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ARTS, TECHNOLOGY & DEVELOPMENT PATTERNS

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**Managing Editor**

**Dr. Bassey Anam**

Institute of Public Policy and Administration  
University of Calabar, Cross River State  
Nigeria - West Africa  
admin@internationalpolicybrief.org  
Tel: +234 8174 380 445

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## Dedication

Dedicated to the International Institute for Policy Review & Development Strategies for providing a platform and supporting Institutional and Collaborative Research and Sustainable Development.

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## Acknowledgement

Contributors are greatly acknowledge for supporting the agenda towards achieving sustainable development in developing economies of the world, especially in Africa.

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# INTRODUCTION

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## **Integrating Arts with Technology Inspires Creative Learning and Development**

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**Bassey Anam**

*Managing Editor*

*Interactive Knowledge*

**E**ducation in the Arts and Technology is an integral part of the development of human society. Those who have studied learning processes throughout the ages, beginning with Plato, have emphasized the importance of the arts in the education process. The Arts are what makes us most human, most complete as people. Integrating Arts with Technology is to inspire creative learning and development pattern.

The application of Technology in Arts promotes creativity. Although we apparently live in a knowledge-based society, knowledge in the curriculum - particularly the arts curriculum - has been displaced by an emphasis on creativity. At the same time, the arts have been elided with creativity as a catch-all concept, a means to a successful and happy life. The arts now provide us with problem-solving skills, innovative mindsets, communicative attitudes, and inspiration. Conceived thus, the arts have become the butt of banalities about everyday life, cohesive communities, a good society and a buoyant economy (Earle, 2017).

Everyday creativity, however, is very different to artistic creativity. The conflation of the two in discussions about democratizing the arts and

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promoting arts education has led to a real devaluing of the arts, artistic knowledge, and skill. Creativity arises from a complex synthesis of abstract knowledge, concrete knowhow of specific skills and processes, and inner drive; to downplay the importance of knowledge and know-how in the creative process can only diminish it (Earle, 2017).

Technology has evolved a complete shift in human life. The interactive nature of technology allows for complete immersion into creative environments. Studies in the Arts and Technology are integral to our society. They are a part of the cultural heritage and creativity that defines normative changes and progress. Arts and Technology enhance the process of innovation and learning. They build in the learner satisfaction that comes from working to create something, the ability to use and understand creativity, and a profound sense of 'the values that permit civilised life to go on'.

In life 'knowing how' is just as important as 'knowing that'. Arts and Technology introduce learners and policymakers to a range of intellectual and practical skills for development. This creative, imaginative and innovative for sustainable development is the focus of this Volume of Interactive Knowledge, "Arts, Technology, and Development Pattern". The articles are carefully selected and edited. The contributions are based on a sound knowledge of a variety of contexts; judgments about cultural values, cultural history, aesthetics, quality, craftsmanship, and fitness for purpose, and provides an opportunity for an engagement in leisure pursuits that can yield lifelong benefits in health, well being and life satisfaction.

## The Contribution of Art and Culture to Economic Growth

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**Professor Jen Snowball**

*Rhodes University*

*South Africa*

**T**here is growing international interest in the potential of the cultural and creative industries to drive sustainable development and create inclusive job opportunities. An indication of this is a recent set of UNESCO guidelines on how to measure and compile statistics about the economic contribution of the cultural industries. But should this be the only reason for funding arts and culture? Cultural industries can be defined as those whose major outputs have some symbolic value – such as fine arts, film and craft – but also possibly including jewellery design, publishing and fashion. Creative industries are defined more broadly. These have knowledge as their major input, and in addition to cultural goods and services could include things like software design and internet services.

UNESCO has provided guidelines on ways in which these industries can be classified. But there is still no international consensus. Nor is there likely to be, since different countries will have very different levels of involvement and focus that may shape what information is useful for them.

Cultural Times, the first global map of the cultural and creative industries, which was recently released, acknowledges the societal value of arts and culture. Undeniably, culture and creativity have been the cement that binds together not only hearts and souls, but entire societies and nations. This survey quantifies the global economic and social contribution of the sector. The study analyses 11 cultural and creative industry sectors. They are:

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advertising, architecture, books and newspapers/magazines, gaming and movies, and music, performing arts, radio, television and visual arts.

