., likes a calm and uncluttered environment
2	Green	Tenacity, strong-willed i.e., may be an activist or striving for acknowledgement
3	Orange/Red	Activity, aggressiveness – may be bossy or an overachiever, living life to the fullest
4	Yellow	Radiance, release – i.e., embraces the new, look ahead and hopeful
5	Brown	Substantiality, warmth i.e., seeks security
6	Violet	Sexuality, high intensity i.e., stresses wish fulfillment and a desire to achieve ‘magical’ relationship
7	Gray	Subdued, non-committal i.e., does not relish personal involvement
8	Black	Authoritative, deep – i.e., repudiates things as they are, may act unwisely in a revolt against the status quo

Source: Mystery of Colour. Friedman, R.S. 2003

Luscher further asserts that if blue is the first choice, it indicates a quite personality. Blue as last choice means a state of anxiety about loyalty. Yellow as preferred colour means a strong desire to escape from existing problems and remain ever hopeful. Yellow on position 6 – 8 means hope has been dashed, disheartenment and isolation exists. The complete Luscher test contained seven three colour swatches and forty-three selections to be made. The varnished or enameled ware were either assembled or glued on glass, found plastics, paper and containers as office tidy, wall decorations, fridge magnet, and key rings. These functional items could also be designed as gifts and souvenirs. Rubin (2001) described the basic building techniques: brick, slab, coil, and pinch as a profound relationship between the creator and the object. The phenomenon of making art with clay leaves a final product to enjoy, destroy, work later, or accept as it is. Making finished Nok relief will reinforce the fact that inpatients are capable of doing useful, productive work. The large Nok figurines were used to create mixed media paintings and installations.



Plate IX: Varnished Nok Relief on Fabric Size: 54.5 x 66 cm. Dokyoung 2021



Plate X: Classical Nok, Relief ceramics with acrylic on board. Size: 37.5 x 113cm, Dokyoung 2021



Plate XI a & b: Nok Plaque for Table Décor, Dokyoung 2020



Plate XII: Office Tidy Dokyoung 2020

Results

The research provided a deeper understanding of Nok Terracotta practice, the need for its revitalization through adapting Nok figurines, and adopting relief modelling with emergent materials and equipment. This research provided keys ways to unlock the aesthetic and technical contexts of the Nok relief in tandem with understanding of colour psychology. Relevant and comprehensive ceramics education to guide caregivers has been projected for hospitalized persons with Mood Disorders. This research created a structure for the continuity of Nok Terracotta cultural and historical foundations to enhance learning on ancient indigenous culture, ceramics, and enhanced ceramics methods for successful replication of Nok relief visual samples for its application at Nigerian mental health hospitals and facilities.

This research submits that ancient three-dimensional, life-sized figurines became pocket sized miniatures using contemporary ceramic design method, and emergent materials to provide broader aesthetic options for its replication at mental health facilities. The need to simplify ceramics methods stems from the lack of utilization of ceramics for continuing care in most psychiatric hospitals which deprives patients of the rich content of clay to provide tactile experience, physical activity which exercises fine, and gross motor skills.

Conclusion

The rise of mood disorders and suicide-related issues in Nigeria require the inclusion of Art in Health and ceramics production in the management of patients with mood disorders. The practice of Nok relief modelling by the researcher, the Nok models and contemporary materials form the basis for the rejuvenation Nok practice and subsequent mood disorder management content. The design of visual tools and the in-patient's ability to engage in relief and clay modeling exercise can revitalize ceramic production in hospitals as well as rejuvenate Nok Terracotta production.

The findings point to several avenues for future work and prospective studies that may consider geriatric, pediatric care and other mental disorders through throwing, and slip casting. This research did not only integrate Ceramics in Continuing Care (CCC) for management of mood disorders but also improved the artistic content and knowledge of care-givers, significant other and persons with mood disorders. The recorded video performances and written text can be used as a guideline for relief and clay modeling exercise at any hospital as a positive distraction, increase self-efficacy, enhance patient's self-care, and promote Nok Terracotta culture.

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Defining and Contextualizing types of Experimental and Non-Experimental Research

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Abstract

Office management science is relatively a new evolving program that emerged from "business education" to what was known before now as secretariat administration within the polytechnic education has, further evolved into what is presently called "office management or office administration" depending which of the university is mounting the program and what their philosophy is toward the program. The basic foundation is on the content and context of running office space and the human resource management within the space in a contextual period and the challenges associated with it. One of the tools to circumnavigate the knowledge-based program is by understanding the basic rudiments of research technique and one of such is the challenge of Experimental and non-experimental research techniques are sometimes difficult to identify by budding researchers in office information management among students and other scholars whose intent are to develop knowledge-based research in their field. Since the field of study in office information management encompasses sometimes quasi systems of research it becomes important to understand experiment and non-experiment system of research properly, for the student to do exploits in new innovations in the principles of modern practice in office information management. This paper is an attempt to identify the meaning and importance of these techniques of creating knowledge for beginners in research to understand the process of locating where their interest lies and develop it gradually. The understanding of research techniques is very important in the development of the capacity of students in office information and management studies. What the authors' emphasis here is the basic understanding of research techniques so that the budding researchers within this discipline can locate clearly where and what are the problems in the field of students' studies and research.

Keywords: *Experimental research, non-experimental research, cross-sectional studies, correctional studies and Office Management.*

Introduction

This paper was born out of the desire to give an overview structure of research to the budding office management student peculiarly student of office administration and management of Yaba College of Technology. The idea is to give them the basic understanding of the kind of research design they would be encountering as they prepare for their project report in the final year in the college; and it is our hope this discussion would also enrich their basic knowledge in academic writing. The former name of this program from secretariat administration has emerged into more complex based social science program; so, the idea to understand the behavior of resource persons and the challenges of office space in the new century has become a critical challenge. Understanding the basic research and formal academic writing technique has become a frontal challenge by the present students of the program. Research technique is a new course in their syllabus and sometimes these students struggle to get the right materials for their reading and expansion of their knowledge. Office management is a discipline that in a way deals with human resource management and administrative unit it becomes important for the students to understand the basic research tools in engaging in a critical academic discourse that would lead to critical survey some of the quantitative and qualitative research ideas. As a discipline in social science understanding the behavioral pattern of resource person and how office is managed is a critical discourse within this emerging internet age. The experimental and non-experimental tools of investigation become an effective to tools to manage in this regard.

Study designs, according to Creswell (2017: 1), are strategies and procedures for research that shield everything from universal suppositions to exhaustive statistics gathering and scrutiny approaches. This strategy gave rise a number of pronouncements, none of which must be made in the order in which they make sense to someone and the other of their presentation. The ultimate decision entails deciding which design should be employed to investigate a subject. The researcher's perspective is premised on, procedure of inquiry, and distinct method of statistics gathering, discussion, and appraisal sums up to a position of agreeing. The nature of research problems or topics being discussed, as well as the study's audience, is all factors that go into the components of a research design. A systematic plan to examine a scientific subject is also known as research design. Different types of research designs can be classified into three categories: quantitative, qualitative, and mixed method research designs. Experimental research can be studied and its possibilities thoroughly investigated under the aforementioned three processes for the benefit of knowledge. The most prevalent kind of study, which many people refer to as scientific research since it takes a scientific approach to the major topic, is experimental research.

Experimental research

There is always scrutiny, sometimes difficulty faced by budding scholars in an office information, structure and innovation on the premise of new practice and scholarship on what is the best method to adopt during investigating new or current innovation on an office methodology, here both experiments, non-experimental and quasi method comes to focus. What is experimental or non-experimental and perhaps quasi research method? Experimental research is a precise method of investigation in which one or more self-governing factor is changed and applied to more reliable factors in order to determine their impact on the letter. The effect of the independent variable on the dependent variables is always observed and recorded throughout time to help researchers come to a logical conclusion about the link between these two types of variables. In the physical and social sciences, psychology, and education, the experimental research approach is frequently employed. It is based on a simple logic that compares two or more groups, but it can be challenging to implement. Experimental research designs, which are most commonly associated with laboratory test procedures, entail gathering quantitative data and doing statistical analysis on it during the study process. As a result, it might be considered a quantitative research method.

What Are the Different Types of Experimental Design?

The way the researcher distributes people to different conditions and groups determines the types of experimental study designs. Pre-experimental, quasi-experimental, and real experimental researches are the three types.

Design of Pre-Experimental Research

In a preparation of scientific learning strategy, a set or quantity of reliable collections is understood for the effect of a sovereign element which are believed to power change. This is the most primary factor of tentative study pattern, which seems not to have a regulator collection.

Explorative investigation, though, which seem critically important, cannot measure to the true-explorative requirements in various domains. There are three different sorts of pre-experimental research designs.

- **Research Design for Single Case study:**

Only a dependent group or variable are investigated within this sort of experimental research. It's posttest research since it's done after some sort of treatment that's supposed to induce change.

- **One-on-one Pre- and post-testing:**

By administering the examination to a cluster earlier and after handling, this research design incorporates both posttest and pretest studies. The former is given at the start of treatment, while the latter is given at the conclusion.

• **Static-group Comparison:**

In a stable-cluster judgment investigation, two or more clusters are observed, with only one of the groups receiving therapy while the others remain unchanged. All of the groups are retested after therapy, and witnessed modifications concerning them are presumed to be due to treatment.

Design of a Quasi-experimental Study:

"Quasi" indicates "partial," "half," or "false." As a result, while quasi-experimental research resembles actual experimental research, it is not the similarities. Participants in mixed -trials are not allotted at random, and as a result, they are employed in situations where randomization is problematic or impossible.

This is a typical occurrence in institutional study, where supervisors decline in tolerating students to be chosen at random for experimental samples. The period succession, no corresponding governor's cluster's strategy, and compensated schemes are all instances of quasi-experimental research designs.

True Experimentation in Research

To confirm or reject a theory, true experimental research relies on statistical analysis. It's the most precise sort of experiment, and it can be done with or without a pretest on at least two randomly assigned dependent participants.

A proper experimental study design must have a control group, a variable that the researcher may change, and random distribution. True experimental design can be classified as follows:

• **Posttest-Only Control Group Design:** In this design, individuals are randomly assigned to one of the groups (control or experimental), with only the experimental group receiving treatment. Both groups are post-tested after attentive observation, and a conclusion is made of the differences between them.

• **Pretest-posttest Control Group Design:** In this control group design, individuals are randomly allocated to one of two groups, both of which are presented, but only one is treated. Both groups are post-tested after close monitoring to determine the degree of change in each group.

• **The Solomon four-group design** combines the pretest-only and pretest-posttest control groups. In this scenario, the subjects are divided into four groups at random. A pretest-posttest approach is used for the first two of these groups, while the pretest-posttest technique is used for the remaining two.

Experimental Research Examples

Depending on the type of experimental research design being considered, different types of experimental research examples exist. Laboratory experiments are the most basic type of experimental research, and they can vary in nature depending on the research topic.

Scholars in a seminar are taught on exact sequences during the period of the programme, and an assessment is prearranged at the conclusion of the programme. The scholars are the focus or reliant

elements, in this case, while the discourses are the self-governing variables that are preserved on the scholars.

This investigation contemplates only one group of carefully selected subjects, creating a pre-tentative inquiry strategy sample. We would also notice that trials are only specified at the expiration of the programme instead of making it much easier for us to conclude that this is a one-time case study.

Employee Skill Assessment

Establishments accomplish trials to remove less qualified candidates from a pool of qualified contenders before hiring a job seeker. Establishments can regulate worker skill fixed at the time of hire in this method. Organizations bearing worker, exercise as part of their normal process in mandate to enhancement worker efficiency and enlarge the corporation as a whole. At the end of each gathering, the follow-up appraisal is steered and evaluates the efficacy of the exercise on worker skills and to classify ranges for expansion.

The worker is the subject here, and the conduct is the exercise that was initiated. This is an example of a pretest-posttest regulator group investigational study.

Methods of Teaching Evaluation

Think through a theoretical body that wants to liken the schooling methods of two lecturers to see which is the most active. Reflect settings in which each scholar's student is prudently selected, either as an outcome of a precise demand from parents or because of their firmness and acumen. Because models are not identical, this is an example of no corresponding set design. We can draw assumptions after a post-test by calculating the accomplishment of each scholar's teaching style in this way.

This, nonetheless, may be changed by reasons such as a student's intrinsic pleasantness. A particularly bright student, for example, will grasp more easily than his or her peers, regardless of the manner of instruction.

What distinguishes experimental research from other types of research?

• Constraints

There are reliant, independent, and extraneous issues in scientific inquiry. Dependent elements, most times understood as the learning topic, are the variables which are treated perhaps manipulated. The trial dealing being smeared to the reliance element is understood as the self-governing factors. Extraneous variables, on the other hand, are additional things that influence the experiment and may influence the outcome.

• Setting

The experiment takes place in a specific location. Many experiments are conducted in the laboratory, where extraneous variables may be controlled and thus eliminated.

Other experiments are conducted in a less controlled environment. The type of environment utilized in research is determined by the nature of the experiment.

• It is multivariable

Multiple independent variables may be included in experimental studies.

Non-Experimentation

On the other hand, it is simple to classify non-experimental research. It does not involve any control or independent variable modification. When a researcher does not have a precise study question of a causal relationship between two variables, and manipulation is not an option, this method is used.

None experimental designs, according to Maheshwari (2012: 56), are studying designs in which the researcher observes things as they occur spontaneously. It is a research design in which no external factors are introduced, and the variables are not changed. In this regard, he also stated that the researcher has no control on the surroundings. The information gathered is examined, and many of the findings lead to hypotheses that can be tested through experiments. Non-experimental research modes include the following:

(1) Cross-sectional studies (2) Correlation studies/ex post facto studies
(3) Descriptive Research (4) Quasi-Experimental Research (6) Single-Variable Research (7) Developmental Research (8) Epidemiological Design (8) Survey Research Design.

- 1. Cross-sectional Research:** Developmental psychologists who study aging and researchers interested in sex differences frequently do cross-sectional research. Developmental psychologists use this design to compare groups of persons of different ages (for example, young individuals aged 18-25 with older adults aged 60-75) on a variety of dependent variables (e.g., Memory, depression, life satisfaction). Of course, employing this design to explore the impacts of aging has a major drawback: differences in the groups other than age may account for variation in the dependent variable. Differences across groups, for example, may reflect the generation from which people originate (a cohort effect) rather than a direct influence of age. Longitudinal studies, in which one group of people is tracked as they age, are thought to be a better way of researching the impacts of aging. Milgram (1974) compares two or more previous groups of people using the same criteria, piloting one or more control variables in study participants, and measuring the effect of the manipulation on the subject.
- 2. Correlational Research:** This is a method of assessing the relationship between two continuous variables with little or no attempt to adjust for extraneous variables. For example, if you want to do research on the relationship between self-esteem and academic accomplishment, you can collect data on students' self-esteem and GPA to see if the two variables are statistically related. Because there is little or no distinction between correlation and cross-sectional research, they are frequently used interchangeably. Correlational research includes comparing two continuous variables rather than forming and comparing groups. Correlational research is concerned with statistical correlations between variables that are measured but not changed. Internal validity is low in correlational research. Correlation is not the same as causation. The existence of a statistical association between variables C and D does not imply that C causes D. It's also plausible that C and D, or a third variable Z, are both responsible for C and D. Correlational research cannot be utilized to prove causal correlations between variables, and it also prevents researchers from achieving a variety of other essential goals (establishing reliability and validity, providing converging evidence, describing relationships and making predictions.) Another reason why researchers would prefer a correlational study over an experiment is that the statistical link of interest is assumed to be causal, which means the researcher, cannot change it. (Allen Kanner, Coyne, Schaefer, & Lazarus, 1981;1) hypothesized that the number of "everyday inconveniences," such as impolite salespeople, that people encounter can influence the amount of physical and psychological symptoms they suffer. They had to settle with evaluating the number of daily

hassles together with the number of symptoms using self-report questionnaires because they couldn't control the number of daily hassles their subjects encountered.

3. **Single-Variable Research:** According to Milgram (1974), participants in this sort of study must do the same task under the same conditions. Loftus and Pickrell's (1995) study is an excellent example of single-adaptable investigation, in which the variable was whether participants "remembered" having proficient unimportantly traumatic youthful dealings (e.g., getting lost in a shopping mall) that they had not actually understood, but that the researcher repeatedly asked them about. Singular-variable research provides answers to fascinating and crucial topics like statistical correlations between two variables.
4. **Observational Research:** behavior is methodically observed and recorded in this form of study. The primary goal of reflective inquiry is to define an adapter or a group of variables. Above all, the aim is to determine the characteristics of a specific, cluster, or an environment. It is non-experimental in the sense that it is not manipulated or controlled, and as a result, we can't draw any conclusions about causality using this method. Data collected in this or related studies are frequently qualitative, although it can also be quantified or mixed approach. The focus of research has been on observing behavior in a natural or laboratory situation without changing anything. Participants are observed as their behavior is recorded in observational research, with no researcher meddling or influencing any variables. For example, an academic institution may wish to award scholarships to its top students in recognition of their academic achievements. As a result, each faculty group students into eligible and ineligible groups based on their degree class. Because it is unethical, the student's degree class cannot be modified to qualify him or her for a scholarship in this circumstance. Observation Research is concerned with observing the respondent's actions. It is tested in either a natural or a laboratory environment. It does not require the use of an independent variable.

For example, if you're looking into crowd psychology or the psychology of a specific group of individuals, imagine there are six ATMs in a location, but only one of them is occupied, while the other is abandoned. Because of the crowd effect, the bulk of newcomers will forsake the other ATM as well. There are various types of observational research, including:

- a. **Naturalistic Observation:** this observational method entails monitoring people's behavior in their natural surroundings. In contrast to laboratory research, this is a sort of field research. For example, observing the rain falling in a certain environment as it falls. Observational research could simply entail watching youngsters play on the school playground. Naturalistic researchers frequently make their own clarifications as soon as it is realistic, so that applicants are unaware that they are being observed. Concealed Naturalistic Observation is another name for this. If the individual remains anonymous and the activity occurs in a public environment, this strategy is considered acceptable. We also conduct undisguised naturalistic observations, in which contributors are made responsive of the investigator's existence and their deeds is monitored.
- b. **Participant Observation:** In this case, the researcher takes an active role in the situation they are studying. It's comparable to naturalistic observation in that the information gathered can include interviews and other sources. A sociologist (Amy, Wilkins, 2008:2) conducted research in which she spent a year, joining and contributing in set consultations and societal occasions, as well as interviewing numerous members. Wilkins discovered how organizations may "force" happiness.

- c. Structured Observation** In this case, the researcher is looking at spontaneously occurring behavior.

However, acquiring quantitative rather than qualitative data is prioritized.

Structured observation was employed by Levine & Norenzayan, (1990;3) to investigate differences in the “pace of life” among countries. In which people in a large city were observed to see how long it took them to walk 60 feet. People in some nations, such as Canada and Sweden, crossed 60 feet in 30 seconds, while people from North America, such as Brazil and Romania, took nearly 17 seconds.

- 5. Developmental Research:** Richey, and Rita C. (1994:9) indicates that this can be seen as a systematic study of designing, developing, and evaluating instructional programs, process, and product that must meet up criteria of internal consistency and effectiveness. Developmental Research is particularly important in the field of instructional technology. The most common types of developmental research involve situations in which the product-development process is analyzed and described, and the final product is evaluated. The second type of developmental research focuses more on the import of product on the learner or the organization. While the third type of study is oriented towards a general analysis of design development or evaluation processes as a whole or as components. Developmental Research has contributed to the growth of the field as a whole, often serving as a basis for model construction and theorizing.
- 6. Quasi-Experimental Research:** the prefix quasi means “resembling” Thus, quasi experimental research is the research that resembles experimental research but it is not true experimental research. Although the independent variable is manipulated, the participant is not randomly assigned to the conditions or orders of conditions. (Cook & Campbell, 1979) because the independent variable is manipulated before the dependent variable is measured, quasi experimental research eliminates the problem of directionality. But because the participant is not randomly assigned, making it likely that there are other differences between the conditions. Quasi experimental research does not eliminate the problem of confounding variables. In terms of internal validity, the quasi experiments are generally somewhere between correlational studies and true experiments.

Quasi experiments are most likely to be conducted in the field setting in which random assignment is difficult or impossible. They are often conducted to evaluate the effectiveness of a treatment for instance a type of psychotherapy or an educational intervention.

Types of Quasi Experiment

- 1. Non-Equivalent Group Design:** Recall that when participants in between subject are randomly assigned to conditions, the resulting groups are like to be similar, and then researchers consider them to be equivalent. But when participants are not randomly assigned to conditions, the resulting groups are likely to be dissimilar in some ways. Because of this, researchers consider them to be non- equivalent. In summary, a non -equivalent groups design is the one between-subjects design in which participants have not been randomly assigned to a condition. For instance, a researcher who wants to introduce a new method of teaching fractions to third grade students, would conduct a study with a treatment group consisting of one class of third grade students and a control group consisting of another third -grade students, this would be like a non- equivalent group design because the students are not randomly assigned to a class by the researcher, which means there could be important differences between them. For instance, parents of higher achieving students might

have been more likely to request that their children be assigned to Ms. Dave's class. Or the head teacher might have assigned the troublemaker to a particular class whom the teacher is believed to be a strong disciplinarian. Of course, teacher styles and the environment might be very different and might cause different levels of motivation among students. If at the end of the study there was a difference in the two classes' knowledge of fractions, it might have been caused by the difference between the teaching methods, which can also be caused by any of the confounding variables. Anyone using a non- equivalent groups design can take steps to ensure that their groups are as similar as possible.