Cultural Times assesses the contribution of cultural and creative industries to economic growth. It estimates that they generate US\$250 billion in revenue a year, creating 29.5 million jobs worldwide. The report helps demonstrate the value of arts and culture. It provides a good rationale for government support of arts and culture, especially in developing countries where there are so many other demands on the public purse.

#### **Contribution to jobs and growth in South Africa**

South Africa is increasingly beginning to focus on cultural and creative industries as potential contributors to economic growth and job creation. This is reflected in the report, 'Mzansis Golden Economy, which sets out ways in which the arts, culture and heritage sectors can contribute to the growth and development of South Africa's economy.

In addition, the government recently established the National Cultural Observatory. It will act as a hub for information and research about the economic and social impact of the creative and cultural industries. South Africa did its first cultural and creative industries mapping study in 2014. Though not yet publicly available, it showed that the industries had created between 162,809 and 192,410 jobs, about 1.08% to 1.28% of employment in the country, and that they contribute 2.9% to GDP.

Based on interviews with a wide variety of more than 2000 people involved in the cultural and creative sector, the study also found that firms tend to be small, with more than a quarter (27%) having only one employee, and a further third (34%) employing between two and five people. Women and men were about equal in proportion. More than three-quarters (77%) were from black, coloured or Indian race groups.

Given the very severe youth unemployment in South Africa, the industries may be particularly important for job creation: 22% of employees are younger than 18, 18% between 19 and 24, and 19% between 25 and 30. This means that 60% of the workforce in the industries is younger than 34. These findings echo worldwide trends. The global mapping study found that

employment in the industries was relatively open to people from all ages and backgrounds (but especially the young), and dominated by small firms. In developing countries, production is dominated by the informal economy.

### **Other spin-offs**

The industries are also a potentially important contributor to social cohesion and nation-building through the promotion of intercultural dialogue, understanding and collaboration. This is strongly emphasised in the Department of Arts and Culture's most recent strategic plan (not yet available online). These are part of a range of spin-offs that artistic production can offer, beyond the straight "instrumental value" – those values that, while undeniably important, are essentially spin-offs of the main point of artistic production.

The "intrinsic" values and aims of culture, "art for art's sake", are things like: to entertain, to delight, to challenge, to give meaning, to interpret, to raise awareness, and to stimulate.

These non-market values are difficult to measure in monetary terms, but are just as important as the instrumental values. While jobs can be created by many economic activities, what other kinds of production can generate these same intrinsic values?

Cultural capital is one. This is defined as the sum total of a country's wealth or stock of art, heritage and other kind of cultural expression. Like other kinds of capital it needs to be invested in – otherwise it will depreciate and be devalued over time.

Public and private sponsorship and support of the arts is particularly important for those producers whose main focus is intrinsic value. Such cultural production is often challenging or disturbing and, while it has a big impact on collective thinking, may not be a financial or market success or may be distributed for free. Think, for example, of the role played by music in the fight against apartheid. While recognising and supporting the very important role that the cultural and creative industries play in the economy, I would argue that we shouldn't lose sight of the unique intrinsic values that

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they generate. This includes the reflection and shaping of national and individual identities.

Use with Permission from the article on “Why art and culture contribute more to an economy than growth and jobs” by Jen Snowball. <http://theconversation.com>.

# 1

## CHAPTER

# INDIGENOUS DANCE: AS AN INDISPENSABLE TOOL FOR COMMUNICATION AND CULTURAL IDENTITY

**Itaya, Francis Bassey**  
*Department of Music,  
College of Education, Akamkpa*

### Introduction

Indigenous dance when scholarly interpreted has gone beyond combination of aesthetic movement; rather it's myopic misinterpretation as mere annual festival while to some people it is just their village dance ' these misinterpretations have really make people to enjoy various indigenous dances based on its aesthetic, pattern and style without considering it's communicative potency if been interpreted, rather it stand as a tool for effective communication. The core interpretation placed on indigenous dance movement broadens the indigenes understanding horizon of seeing the indigenous dance as reflective mirror on the social, religious and economic status at the point the dance is been choreographed. This will make indigenous look at the dance as a communicative tool, a watch dog on their daily activities in the community, and a sustaining tool for upholding communal-moral beliefs. This paper therefore critical examined, the EKPA DANCE of the EJAGHAM people in Akamkpa beyond its mere dance movements, but as indispensable communicative tool of the people's culture.