2. **Pretest-posttest Design:** in this type of research, the dependent variable is measured once before the treatment is implemented and once after it is implemented. For instance, a researcher who is interested in the effectiveness of an antidrug education program on elementary school students' attitudes towards illegal drugs. The researcher could measure the attitudes of the students at a particular elementary school during one week, implement the antidrug program during next week, and finally measure their attitude again the following week. The pretest-posttest design is like a within-subjects experiments in which participant is tested first under the control condition and then under the treatment condition. If the average posttest score is better than the average pretested score, then makes sense to conclude that the treatment might be responsible for the improvement. Having looked at the various types of non -experimental designs, there are so many reasons why researchers think that it is good.

Advantages of non -experimental design:

1. Non- experimental research is close to real life situations.
2. They are rarely criticized for their artificiality.
3. They are most suitable for the field of nursing as they help us to understand the real world.
4. Not all the human characteristics are inherently subjected to experimental manipulation, therefore, the roles of these variables cannot be studied experimentally.
5. In situations where it is simply not practical to conduct a true experiment, in such cases non experimental researches are most suitable.

Disadvantages of Non -Experimental Research Design.

1. The result of the non-experimental researches and the relationship between the variables of study can never be absolutely clear and error free.
2. The mere existence of a relationship between the variables is not enough to warrant the conclusion that one variable caused the other.
3. Since non-experimental research is conducted for comparative purposes using non randomly selected groups, which may not be homogenous and tend to be dissimilar in different traits or characteristics may affect the authenticity and generalizability of the results.

Conclusion

These methods are credible in any given research process, which can be applied in science and social science investigation process. For example, in discussing constructivism (an essential research tool) Crotty (1998) insists that meaning is constructed by human being as they engage with the world they are interpreting, This, we claim, offers an appropriate practical complement to hermeneutical modus operandi. Understanding what is entailed in an idea is not a matter of reconstructing or re-experiencing its claims: rather, it is learning how to 'think with' a way of reasoning by applying it in new and unanticipated ways. Qualitative research tends to use open-ended questions that the participants can share their view. This is true in the context of qualitative techniques while

quantitative deals with scientific clarity of results from experimentations. Whichever, one chooses to conduct an academic investigation the results are good and clear in many instances. The budding students of office practice often engage in finding about quality of resource human capacities within a manageable space in the office and the true functions. This little explanation of the basic techniques of inquiry would go a long way to help the basic foundation of their research techniques. The expansion of office, information related practice can grow theoretically when the correct tools of research are applied to investigate new process and methods of developing new understanding in an office manageable space practice. Gradually the office scholarship and practice are evolving through multimedia technique such as zoom, and other forms of virtual meeting platforms, bringing virtual office as the new order of office practice, only good use of research tools and technology would continue to expand the scope of this practice.

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Odutokun's Perception: The Status of Women in the Nigerian Society

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Abstract

A growing number of individuals and agencies continue to make practicable attempts at addressing the challenges faced by the female gender. Artists, are not left out of their salient contributions to the move to reduce and end gender violence of various degrees. Gani Odutokun, through his paintings has also attempted to reveal the problems faced by the female gender commonly based on male-centered bias, physical and harassment among others. This article relies on the common ground theory, womanism and liberal feminism as a vehicle to tease out the nuances presented in Odutokun's paintings he made with an attempt to address the issue bordering around the negative status of some women across the Nigerian society.

Keywords: *feminism, womanism, experiences, gender, artist*

Introduction

One of the key challenges in Nigerian art historical research is the evident unwillingness to write about artists in their life time. Art historians and art educators to a large extent are generally shouldered with the responsibility of identifying and documenting works of every visual artist with the aim and purpose of creating a repository of each artist from a wide variety of perspectives. This must have prompted Ikpakronyi (2007: 1) to decry the low response to writing by Nigerian Art Historians thus,

The pity is that, we do not have enough detailed or well-preserved records for adequate and proper documentation on Gani Odutokun-artist, teacher, philosopher and experimentalist of various media of art-and we, as art critics/commentators, researchers, educationists and administrators are the power for this. The problem basically, is that although we have a few items, by way of exhibition brochures and catalogues with information on this multi-talented artist, we do not have enough materials for a really meaningful assessment of his life and works.

This assertion has not changed despite the number of Art History and Art Education graduates churned out of the tertiary institutions annually. Perhaps, a review of the course content will go a long way in bringing lasting solution to the dearth of scholarship on living artists so as to develop a potent repository of the artist's works. Artists have always presented a growing variety of the status, perception and condition of the woman. This is done for the sole aim of addressing the challenges they face in the society so that there can be legislation to prevent the problems inflicted on them most especially by men. However, some artists that present the image of the woman as a totem sexual symbol to the delight of any willing buyers.

The focus of this article is centered on the works of Gani Odutokun (d. 1995) as the authors of this study are not aware of how much work has been done on the artist while he was alive considering the large number of works, he made while he practiced, exhibited and taught Painting at the Department of Fine Arts, Ahmadu Bello University, Zaria. Odutokun has made some paintings and in

some other media with the woman as subject. The female subject in the perception of some artists, this article reiterates have sometimes been that of an object that suggests weakness, sex, despondent mother, a cook and seldom a leader. While for those artists that have portrayed the female in a seeming positive light of passivity is typified in some of the works of Kolade Oshinowo; not presented in this article.

Oshinowo presents such women in a trite like seated posture with an expressionless face, and modest type of Yoruba blouse and wrapper. He perhaps attempts to emphasis the calm disposition of many women, yet the passive pose he presents them in makes them look like a gender that is merely a listener that is always waiting to be told what to do. But for Odutokun, he portrayed the very essence of the variety of experiences they went through, as caused by many men. The selected works for this article are taken from a curated posthumous brochure of works published in Odutokun's honor in 2007. The space made available to a man and a woman in most cultures continues to be a contentious issue in every culture and race, mostly to the detriment of the female gender of all ages. This claim for space starts from the tender age of a female child at conception until she dies. Odutokun, perhaps, aimed at reiterating the need to engender a liberating way of life for the woman where she must always be protected from been emotionally hurt, and prevented from bodily harm.

Gender violence continues to be discussed at a variety of forums with the intention to achieve an equilibrium where the female is without any sentiments treated as a person. In movies, plays, poems, novels and some visual arts, the plight, required place and redefined role of the female continue to be addressed. This article presents eight randomly selected works chronologically with an attempt at tracing an antecedence of Odutokun's thought aimed at reimagining the person of the woman across any divide. Though his works do not necessarily present these variety, yet one can infer such nuances in the works he made.

Both genders have their spaces biologically predetermined for them, while, cultural values and precepts are being deconstructed to engender mergers that require more of the male gender to compromise his unduly claimed spaces. This compromise ranges from stopping female genital mutilation, female virginity practices, male centered land and property ownership, leadership roles in today's modern society, decrying the distaste for the female child, equal emoluments for both gender among others. All these and more are the types of idiosyncrasies being taught in schools so as to continuously amend socio-cultural practices that had made it absolutely difficult for the female gender to be treated as a subject instead of an object.

Nwapa (2007: 527) avers

The woman's role in Africa is crucial for the survival and progress of the race. This is, of course, true of all women across the globe, be they black or white. I would like to give examples of the crucial roles that Igbo women play in their communities...the powerful role of women as Umuala...Peace-making is an important function of Umuala, Umunwunyeobu, and the women's age grades.

The status of the woman and their role in the development and growth of the African and Nigerian societies can therefore not be overemphasized as enthused by Nwapa. These roles have grown to have politicians, administrators, musicians, actors, and the armed forces among others. However, the essence of this is to assess the intuitive mind of Odutokun's message on the challenges faced as he constantly showed concern through his work at a time when women openly and secretly suffered undue hardship under some males.

Again, Nwapa's writing still shows evidence that emphasizes the need to stay vigilant in the face of seeming improvement in the way women are treated. Nwapa (ibid: 540) adds further that "If writers took time to explore the circumstances, the pressures and the deprivations that their characters suffer, this would soften the social conscience and society's scales of justice would shift towards the correct justice." It is this thought that can be inferred to have formed the thrust of Oduokun's works on the woman and girl as he revealed the sufferings, he had observed through some of the works presented. He also added the need for the required due attention that needs to be paid to the female gender in one of his works.

Theoretical framework

As a vehicle to support this article, the authors draw from Lorber (1997: 9) where she explains that:

The main contribution of liberal feminism is showing how much modern society discriminates against women. In the United States, it was successful in breaking down many barriers to women's entry into formerly male-dominated professions, helped to equalize wage scales...it was somewhat more successful in proving the even if women are different from men, they are not inferior.

Liberal feminism holds that people are created equal and that culture and attitudes of individuals are the reasons for promoting gender conflict and no one benefits from a gender being subordinate to the other. To this end, equal opportunities should be created for both males and females in all spheres of life. Some female scholars have also chosen 'womanism' coined by author and activist Alice Walker in a 1982 publication titled *in search of our mothers' gardens: Womanist Press* as a term that best describes the type of experience women face as a departure from the western ideology of what women suffer.

Izgarjan and Markov (2012: 305,310) explain that:

At the center of womanism is the concern for women and their role in their immediate surroundings (be it family, local community or work place) and more global environment. Walker defines a womanist as a "black feminist or feminist of color" who loves other women and/ or men sexually/ or non-sexually, appreciates and prefers women's culture, women's emotional flexibility and women's strength and is committed to "survival and wholeness" of entire male and female. Precisely because it provided a broader framework than feminism, many prominent female scholars and writers such as Buchi Emecheta, Mariama Ba Mirian Tlali identified themselves as womanists as a paradigm in their analysis of the texts of women from ethnic or economically undeveloped countries.

The desire of black women to express their personal and detailed shared African experience has made them to choose the term as it is viewed as a broader term that is not biased but all-encompassing of all women. It is advanced that black women's experience is better viewed and approached with the various delineations and agencies that are peculiar to the diverse ethnic and racial differences that is inclusive of women of color. The aim of this article is to rethink the need to

study possible gender related issues in the artist's works. While the objectives are to identify the variety of the societal status of the female, and to tease out the parallel ideological thoughts on gender issues from other scholarships. This article employs descriptive method as it relies on the paintings made by the chosen artist to explain the thrust of the article. It is purposive as the article is not aware of any other article that may have been written on the artist's feminist intentions as it relates to the works made. The artist has produced a large number of works but this article pays attention to the works where the female imagery has been used to express his thought on issues surrounding the female gender and the experiences they physically and emotionally encounter.



Figure 1, Title: Samaru back street, Medium: Oil on canvas, Size: 71 x 122cm
Year: 1974, Source: Exhibition brochure titled Gani Odutokun: 1946-1995 A Legend of Nigerian Art,
p. 18

The landscape is dotted by some human figures with a conspicuous presence of a female figure in a blouse and wrapper walking across from the left of the painting. She is the only female in the painting at a time when women irrespective of their age, wore a dress without the need the present-day specifics of religious coverings. The woman's blouse is a short-sleeved type revealing most of her arm as she walks on towards a man dressed in a turban and big flowing gown common to some middle aged to elderly Hausa men. The village painted is not as peopled as it is today, as Odutokun reveals. There is a seeming restfulness, liberty and equity for the female gender despite the customary practice of courtyards that many of the women have stay in.

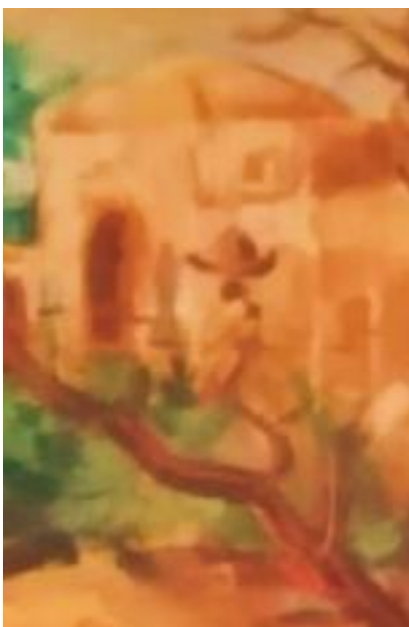


Figure 1a, Detail of painting in figure 1



Figure 1b, Detail of painting in figure 1

To the distant far right is a woman with a baby strapped to her back and a load of calabash as shown in figure 1a. Yet, just about the front of the woman is another woman wearing a blue dress in figure 1b; a blouse and wrapper. These are an indication of liberality for women at the time and Odutokun's is reminiscent of a time of uninhibited freedom for the female.



Figure 2, Title: Bukky's inspiration, Medium: Oil on canvas, Size: 91x 9cm, Year: 1993
Source: Exhibition brochure titled Gani Odutokun: 1946-1995 A Legend of Nigerian Art, p. xii

Odutokun in this painting attempted to advance the need to allow a more potent and active voice for the female child in the face of patriarchal curtains of restrictions. He had four daughters and clearly saw them as children, and to a large extent did not fill any vacuum of the absence of a male child. Eze and Chigbo (2018: 101) explain that

Igbo South-Eastern Nigeria has a cultural practice that places preference on male children to females...It is a patriarchal society where the birth of a male child brings loud joy and fulfillment to the family than that of a female-child birth.

This common ground reference might have inspired Odutokun to advance the need for the female child to get more attention than she had in the early 1990 when the painting was made. Though the artist was a Yoruba man, it is important to read the work beyond what ordinarily imagine was the artist's primary intention. Among the Yoruba, they have a saying that is offered in prayer to a newly wedded couple, when translated into English language goes thus '*You will give birth to both male and female*'. The preference for a male child is somewhat evidenced in a salient way that giving birth to a male child first, before a female child is rendered in the above statement. Moreover, Odutokun in the face of patriarchy insists on the need to pay equal attention to need and aspiration of a female child like it is done to the male child. The choice of dark colours is deliberate, as he suggests the need for the female child to be allowed to, as often as possible take center stage so as to enable her express her thoughts, desires and ambitions to her heart's content, just like is it for the male child. This article adds that one supposes that the name of the girl is from his eldest daughter Bukola, fondly called Bukky for short.

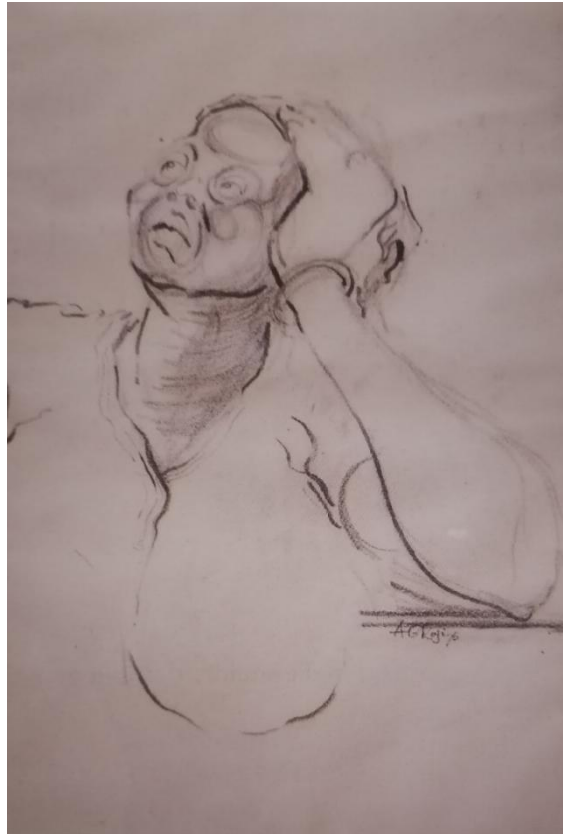


Figure 3, Title: Maria Contemplating, Medium: Pencil, Size: 43 x 30 cm, Year: 1975
Source: Exhibition brochure titled Gani Odutokun: 1946-1995 A Legend of Nigerian Art, p. 27

The drawing must have been made during a Master Degree drawing class, as it is peculiar of the models to be posed in this manner. Odutokun decided to represent the model at a close-up range as posed at the time with the aim of sending a message of the female capacity. Though some parts of the bust seem exaggerated, the purpose is perhaps aimed at making her fill up more space that is ordinarily made available to the female gender. The female, Odutokun suggests need to be inclusive, to the intent that she is presented to have the capacity to think deeply, especially contemplate rationally and intellectually without the man as indices to assess her strengths and weakness. Inference is drawn from Udoh et al (2020: 3) as they posit that

In different customs and traditions, which reflect various cultures across the world, have to a large extent affected the promotion and protection of the notion of women's rights. To be more precise, it has been argued that culture is often used as a tool for justifying the violation of women's rights especially in the areas of marriage and property, reflecting deep-seated patriarchal structures and harmful gender stereotypes.

This article presupposes that the manner in which Odutokun decided to make the model's face to look tense is an attempt at highlighting one of such situations where women contemplate what to do as they suffer one form of violation or the other.



Figure 4, Title: A study on Maria, Size: 45 x 25cm, Year: 1975

Source: Exhibition brochure titled Gani Odutokun: 1946-1995 A Legend of Nigerian Art, p. 18

The stature of the model ordinarily became an agency for Odutokun to change and challenge the narrative from the subjugated status the female is made to subsume. He re-presents her to become an independent spirit and persona that can be alone to think, rethink her situation in life and make a decision that enable her progress. Just like a man can sit in that same posture showing most of his legs uncovered, so can the woman, Odutokun must have advanced. Again, he makes the drawing of the woman to fill the space of the paper as a thrust for the female to advance her hopes, desires, aspiration and ambition. Though both works in figures 3 and 4 above were produced as class works, they have become works subjected to artistic scholarship for one to tease out possible nuances Odutokun may have perceived of the woman at the time.

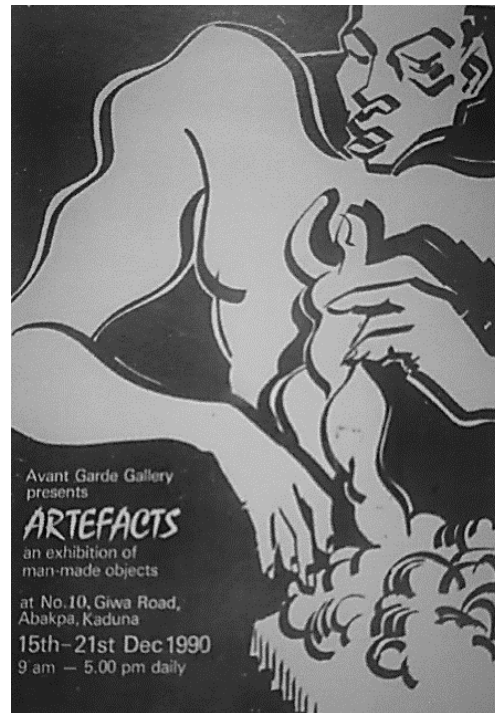


Figure 5, Title: The artefacts, Medium: Poster colour, Size: 56 x 41cm, Year: 1990
Source: Exhibition brochure titled Gani Odutokun: 1946-1995 A Legend of Nigerian Art, p. iv

Although the work is a poster colour work, the work may be misunderstood as the work of a chauvinist that believes in the abuse and domination of the woman. It represents a sculptor making the figure of a woman primarily, yet, his choice of concept can be read to be a pointer to his concern for the state of the woman. This work shares a similar compositional structure of another poster colour work titled '*Police brutality*' with a bold use of red to suggest death, danger and the brutality met on innocent victims of a handful of police officers. The gentile manner in which the male figure holds the small female figure to be emanating from the man's creative power suggests a yielding thrust of the woman because of the trust he has earned from her. Odutokun simply has a concern for the female gender and attempted to have reimagined the said concern into a practicable state of being where she accepted as a person without the aura of weakness and sexual perception that most male gender chooses to perceive her by.



Figure 6, Title: Man surrounded by his Dreams, Medium: Charcoal, Size: 74 x 57cm, Year: 1994
Source: Exhibition brochure titled Gani Odutokun: 1946-1995 A Legend of Nigerian Art, p. 26

Humanity has and continue to experience the condition in which some husbands detest their wives' inability to give birth to a male child. Odutokun in this drawing above sheds light on this by averring that a man's dreams are simply to get married to a woman and have children and ensure he protects them selflessly. He had four daughters and there is no evidence of any misgivings over the absence of a male child while he was alive. The vigour and energy with which the man in the drawing clutches the females show a sense of pride and dedication to protect and provide for them with all his being.



Figure 7, Title: King and Queen, Medium: Drawing, Size: 86 x 68cm, Undated
Source: Exhibition brochure titled Gani Odutokun: 1946-1995 A Legend of Nigerian Art, p. 54

Marriage, it is said to be the union between two consenting adults; perhaps, without any overbearing influences of a third party. Odutokun attempted to quiz the marriages contracted among royalty that are always aimed maintaining the tradition of the bloodline. The two subjects do not have any smiles on their faces, which brings to question what constitutes consent, between two people of the opposite sex that are matched. The firmness of the austere use of lines tells more of the absence of unity and love in the life of opulence, power, grandeur and the word choice. In research conducted to ascertain women leadership capacity against the men in the United States of America, Paustian-Vaderdahtal (2014: 1129) explain that

...a recent debate has emerged in popular press and academic literature over the potential existence of a female leadership advantage. This meta-analysis addresses this debate by quantitatively summarizing gender differences in perceptions of leadership effectiveness across 99 independent samples from 95 studies. Results show that when all leadership contents are considered men and women do not differ in perceived leadership effectiveness.

This research finding above is relied on to infer that the frown on both faces of the subjects in the drawing is a pointer to the tussle over whose ideas works better in a given situation. However, since around 1993 that the undated work was made, some women in Nigeria have continued to earn the right to sit on top various positions as executives, performing well within the ambit of requirements that are devoid of male-centered assessment model.

Conclusion

Odutokun used his artistic expression to attempt to tease out the way women of different ages are treated. He was evidently conscious of the gender bias that made it difficult, and in some cases impossible for some women to achieve their desired goals. Artists should therefore produce works that go beyond mere mastery of skill and technique but also rely on topical issues that can be addressed in the various aspect of the society with the aim of correcting the wrong decisions that continue to impact negatively on life and living. Odutokun employed the subversive approach to colour application and use of abstracted figures that also presents a thought-provoking appearance to viewers. Therefore, the status of the woman is still negative as they are perceived as the weaker of the two gender and thereby suggesting they be guided with great restriction by the man. The liberty that should be accorded the woman is also eroded by a transfer of the cultural perception into the modern era that has led to the various female centered advocacies that seek to advance more space and voice for the female at all age brackets.

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Cultural Modification and Sustainability: Examining the Evolution of Kăcé Kugwâ Ceremony of Bura People in North Eastern Nigeria

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Abstract

Kăcé kugwâ is a cultural heritage of the Bura people located in Southern parts of Borno and Northern part of Adamawa States of Nigeria. This paper use primary and secondary sources of data to examine the modifications of this practice over time. The original Kăcé kugwâ was a send-forth organised for prospective brides a day before their wedding. It involved the washing and display of household items and utensils, gifts, advice giving session to brides, singing and dancing, and the preparation of chinchin for the wedding. Through interviews conducted, it is revealed to the author that, later modifications of the practice discarded all but the preparation of chinchin and cash donation replaced gift items. These modifications were caused by some factors such as religion and insecurity. Cultural, social, economic, and ecological challenges exist that undermine the sustainability of the practice, such challenges can be liken to how culture has evolved and has brought about new trends in cultures the Kăcé kugwâ has experienced such changes in the practice the social interactions has also taken new dimension as the pattern of socializing has taken a new turn due to the influences affecting the practice and the environment can be very challenging because of the insecurity confronting the area. The work concluded that, while the original practice of Kăcé kugwâ is more beneficial to the Bura land, its modification is necessitated by the insecurity situation affecting the people's cultural space and any sustainability effort must consider the challenges from the four dimensions of sustainability, cultural, social, economic and ecological.

Keywords: *Kăcé kugwâ; culture; cultural sustainability; insecurity; insurgency.*

Introduction

Cultural practices are not always static because they are exposed to many influencing factors that bring about changes. These influencing factors can be internal and external in nature. Internal factors, such as changes in the social structure of societies, can cause changes in cultural practices. External factors, such as conflicts in the cultural space of a people, can also cause changes in cultural practices. Religion has also contributed in the changes in the practice due to some church doctrines that kick against the normal structure of the *Kăcé kugwâ* practice it was argued that the practice has some financial demand therefore putting members under duress to respond financially to the needs of the practice some were of the view that it creates problems in homes as women will abandon their homes and duties to dedicate so much time and resources. However, some religious leaders kick against the practice because of the cultural dance performance some thick it is not a holy way to send forth their daughter rather there should be some sort of Christian worship not tradition performances. These claims and assumptions by religious leaders brought about conflict in the whole excess of the practice hence, the changes. These changes can have either positive or negative impact on the cultural practices in question. This means that some changes contribute to the sustainability of cultural practices while some do not, which may eventually lead to the loss of cultural practices.

Kăcé kugwâ is a cultural practice of the Bura people located in Southern parts of Borno and Northern Adamawa states of Nigeria. It is a form of send-forth ceremony for young ladies organised a day before they leave their homes for marriage. Over time, *Kăcé kugwâ* has evolved to an extent where very little of the original practice remains today. The practice has undergone major modifications that it is unclear whether it should still be referred as *Kăcé kugwâ*. This study examines the evolution of the practice and the challenges that face its sustainability. The paper begins by providing conceptual clarification before the examination of the original practice of *Kăcé kugwâ* and its

significance among the Bura people. This is followed by a look at the modifications that have been made to the practice over time as well as the causes of these modifications. Finally, the paper discussed the challenges that undermine sustainability of *Kəcə kugwā*.

Conceptual Clarification of Culture, Heritage and Sustainability

The concepts of culture, cultural heritage, and cultural sustainability have been used in this paper. It is therefore, necessary to clarify what these mean and the context of their use in this paper.

Culture: This concept is defined in different ways, which is not surprising when one considers the broadness of its meaning. However, many of these definitions see culture as either the construction of meanings or the manifestations of these meanings, or both. Thus, this paper adopts the view of Hawkes (2001) that many scholars define culture as:

“The social production and transmission of identities, meanings, knowledge, beliefs, values, aspirations, memories, purposes, attitudes and understanding; The ‘way of life’ of a particular set of humans: customs, faiths and conventions; codes of manners, dress, cuisine, language, arts, science, technology, religion and rituals; norms and regulations of behavior, traditions and institutions” (p. 3).

This means that the concept of culture involves the process of constructing meanings and the manifested products of these constructed meanings. As pointed by Hawkes (2001) culture has three components, which are:

1. Values and aspirations,
2. Processes and mediums of developing, receiving and transmitting values and aspirations,
3. Tangible and intangible manifestations of these values and aspirations. These all contribute to broadening the meaning of the concept of culture as well as its apparent ambiguity.

Cultural Heritage: This concept allows for further unpacking of the broad concept of culture. It refers to the tangible and intangible manifestation of culture. This paper adopts the definition offered by Fithian and Powell (2009), who see cultural heritage as “an expression of the ways of living developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expressions and values” (p. 2). This definition is appropriate because it covers the manifestation of culture in both tangible and intangible forms. The *Kəcə kugwā* is a cultural practice which involve both tangible and intangible culture, the gifts displayed are cultural items used in the Bura culture which serves as the tangible culture while the intangible serves as the dances, songs and advices to the bride which covers the norms and values of the community are all attributes of the intangible cultural manifestations.

Cultural Sustainability: The idea of cultural sustainability is linked to the natural desire of human beings to pass down their cultures to later generations. This is often borne out of the desire to preserve identities, which would not be possible if their culture is not sustained. Cultural sustainability can be viewed from different perspectives but in the context of this paper, it means “the recovery and protection of cultural health, history, and the culture of indigenous knowledge in society. It is linked to previous traditional practices through celebrating local and regional histories and passing down cultural values to future generations” (Duxbury and Gillette 2007, p. 11). It is often a deliberate effort aimed at recovering and protecting culture by providing a bridge where values from past cultural knowledge are transferred to future generations.

The Practice of *Kəcə kugwâ* before Modifications

Kəcə kugwâ is a cultural heritage of the Bura people of northeast Nigeria. Bura land is located in southern Borno State within Biu Plateau and northern Adamawa State in Nigeria. Majority of Bura people are found in Borno within four LGAs - Biu, Hawul, Shani, and Kwaya-Kusar – and a few are found in Gombi LGA of Adamawa state (Mtaku 2020). *Kəcə kugwâ* in its original form was a form of send-forth ceremony which was organised for girls a day before they got married, mostly on Thursdays or Fridays if the wedding day was to be on Saturday. The phrase *Kəcə kugwâ* is in Bura language can be translated to mean “dish washing.” It was an all-female ceremony organised by the mother of a prospective bride and attended by the mother’s female friends and relatives. As the name of the ceremony implies, it was an occasion where all the household items and kitchen utensils that the bride will take into her marital home were washed, cleaned and then displayed on a mat for everyone to see. Since mothers in preparation for their daughters’ marriage usually bought these items over a number of years, the items would usually be dusty and dirty, hence the need for cleaning them. Relatives of the bride (grandmothers and aunts) and friends of the mother would then present their gifts also consisting household items, utensils and foodstuff to the bride and the gifts were added to those displayed. An inventory of all the items displayed would then be taken and publicly announced as the items bought by the bride’s parents for her to take to her marital home (M. Augustine, personal communication, March 15, 2021).

The prospective bride and her friends were then invited to sit within a circle of elderly relatives who would then, one after the other, advise her on how to conduct herself in marriage and offer prayers for the bride. This was followed by the performance of *Hatha* dance where the bride would kneel on a grinding stone and simulate the process of grinding grains while musicians played. The women present would sing, praise and encourage the bride as she demonstrated her commitment to hard work and efficiency in managing her marital home. After this performance, the general dance would begin and everyone would join the singing and dancing. *Bansuwe* dance was often the dominant dance during this occasion. A popular snack called *chin chin* would then be prepared for the bride to take to her marital home, while some were set aside for the wedding ceremony and some would be packaged and distributed to the women present. Finally, all the household items displayed would be taken directly to the bride’s marital home and arranged for her. This marked the end of *Kəcə kugwâ* as practiced in the past, roughly about a decade ago (H. M. Wakawa, personal communication, March 17, 2021).

Significance of *Kəcə kugwâ* in Bura Land

The practice of *Kəcə kugwâ* has important significance in Bura land. First, it served as a farewell ceremony, which mothers organised for their daughters as they moved into marriage. This also served as a time where the female relatives and friends of the bride’s mother would present their support to her as she sent her daughter into marriage. Culturally the occasion was an indication that the parents had raised their daughters well and they were morally upright enough to have gotten to the stage of marriage. Since in Bura, society *Kəcə kugwâ* was synonymous with good parenting and girls’ moral uprightness, in a sense; it served as a sign for other members of the society to aspire to such respected status in order to organise the ceremony for their children. This aspiration in turn helped to sustain the practice of *Kəcə kugwâ*. This agrees with the perspective that “culture and society have to some degree an iterative and reciprocal relationship, in which culture constructs society but society also shapes culture” (Dessein, et al. 2015, p.25).

Another significance of the practice was to ensure that parents provided their daughters with the basic items they needed to start their marital homes successfully. These items usually included kitchen utensils, foodstuff, and even household furniture such as beds and chairs. Since these items were publicly displayed and inventoried, most parents strove to provide their daughters the

minimum required items to avoid public disgrace. Thus, it was normal for mothers to buy these items gradually over a period of ten years or even more in order to ensure their (parents and daughters) cultural well-being in Bura land was/is secured. Cultural well-being here, is conceptualised as “the vitality that communities and individuals enjoy when participating in entertaining, creative and cultural activities, as well as the freedom to maintain, interpret and express their art, history, heritage and traditions” (Sazonova 2014, p. 11).

Kăcé kugwâ was also an opportunity for friends and relatives to provide their support to prospective brides through gifts of additional household items, utensils and foodstuffs. The availability of many women meant the items prospective brides took to their marital homes were usually greater than what their parents had bought. The practice provided a chance for the community to participate in supporting the marriage of their daughters. This support was reciprocal because every woman who participated in other girls’ *Kăcé kugwâ* would be likewise supported during her own daughter’s *Kăcé kugwâ*. Thus, the motivation to support each other was strong among the women of Bura land because it brought about social cohesion. As Hawkes (2001, p. 18) asserts, “community cohesion is utterly dependent upon the capacity of the individuals within a community to understand, respect and trust one another. These qualities are built through cultural interaction.” This ceremony was no doubt a space for cultural interaction and community cohesion building.

An important function of *Kăcé kugwâ* was for providing advice and guidance to prospective brides by elderly women. This advice session was important because it was coming from women who had years of experience in marriage. They are considered to have had sufficient knowledge of the marital union from various perspectives since many women with various experiences were present. The advice session usually covered topics such as how best to live with their husbands, how to live with their in-laws, and how to manage their marital homes successfully. Thus, *Kăcé kugwâ* expressed the visions of Bura land for the future; it embodied what the people wanted to give to future generations, and helped to connect the present with the past and to the future that they imagined as a people (Sazonova 2014, p. 5).

Kăcé kugwâ was an occasion where culture was sustained in Bura land. As mentioned above, it was an opportunity for women of one generation to pass their cultural norms, values and traditions to the next generation. In addition to this, other cultural practices were also sustained during the process of *Kăcé kugwâ*. Bura cultural songs, instruments and dances found expression during this occasion. Dances like the *Hatha* and *Bansuwe* formed a part of *Kăcé kugwâ* and so their chances of being sustained are increased with each marriage ceremony. The importance of cultural songs and dance as media through which culture is expressed, communicated and transmitted is well established. As pointed out by Uji and Awuawuer (2014),

The relevance of dance in all cultures transcends mere recreation and entertainment. Thus, dance remains a relevant and potent tool of knowledge impartation in both traditional and modern set up. It is a vehicle capable of checkmating, conscientizing and sensitizing societies against incessant vices that result into social and moral decay (p. 252).

There is no doubt that the cultural songs and dances being performed during *Kăcé kugwâ* were not only for entertainment. *Hatha* dance for instance is performed to demonstrate hard work and the commitment of prospective brides to manage their marital home efficiently concerning the timely cooking of meals an ensuring that their new family members are fed well and in good time.

The coming together of Bura women during *Kécé kugwâ* enabled them to provide communal labour for the family giving out their daughters in marriage. The women worked together to wash and clean the items bought for the bride as they were often dusty during storage. They also worked together to prepare and package the large quantity of *chinchin* that was made for the bride, wedding reception, and the guests at the *Kécé kugwâ*. The women were also responsible for moving the items of the prospective bride to her marital home and arranging them accordingly.

The Modification of *Kécé kugwâ*

At present what passes for *Kécé kugwâ* in Bura land is different from the original practice because of the modifications that have taken place over time. The present practice is now called *chin chin* after the snack that is being prepared as part of the original process. It remains a farewell ceremony for prospective brides organised by mothers whose daughters are about to get married. It remains an all-female social gathering. However, there is no longer the display of the items bought for prospective brides to take to their marital homes. There is no longer any inventory or public declaration of the items bought for prospective brides to take into their marital homes. There is no longer the gifting of household items, utensils or foodstuff to the prospective bride by the relatives and friends of the families. In addition, there is little or no advice session by elderly women for prospective brides.

This ceremony currently involves the coming together of female relatives and friends of the mothers of prospective bride for the sole purpose of preparing *chin chin* for the wedding ceremony. When finished, some of the *chin chin* is packaged and given to all the women present, some is given to the bride to take to her marital home and some is set aside for use at the wedding reception. All the women present are obligated to give the mother a fixed amount of money, usually 500 Naira or more. This is often accompanied by music played on electronic sound systems. The music played is usually recorded Bura songs or modern pop music and the women dance to these.

Originally, *Kécé kugwâ* was organised from 10 am or later but this time was changed to around 2 am or there about because of security reasons. Since it was not safe for women to come to the venue at that time of the night they usually came much earlier and stayed overnight. This practice resulted in a number of problems such as cases of theft or fatal accidents (a woman once fell inside a well and died). These problems compelled a further modification of the time of the ceremony to around 6 am. Other ethnic groups in northeast Nigeria such as the Margi, Chibok and Gwoza identically practice this *chin chin* process. It has become a standard practice or a kind of popular cultural practice among these ethnic groups.

This activity is no longer restricted to the home of the prospective brides alone because some mothers of prospective grooms also organise *chin chin* at their homes. The reason for this is that they too want to raise money through the process. Organising *chin chin* has become a norm and parents who fail to organise this for their daughters' wedding are frowned upon by the society this is made know by most of the respondent they also added that it is a practice of "pay back" as such every family must make effort to organise the performance for their daughter. It is also compulsory for those attending this activity to donate the prescribed amount of money. This amounts to a form of commodification of culture. This concept, in common usage, refers to the practice of converting tangible or intangible cultural heritage into commodities that are tradable in the market. However, in the context of *Kécé kugwâ*, the aforementioned commodification simply means, "the notion of turning culture into a monetary asset" (Fithian and Powell 2009, p. 5). The main difference with the common usage is that in this context, the motive for commodification is not linked to trade or the international market but culture is utilised for personal monetary gain nonetheless.

Reasons for the Modification of *Kăcé kugwâ*

The modifications that the practice of *Kăcé kugwâ* has undergone are as a result of a number reasons. The insecurity situation in northeast Nigeria caused by the Boko Haram insurgency has had a negative impact on the culture of the peoples in the region including the Bura people. This armed conflict that has been raging for over a decade has led to the death of thousands of people and the displacement of over 2 million people just in the first five years (Imoh-Itah, Amadi and Akpan, 2016). The cultural space of the Bura people, like other groups in the north east, has been affected by the insecurity. Any gathering of people for social purposes were and still are potential targets for gunmen and suicide bombers. Gatherings for ceremonies, worship services in the church or mosque have been known to be attacked by Boko Haram leading to loss of lives (David, Asuelime and Onapajo 2015).

This insecurity situation has contributed to the reluctance of families to display the items bought for prospective brides because this might attract attackers. In addition, moving these items quickly to safety when under attack would prove challenging. There is also the fear that displaying items could attract criminals since robberies, burglaries and kidnappings are rampant due to the the insecurity situation. This situation is also largely responsible for the change in the time of organising *chinchin* to 2 am .This time is believed to be safer for women to gather than during the day but as earlier mentioned, this was later changed to around 6 am due to some challenges. The decision to gather late at night was not misplaced because tangible and intangible cultural heritage forms have been known to be targetted, it was a strategy to avert harmful attack sometimes deliberately, during armed conflicts .The change in timing was a decision borne out of the present realities and the experience of the people in northeast of Nigeria.

The use of sound systems to play music rather than the use of live cultural musicians is attributed to the high cost of hiring musicians Since the cost of hiring a sound system and Dj is much, lower than hiring traditional musicians many people prefer the cheaper option. It is also true that many families in the more conflict-prone rural areas simply cannot afford to hire live performance. The critical relationship between economic globalisation and cultural localization is also an important factor (Al-Hagla 2005). It is obvious that live cultural music of the Bura people is being replaced by not only recorded Bura songs but also by popular circular music. This is made possible by increasing access to modern communication technology and new media, which is greatly connecting the entire globe.

Challenges to the Sustainability of *Kăcé kugwâ*

There is not much doubt that most people wish their culture were passed down to future generations indefinitely. This is because culture is closely linked to identity and so cultural sustainability is often synonymous with preservation of identity. Nonetheless, cultural sustainability is not always possible especially where the cultural environment is not conducive, or where powerfully challenging factors are involved, or when people lack the required knowledge, expertise, or resources to engage in cultural sustainability. This is largely because cultural sustainability is not achieved through focusing on culture alone because other dimensions of sustainability, namely economic, social and ecological dimensions, are equally important. As observed by Jelinčić and Glivetić (2020), the pressure facing the sustainability of cultural heritage are mostly economic, socio-political, and ecological in nature. In the case of Bura land, the Boko haram insurgency that has been on-going for years in the general area has brought about social, economic and environmental challenges to the sustainability of culture. The consequence is that Bura cultural heritage and practices, such as *Kăcé kugwâ*, are going through modifications to in order to adapt to the existing situation. Any discourse on sustainability that does not consider the four dimensions – cultural, economic, social and ecological – of sustainability misunderstands the issue in focus (Kagan 2019). Thus, it is necessary to examine the challenges to the sustainability of *Kece kugwâ* from the perspectives of these four dimensions.

Cultural challenges to the sustainability of *Káčé kugwâ* rise from the fact that culture itself is never static and so it is constantly evolving over time. It is therefore a truism that, “culture is not a fixed end product, but rather a continuous process of creating, negotiating, and reflecting on social practice, which constantly needs to be revised and, subsequently, realigned” (Wagner and Andreas 2012). No doubt intangible cultural heritage is subject to change over time because these are passed from one generation to another in different ways and by different people. In addition, every generation exists within different social, economic, and environmental situations, which are bound to have different impact on culture. Consequently, there is always a tension between the natural changes that occur to culture and the concept of cultural preservation (Trotha 2011). Thus, it is almost impossible for intangible cultural heritage to remain static indefinitely. Even if this were possible, it may be an indication of cultural stagnation and underdevelopment.