### **Background to the study**

The major concern of indigenous dance history is to acknowledge the changes that have occurred with. Therefore it requires the explanation of events, which have necessitated changes as understanding the history that gave sense to identity and authority in our indigenous communities. To understand the potency of indigenous dance in our society, it become imperative to trace it from the three sources of origin which are: EMOTIO, IMPULSE AND IMPROVISATION, the need by man to release psychic tension by means of semiotic rhythmic movement and also through ecstasy on magic.

Enekwe, (1991) Opined that: In early man's attempt to control and communicate with the force around him, developed symbolic gesture and movement that expressed the way he felt to his supreme creator. This makes ritual one the major sources of dance. (14). The Evolution of indigenous dance as an art form it's root in the numerous indigenous festivals across the country has made the dance a total performance. Ogbonna (2011) stated that our indigenous movement both in styles form are not done haphazardly but rather they are geared toward conveying the meaning and message of the festival (132) indigenous dance like any other African art form is not form is not for aesthetic use only rather it commit individuals as tools for projecting the norms and values of their community Indigenous dance traditional African societies the expression of beliefs attitudes norms and values of a particular culture. It is embedded in the culture that can reflected in the dance movement of a community. Onwuekwe, (2009) is of the opinion that :indigenous dance can be an art visual or recreation it goes beyond the merely functional movement of work or sport to become an experience that pleasurable exciting or aesthetically valuable .In doing so ,it can also express emotion, mood ,ideas, tell a story or portrays political or social needs (178).

Indigenous dances in core African setting is appreciated based on its communicative potency .it is the communicative ability of dance as a unique act in our indigenous community that gives the dance of any community a traceable origin both in form style or content.



Itaya opines that:

In choreographing contemporary indigenous dance style, the head dancer (choreographer) does not evolve dance step from empty space or mere imagination rather those choreographed dance movement both in name, form and style are embodiment of socio-environment problems raised through body movement to be answered while being entertained (1) indigenous dance as earlier defined is an indispensable tool toward communication and effective cultural identification, indigenous dance also represent a physical instrument or symbol for ideas and thoughts that can serve as a more effective media than verbal language in revealing ones needs and desires.

Kuper maintains that:

Movement in dance becomes standardized and pattern Symbol, where the members of a society may understand that these symbols are intended to represent experience and meaning to an individual's external and psychic world (238).

### **The Perception of Indigenous Dance Forms**

Indigenous dance depicts lives in rhythms and cycles, values, aspiration, history, economic, conciliation and realities.

Itaya states that:

The traditional African dance symbolizes social structure and traditional values of the people from where it emerged. dance steps in traditional African dances sometime praise, criticize and even work as a tool for social mobilization.

Though each dance type and style is distinctly and from one tribe to another, because of cultural difference in its melodic and movement styles. Most indigenous African forms exhibit the social pattern prevalent among tribes/regions and those dance forms can be classified based on the following communicative sub-themes: The Essence of Codes in Performance: The essence of codes in performance is to aid in effective understanding of the communicative code infused in the performance. It is the communicative potency of the codes in the dance performance that guides its essence beyond mere aesthetics, literary understanding and

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stylized movements or actions into a serious analytical interpretative tool. The use of meaning specified codes in dance performance motivates the spectators to word understanding what gave rise to the emergence of such codes and it has enabled in their sustainability.

Jon White More, also state:

Codes are cultural derived signs that have been assigned meaning that are understood by the inhabitants of a given tribe or society. MORE also view cultural codes as rules or guidelines. That govern the operation of a society and it's culture base on their language; dress, manners, the arts, social strata and level of education(9).