Social challenges to the sustainability of *Káčé kugwâ* rise from the insecurity situation in northeast Nigeria because of the Boko Haram insurgency. Consequently, organising *Káčé kugwâ* or any form of social gathering is therefore a risky venture. People have witnessed an unprecedented breakdown of law and order and the reign of unreserved lawlessness. In this situation of insecurity and chaos there were executions of people, kidnappings, rape, forced marriages, armed robberies, burglaries, suicide bombings and other forms of attacks (Granville 2020, pp. 133-134). This volatile situation created by the Boko Haram insurgency has created both real and perceived threats to the people of this area who are rightly afraid to organise social gatherings unless necessary. Social gatherings are important spaces for the production, communication and transmission of intangible cultural heritage without which practices such as *Káčé kugwâ* risk becoming extinct. As earlier pointed out, Bura people responded to this threat by adapting their practice to the existing insecurity situation and some components of *Káčé kugwâ* were discontinued while the time of the event was changed.

Economic challenge to the sustainability of *Káčé kugwâ* rise from the economic difficulties that have accompanied the years of conflict in the northeast of Nigeria. A substantial number of people have lost their means of livelihood and are dependent on either humanitarian aid or relatives for survival. Predominantly agricultural, the economy of this region suffers from the inability of many farmers to cultivate because of the insecurity that plagues mainly the rural areas. In addition, majority of the people killed were in the productive age range of 18-40 years, most of which were males. The damage to the economy of this area can be illustrated in Borno State where in 2014 about 576 shops, 8 markets, 4 banks, 50,135 private buildings, 2453 cars, 72052 motorcycles, among others, have been destroyed by the insurgent (Mohammed and Ahmed 2015, p. 98). Empirical studies have established that Boko Haram insurgency has negative impact on the economy of not only the the northeast region but the entire northern Nigeria leading to over 5 million people facing food insecurity (Mshelizah, Lezuya and Jimoh, 2021). Thus, it will not be unusual for the people of Bura land to channel their dwindling economic resources towards more immediate needs than towards organising cultural ceremonies.

The ecological challenge to the sustainability of *Káčé kugwâ* rise from the physical damages to the cultural space of the Bura people because of the Boko Haram insurgency. Built environments form an important part of the tangible cultural heritage of people. Therefore, the destruction of markets, buildings, shops, mosques, and churches because of the insurgency greatly altered the environment where culture is made, practiced and lived. There is little doubt that “the eradication of a group’s tangible heritage often has detrimental effects on its members’ identity, flourishing, and so on” (Frowe and Matravers 2019, p. 22). This is because the built environments support the social networks that support the communication and transmission of culture. Material spaces are where experiences are made and memories reside. They provide the tangible evidence of events whether

pleasant or unpleasant over generations. Thus, there is always some connection between people's experiences and the materiality of their built environments (Sørensen and Viejo-Rose 2015, p. 7).

The destruction of built environments means the displacement of people, which alters the demographics of geographical spaces. The result is that many already established social networks are destroyed while new ones are made. The displaced people are likely to adapt to the culture of their new environments and social networks rather than continue their cultural practices in strange cultural spaces. Consequently, cultural practices such as *Kācé kugwâ* stand a possible risk of being abandoned entirely. This is because displaced people often lack the resources to feed and shelter themselves not to talk of sustaining their cultural heritage, which are secondary concerns.

Conclusion

This paper has examined the evolution of *Kācé kugwâ* over time. It began with a look at the original practice and its significance to the people of Bura land. This was followed by an examination of the modifications that have been done to the practice over time and some of the cause of these. The paper then discussed the challenges facing the sustainability of *Kācé kugwâ* from the perspective of cultural, social, economic and ecological dimensions of sustainability. It is the conclusion of this paper that although the original practice of *Kācé kugwâ* had much more benefit to the people of Bura land, its modification was necessitated by the insecurity situation affecting the people's cultural space. Since there is no knowing when the security situation of the area will improve, any effort to ensure the long-term sustainability of this practice is more likely to be effective if the challenges undermining it are considered from the perspective of the four dimensions of sustainability.

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Suitability of Zircon from Takalafiya for Bio-Ceramic Denture Applications

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Abstract

Dependence on the importation of costly materials is the common complaint by local producers, which contradicts Nigeria's huge endowment of mineral resources. This situation calls for an alternative such as the exploration of local contents such as zircon. This paper analyzed zircon ore from Takalafiya, Taraba State, Nigeria as potential material suitable for bio ceramic denture applications. The petrographic analysis was conducted using a microscope (Olympus CE 0803142), while analysis for elemental composition was carried out using PRO: X: Phenom-World 800-07334 model for the X-ray fluorescence (XRF), then the quantitative and qualitative carried out using X-ray diffraction (XRD), as well as the morphology of sample which was conducted using a scanning electron microscope (SEM). The petrographic results showed the luster of adamantine, the reddish-brown, the yellow-grey color of a streak of white that indicates colors distinction, and the presence of zircon in the mineral matrix. The XRF revealed SiO₂-23.00%, Al₂O₃-0.55%, CaO-0.076%, TiO₂-0.38%, Cr₂O₃-0.009%, MnO-0.027%, Fe₂O₃-1.89%, As₂O₃-0.044%, ZrO₂-72.76%, PbO-0.037%, ThO₂-0.091%, and L.O.I-1.22% respectively. The quantitative and qualitative X-ray diffraction (XRD) analysis showed the presence of zircon as the predominant mineral and followed by silica (quartz). The SEM morphology showed zircon characterized by clusters of massive rhombohedra microstructure, with some slightly curved shape granular crystals. The percentage of zircon being the highest in the proportion revealed the potential requirement for zirconia-based bio ceramic denture applications. However, the presence of 1.89% Fe₂O₃ is white color-deterrent compared to teeth, while 0.09% chrome, 0.037% PbO, and 0.091% ThO₂ are toxic been caused by radioactive activity, hence the sample must be purified before its medical applications.

Keywords: Zircon from Takalafiya, Potential, Bioceramic Denture, Application

Introduction

Global economic recession, pricey costs, and recently, the restriction on travel due to the COVID-19 pandemic are among the common complaints by local producers, which calls for alternative measures such as the exploration of local content. These materials include zircon as bio ceramics for denture production. Zirconium silicate (ZrSiO₄) occurs as mineral zircon with high refractoriness, tensile strength, and hardness. Its applications keep growing in making glazes, arms, and medical feats (Wahyudi, 2017; Ogundare, 2016; Rajagopalan, 2021). Zircon usually contains sundry elements such as quartz and some impurities (ThiO₂, PbO, and Fe₂O₃) due to formation and change factors during their consolidation (Harlow, 2016, Gross, Bergfeldt, Fretwurst, Rothweiler, Nelson and Stricker, 2020). These impurities are usually detrimental to their applications, hence need purification of the unwanted elements to meet the required standard before applications.

Biomaterials or synthetic substances are those put into body tissue as part of an inserted medical device or used to replace an organ, bodily function, for instance, bones and tissue grafts (Boffito & Ciardelli, 2021; Lynch, Kondiah & Choonara, 2021; Arjunan, Baroutaji, Robinson & Praveen, 2021). Also, bio ceramics have a higher tissue response compared to polymers and metals individually (Dorozhkin, 2018; Kumar, Dehiya & Sindhu, 2018; Daculsi, 2016). They are also elective materials used for the regeneration of bone tissues due to their suitable compositional mimicry property of bone's inorganic components (Abbas, Dapporto, Tampieri & Sprio, 2021). Dorozhkin (2018) further averred that a potential biomaterial must also pass all necessary regulatory requirements. Conversely, a denture is an artificial replacement for one or more teeth; or a set of removable false

teeth (Merriam-Webster, 2019 and WebMD, 2019) made from either plastic, nylon, or metal (NHS, 2018).

The Healthcare Resource Guide: Nigeria (2019) reported of Nigeria's importation of millions of dollars' worth of orthopedics and prosthetics in the years – 2016 to 2021 of 37.6m, and dental products from 2016 to 2021 of 27.4m respectively. This indicates the trajectory of the exploration of the country's huge endowment of solid minerals of different types distributed across its thirty-six (36) states (Alexander, Maina & Barnimas, 2016; Datiri, 2012; Mathias, 2019) with yet slow growth and development of ceramics (Sadiq, Munai & Fai, 2003). Perhaps, the pathetic situation could be due to the overwhelming cost of machines, the lack of trained personnel with high-tech equipment (Yunasa & Ibrahim, 2019 and Umar, 2000), importation of materials (Ogundare, Akinbogun, Kashim & Aramide, 2017 and Abraham, 2019) that needs to be tackled.

Although some of these local materials could be processed into what Wang *et al* (2011) considered as bio ceramics that offer physical and chemical properties that sometime exceed their natural equals, however they are prone to some setbacks requiring proper and early analyses before use. Therefore, this study aimed at determining the potential suitability of the Zircon ore from Takalafiya, Bali Local Government Area, Taraba State as a biomaterial for denture applications against the complaints from various producers.

Materials and Methods

Materials

The materials and tools used in the study included slide glass, mounting pin, hot plate, grinding machine, forceps, glass rod, cutting machine, microscope, Olympus CE 0803142, Araldite gum (Epoxy), PRO:X: Phenom-World 800-07334 model, detergents, Canada Balsam Carborundum powder, and methylated spirit. Also, the Reflection-transmission spinner stage with Theta-Theta settings, XR and XRD processing software, and pycnometer was used. The sample material (zircon ore) was sourced from Takalafiya, Bali Local Government on coordinates N 08° 05' 58" 00" E 010° 40' 19" 90" (115/S, 61 95/S 187), in Taraba State, Northeast Nigeria.



Plate 1: Zircon - Research fieldwork

Methods

The research procedure involved the subsection of the sample to three stages of analysis for characterization thus, petrographic (macroscopic and microscopic), XRF, XRD, and SEM.

Macroscopic and Microscopic Analysis

The sample was first subjected to identification and confirmation as zircon ore. The procedure began with the cutting of the side of interest of the sample using the rock cutting machine. The cut side was ground to powder while observing under a petrology microscope (Olympus CE 0803142). The

carborundum powder (an abrasive containing silicon and carbon) and the zircon chip were thinned facing the glass slide. It was marked using a diamond pen and placed on a source of heat (hot plate) for 5 minutes then scrapped to the coverslip. The glass slide was gummed to the coverslip using Canada Balsam Araldite gum (Epoxy) mixed to equilibrium using a glass rod. The bubble air was eliminated by gently rubbing the surface using, and gently heating the slide with forceps. The sample was then dried for about 10 minutes and kept for 2 days, after which the slides were washed using detergents and methylated spirit and then allowed to dry as they were labeled ready for further studies. Also, a pycnometer was used to measure the specific gravity of the zircon using one cube of the sample.

X-ray Fluorescence (XRF) Analysis

The sample was compressed into a compact form and fused with lithium tetraborate flux in a glass bead. An X-Ray beam from a tungsten X-Ray gun was focused on the specimen. The focused X-Rays caused the inherent elements in the sample to excite leading to the emission of secondary X-Rays that are characteristic of the elements. The amount of emission was also directly proportional to the concentration of the elements present in the sample. The X-ray spectrum of the sample was computer-processed to determine the elements present and their proportion by using the PRO: X: Phenom-World 800-07334 model.

X-Ray Diffraction (XRD) Analysis

The sample was analyzed for X-Ray Diffraction after it was first finely ground and homogenized as the average bulk composition was determined. The powdered sample was then prepared using the sample preparation block. It was compressed into the flat sample holder to create a flat, smooth surface that was later mounted on the sample stage in the XRD cabinet. The sample was analyzed using the reflection-transmission spinner stage using the Theta-Theta settings. The two-Theta starting position was 4 degrees and ends at 75 degrees with a two-theta step of 0.026261 at 8.67 seconds per step. The Tube current was 40mA and the tension was 45 VA. A Programmable Divergent Slit was used with a 5mm Width Mask and the Gonio Scan. The intensity of diffracted X-rays was continuously recorded as the sample and detector rotated through their respective angles.

SEM analysis

The sample was subjected to analysis following Sinnott-Armstrong (2010) to retrieve the main information presented by SEM on the surface detail of an object, which essentially produced a magnification image of the object/sample for the topographical, compositional, and morphological characterization based on grain size.

Results and Discussions

The results of the characterization of zircon ore from *Takalafiya* for possible use in Bioceramic denture applications are reported in the order in which the experiments were conducted as thus:

Macroscopic and Microscopy: Petrographic Interpretation

The macroscopic and *microscopy* akin to petrographic interpretation results of the sample provided pertinent information about the visual inspection data of a clue to the chemical composition, physical properties: structural issues and distribution, occurrence and class of species as well as the color. Crystal habit and system, hardness and specific gravity, luster, color, streak, cleavage, fracture, and occurrence; which form the physical aspect are shown in Table 1.

Table 1: Physical Properties of Petrographic Analysis of Zircon from Takalafiya, Taraba, Nigeria

Name	Chemical Composition	Crystal habit and system	Gravity and specific gravity	Luster	Colour	Streak	Cleavage	Fracture
Zircon	ZrSiO ₄	Tetrahedral prismatic also in dendritic grains	7.5 4.3	Adamantine	Reddish-brown, yellow-grey	Colorless White	Imperfect	Conchoidal fracture

The geochemical features *showed a* structural appearance of imperfect cleavage, and fracture of conchoidal due to weathering, which suggest crystal habit and a system of tetrahedral prismatic zircons. Also, the mineralogical composition of dendritic grains is of very high relief and makes textural measurements like the orientation of grains, in a polycrystalline nature that concurred with Dutrow and Clark's (2021) description of zircon. Equally, the detrital nature of the sample fits the depiction of zircon based on the preexisting data of the types of formation sources explained by Sawaki, Suzuki, Asanuma, Okabayashi, and Hattori, Saito, and Hirata (2017). Likewise, the results showed infinity with tetragonal polycrystalline zirconia, which can partially stabilize with 3 mol% yttria as accounted for by Kleverlaan *et al* (2015).

Similarly, the occurrence and crystal class in Table 1 revealed that the accessory mineral of more acid igneous rocks, with the luster of adamantine; detrital deposits minor mineralogical distinctions and of the tetragonal crystal class with densest of the major gemstones, which is in line with Alden (2019) clue on zircon. Also, the sample showed fire suitability of 1170 - 2370°C, which is relatively similar to the result of Saridag, Tak & Alniacik's (2013) study. The high strength revealed by the material shows its potential to be a beneficial factor for use being consistent with the literature data on *hyacinth* or *jacinth* species (Arem, Clark & Smigel, 2019). The results of tetrahedral prismatic with dendritic grain characterize the property of teeth, hence having the potential of being suitable for the development of dentures.

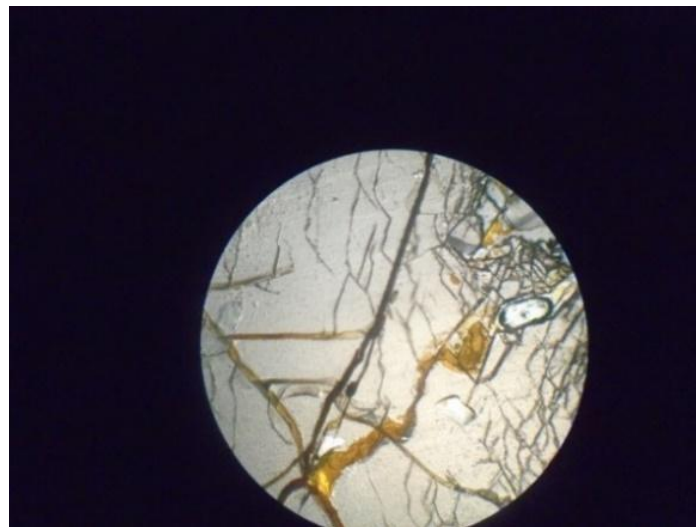


Plate 2: Petrographic Microscopically

The traces of reddish-brown, yellow-grey colors and a streak of colorless white, revealed the white-colored minerals like quartz, while the black is biotite Plate 2 is likely to be due to the inclusions of

ThiO₂, PbO, and Fe₂O₃ caused by radioactivity. The fractures showed the weathering effect that correlates with the study by Pidgeon, Nemchin, Roberts, Whitehouse, and Bellucci (2019) consistent with the typical characteristics of the zircon ore study by Gross *et al* (2020). Remarkably, despite these inclusions sample exceeds the premium standard of zircon as pointed out by Snyders, Potgieter, and Nel (2005) and Breiter *et al* (2014). Conversely, the radioactive materials however require removal and synthesis of material before use as recommended by Saridag, Tak, and Alniacik (2013).

XRF Analysis

The results of the elemental composition are presented in Table 2 and Figure 1.

Table 2: Chemical Composition of Zircon of Takalafiya in Percentage

Oxide	Concentration (in %)
SiO ₂	23.00
Al ₂ O ₃	0.55
CaO	0.076
TiO ₂	0.38
Cr ₂ O ₃	0.009
MnO	0.027
Fe ₂ O _{3s}	1.89
As ₂ O ₃	0.044
ZrO ₂	72.76
PbO	0.037
ThO ₂	0.091
L.O.I	1.22

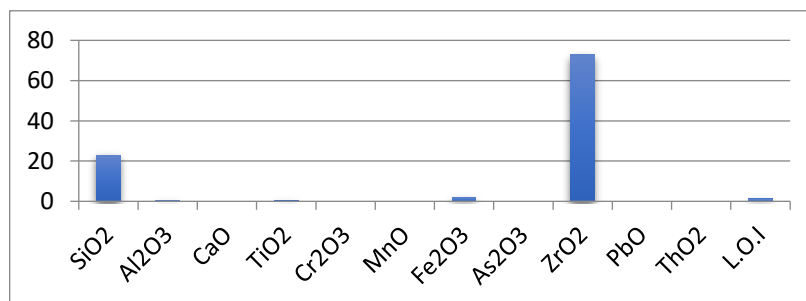


Figure 1: Values of the chemical elements in Zircon in chart

Although the results of the chemical composition *values* or elemental mineral content of the zircon sample in Table 1 and Figure 1 were established, hence it was further confirmed with XRF as opined by Ogundare (2016), Nanoscience Instruments (2018) and Manappallil, (2016) whose studies suggest that material must be tested before and after upon use (Sikalidis, 2011) revealed in Table 2, as well as the XRD result in Table 3 established the material to be zircon. *However*, the presence of SiO₂, Al₂O₃, Cao, TiO₂, Cr₂O₃, MnO, Fe₂O₃, As₂O₃, ZrO₂, PbO, and ThO₂ (see Table 2) is consistence with the typical zircon ore as opined by Harlow (2016) and Gross *et al* (2020), who attributed such to the geological fact that materials such as zircon that they contain natural radioactivity.

For instance, Table 2 revealed 72.76% of (ZrO₂), which possess significant potential in comparison with the premium-grade quality given the standard in comparison to the zircons obtained in other geographical locations. Similarly, the implication of the high content of zircon in the sample indicated that its recovery into zirconia will yield substantial quantity, and with less effort. This makes the sample potentially suitable for the proposed enterprise, which is the development of dentures. Despite the significant potential of the sample, the presence of ThO₂ and PbO, AsO₃ (are toxic), and

Fe_2O_3 (susceptible to exhibiting shades of brown contrary to the ideal natural color of teeth: white, hence tend to jeopardize the aesthetic quality) are setbacks. However, the investigated properties revealed results that are acceptable for standard denture development as earlier mentioned, yet require purification for medical compatibility.

XRD Analysis

The results are demonstrated in Figure 2 for Zircon ore from Takalafiya

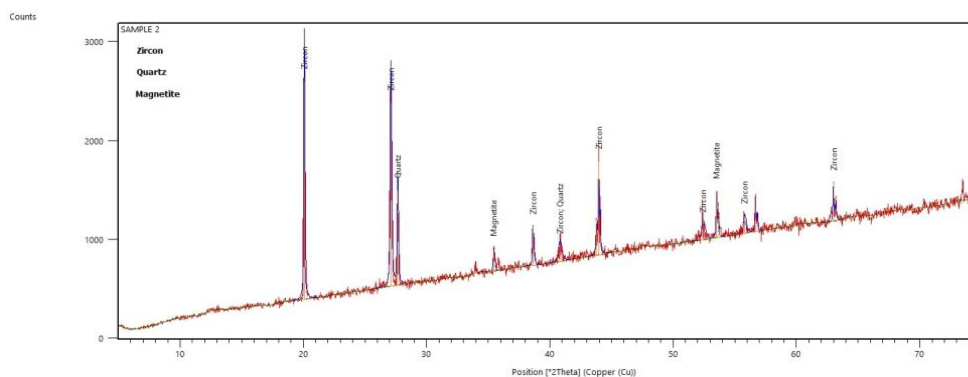


Figure 2: Major minerals identified by X-Ray Diffraction Pattern

The results of the XRD determine the phases/microstructure and their crystal structure or material composition information provided the images of the surface of the sample at extremely high magnifications revealed. The peak in intensity that occurred when the mineral contains lattice planes combined with d-spacings appropriate to diffract X-rays at that value of θ . Although each peak consists of two separate reflections ($K\alpha_1$ and $K\alpha_2$), at small values of 2θ the peak locations overlapped with $K\alpha_2$ appearing as a hump on the side of $K\alpha_1$, the greater separation occurred at higher values of θ . Typically these combined peaks are treated as one.

The 2λ position of the diffraction peak was typically measured as the center of the peak at 80% peak height as seen in Figure 2. Also, the intense peaks apparent at 20° , 27.5° , 28° , 44° 2θ correspond to what crystal plane of zirconia by the ICDD database. Also, smaller features of the XRD spectrum were assigned to the crystal phases of zirconia. Besides weak peaks, they were assigned to associate with oxides impurities. Results are commonly presented as peak positions at 2θ and X-ray counts (intensity) in the form of a table or an x-y plot (Figure 2). Intensity (I) is either reported as peak height intensity, that intensity above background, or as integrated intensity, the area under the peak. The relative intensity is recorded as the ratio of the peak intensity to that of the most intense peak (relative intensity = $I/I_1 \times 100$).

The d-spacing of each peak was then obtained by solution of the Bragg equation for the appropriate value of λ . Once all d-spacings have been determined, automated search/match routines compare the ds of the unknown to those of known materials. Because each mineral has a unique set of d-spacings, matching these d-spacings provides an identification of the unknown sample. After a systematic procedure is used by ordering the d-spacings in terms of their intensity beginning with the most intense peak. Files of d-spacings for hundreds of thousands of inorganic compounds are available from the International Centre for Diffraction Data as the Powder Diffraction File (PDF). The peaks obtained from these analyses were matched with the minerals phases from the PDF 2 ICDD database attached to the XRD processing software, XPert High score Plus also from Panalytical. The XRD graph peaks for zircon ore perfectly agree with Bragg's peaks appearing in the XRD pattern.

Table 3: Mineralogical Composition of the Material

Mineral name	Compound name	Empirical formula	Chemical formula
Zircon	Zirconium silicate	Zr _{0.9} Hf _{0.05} REE _{0.05} SiO ₄	Zr ₄ Si ₄ O ₁₆ (ZrSiO ₄)
Magnetite	Ferrous-ferric Oxide	Fe ₃ O ₄	Fe ₂ +Fe ₃ +2O ₄
Quartz	Silica mineral	Si ₃ O ₆	SiO ₂

The results obtained also agreed with other works reported by Gross, *et al*, (2020), Boch and Niepce (2017), Suastika, Karelius, and Sudyana (2018), which stated that dark color commonly associated with most zircon minerals is caused by the presence of impurities particles in compounds of the magnetic element (Harlow, 2016). The common mineral phases usually associated with most zircon minerals, raw Talalafiya gemstone crystallographic parameter revealed tetragonal crystal for Zr, while that of Si is hexagonal and that of Fe₃O₄ is cubic. The X-ray diffraction results are shown in Table 4 and Figure 2 revealed the presence of three mineral phases; zircon, the mineral of interest, with quartz and magnetite as non-valuable associated minerals.

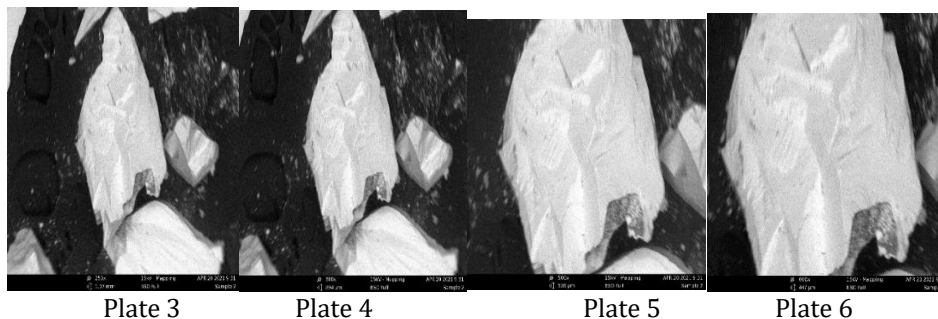
The presence of these mineral phases can be attributed to the differential mineralization of the deposit that may have resulted from the biogenic and geochemical tectonic activities of the earth's mantle. There are differences also in the peaks of each of the revealed or dominant elements. For instance, Zr (Zircon) shows the highest peak, followed by Si (Quartz), then Fe₃O₄ (Magnetite) respectively, which agrees with the visual observation made of the SEM in Plate 2 of the thin analysis. However, it indicated that they can be separated from each other easily after comminution based on their physical and chemical nature while double or complex phases will be comminuted to a point that will enhance their liberation for possible physical separation or leaching.

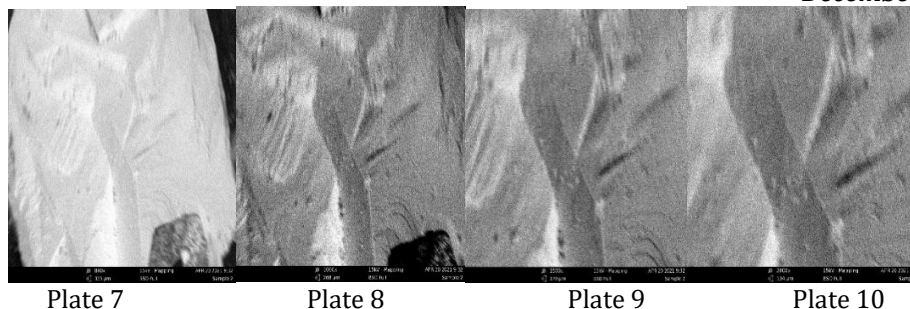
SEM Analysis

The results are presented in Table 4 and Plates 3-9.

Table 4: SEM of Zircon of Takalafiya Showing Different Magnifications

S/N	Plate	Magnification (x)	Grain Size (mm & um)
a.	3	250	107mm
b.	4	300	894 µm
c.	5	500	536 µm
d.	6	600	447 µm
e.	7	800	335 µm
f.	8	1000	268 µm
g.	9	1500	179 µm
h.	10	2000	134 µm





Plates 3 - 10 SEM images of zircon ore at different magnifications.

The SEM analysis conducted provided the results of images based on the various magnification (see Table 4), which revealed the topography/morphology structure or features of the sample (Plates 3-10). This is in agreement with Wang *et al* (2011), which opined that SEM is essential for applications where resolutions greater than those provided by optical microscopy are required. More so, given that SEM is one of the most popular analytical tools due to its ability to provide high-resolution images with excellent depth of field.

Conclusions

The zircon ore from *Takalafiya* for bio ceramic denture applications was successfully characterized for petrography, XRF, XRD, and SEM. The results of experimentations of the sample revealed significant potential as local (indigenous) content suitable for bio ceramic application. The chemical results obtained are comparable with the worldwide average based on the premium standard. The study contributes to the exploration of indigenous natural resources as potential material for medical grade dentures thus limiting the overreliance of Nigeria on costly given the rate of the dollar. This jeopardizes the GDP, hence detrimental national economy.

Although there are inclusions (impurities) ThiO_2 and PbO that are toxic, as well as Fe_2O_3 and Cr_2O_3 , that counter the white color which is the ideal color of natural teeth. these data are based on the required properties for bio ceramic products, which pose some challenges. However, the sample showed good properties with a zircon content of 72.76%. Also, the silica content of 23% could play a crucial role as a glass-forming agent, which makes the material a versatile candidate for the desired application.

Further study should be conducted on the sample given the inclusions of impurities aforementioned that should undergo treatments for an upgrade to meet the required standard of making dentures.

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Entrepreneurial Opportunities in the Printing Industry: A Panacea to Unemployment in Nigeria

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Abstract

The paper focuses on the unemployment issues currently faced by Nigerians with a myriad and plethora of challenges ranging from graduate unemployment, poverty, crime, insecurity, and other social vices that have threatened to put the nation on the brink of a precipice. Bulk of these challenges are traceable to the limited opportunities available to the nation's ever-booming population, with an estimated population of over 200 million people and an economy that has remained largely taunted in the past two decades. It is not a surprise that the crime rate has soared and the poverty rate excruciating. This paper specifically examines entrepreneurial opportunities in the printing industry as a panacea to unemployment in Nigeria. The paper argues and forecasts the strategic place of entrepreneurial opportunities in the printing industry as capable of acting as catalyst in the process of mechanization and industrial enterprise, economic growth, and sustainable development for the economy. Thus, the study recommends that the federal government, policy makers, and implementers in partnership with the management of tertiary institutions would make sustainable policies, devote time, effort, resources, commitment, and an iron resolve to the promotion of entrepreneurship opportunities in the creative sector in curbing unemployment in Nigeria.

Keywords: *Entrepreneurial, Unemployment, Printing, Tertiary Institutions, Opportunities*

Introduction

One major fallout of this grim picture of the Nigerian situation is the systematic rot in the quality of education over the years. It is argued and rightly so that a trained, educated and enlightened mind reduces poverty by half in her life. Yet it is hard to say whether the vast majority of the Nigerian populace has acquired or has access to the requisite training, exposure, and mind regeneration that will enable them to create wealth and conquer poverty. It would amount to playing to the gallery and a major disservice to natural growth to assume this position. This is even worse and calamitous when the educational pursuit is misplaced or misdirected. Such then is the quagmire and delicate position the country has found itself in where the nation's tertiary institutions are mere breeding grounds for churning out hundreds of thousands of graduates yearly who come out to add no value to the society. It is also the dilemma that has turned the nation into an import-dependent country where the nation imports virtually everything it consumes ranging from goods as basic as a toothpick, and the exportation of its crude oil for refinement and hauled back thereby depleting and upsetting the nation's foreign exchange conservation plan.

The foregoing is the bane and major millstone of the quest for national development. The over-dependence on imports, which has invariably promoted huge capital flight, instituted a bogus and unmitigated foreign exchange regime and caused a slide in the value of the Naira against major currencies in the world, owing to imbalances in trade. With this travesty, the Nigerian economy continues to bleed and is in near tatters, which has made quite a number of things degenerate. Unless something urgent is done to reverse the trend, the nation may never be able to shed the toga of a sleeping giant that has forever hung around it.

Basic Concept

Entrepreneurship is an act in which an individual or group of people utilize their inputs such as finances, land, materials, labour, capital and organization, introducing new techniques and production opportunities to establish and manage a business. An entrepreneur is a person who creates a new enterprise while rendering services to the people, selling good products, and embraces every challenge for its development and operation.

Asonibare (2017) describes “Entrepreneurship is being encouraged in Nigeria through training, re-training, and provision of loan schemes. It is included in the curriculum of all tertiary institutions. Students whose training are practically oriented are being trained to produce goods or to set up their own business or enterprise”.

The printing business to be precise falls under the category of the creative and manufacturing industry. There are lots of arms in which the printing industry can be divided into which will in turn generate quite an ample opportunity in our nation. This will in turn reduce unemployment drastically.

Over the years, it has been discovered that the rate at which unemployment in Nigeria increases is borne out of the fact that our institutions of higher learning are not really involved in courses that teach/ empower them to be an entrepreneur. With this unenviable status and the seeming underperformance of the Nigerian economy and government heightened by misplaced educational footing, the task that becomes compelling and almost inevitable is the engendering of a national policy on education that will change the tides and cause a reversal of the downward economic spiral in the nation by revving up and stimulating economic activities.

However, with the continued emasculation faced by the populace, weakening of the nation's economy, and inundated by the unparalleled effects of a banal educational system on human capital development, the federal government has to rethink and rejig its national policy on education to effectively tackle the challenges posed by an educational system that merely produces graduates without the requisite skills and knowledge to reinvent themselves in the 21st-century knowledge-driven economy. The overriding idea is to foster and sustain a system that recognizes and promotes innovations and expertise as the foundation for national growth and development.

Universities Offering Entrepreneurship

Olorundare, & Kayode (2014) In this light, the government 2006, through the National Universities Commission (NUC) directed Nigerian Higher Education Institutions (HEI) to include Entrepreneurship Education (EED) as a compulsory course for all students effective from the 2007/2008 academic year. The rationale for this was to promote business initiatives and other necessary vocational skills to reduce undue dependence on white-collar jobs by university students upon graduation.

In line with the above directive, many institutions of higher learning have commenced Entrepreneurship as a course of study and a few others introduced it as a degree course. Examples of such institutions offering Entrepreneurship as a degree program/ course of study are the American University of Nigeria, Yola (BSc. Entrepreneurship), National Open University, online (BSc. Entrepreneurship), Bayero University Kano, Covenant University, Ota, Federal University of Agriculture, Abeokuta, Federal University of Agriculture, Makurdi, Joseph Ayo Babalola University, Ikeji-Arakeji, Lead City University, Ibadan, Michael Okpara University of Agriculture, Umudike, Nasarawa State University, Keffi, Nnamdi Azikiwe University, Awka, Osun State University, Osogbo,

Renaissance University, Enugu, University of Benin, Benin City, Federal University of Technology, Akure, Paul University, Awka, Veritas University, Abuja.

Benefits of Including Entrepreneurial skills in the curriculum

This development is largely seen as a step in the right direction and a move capable of re-orienting the vast majority of Nigerian graduates and changing their psyche for a more productive and vibrant workforce, which will overtly tell on the performance of the nation's economy and stimulate economic growth and prosperity.

An elaborate and well-thought-out educational system creates critical thinkers and enables the next generation of innovators, processes, and ideas that sustain the economy. Even as the nation grapples with the challenge of globalization and a knowledge-based economy, the remedy is an educational system that takes cognizance of the thrills and rigors of the moment and it is for this reason the government initiative on entrepreneurship study in higher institutions is laudable.

To prevail in this new data-based and always advancing society, understudies need to foster their capacities and genius to levels much past what was considered acceptable previously, subsequently, the significance and convenience of business instruction can't be over-accentuated.

According to Brooklyn Center Entrepreneurship Market Strategy (2021), an Entrepreneur Metropolitan financial aspect performs unequivocally on a wide scope of monetary pointers, from development to work. Likewise, the inquiry currently emerges whether Nigeria is prepared for this reality Nigerian understudy is prepared to make the most of this chance.

The burden to rejig and upscale the Nigerian educational system is a herculean one. Over the years, the nation has witnessed unprecedented deterioration in the quality of education served. The bulk of the challenge is that the government lip service to the development of the educational sector in the past and in the present. The Nigerian educational system that used to be the envy of all has systematically declined these past decades. Lack of incentive and a commensurate reward regime for educational professionals has promoted brain drain and robbed the nation of the requisite expertise and skills that are needed to grow the nation's economy.

UNICEF Peter Hawkins (2022) describes "Nigeria as a part of a global education crisis (one of the world's largest populations of school youth in the world), with more than ten million Nigerian children. 40 percent of Nigerian children in the North aged between six and 11, especially girls, do not attend any primary school". In the South-East, the number of boys shunning school is also alarmingly on the increase. The dropout rate in primary schools across the country is put at 30 per cent, while only 54 per cent transit to Junior Secondary Schools.

Oraka (2018), stated that Quality education is necessary for the preparation of a skilled workforce and lasting socio-economic development of a country. Hence, the development and implementation of policies aimed at increasing the quality of education are vital. In Nigeria, there is an urgent need to focus on:

"To achieve the ambitious goal of providing quality education for all by 2030, a UNESCO report suggests that countries would have to allocate at least 20 percent of the national budget to education. This seems like a far reality for Nigeria with its 2018 budgetary education allocation of a mere 7.04 %. There is a crucial need for the Nigerian government to

prioritize the education budget for quality education and better education outcomes.” (Oraka, 2018)

The consequence is that teachers are underpaid; there is a lack of a healthy learning environment and an absence of commitment as well as passion by those who work in the sector. Consequently, the deficiency of entrepreneurship education in Nigerian higher institutions of learning is not an isolated phenomenon.

The quality of education in any learning environment is a crucial tool for improving the prospect of higher income levels for individuals, and for the economic growth of a nation, but the challenge that has clogged the wheel of progress for a robust educational system in the nation ranges from extreme poverty of vast majority of the Nigerian populace, poor school funding, waning interest from students, poorly trained teachers, inadequate learning aids and incessant strikes which have largely made learning uninspiring and erode the passion of the youth to pursue productive engagements in school.

Grade schools have practically rotted, the auxiliary schools are clogged, the two schools of instruction and polytechnics exist under their shadows, the colleges are by and large wrecked, the conditions could scarcely be in any case.

In the present situation, the nature of the instructive administrations at all levels has fallen. (Lawal & Olugbade, 1991). As of the year 2021, these words still hold true as the standard of education in Nigeria continually declines at unprecedented levels, which poses a threat to the economic, political, sociological, and human resource development that is necessary for the nation’s growth aspirations.

“The failure of public institutions in job creation is a major contributor to the dominance of the informal sector in Nigeria, as most people address the work deficit by engaging in activities to sustain their livelihood” (Onakala & Banwo, 2015).

The unfriendly impact of falling instructive guidelines to a country is exceptionally grave, along these lines in relating training to monetary and public development, it has been expressed that proper training holds the way to public turn of events and financial development, in like manner, the backing that interest in schooling is expanded depends on the way that high relationship exists between use in instruction, instructive norms, school enlistment rates and the GNP per capital or level of financial development of each public; in this way a fall in the instructive norm in Nigeria infers, thus, a decrease in its degree of monetary development.

“With the current population of about 171 million, 45 per cent of which are below 15 years, there is a huge demand for learning opportunities translating into increased enrolment which has created challenges in ensuring quality education since resources are spread more thinly.” The weight on instruction in Nigeria has become considerably seriously overpowering, bringing about in excess of 100 understudies for 1 educator as against the UNESCO benchmark of 35 understudies for each instructor, finishing in the understudy learning under trees for the absence of homerooms and other brutal conditions. (Laleye 2018, “Funding of Education in Nigeria below UNESCO Recommended Benchmark,” para 6).

For Nigeria to join the global race in achieving the agenda 2030 educational requirement, there must be a concerted effort in revamping the education sector, especially by giving adequate priority to the educational budget for quality education and better educational outcomes. Nigeria has achieved

some advancement in extending admittance to schools under the Millennium Development Goals (MDAs) and the homegrown Universal Basic Education (UBE) Scheme. In any case, this extension has not brought about further development in learning, as the level expectation to absorb information in Nigeria is verification. Getting youngsters to school doesn't consequently mean a satisfactory framework but employment of qualified instructors, favorable learning climate, regular participation, grade movement, viable homeroom administration, and all the more critically, effective learning.

With the avalanche of challenges that have riddled the Nigerian education system and stifled every effort at progression in the past both at primary, secondary, and tertiary levels, the new government's thinking of entrepreneurship development in higher institutions gives a great cause for concern. As laudable and imperative as the initiative is, the new educational policy direction may be consumed by the same hydra-headed monsters that have thwarted every effort in the past.

The promotion of entrepreneurship education in higher institutions in Nigeria will help to redefine the learning landscape in the country and improve educational outcomes with its attendant ripple effect on the nation's economy. It remains the game-changer in the nation's quest to rejuvenate the country's appalling economic status but this noble initiative may suffer the same fate that has befallen other government initiatives in the past aimed at revamping the nation's educational sector and significantly growing the economy. Entrepreneurship study in Nigeria's higher institution of learning is a novel and welcomed development. It has the potential of galvanizing and acting as the soothing balm for the many intractable ills that have plagued the nation's economy. Thus, it is in this capacity that it may not spare the deadly blows that have sent other people's innovative ideas in the past to their early graves.

Nwambam, Nnwnnaya, and Nwankpu (2018) Studies that have assessed business programs in Nigeria's higher establishments. These studies, place that the current foundation restricts the viability of business instruction in colleges highlighted by poor and out-of-date labs, studios, and offices, understudies' blasts, and lack of qualified scholarly staff. (Journal of Entrepreneurship Education; Vol. 21 Issue 1, 2018).

The positive move by the federal government to present business instruction in tertiary establishments has led to a clear and hurried presentation of the course into an advanced degree program. A human and capital asset cum tremendous test in their execution for the ideal outcome is expected, having established a solid limitation framework at both essential and auxiliary schools' levels, giving required. Considering that the business educational plans of tertiary organizations are pertinent for economic advancement of the country with a helpful effect on understudies' pioneering soul, they don't satisfactorily furnish understudies with information and abilities to be independently employed, as the technique for showing business venture program in these foundations are not reasonable for adventure creation and development.

Career in opportunities in the printing industry

Printing industries creates the ability to record ideas so they could survive across many generations. It also allows information to be communicated exactly to any number of people. Once ideas and information were made permanent and everyone had access to them, true technological development began. Viewing the printing industry: it is made up of commercial, special purpose, quick printing, in-plant printing, publishing, package printing, trade shops and related industries is only one way to look at this broad industry. The printing industry does not stand-alone; it is carried by people. There are various paths to entering the printing industry. These are as follows:

Upper-Level Management preparation

Individuals with experience in such areas as art, journalism, engineering, chemistry, physics, research, data processing and computers, sales, marketing and management are employed in the printing industries.

Middle level management preparation

Middle level management such as production control people, section foremen, and skilled craft people enter the industry by a variety of routes. There are opportunities for high school and secondary school graduates. The industry offers vocational or industrial arts classes combined with a cooperative experience for those who do not have college or university degrees.