#### **Ekpa Cultural Dance of Ejagham People in Cross River**

The creative analysis on indigenous dance performance especially EKPA DANCE makes the meaning of the dance bare before the people that owns the dance ,and also the foreigners that come to watch the dance as a ceremonial event .the creative understanding of the semiotics used in the dance Ekpa makes it more communicative than a mere tool for cultural sustainability cum-traceability .The use of well interpreted semiotic symbol in Ekpa dance performance has really show cased the uniqueness of the dance both in its aesthetics, communication and cultural sustainability

#### **History of Ekpa Dance**

This dance according to the history of Ejagham dated as far back as 1918. This dance EKPA was an all –female institution which to many researchers ,represented the female variant of men's MGBE in Ejagham tradition .this was so in the sense that it served as a disciplinary tool for women in particular constituted an affront to the ideas of womanhood.

Onor said Ekpa major role was socio-religious.it was used as an instrument for purification of the community and propagation of the gods in times of potential or active physical, emotional, or psychological crisis. for instance ,during periods of anticipated or prevalent epidemic ,famine ,drought or any other mishap with dire consequences , the power of EKPA was invoked to forestall or check it's occurrence or spread as the case may be (159).

### **Ritual Dance**

This dance is symbolic in nature during its performance. it serve as a connecting link between the world of living and the world of the dead ,this ritual is normally perform (njom Ekpa) juju during the funeral rites of an elderly woman (Ekuh –Nne –Nkae Ekpa), the leader of dance is fully costumed beautiful traditional ornaments/cloths, carrying an instrument in the right called (MORUER) to enable her intersect with the ancestors of the land for peaceful celebration, and she is closely by a group of young women of Ekpa dance called (Achi-Ekpa)carrying (Agun-Ekpa)guns with various signs written on their faces, their function is to protect and fortify the dancer that is carrying the (Achi or njom Ekpa) masquerade from any external charm from the strangers, Ntufam Agurimon.

According to Ntukae Lucy ofuobi and Emilia akorekpin okena, their said Ekpa dance been a cult of the women as MGBE Or EKPE is that of the menfold, the is only performed at the death of the deceased, now an ancestor in union with (Akibansi)“ county of the dead”, to give the departed person the respect due to her. Most of its activities normally takes place at night , during men are constrained to remain indoors throughout the period of its operations. In deed , any man who is not an initiate like Okey Agurimon, that proved to expose himself to the secrets of Ekpa's activities , ran the risk of becoming impotent the rest of his life.

Onor, concurred that: Members of Ekpa dance normal run round the community nearly naked ,with bare body with short garment (MKPIN); With brandished guns and swords , they look so fierce and wild. The men kept carefully out of sight through, their presence is not absolutely forbidden in daylight, but after dark no man must show his face. The women dance start naked the whole night through, and should no man attempt a glance at these mysteries, his strength will ebb away ,and all his vital powers shrivel up forever.

### **Conclusion**

The interpretative essence of semiotics in indigenous dance has contributed in communicative understanding of our various traditional

dance movements. The various dance steps in our African indigenous dances especially that of Ekpa cultural dance of Ejagham did not just emerge but rather it is carved into existence to give our traditions a traceable origin, sustenance our cultural norms and to help expose the socio-environmental factors that can lead to the creation of different dance movements. It is at this point that the Ejagham of Akamkpa in Cross River State appreciate their Ekpa cultural dance that serves as a window of communication through its movements, style, entertainment and as a guardian protection of communities.

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Ntukae, L. O. & Emilia, A. O. ATUI –KAE EKPA of Nsan Ibenda, Akamkpa L.G.A.

Ntufam, O. A. Ekpa member and deputy village head. Nsan Ibenda, Akamkpa L.G.A.