With the various opportunities available in the printing industry combined with the entrepreneurial knowledge from the various institutions of higher learning. There is certain awareness programs that need to be done for young graduates to know that these ample opportunities are available in the printing industry.

Conclusions and Recommendations

To achieve sustainable economic development in Nigeria through entrepreneurship programs in the universities, the Nigerian government, through appropriate agencies and institutions, needs to do more through compulsory degree programs in Entrepreneurship in all higher institutions, with curricula, which emphasize practical/vocational training and acquisition of skills in business venture creation.

With the noble drive to grow the nation's economy, through the honing of entrepreneurship skills in Nigerian youth, the government should show steadfastness and commitment in ensuring that all hands are on deck to see to the success of this new educational policy regime for higher institutions in the country. In doing this, the government should liaise with all critical stakeholders in the educational sector to examine this urgent national issue to generate necessary ideas and establish the framework for the implementation of the extant government policy on the compulsory introduction of entrepreneurship education in higher institutions in Nigeria.

The government will be providing the needed impetus and right footing for the entrenchment of entrepreneurship education in Nigerian universities by liaising with all relevant stakeholders to undertake a comprehensive review of the extant entrepreneurship curriculum, as well as propose measures to ensure adequate provision of educational facilities, equipment, and materials for teaching entrepreneurship education and provide practical venture creation for students and graduates.

To leapfrog and provide the necessary head-start for the promotion of entrepreneurship education and bolster its development, it will serve some useful purposes for the federal government to make funds available to cater for the dearth of infrastructure in Nigerian universities to re-position them and make them amenable to the new scale of learning to be envisaged in various institutions. Also, with the right funding, the challenge of inadequate manpower and skills for promoting entrepreneurship education in Nigerian universities can be effectively tackled through training and re-training of the academic staff of the institutions and hiring experienced personnel versed in teaching courses in entrepreneurship development.

As part of measures to provide a robust background for the implementation of this novel educational policy in higher institutions in Nigeria and ensure its continued sustenance, it is pertinent to extend the new directive to schools both at primary and secondary levels, so the youth could imbibe the culture and develop entrepreneurship spirit much earlier in life and as they transition from one level

of growth to another. This way, the new policy regime fostered in higher institutions across the country will not suffer loneliness and be left out in the cold to starve to death as an orphan.

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EXPLORATION OF SELECTED SCULPTURAL FORMS AS MOTIFS FOR WAX PRINT DESIGN**Zainab, BELLO¹; Adeoti ADEBOWALE, A²; Alesagba, Ebenezer IGBEKELE³**¹Department of Industrial Design, Faculty of Environmental Design, Ahmadu Bello University, Zaria.²Department of Fine and Applied Arts, FCT College of Education, Zuba-Abuja, Ahmadu³Department of Industrial Design, School of Art, Design and Printing, Kogi State Polytechnic, Lokoja.¹bellozainab55@yahoo.com²geliloe3@gmail.com³ebeneigbekele@gmail.com

Abstract

Form and image development are fundamental to creative expression in visual arts. Form is an element that distinguishes difference between two-dimension and three-dimension among the branches of visual arts. Particularly, sculpture is three-dimensional form, while textile design is two-dimensional form by their visual appearance. The visual expression of each of them is embedded in creative practice of the artist which is easily understood and interpreted by the viewer. In this research, attempt is made to explore and analyse sculptural form adapted as motif for wax print in textile design, aiming at breeding yet a new pattern and motifs suitable for various design uses. For instance, the dynamics of sculptural form adaptation in to other area of creativities such as architecture, pictorial arts and pottery as well as automobile bodies is a discernible image everywhere. The research is studio exploratory while camera and descriptive analysis were used to process the data. Two sculptural forms were adopted from the Ahmadu Bello University in this study due to uniqueness in their technique of execution. The findings resulted at ten (8) paper designs showing dexterity of studio practice in the development of new design for various fashion and textiles use. However, the paper concludes that sculptural form is a source of inspiration for generating design concept for the textile designer.

Key Words: Exploration, Sculptural forms, Motifs, Wax Print.**Introduction**

Sculpture is a branch of visual arts usually classified as fine art which is an expression of aesthetics in three-dimension. And as a plastic art Adeoti and Ejiogu (2017), it is continually extending the range of its activities and evolving new kinds of objects beyond imagination. The view of Leonard (2022) captures the full essence of sculpture:

Sculpture, an artistic form in which hard or plastic materials are worked into three-dimensional art objects. The designs may be embodied in freestanding objects, in reliefs on surfaces, or in environments ranging from tableaux to contexts that envelop the spectator. An enormous variety of media may be used, including clay, wax, stone, metal, fabric, glass, wood, plaster, rubber, and random "found" objects. Materials may be carved, modeled, molded, cast, wrought, welded, sewn, assembled, or otherwise shaped and combined.

In the modern era, the role of sculpture, like most arts, has changed to be more about exploring or expressing secular concerns like individual expression on issues such as highlighting history and culture among others. Contemporary sculpture, in dealing with these issues, can be figurative, abstract or a morphing between the two. Sculpture can use any material or process that present day technology provides, from stone to electronics and light itself. According to Kuhtz (2016), a vast majority of sculptures are not entirely autonomous, but are integrated or linked in some way with other works of art in other mediums.

The merging of forms and tactile effects of sculpture is a unique dynamic expressive medium that allows for “unlimited freedom of expression for the modern artists in terms of media” (Obodo, 1998), which on the other hand widens the scope of textile and other related art. Bill (1952) has pointed out designers who realize new forms and are consciously or unconsciously reacting to trends in contemporary art because, it is in art that the intellectual and spiritual currents of every epoch find their visible expression. Hopkins (1994) argues that, sculpture ultimately represents the subject that it is taken to represent within an appropriate appreciative experience, where this will be determined not just by isomorphism of shape, but also by other factors such as the manner of presentation of the sculpture.

Wax print is a resist technique of fabric design, where a desired area is protected by a certain resin to prevent dye penetration. It is a similitude of batik where melted candle wax has been applied on the fabric to prevent entrance of dye. According to ELISE (2020) wax prints are colourful cotton fabrics produced using a mechanised wax-resist printing technique inspired from the Indonesian hand-crafted batik method. The author further reiterates that, the design is etched on to two copper rollers which are mounted on to the wax printing machine. The molten wax resin will be picked up in the etched roller and impressed on to both sides of the cloth. The hallmark of wax print is how colourful the visual appearance always appealing.

This paper contextualized visual appearance of sculptural form to be interpreted as motif for designing. It was reported by Adeoti (2020) that, idea generation in design can be from any source. Adapting form for designing in this context, The Artifice (2022) argued that adaptation is a process of change due to alternative purpose, function or environment which simply means “the presentation of one art form through another medium”. In the same vein does Brittney (2021) relates that artistic adaptation of art from one style, culture, or medium to another which is refer to as “transposition”. This definition when applied in this context becomes “an altered or amended version of form”. It is against this background that, this paper explores sculptural form as a motif generation for wax print design.

Relationship between textile and sculpture

There is close relationship that exist between sculpture and the other branches of visual arts, which have been attested to by a number of artists such as, Michelangelo, Bernini, Pisanello, Degas, and Picasso who have turned sculptural art in to another form (Encyclopedia, 2021). Below summarizes the relationship of sculpture and other forms of art:

- i. Sculpture has long been closely related to architecture through its role as architectural decoration and also at the level of design.
- ii. Some forms of relief sculpture approach are closely related to the pictorial arts of painting, drawing, engraving, and so on.
- iii. The borderlines between sculpture and pottery and the metalworking arts are not clear-cut, and many pottery and metal artifacts have every claim to be considered as sculpture.
- iv. There is a growing affinity between the work of industrial designers and sculptors. Sculptural modeling techniques, and sometimes sculptors themselves, are often involved, for example, in the initial stages of the design of new automobile bodies. (Encyclopedia, 2021)
- v. Also, a medium of expression for fiber, thread, fabric and movable objects through which sculptural forms are achieved by weaving and other creative processes (Udeani, 2014).

Textiles are interconnected with subject areas such as figurative tapestries, installation art, literary texts and architectural materials (European Research Council, 2013). Related core concepts, specific

to design are the relationship between the elements and principles of textile and sculpture (see Tables 1 and 2).

Table 1: The relationship between elements of textile and sculpture

ELEMENT OF TEXTILE DESIGN	ELEMENT OF SCULPTURE
Line	Line
Space	Space
Form	
Colour	Colour
Texture	Texture
Shape	
	Plane
	Mass/ Volume

Table 2: The relationship between Principles of textile and sculpture.

PRINCIPLES OF TEXTILE DESIGN	PRINCIPLES OF SCULPTURE
Balance	Balance
Emphasis	
Rhythm	Rhythm
Proportion	Proportion
Scale	Scale
Harmony	Harmony
Unity	
Repetition	
	Axis and Plane

Methodology

The research employed studio exploratory study in the Department of Industrial Design, Fashion and Textiles Studio, using digital camera to photograph works, while descriptive method was used to do the analysis. Two sculptural forms were selected: one sculpture in the round in the sculpture garden and a relief sculpture installed on the wall of building in the Ahmadu Bello University, Zaria. The sculptures were specifically made of metal, iron and fiber glass. The choice of selecting the two sculptures were informed by their uniqueness in style of execution which mostly has been adjudged as master piece over the years.

Materials: Cardboard paper, drawing sheet, Light-table, pencil, gouache paint, sable brush, fixative spray, digital camera, and drawing instruments

Studio Activity 1:

The two sculptures were photographed with digital camera for clarity's sake. A print-out of the photograph was made through digital imaging machine. The print-out was later processed in to design template using pencil sketch draughtsmanship to form the motifs on drawing sheet. This is rarely ideation stage. The motifs were later transferred on half-imperial cardboard which has been mounted on board through Light-table. The working area was patterned in to grids of different styles to house the motifs, while symmetric and asymmetric shapes were interwoven onto the background to complete the pencil work.

Studio Activity 11:

The pencil works were later coloured using gouache colour paint with round sable brush. The researchers were careful enough to work with a planned colour pallets mixing paints in various bottles at the required quantity sufficient for the work. After the painting, the surface of paper works were fixed with fixative just to allow for permanence.



Plate 1: Sculpture in the round by unknown artist
Photographed by the researchers (2021)

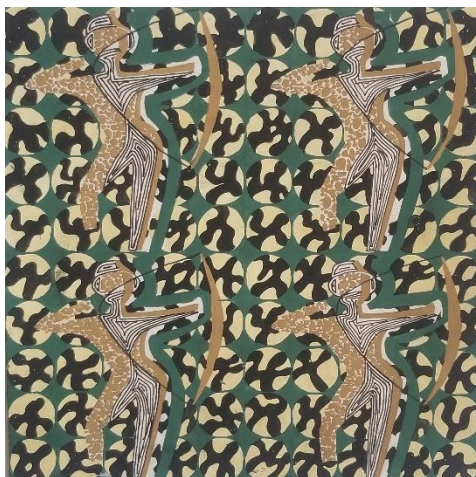


Plate 2a: Paper design
Researchers' collection 2021



Plate 2b: Paper design
Researchers' collection 2021



Plate 2c: Paper design
Researchers' collection 2021



Plate 2d: Paper design
Researchers' collection 2021



Plate 3: Relief Sculpture by unknown artist
Photographed by the researchers (2021)



Plate 4a: Paper design
Researchers' collection 2021



Plate 4b: Paper Design
Researchers' Collection



Plate 4d: Paper design
Researchers' collection 2021



Plate 4c: Paper Design
Researchers' Collection 2021

Findings and Discussion

The studio exploration of sculptural forms adapted into wax print patterns, indicates a departure from reality in the depiction of imagery in art. Intuitively, the visual representation in art has to do with resemblance. The sculptural forms are abstracted, usually through a process of simplification, and still retain the essential characteristics of their natural sources. The sculptural forms were distorted, exaggerated, reorganized, and still recognized so do paper works (wax print designs). The sculpture in the round is an action posture which is symbolic of bravery and power (plate1). A visual depiction of female archer holding arrow targeted at the enemy is massively executed, with an adjustable shoulder strap and a weapon beaded string around her waist. Significance of female in protection against the enemy is brought to bear in this context. The other sculpture is association of ancestral mask faces arranged in a dignify row which can suggest deliberation towards peace or watching over the subject since the earthly world is committed to their hands.

The catalogue of the studio exploration below presents some of the works executed in the studio (see plates 2a, b, c, d, 4a, b, c and d).

For instance, in plate 2a, standing female hatted warrior is portrayed in four repeat pattern suggesting full-drop technique. The body of the warrior was depicted in scale-like shapes combined

with scarifications, while the background is super-imposed with three different colours (olive green, yellow ochre and black). The background which can be seen as having yellow ochre is cast in grids with contour lines to form palimpsest against olive green black lines. Also, the formation of the background is suggestive of war front and forest which can bring sense of combatant to memory, of course, it has a striking semblance of Nigeria Military combatant uniform.

In the plate 2b, the pattern is repeated in both half-drop and mirror system, while the motif is slightly different in form formation as compared to the sculpture with female figure. In this case the figure looks masculine with hat conspicuously featured on the head. The background is worked with complex wavy lines, even with rhythm execution of the lines, it suffices to mention that the lines represent rowdiness atmosphere which characterize war front.

Plate 2c turn around the posture of the motif stature to left direction, depicting 'variety' as principle of design. In the design, the motifs were juxtaposed within the layout of diamond grids repeat pattern. The motifs are worn in dark-brown colour distorted with geometrics and interlocked in to contrasting green and pinky hue. A shadow effect is prominent to recede the main caption in yellow ochre seems like unregistered design to show contour of head down to the arm, this is characteristic of wax print technique.

In plate 2d, the motifs reside in coffee brown colour contrasting to seemingly pink and ash hue, the style of repeat is manifest of mountainous hills revealing battle front where the warrior hides to target the victims. The motifs are decorated in bluish colour using spherical shapes like technological symbols to fashion the outfit while the background is degraded with crackle lines.

Plate 3 is an abstracted mask faces of the ancestor. A relief metal sculpture installation supplanted by protruding iron as the connecting web to hold the masks. This phenomenal of power and strength in collectiveness exhibited in the work brought to bear the terrestrial power of the ancestors especially for the protection of our cosmology.

In the plate 4a, the motif portray harmony by abstraction, styled in two repeat system. Blue colour dominance at the background convey the fragility of nature that needs to be protected from destruction, hence conspicuous appearance of the faces in orange and lemon green. This is suggested guardian of galaxy, while interwoven black lines are saturated at the background portraying a protective net preventing an intruder.

In the plate 4b, the design alludes to peaceful atmosphere, where full protection is achieved with the intervention of ancestors, certainly this endears harmony in the world. The background is subtleness of colour brilliance, using tint of blue, green and light-brown to create a better world, placing humanity in harmony with the environment.

Plate 4c is typical of African architectural design outlook, where the ancestors are housed. The motif is embellished with light orange colour, while the images are outlined in black colour against predominant bluish-green background. Prominently featured in the work is an effect of dotted adornment expressed conservatively around something that looks like wall.

In plate 4d, the design is depicted in monochromatic effect of ash colour with superfluity effects of musical sound when it is viewed at a glance. A close observation would reveal a body of ancestors in a joyous mood dancing to peaceful co-existence of their subjects. The rhythmic depiction of wave length of water flow by lines and circle shapes accentuate ecological sustainability while engaging with deeply socially conscious people.

The whole work is a celebration of organic pattern, shape, and texture being that they explore the inherent beauty of the environment, the inevitable cycles of rebirth and decay, and co-creation between man, ancestors and the environment. This is noted in the work of Andy Goldsworthy who is famed for environmental protection art (The Art Story, 2022). The cold, hard, monochromatic and static sculptural forms were explored and portrayed in warm, soft, multicolored, dynamic and stylistic forms. The differences in choice of colour was informed by natural habitat and principle of variety in design making to give wide range of aesthetic options.

It is important to note that, paper design for dress fabric has explored the potential of adapting sculptural forms to create wax print designs. This assertion was supported by The Artifice (2022), where the likes of Paul Cezanne, Pablo Picasso, Georges Braque and co-founder Paul Cezanne adapted African figure to originate new movement "Cubism" It also opens avenues for further explorations into visual documentation of textile sculptural forms in the society and contributes to knowledge. This work shows that, integrating textile design practice with sculptural forms, develops new approaches to textile design to drive innovation in the field. This crossing of boundaries will create a new dimension in the forms of pattern used by textile artists.

Conclusion

Adaptation of form has formed source of inspirational touch for artists from time immemorial. It is unexpected that artist radically breaks away from conventional way of expression by adopting new way, style, technique, media and form for executing artistic piece. This dynamic has been notable by the ease with which artists swing their pendulum of creativity from adapting form and image from various object to create new art. It is no gain saying that, recreation of form adapted from another source will continue to generate an avenue for intellectual discuss. As this portend a veritable source of improving quality of work produced. Particularly, this research has dwelt in to form adaptation from sculpture to textile design, specifically for wax print. The sculptural form adopted were both metal constructivism and are evocative of ecological concerns, which provoke gender activeness toward attaining protection and the need for peace to prevail in the world.

The research is yet another feat in design generation, where more sculptural forms are urged to be integrated into textile design because sculptural form is a source of inspiration for generating design concept for the textile designer. This do not only improve design collection, but also pave way for innovative idea toward improving wax print.

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ISSUES AND EMERGING REALITIES OF EDUCATION PROGRAMMES IN NIGRIAN INSTITUTIONS OF LEARNING

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Abstract

This paper outlines the current trends in the development of art education and some factors that impede effective pedagogical methods and organization of art education in Nigerian institutions of learning. The paper acknowledges that, art pedagogical approaches could provide relevant basis for a functional art education programme in the schools. Thus; gives excellent results, especially for the current and emergence of new methods, creativities, inventions, innovative techniques of arts productions for the Nigerian arts. The paper discusses few related issues concerning art education programmes from the basic to higher levels of education, as relevant reading materials for educational studies. Suggestions for ensuring effective art education programmes in Nigerian institutions of learning constitute the thrust of this paper. Therefore, the following areas are covered in the paper: - Problems of Art Education Programmes, Restoring Art Education Programmes and Improving Art Education Programmes in Nigeria.

Keywords:

- Current trends in art education programme, theory and practice.
- Factors impeding effective pedagogical methods of art teaching.
- Issues on art education programmes.
- Revival of art pedagogical organizations, methods and approaches.

Introduction

Art has regularly been considered as any skillful action or reaction that permits self-expression through productions or reproductions of things that are in the society. Art cannot be defined in a single idiom, considering its functional or literal variations, individual difference and cultural backgrounds. Oxford Advanced Learner Dictionary for current English (2001) defines Art as “the use of imagination to express ideas or feelings, particularly in painting, drawing or sculpture”. This includes the production of objects or things of aesthetic significance.

Art is the form of human behavior by which man purposely interprets and enhances the quality and essence of his experience through the things he created. No matter what the definition of Art is, it must derive its vitality from the internal dynamics of the society to which it belongs. This seems to reiterate the relationship among arts, culture and society. Art has been an integral part of man's culture for many centuries. According to Gombrich, (1964); and Talabi, (1979) in Muftahu and Nazri (2015), “Art has persisted as a continual universal activity from the time of the cave artists to the modern-day artists. It revolves round the cultural trait of every society and the pattern of the ever-widening human experience and advancement.”

Presentation

Art has existed in ancient traditional societies which pre-dated the entity now called Nigeria. It has existed here both in non-orthodox and informal ways for many centuries before the advent of western education. At a certain time, traditional arts and crafts were based mainly on hereditary,

guild, apprenticeship and informal training system alone. The trends and status of art pedagogy has, however, changed considerably within the Nigerian educational system.

In support of art teaching in schools in Nigeria, (the 6-3-3-4 educational system in the country), as reflected in the Federal Republic of Nigeria's, National Policy on Education (Revised, 2012) that "Art is a core subject at the basic levels of education", That is, at Nursery, Primary and Junior Secondary schools' levels. The paper, hence, observes that the emerging realities on art pedagogy in Nigerian institutions of learning are some fractions of the set intentions of the national policy on education. The situation could hardly be otherwise, considering the increase in students' enrolment, inadequacies (such as inadequate number of art teachers and scanty art materials), as well as other related problems militating against effective art pedagogy methods and organization. It is apparent that few students offer Fine Arts at the senior secondary and tertiary education levels; and not all the schools in some states are offering Fine Arts as a subject. Such a situation seems to undermine art pedagogy. How to ensure successful art education in Nigerian Institutions of Learning, Therefore, constitutes the focus of this paper.

Problems of Art Education Programme in Nigerian Institutions of Learning

Inadequacies, such as scanty art teaching materials and inadequate number of art teachers are the major problems besetting effective art teaching in Nigerian institutions of learning. With the increase in student's enrolment at this level, the seeming ratio of only one art teacher per school, and cases of an art teacher handling a class of about one hundred and twenty students (1:120). Rabi, A.B. (2021), discovered that, there are more students in the junior secondary schools (JSS) in Nigerian today than ever before but less at higher institutions of learning. This cannot ensure effective teaching of arts; because, a classroom with large number of students could be rowdy, noisy and clumsy, especially during the art practical activities; thus, rendering effective teaching unfeasible.

Basic art materials are scanty in most schools and grossly inadequate to suit the complex genres of art and the increasing population of the students. For instance, basic art materials, such as brushes, dyes, fixative, poster paints, potter's wheel, kiln and squeegee are costly, while most schools have no art rooms/studios. To this end, art teaching is often conducted in the conventional classrooms. In actual facts, some of the few art rooms available are not properly equipped, nor are of the appropriate design for effective art teaching. They lack adequate furniture, such as stools, easels, donkey chairs, display boards, shelves and cupboards for students' use. Therefore, some of the students' finished art works are displayed on the walls of the classrooms, or carelessly dumped in the waste paper baskets or littered about.

The nonchalant attitude towards art teaching by some school principals, teachers, students and parents also impedes effective art teaching. Their lukewarm attitudes include irregular or non-procurement of certain basic art materials required. Recommended textbooks on Art and resource persons and relevant instructional media, such as documentary films and slides on art history on renown artists, photographs and replica of museum objects are rarely produced and utilized for art teaching.

Rabi, A.B. (2021), noted in his dissertation that, the organization and promotion of Art Clubs, excursions, seminars, workshops, exhibitions and art competitions seem to be dormant in most schools and at the State levels. The annual students' enrolment for Art in the Junior School Certificate Examination (JSCE.) conducted by the states Ministry of Education has dwindled. This implies that the number of the JSS that offer Art in the states is minimal, whereas the Federal Republic of Nigeria's. National Policy on Education (Revised. 1981) stipulates that Art is one of the compulsory subjects at

the junior secondary level in the country. Art teaching in some JSS in the states also seems to be fraught with many hindrances, such as non-prompt replacement of art teachers when transferred or substituted for the art teachers who resigned their appointments or were granted study leave. This situation has resulted in the termination of art teaching in some schools.

Towards Restoring Art Education Programme in Nigerian Institutions of Learning

Having sketched the above trends and status as emerging problems and realities of art teaching and factors that impedes effective teaching of arts in Nigerian Institutions of Learning. Here for, four categories of imperative functions are suggested for revamping and promoting art pedagogical methods and art teaching strategies in Nigerian Institutions of Learning. The four important functions are enumerated and briefly explained as the functions of the government, art teachers, art students and parents.

Function of the Government: Government should ensure that schools across the country are adequately staffed with sufficient trained art teachers. Considering the increase in the student enrolment levels in the country, the seeming ratio of only one and teacher per a secondary school, especially in the urban area, cannot ensure effective teaching of Art. The posting of art teachers to secondary schools should be on a fair basis. Schools should not be categorized arbitrarily. Only the trained teachers should be employed to teach Art. Indeed, the Federal Republic of Nigeria's National Policy on Education (Revised, 2012) believes that no education can rise above the qualities of its teachers. It is observing that the majority of the trained art teachers in the Secondary Schools in the states are Nigeria Certificate in Education (NCE) holders. The NCE remains the highest certificate that can be obtained for qualification to teach in schools at the basic level of education in Nigeria. Only few of such schools, like, Federal College of Education, Katsina, Kano and Zaria offer Fine and Applied Arts.

The Federal and the State Ministries of Education should urge institutions of learning concerned to commence Art Education courses in their higher institutions of learning. Fine and Applied Arts / Cultural and Creative Arts (CCA) should be included in the curriculum of the new Federal and the State's Colleges of Education. Apart from the existing Bachelor of Education (B.Ed.) in Educational Technology course, which is an art-related programme, Faculties of Education in the Universities in the country, should also revive Fine Arts and Creative Arts for the benefit of numerous NCE Fine and Applied Arts graduates (teachers) within and outside the country. Higher institutions of learning in the states should include B.A. (Ed.) Fine Arts and B.Ed. in Creative Arts in her proposed First-Degree Programme for both Regular and Sandwich students.

Wangboje, in Irivewieri, G.O. (2009), suggests that the work of the art teacher should be supplemented by employing the services or assistance of resource persons, such as local craftsmen and other experts. In this vein, women with demonstrated ability in specific craftsmen; can be employed in art teaching in order to demonstrate such crafts to the young learners. Relevant conferences, seminars and workshops on the promotion of art teaching should be organized frequently. Art competitions and exhibitions should also be organized frequently for the schools at basic levels, as well.

The continual effective supervision of art pedagogy at the basic levels, at most, is required. Evaluation devices, with adequate inspection by the Inspectorate team from the various Ministries of Education are very necessary in monitoring and enhancing the status of art pedagogy in the schools. The Ministries of Education should ensure proper computerization and documentation of the annual Junior School Certificate Examination results. Government should provide adequate financial assistance to the schools for the procurements of the basic art materials, textbooks and other related

facilities. There is the need to seek the assistance of relevant government agencies and stakeholders for Educational Project and the relevant instructional materials, such as textbooks for schools in Nigeria.

Agencies, such as the Educational Resource Centre (ERC), Council for Art and Culture and the Directorate for Employment should contribute positively and immensely to revamping art pedagogy in their states-owned institutions of learning. Similarly, professional organizations, such as the Society of Nigerian Artists (SNA) and Nigerian Society for Education through Art (NSEA) and its world council, International Society for Education through Art (INSEA), should extend their expertise and aids to such institutions of learning.

The government agencies should also provide facilities, such as films and slides on Nigerian Arts and Artists. On this point, Ogundipe's (1984) in Monash, U. (2014), suggestion on the provision of Mobile Museum to enable the museum staff to go round the various institutions of learning to meet pupils who cannot afford to transport themselves to the museum would thus be implemented.

Functions of the Art Teachers: Art education programme at basic levels is critical and formative. Art at these levels, should stimulate the students to share in the joy of creative activity and to enjoy being innovative, constructive and enterprising. Art pedagogy at the basic levels should be relevant to the age group, background and needs of the students. It should set the stage for the development of the students' talents. It should also expose the students to an experience that would lay the solid foundation of a worthwhile and functional education. A properly organized art activity by the teacher could be thrilling, invigorating and mentally challenging to the students.

Art teachers should be knowledgeable, dedicated and resourceful in the teaching profession. They should be relied upon to extend the frontier of art education in our various institutions of learning. They should also try as much as possible to make their art lessons interesting and meaningful by using variety of relevant teaching methods and instructional media. These must be judiciously used to bring about effective teaching and learning of Art. The art teacher should give maximum prominence to all the theory and practical aspects of Art, since all the aspects make a composite whole. The art teacher should desist from hurrying over the syllabus to the detriment of fundamentals. Both diagnostic and error analysis should be used to identify and remedy the student's areas of weakness. Their area of high performance should also be improved upon.

The aspects of Art syllabus should be classified into manageable units that the art teacher and students can cope with within the period allocated for teaching Art. However, the major part of art programme should be used each week for art practical. The use of curriculum guide will give the art teacher certain ideas on how to plan and develop each unit of the lesson. Art teachers should try to organize and attend seminars and workshops on Art. Resource persons, such as local craftsmen and other specialists from higher institutions should be invited to keep them informed on the recent discoveries in relevant art techniques, media and teaching methods. The Training Manual (2008), on the U.B.E. 9-Year Basic Education. Universal Basic Education U.B.E. Commission. Abuja-Nigeria, presented that:

Teacher should motivate the students to join Art Club, and to participate in a competitions and exhibitions. It would be worthwhile to provide enough time and space for effective teaching of Art, apart from that of the Art-room environment. The teacher and students should visit Educational Resource Centre, craft workshop, art galleries and museums frequently for educational purposes. (p15)

The remedy to the incessant problems of high cost and scarce materials for Art and Crafts is to use relevant local materials available, when the original one is scanty or unavoidably out of reach when engaged in Art. To be able to improvise meaningfully and effectively, the art teacher and his/her students need to be resourceful. They should have the power of insight and ingenuity. They also have to be open and receptive. These creative qualities could facilitate and enhance the ability to improvise basic art materials. The school principals and other staff should give maximum encouragement to art and art teaching. They should cultivate the conscious spirit for an appreciation and promotion of Creative Arts.

Function of the Art Students: The student should study art with the desire to share in the joy of aesthetic and creative activity and to enjoy being innovative, constructive and enterprising. The student should also show keen interest in Art as a subject at the junior secondary level, and above. The arrangements whereby art is treated with levity on some schools' time table, or taken as a period for mere relaxation only should be rectified. The periods allotted to Art should not be used for teaching other subjects.

Function of the Parents: Parents should give positive support to all subjects taught in the school. Mutual-cooperation, financial and moral supports of the Parent-Teacher Association (PTA) would enhance effective teaching of Art in schools. Parents can contribute positively by showing interest in what their children do in art, and by providing the students with relevant art materials and encouragements. These could enhance the student's artistic growth and development. Philanthropic institutions and individuals should also donate relevant textbooks and basic art materials to the Junior Secondary Schools in the states. Iriwieri, G.O. (2009), Justified that:

Almost all human endeavors demand and enjoy artistic ingenuity. Therefore, the place of Art (art teaching) in this age of technology needs to be enhanced and nurtured for the best interest of the individual and society. Nigeria is currently experiencing a rising wave of unemployment. More avenues of employment must be explored and created to cope with the increasing demands for employment. Art could provide self-employment for creative people. (p.10)

The revitalized and effective art teaching at the Junior Secondary Schools in the states and other States of the Federation could provide the required basis for fostering and sustaining the drive towards self-reliance and self-employment. In a pluralistic culture with scanty job opportunities like Nigeria, we need Art which is an integral part of functional education for self-reliance. Indeed, the Federal Republic of Nigeria's, National Policy on Education (Revised, 2012) recommends functional education for self-reliance.

Improving Art Education Programme in Nigerian Institutions of Learning

Though, there are challenges in the implementation of the new art education programme under the current Universal Basic Education Scheme. The solution to the challenges lies with both the government and the people. Being a people-oriented programme, the people should be properly educated about the scheme by emphasizing educational guidance for the parents. In particular, the parents need to be educated on the need to give their children the basic education for a life-long education. The government should popularize this section of the UBE Act through the nation's media, especially the radio. The enjoyment of government services by parents such as medical services should be made contingent upon the production of a certificate that they have their children in school.

The issue of funding should be looked into properly. The situation whereby every government claim to be spending a lion share of its budget, whereas the reverse is the case should be addressed. Whatever allocation is given to education the overhead cost i.e., salaries and allowances should not be added to the allocation. Salaries should be treated as a separate component. It is only when this is done that the actual amount allocated to education shall be meaningful.

Allocated funds and government expenditure should be closely monitored to prevent embezzlement by the people charged with responsibility of managing the scheme. With adequate funding, the provision of more schools (primary and secondary) should be of concern to the government. The National Policy on education recommends that the teacher-pupil ratio shall be 1:40 at the secondary school level, while that of primary school shall be 1:35 (Section 19g). This ratio has not been met in the urban areas. The government at the state and local levels should put up more schools to achieve the stipulated ratio in order to avoid overcrowding, which is inimical to effective teaching and learning.

The junior secondary schools should be planned as neighbor schools as stated in the National Policy on Education to relieve students from trekking long distance before getting to school. Since the provision of more schools automatically translates to provision of more quality teachers, the government should make provision and prepare for training of qualified art teachers in Nigeria. In this regard, the Colleges of Education as well as Faculties of Education in the Universities should wake up to their responsibilities in giving adequate and qualitative training to the prospective teachers. As much as there is need to train a lot of teachers to fill the classrooms, quality must be the watchword. Hence, there is also the need to retrain the existing teachers to reshape their orientation towards qualitative education in Nigeria. Teachers should also be positively motivated to ensure dedication from them. That is, the conditions of service for teachers should be improved to keep them on the job.

The state and the Federal Ministries of Education, as the evaluation body for the UBE Scheme, cannot afford to go to sleep because the evaluation and monitoring of the programme lie mainly on them. Therefore, the Ministries in collaboration with the State Universal Basic Education Boards must be empowered to carry out their responsibilities. Schools should be visited regularly, not to witch hunt, but to ensure that the teachers are performing as expected of them. The visits should not be sporadic so as to put the teachers and the principals on the alert. The students' records, too, should be evaluated by the Ministry. The Ministry's unit on adult and non-formal education must ensure that the various programmes on adult and non-formal education are properly structured and monitored. These programmes should be taken as a very important aspect of the scheme. The Universal Basic Education Commission's impact must be felt at the State and local government levels. The State Universal Basic Education Boards at the State level must also visit schools to ascertain that the resources sent to schools are properly handled.

Finally, the Federal Government should endeavor to conduct a national census that will be devoid of political undertones. Proper and accurate data shall enable proper and accurate projection, which will help the education planners and government plan ahead. This will not bring embarrassment such as not having enough teachers, resources for both teachers and students. To get accurate population data, the government should start to think about emphasizing vital registration system by strengthening the present ad hoc vital registration scheme.

Conclusions and Recommendations

This paper, briefly, examined the current and emerging realities of new pedagogical methods and organization of art education programme in Nigerian institutions of learning. Some of the emerging issues are the challenges affecting creativities, inventions and innovative techniques of art

programmes, mentioned in this paper, for the Nigeria's Arts. Such challenges are inadequate funding, poor planning due to incomplete data, the inability of the scheme to reduce the rate of drop outs; inadequate facilities in form of physical structures, instructional materials and even quality teachers and corruption; such challenges were found to be militating against the objectives of the art education programme in Nigerian institutions of learning. In view of these challenges, the study has suggested certain measures that the country can put in place to help achieve the desired goals of the scheme.

The study therefore, suggests intensive campaign among parents to enlighten them about the values of education; to put into effect the relevant Policy Statements and arrangements to ensure that assessable means are provided on the basis of needs and not what the government can afford as it is presently the case and adequate training of teachers to man the schools under the UBE programme. In conclusion, the paper discussed some relevant issues concerning art education programmes and art practice as reading materials for the area of this study. The content of the paper, therefore, has relevance to all reading materials that can be used for successful implementation of art education programme as emerging realities on art pedagogical methods and organizations, theories and practice in Nigerian Institutions of Learning.

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Design and Development of a Prototype Motion Graphic Advertisement Content to Reform the Static Graphic in ABU Microfinance Bank (ABUMFB), Zaria

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Abstract

Motion graphic is currently the trend in the advertisement (industry) of products, services for international and national marketing communications, and global brand management strategies due its multifaceted advantages over the static graphics. The Challenge herein is that despite the huge benefits inherent in this new trend, many institutions such as companies, schools, banks like Ahmadu Bello University Microfinance Bank (ABUMFB), Zaria are yet to adopt and explore it for optimal productivity. The study reports on the design and development of a prototype motion graphic advertisement to reform the way of communication and information dissemination the existing static graphic (version) of ABUMFB Zaria. Experimental research method was employed with the aim to achieve the objective thus: identify suitable elements (Hausa cultural symbols, motifs and music for background aesthetics, with a view to effectively improving visual communication through Hausa cultural values) for the design and development of a prototype motion graphics; synthesize the identified Hausa cultural elements; design and develop motion graphics video clip for (ABUMFB), Zaria. The results of the integrated and synthesized cultural motifs and symbols were successfully hybridized into motion graphic design development produced a one-minute video clip. This was achieved by manipulating the industry standard software. The developed motion graphics advertisement is recommended as it is envisaged to have huge potential paradigm to leverage on the marketing, and advertising unit in ABUMFB as an additional communication medium for information dissemination.

Keywords: Animation, Reforming, Static Graphics, Motion Graphics, Communication and Advertisement, ABUMFB.

Introduction

Advertisement is a component of a company's marketing strategy that involves delivery of messages to target customers, it emphasizes on the benefits of products branding and services. Advertisement is one of the common communication tools used in promotion of goods and services. Goals of planned advertisements include; building loyalty, building brand awareness, creating favorable brand attitudes, gaining market share, inducing buying, and growing sales of products and services (Kurtz 2010). Motion graphics has grown tremendously in both its applications and number of users due to its unique characteristics of flexibility and interactivity. Motion graphics has been a very useful tool for communicating, entertaining, educating, and trading electronically (Koyuncu and Lien, 2003).

The revolutionary change brought forth by information technology from static advertisement to motion advertisement has created an important impact on the daily lives of people. It has transformed the way people do business by allowing retailers, wholesalers, companies, institutions and manufacturers to offer unlimited range of products and services to all consumers from around the world at any point in time. (Silk, Klein and Bernt, 2001). Many companies have turned to the Internet, television stations, outdoors electronic billboards, indoor wide screen display platforms, handset and tablets to advertise their products and services; and the Internet is considered to be the most significant direct marketing and advertisement channel for the global marketplace (Faber, Mira and Nan, Ko-Tsung 2004). Consumers are the ones who decide when, where, what, and how much advertisement content they wish to view (Korgaonkar and Wolin, 2002). Ko-Tsung and Sheu, (2004), reiterate that the internet through motion graphics enables consumers to access an unlimited range

of products and services from companies all over the world, and it has reduced the time and effort they spend on shopping.

In view of the above, Krasner, (2013), argues that most marketing and advertising agencies embrace the use of motion graphics for the advertisement of their services. But unsuitably, ABU Microfinance Bank still utilize static graphic for its advertisement and information dissemination to its customers. This puts certain restrictions on drawing the attention of customers and thus, makes their level of enlightenment on other services to be restrained. Putting that into consideration this study endeavors to proffer remedy for the aforementioned problem. According to Ko-Tsung and Sheu, (2004) reiterates that marketers discovered motion graphics and the internet possesses greater flexibility and control over the static advertisement on printed posters, banners, hand bills and so on. According to Ko-Tsung and Sheu, (2004), speculates that with the rapid advancement in the computer industry, motion graphics design has become a popular advertising media platform. Although, the findings from Jakonda, and Azi, (2015), reveal that graphic designers in digital communication industries seldom use indigenous motifs. Therefore, this study strives to reform the existing static graphics to motion graphics advertisement content by incorporating Hausa indigenous motifs in the design elements to consciously engage the customers by giving them a sense of identity to the design.

The aim of the study is to reform the static graphic advertisement to motion graphics advertisement content for ABU Microfinance bank towards improving patronage. What is the procedure involved in reforming static graphics ads to motion graphics advertisement content for ABU Microfinance bank Zaria? The researchers identify that despite the rapid development in technology, ABU Microfinance bank Zaria as a financial institution has not leverage on the trend. The accessibility of modern technology backed by creativity and imaginative power to effectively communicate through digital motion graphics has transformed the era of static graphics to motion graphics. According to the researcher's reconnaissance survey nobody had done such a similar work for ABU Microfinance Bank.

The significance of this study creation of a paradigm of communication through motion graphics in ABU Microfinance Bank (ABUMFB) to promote its services towards customer patronage. The study identified the effects and impacts of motion graphics communication in ABUMFB. This will serve as additional reference materials for researchers in graphics design related fields of knowledge. Graphic designers who have additional knowledge in motion graphics and animation will have additional means of income and also create more job opportunities, thereby reducing unemployment rate and increasing the Nigerian gross domestic product (GDP). Technologically, the study exposed graphic designers to a state-of-the-art equipment in animation and television graphics and how to apply them, using industry-based standard software integration technologies. The scope of the study is the prototype design and development of motion graphic advertisement video clip for ABUMFB. The researchers creatively advertised (ABUMFB) activities by manipulating Adobe. After effects, Premier Pro, Audition, Media encoder and Maxon cinema 4D R19 to integrate text, images, video, symbols, sound and animation on screen display platform.

Statement of the Problem

Ideally, every progressive institution, bank, company is expected to flow with current trends in advertisement as a key component of their marketing strategy which involves delivery of messages to target customers through motion graphics. However, the reality is that ABUMFB Zaria is still using the traditional static graphics advertisement as the main media to provide information despite the evolved technology with several opportunities to connect with customers and create a wholesome digital community, prompt dissemination of information, influence and enhanced purchases.

Therefore, the researchers in reconnaissance of the aforementioned scenario observed that ABUMFB Zaria is lacking the content of motion graphics as a paradigm of communication to customers, and need to move with the current trend, Hence, this study designed and developed a prototype motion graphics advertisement video clip for ABU Microfinance Bank Zaria to reform the mode of advertisement from static graphic content to motion graphics advertisement.

Conceptual Framework

The drive for this study was borne out of the longing to reform the static graphic form of advertising in ABUMFB, Zaria to motion graphic, the current trend: list the advantages of the motion graphic such as concise design tasks that are meant to draw the attention of the target audience, create positive mood or feelings connected with the advertisement; The audience can relate faster with motion graphic content in relationship with the Hausa indigenous cultural images and symbols integration in the motion graphics advertisements and also enhance their perception of the advert message. A practice-led approach based was adopted in line with Carole, (1996) which expounds that practice-led research is a form of 'naturalistic investigation. It entrenches the researcher firmly within the research process and points the emergence of problems, questions and challenges as befalling within the creative practice. In developing an innovative knowledge of digital advertising practices that involve motion graphics, the model adopted for this study is 'ADDIE' Model. The model presents five steps for instructional design to provide a structured approach to the practice-led research methodology used.