**2**

## CHAPTER

**NYENKPA (YESKWA) LANGUAGE  
AND ITS VARIETIES: A COMPARATIVE  
VOCABULARY ANALYSIS****<sup>1</sup>Bawa Inuwa Danladi & <sup>2</sup>Awulo Okan Samson***<sup>1</sup>School of Languages, English Department,  
Kaduna State College of Education Gidan Waya**<sup>2</sup>Government Secondary School,  
Kagoro Ministry of Education, Kaduna State.***Introduction**

**T**he linguistic data of Nyenkpa language obtainable from Roger Blench, S. W. Koelle and the dialectal difference presently spoken raises concern for this is research. Moreover, a reflection on the existing varieties of Nyenkpa language results in the analyses of linguistic items in dialects such as Ejira Engbe, and Ogbom. The findings reveal a level of mutual intelligibility and, in some instances, an absence of affinity. The implication is that fully fledged languages are in the process of metamorphosing from these dialects. The conclusion makes propositions for the development of the varieties, which include practical measures to recognize the dialectal gaps in Nyenkpa as a linguistic feature.

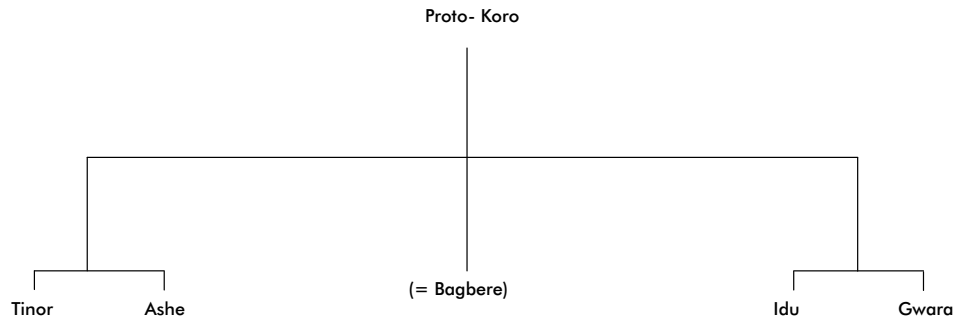
**Background to the Study**

Nyenkpa (Yeskwa, in most literature) is spoken in Karu Local Government Area of Nasarawa State and Jema'a Local Government of Kaduna State, Nigeria. Nyenkpa language survives purely through the spoken medium (Sammy & Sunday 2016) and under threat by Hausa and English languages,

Hausa being a dominant language in northern Nigeria. The term 'Yeskwa' was categorised by Greenberg (1963) as 'Plateau 2,' along Hyamic, Tyapic and other languages. The linguistic group identified in the literature as the 'Koro cluster' is stated to have a link with the Hyamic cluster. However, lexical substantiation proves that Nyenkpa could be a member of the Koro cluster with Iduya (Idu) and Ashe– Tinor (Blench 2004). Given the above consideration, this work aims at analysing the varieties of Nyenkpa language, with the exclusive objective of comparing the vocabularies to measure the levels of intelligibility.

Nyenkpa people are said to have migrated from Darigo, now in Jema'a Local Government of Kaduna State, Nigeria, from where they spread to their existing locations. The dispersal of the people may have resulted in the dialectical differences, although this variation has not triggered considerable difficulties in communication over the years. However, lately, there are narrow evolving gaps in the interface, indicating that the dialectical differences were deepening, which necessitates for a linguistic inquiry. A recent study identifies E'ngbeh-Barde, Ejira - the Abeh–Inching, Ottat and Egbom and 'Southern Nyenkpa' as the varieties of Nyenkpa (Sammy & Sunday 2016). Moreover, the Nyenkpa spoken in Panda and its environs in Karu area of Nasarawa State appear to be different from the one spoken in Barde (in some texts spelt as Bedde) in Jema'a Local Government Area, Kaduna State.

'Yeskwa' is the term utilised in literature to refer to the spoken language, but Nyenkpa is the autonym, the linguistic term the people and the speakers of the language recognise themselves. There is further a classification of the dialects or varieties into Panda, Tattara, Bedde, Gitata and Buzi. While Tattara is considered as the "standard" Nyenkpa, Bedde is the most divergent among the dialects. Consequent of the above-presented information, the focus of this study is to analyse the word list of some of these dialects, identify their points of variation and forecast the possible linguistic implication for the language in the future. The classification of the Koro language as presented in figure 1 below could benefit the comprehension of the Nyenkpa prototype.