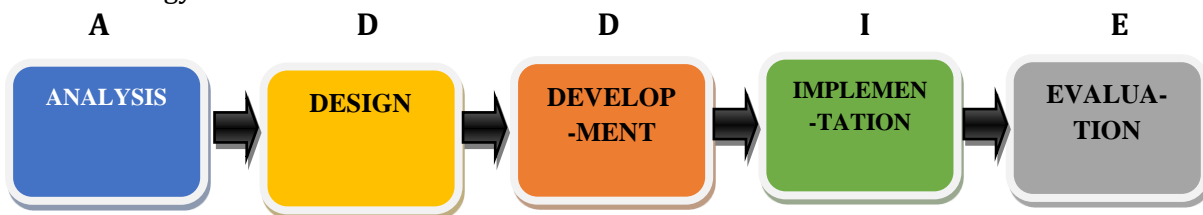


Plate 1: ADDIE model
Source: <http://addie/fact sheet>

Methodologically, this approach to research aligns with Denzin and Lincoln, (2000), definition of qualitative research by taking a constructivist approach in exploring and developing an innovative knowledge of digital advertising practices that involve motion graphics.

Analysis: is the first stage of the ADDIE model. In this phase the research goals and objective are established. The research design and sampling technique are selected, research area or environment as well as the research population are identified. Furthermore, in this phase the researcher will need to answer some questions that will direct the study findings, such as;

- a Who are the audience and what are their characteristics?
- b What is their existing knowledge and skills?
- c What types of learning constraints exist?
- d What are the delivery options? And
- e What is the timeline for the project completion?

Design: this is the second phase of the ADDIE model, it focuses on creating the blueprint for design and development; from organizing and creating the structure and content of the product, thumbnail sketches, storyboard, composition, audio or sound integration to complete rendering of video file. The required materials and tools, process, resources and activities that will be used to realize the design set goals and objectives are in place.

The following are some of the steps used during the design phase.

- a. Documentation of the project's procedures; instructional, visual, and technical design strategy.
- b. Application of instructional strategies according to the intended outcomes
- c. Prototype creation
- d. Exercise creation and graphic design

Developmental: the development phase focuses on how the plans that were created in the design phase become a reality. This phase addresses how the instructional materials will be used to support the creation of the design and engage the audience in innovative and productive ways. During these phases, feedback is expected to further redesign the project based on the given.

Implementation: in this phase the design is refined and the project researcher ensures that the supplemental resources (book, hands-on equipment's, tools, and software) are in place and he make sure that all the applications are functional, available and ready for use. In this phase the project is also tested and deployed to determine whether the components function as designed within the identified environment. This phase validates the implementation and identifies any anomalies prior to full project deployment.

Evaluation: the evaluation phase determines how the researcher feels about the research experience, whether objectives and goals were achieved, whether the research is productive and any long-term outcomes. This phase also identified the gaps in audience responses that need to be addressed. Two levels of evaluation were conducted.

- a. Level 1; reactions; audience provide reactions and comments to the developed project content, usually in the form of a response to a questionnaire.
- b. Level 2; audience assessment of content retention, application, and institutionalization.

Carole (1996) stipulates that outside the realm of feature films, smaller creative collectives and individual animators are currently exploring the creative applications of motion graphics technology to develop compelling and unique motion graphics shorts that are receiving acclamation from the wider arts community. However, despite an increasing number of acclaimed examples. There has been little detailed documentation of this practice and the processes, involved in this format of digital visual communication production. More specifically, there has been few documentations and analysis of the key considerations and issues that might confront practitioners, when integrating motion graphics as a paradigm shift in global communication system and practice. As such, a more developed epistemological understanding of approaches to incorporating motion graphics technologies into the field of digital visual communication is called for (Carole, 1996).

This study emerges at the intersection of four key areas of knowledge: animation, motion graphics, and advertisement. Through practice-led research, the outcomes of this study outlines and theorized within this explanation or critical interpretation contributed to closing this emergent gap by exploring and documenting possible strategies and approaches for generating elements that compose motion graphics advertisement from static graphic elements. Also, this study resulted in a possible framework of five key considerations of practice and outlines:

- a. creating awareness about motion graphics.
- b. influencing customer behavior through conceptual ideas and manipulation of multimedia graphic elements: text, picture/image, and sound.
- c. stimulates attraction through colour and clarity of message content.
- d. persuades customers behavior through effective advertising and
- e. visual communication practice.

All of these are considered as the road map in the execution process of motion graphics advertisement design to logically arrive at the possible conclusion.

Visual Elements of Motion Graphics and their Role in Communication

According to Mohsen and Mostafa, (2014), graphics entails text, pictures, and the collection of images which are present in each motion graphic can help improve the quality of the works and increase its popularity to the audience, or vice versa. The more comfortably the audience is in dealing with the work and the more quickly they find a relationship with the work, the sooner the designer will reach their goal. These images and visual attractions must be designed in accordance with audiences' ideas, desires, and criteria so that they will be able to convey the visual messages in the best manner. Many designers are not aware of these important factors and their influence on the attraction of the audience, so they do not consider images, graphics, and their visual messages as they should while designing a motion graphic work (Mohsen and Mostafa, 2014).

Methodology

This study employed an experimental research design method; practice-led research. The model adopted for implementation in this study includes; analysis, design, development, implementation, and evaluation hence the ADDIE Model Structure as opined by Abdullahi (2017).

Studio Procedure

A step-by-step approach was employed in developing the motion graphics. for instructional design to provide a structured approach to the practice-led research methodology using tools and software, such as: *Digital camera, 2.0 GB 'Sand disc' memory card, projector and Dell laptop computer (intel^(R) Core ^(TM) i7-4710MQ CPU @ 2.50GHz 16.0 GB random access, memory (RAM), windows 10 64-bit operating system, x64-based processor and 2.0 GB dedicated graphics card).* and *graphics software: Adobe master collection creative cloud (CC) 2017; (Photoshop, Aftereffect, Premier Pro, Media encoder, Audition) and Maxon Cinema 4D.*

The ADDIE model stages of production are thus as; pre-production stage, production stage, and post-production stage. This was with the aid of elements/principles of design, and Defining Advertising Goals for Measured Advertising Results (DAGMAR) were adhered to in the cause of layout design creation. Similarly, the motion graphics advertisement design integrates Hausa cultural symbols in relation to the study area and location for a clear understanding of the motion graphics content; and to establish a sense of conviction on the side of the customers of ABUMFB, Zaria to move from awareness to action.

Stage I: Pre-production

This is the planning stage for the project. The researchers broke the production into sections. Software, gadgets, special effects and visual effects are identified in these sections. The message script or story was written at this stage which began with introduction of all the materials, sketching and storyboarding the digital storytelling into chronological frame sequence.

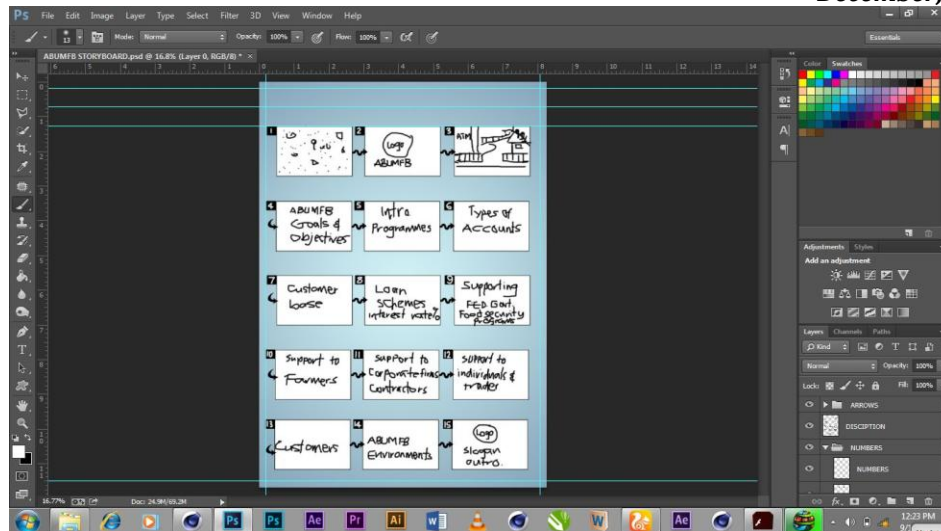


Plate 5: Prototype design; digital story board sketch showing the researchers indicate titles to the frame sequence.
Source: Mbidomti, Muhammad, and Tijani, 2019.

The storyboard process is known since 1992, as 'pre-visualization' or 'pre-vis'. Krasner, (2008) poised that, a virtual set is created in the computer, and the characters placed in them as Marquette's, often just simple keyframes notes, rough/detailed shape or character sketches, or graphic symbols with/without color. Supported by Abdullahi and Muhammad, (2017) that, the film director/editor is not restricted to a particular genre of storyboarding. The artist/designer is at liberty to flow with their creativity drive while conceptualizing their video storytelling stage by stage. When the various cuts and adjustments are considered, the story artist/designer not only has to take into consideration software to manipulate but also the camera angle, the camera lenses to be used and the light sources in the scene location. From the storyboard, most movie industry determines the duration and budget of the video clip production. In some big budget 3D films, according to Woolman, (2004) reiterated that, this process is done in the layout stage of production. Many times, the story artist/designer begins with a rough traditional storyboard, and then creates the pre-visual set with characters, notes or shape elements. In this study researchers as the director/film editor, uses 'Photoshop' in creating digital notes storyboard keyframes sequence, as a guide to the animation procedure. Subsequently, gathering and cropping the needed images/pictures are done alongside selecting text, audio/sound and the relevant software to be manipulated in the course of production.



Figure 2: Internet downloaded images of the founder of Ahmadu Bello University Zaria, Alhaji Sir Ahmadu Bello (1909-1966).
Source: www.google.com



Plate 3: Cropped and edited images/pictures of the founder of ABU Zaria,
Alhaji Sir Ahmadu Bello (1909-1966).
Source: Mbidomti, Muhammad, and Tijani, 2019.

The researchers, also ensure that, materials and tools that facilitate the design task are in place and technically functional. The researchers narrated and recorded the script in Adobe Audition software. The recorded narration was synchronized in the production stage alongside the background audio 'Hausa' music in the video sequence by 'Alhaji Dr. Mamman Shata titled; 'Kudi a' kasha su ta Hanya mai kyau' meaning; money should be spent in the right way.

Stage II: Production stage

This is the stage whereby the motion graphic video design was developed. Therefore, all the multimedia elements; video, text, sound/audio and image/picture are assembled and integrated to produce a compelling resonant spot or video clip. The first stage in the production is the creation of animatic; that is the rough animation activity meant for aligning the refined sketched digital storyboard into Adobe After Effect CC software time-line. Beginning by importing the recorded Voice-over narration of the written script that was carried out simultaneously at the pre-production stage to match the frames sequence animation in order to determine the duration of the video clip. The next stage was the creation of animation of the cropped images of the pioneer and founder of ABU Zaria, Giving the images a sense of kinetic or movement from their initial static state. It was followed by the creation of a 3D logo of ABUMFB in Cinema 4D software environment.

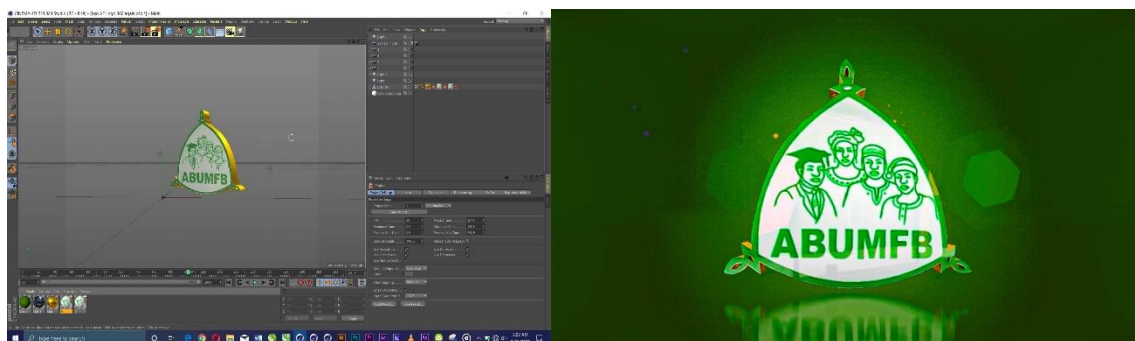


Plate 4: Finished logo design and animation in Cinema 4d, 3D. Source: Mbidomti, Muhammad, and Tijani, 2019.

The logo trademark design and composition are created by the researchers in cinema 4D, a 3D software that simulates real-life world experience as it appears to the eye view. The animation simulation was created by manipulating five different camera views and playing them

simultaneously by the use of motion camera tag known as camera morph. The camera morph tag [multiple camera space] allows the researcher to drag and drop the different camera views into one dialogue box that enables the created polygon logo shape to be played at once from one camera view-point to another in a hierarchical order from camera 1,2,3,4 and 5 respectively. After the desired animated views are ascertained.

The researchers create the lighting of the logo using studio lights. The logo polygon receives and reflects light with the help of software preset materials. The researchers then go to the render setting button to set the animation simulation to render as a portable network graphic (PNG) sequence file with the following settings; Renderer; [select standard, output; select film/video HDTV 1080 29.97 fps], format; select PNG. Select the output directory to desktop; then write the name of the file that can be recognize on the desktop after rendering. Anti-aliasing; [select best], height; 1920 and width; 1080, resolution; 72, frame rate; 30, frame range select; [all frames from 0-390 frames]. Check both ambient occlusion and global illumination (GI) respectively and lastly click on the render button.

The complete sequence rendered time is one hour, 47 minutes (1:47mins). The render process varies depending on the power and ability of the computer graphics card chip or hardware. The researcher launches the Adobe After Effect CC compositing software were all the animation compositions were carried out.

This is the most time demanding stage in the video production. The storyboard was used as a visual road map to guide the production task based on the description in the specified frame sequence animation. (Krasner, 2013), supported by Woolman, (2004) assert that many of these storyboard packages now allow for drawing your storyboards directly into the computer by using a tablet, mouse and digital stylus rather than a pencil and paper.

Stage III: Post-production stage

The animated short video compositions were assembled from 'After effect' compositing software and cued in Adobe Media encoder for rendering. Furthermore, Abdullahi and Muhammad, (2017) stipulates that, the initial job of the researchers in this stage as a film editor is to build a rough cut taken from frame sequence (or scenes). The aim of the rough cut which is achieved in Adobe Premier Pro software is to select and order shots and use, followed by creation of a fine cut by getting all the video clips to flow smoothly in a seamless manner thereby achieving a conscious video clip or film. Furthermore, trimming was then processed for shortening the scenes by a few minutes. As well as editing of footage, all sound effects and music was added and tuned at this stage. After the fine cuts were screened and ascertained, the picture is "locked," that implies that no further changes will be made. The motion graphics advertisement was developed by rendering the video clip or short-spot in MP4 format for (56 seconds) less than a minute.

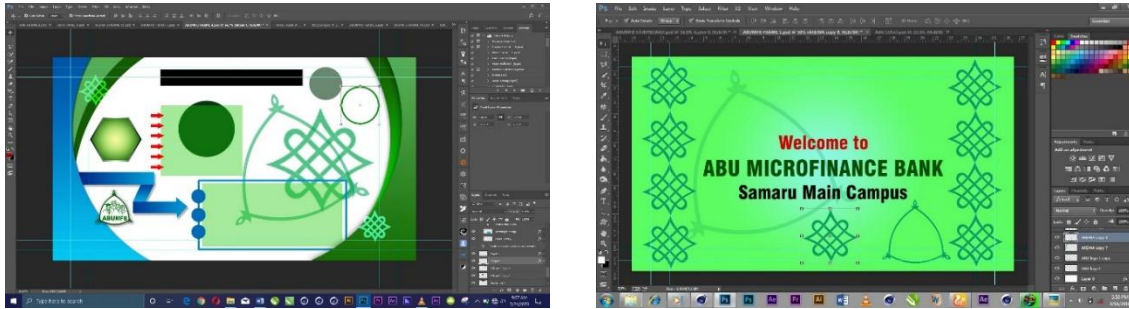


Plate 6: hierarchical order of visual elements in the motion graphics. Source: Mbidomti, Muhammad, and Tijani, 2019.

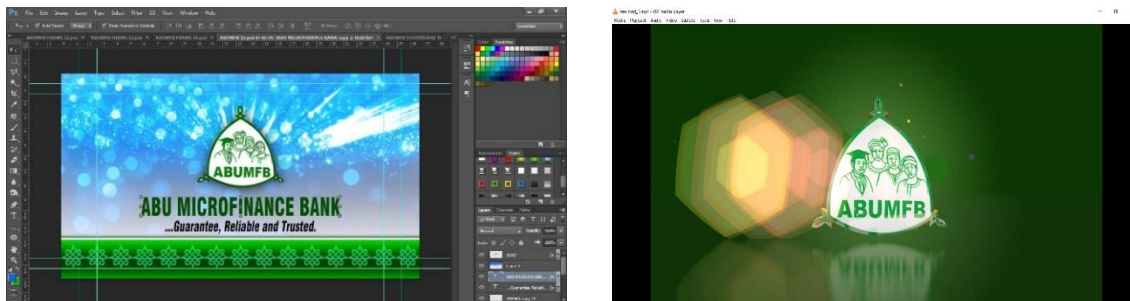


Plate 7: hierarchical order of visual elements in the motion graphics. Source: Mbidomti, Muhammad, and Tijani, 2019.

Findings:

- i. The motion graphic advertisement design was achieved by manipulating several industry standard software that enabled the researchers to create design elements without taking longer duration.
- ii. The simplicity in design elements and layout of the motion graphics advertisement can lead to retention of visual memory.
- iii. The developed prototype motion graphics advert design can serve as information reminder to the bank's customers when adopted.
- iv. The developed motion graphics ads revealed huge potential paradigm to leverage on by the marketing and advertising unit in ABUMFB as additional communication medium for information dissemination.
- v. Motion graphics are concise design tasks that are meant to draw the attention of the target audience, create positive mood or feelings connected with the advertisement.
- vi. The audience can relate faster with motion graphic content in relation to Hausa indigenous cultural images and symbols integrated in the motion graphics advertisements and also enhance their perception of the advert.



Plate 8: Motion graphics advertisement frame sequence visualization showing programmes and services.
Source: Mbidomti, Muhammad, and Tijani, 2019.



Plate 9: Motion graphics advertisement design frame sequence visualization showing types of Banks account services available in ABUMFB. Source: Mbidomti, Muhammad, and Tijani, 2019.



Plate 10: Motion graphics advertisement design frame sequence visualization one of the Banks loan programmes. Source: Mbidomti, Muhammad, and Tijani, 2019.



Plate 11: Motion graphics advertisement design frame sequence showing integration of traditional images and motifs to communicate the Bank's agricultural loan services. Source: Mbidomti, Muhammad, and Tijani, 2019.

Summary

According to Odiboh, (2002), marketers are investing enormous amounts of money, time and effort trying to understand varied cultural changes and how they can be applied or integrated into businesses for enhanced interaction between the organization and its clients/customers. Hence, this study's exploration of Hausa cultural symbols and images and music integration in motion graphics advertisements. This is with the aim of achieving an, attractive and alternative means of information dissemination for effective visual communication to customers of ABUMFB Zaria. To achieve the aim of this study, the objectives was set to reform the static graphics into motion graphics content. The study was targeted at exploring Hausa cultural symbols, motifs and music for background flavour and aesthetic, with a view to effectively improve visual communication between the ABUMFB and its customers using familiar cultural symbols from their immediate environment. Hausa symbols found within the research area ABUMFB Zaria were purposively selected, examined, evaluated, based on the elements and principles of design. The significance and value placed on the symbols, images and music used were also considered in the design and final creation of the motion graphics. The overarching idea was to ensure that visual communication was continuous and not static.

Conclusion

The developed motion graphics content enormously poses quality of increasing awareness in the study area. The indigenous audience in the area of study can have the feeling of belonging, as the images, motifs and Hausa background music used on the motion graphics have relevance and value to the target audience. This, in a way can create desire for the motion graphics advertisement content to be displayed in ABUMFB, Zaria.

Recommendations

The study recommends the following:

- i. ABUMFB, may endeavor to explore the paradigm of motion graphics advertisement as additional means of communication and information dissemination to customers, rather than the only existing static graphics for flavour and aesthetics.
- ii. Motion graphic ads can easily enhance visual perception of the messages and also gives the customers a sense of identity to the motion graphics design.
- iii. Cultural motifs and symbols should be consciously integrated in Nigerian motion graphics advertisement content to enhance audience enthusiasm for better emotional influence to educate, entertain and persuade.
- iv. Design tasks of motion graphics advertisement content should be handled by professional graphic designers to enhance the perception of messages with the cultural norms and values of the target audience for easier to association with the adverts.

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