**Figure 1. A Classification of the Koro languages****Scope and Limitation**

This work is about the varieties of the Nyenkpa language as it is used in different places around the Nyenkpa area. The study limits itself to the varieties of Nyenkpa spoken predominantly by native speakers of Nyenkpa. It is aimed at considering what could be the “standard” form, which will be analysed in the research. The study is not an exhaustive coverage of Nyenkpa language found in other places as varieties of Nyenkpa language differ in many linguistics features such as phonological, grammatical and lexical items. Such differences are typically found in two or more areas, each of which has singular pronunciation, morphological or lexical usage, but which are distinct about particular futures.

Variety, in Linguistics, denotes a variation in a language, a dialect, an idiolect or an accent. It is a term which involves variance. It is an academic term linked to the test of the level of mutual intelligibility within a given language. Such disparity could be determined by region, gender, social class, age or unique individual characteristics. In this work, the term 'variety' is engaged and defined by regional or geographical location, thereby making the Nyenkpa variety used in Barde, Tattara and Panda to differ regardless of the existence of a “Standard” Nyenkpa variety (Baver, 2002).

Accent in Nyenkpa language merely is detected from the pronunciation of any speaker of Nyenkpa language. One may quickly determine or envisage where such a speaker comes from whether Tattara, Panda, Gitata or Barde. Accent identifies one as belonging to a particular section or group of people. Such dialect is reflected in vocabulary items, grammatical patterns and unique accent (Carstairs –McCarthy 2002:13).



Although the Nyenkpa language speakers have differences in many features in speaking the language, they speak the same language which is Nyenkpa (Yeskwa). The situation is so because, even with the varieties in Nyenkpa, there is a very high degree of mutual intelligibility and reciprocal comprehensibility.

### **Background of Nyenkpa as a Language**

Kevin (2003) made some collections from Titus Oje Aji by Barau Kato in 2003. Blench (2004) had entries in the work "The Yeskwa Language of Central Nigeria and its Affinities." Besides the work of Koelle (1854) of the Sierra Leone Language Studies. It is usual that where two or more persons study a particular occurrence, there are bounds to be different impressions. Blench's and Koelle's data have some dissimilarities, but they are closely related. The term "Yesgua" and 'Yeskwa' are discriminately used by different authors at different points in time, but they refer to the same language – Nyenkpa. Next, Nyenkwa (Yeskwa, in the original script) has a class marker as a Proto – Bantu – Congo of the Greenberg's classification of the Sub-group five of the Plateau languages. Yeskwais one among the sub-units of Benue Congo further categorised under the North – Western Subgroup. Yeskwa entries are mostly Blench's and Koelle's lists.

### **Comparative and Contrastive Vocabulary Analysis of Nyenkpa Words Nouns**

<b>Gloss</b>	<b>Standards Nyenkpa</b>	<b>Bedde Type</b>
King/Chief/Ruler	Dwo	Udyong
Friend	Gdje	Ugaje
Sister	Na'ma	Nambo
Old person	Tokpa	Balafu
Young man	W3ter3	Wetele
Mother	Ama	Iya
Eat	Dga	Dya
Path	Ndyan	Undede
Knife	Igbara	Ude
Lazy man	Odgeru	Udyelu
Hair	Ebwgat	Ebwar

**Nominal in Nyenkpa**

<b>Gloss</b>	<b>Standard Nyenkpa</b>	<b>Badde Type</b>
He-goat	Igbusu	Busulu
Castrated goat	Low	Impyet
Tree	Nga	Itelate
Firewood	Nga	Anga

**Personal Pronouns**

<b>Gloss</b>	<b>Standard Nyenkpa</b>	<b>Badde Type</b>
We	Pambi	Bulumbi
You/plural	Pami	Imi
They	Pamb	Embe

**Possessive Pronouns**

<b>Gloss</b>	<b>Standard Nyenkpa</b>	<b>Badde Type</b>
Mine	Sera	Nygima
You	Semu	Ngyimu

**Roger Blench: Nyenkpa Wordlist**

Below is Blench's wordlists, but this work compared and contrasted with that of Badde type as follows:

<b>Gloss</b>	<b>Standard Nyenkpa</b>	<b>Badde Type</b>
Yesterday	Leko	Kuleu
World	Ekatara	Ukai
River	Ojanko	Ekoi
Compound	Odekpo	Sungele
Road	Kpede	Undele
Place	Awa	Awa
Brother	W3ma	Tombo
Sister	Nama	Nambo
Lie	Birija	Bija
Stick	Ntitiri	Ante
Leg	Ovo	Uvo
Goat	Ebarera	Ebwo
Snake	Evi	Ivui
Axe	Ju	Nkpabo
Hoe	Zat	Zar
Nine	Nt3ra	Nt3ra
Twenty four	Ekeva	Ekoevanna
Old (humans)	T3kpa	Balanfu

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Wet (things)	S3m	Sumi
Smooth	Dy3ri	Dyoci
Strong	Cbr	Colo
Count	Varu	Valu
Cover	Funa	Cimpi
Drag	Gbikpa	Gbir
Follow	Le	Door
Forget	Yucasi	Lutusi
Gather/collect	Ara	Gombi
Give to (them)	S3s3	Kese
Laugh	Ara	Nyela
Learn	Nyina	Kyata

<b>Gloss</b>	<b>Standard Nyenkpa</b>	<b>Badde Type</b>
Lie	Nwet	Nu
Return	Vice	Vuisi
Vomit	Ve	Voi
Groundnut	Gbebe	Viza
Okro	Anwako	Anzwakolo

It is probable that some of the lexical differences are for the reason that the items elicited represent different species of generic terms. Also, there are some items where there seems to exist systematic phonological differences; the differences appear to lie in the realisation of some features which shows up either as a velar or labial sound. Thus, Nyenkpa represents varieties of the same language with dialectical differences such as Ejira (Tattara), Ejung (Panda), Engbe (Barde), Ogbom (Buzi, Gitata), and they are all mutually intelligible.

Sequel to the comparative analysis of the vocabulary items cum phonological level, there is the likely implication that daughter languages could emerge. Environment, space and time may warrant the emergence of more words that may result in dialects evolving into full languages. Contact with other languages such as Hausa, English and neighbouring native languages and their influences (interference) on Nyenkpa and its various dialects can bring about evolution in years to come.

#### **A Comparative Analysis of Mutual Intelligibility among Nyenkpa Dialects**

Currently, there are dialects of Nyenkpa that hardly communicate in standard Nyenkpa to have a good percentage of mutual intelligibility with

other dialects. The Engbe (Barde) have difficulties in communication with the Ejung (Panda) fluently, despite the fact that Ejung is reportedly said to use the "standard form" of Nyenkpa in traditional religious practices, Christianity and Islam as well as in radio programmes in the language (Ejung) in Nasarawa State. The situation is predominantly so in Panda area and other parts of Nasarawa State.

However, the Engbe (Barde) dialect that is found in Jema'a Local Government Area of Kaduna State has many speakers as the Ejung, besides that it owns Chieftdom, a traditional ruling institution in Kaduna State. Invariably, with the passage of time and the impact of the interference of other languages on the vocabulary, phonology and culture of the various dialects, there is every likelihood that the more divergent the dialects become the higher possibility of these evolving into new full fledges languages.

#### **Linguistic Observation and Suggestions**

Arising from the above analysis, linguistically, it can be said that, because of the number of speakers spread across different locations, there is apparently every reason to have these varieties/dialectical difference. The researchers suggest that each of the various dialects should maintain and concentrate on developing their dialects of Nyenkpa language to an advanced level. Development and sustainability of literacy in the various dialects should be enhanced, enough materials in the different dialects should be developed in the four language skills of listening, speaking, reading and writing which should be activated and supported by researchers through the development of standard or graphics for each of the dialects.

The governmental and non-governmental organisation, linguistics department in tertiary institution and linguist should be proactive in enhancing and advancing the development of the dialects of Nyenkpa language for its potential growth. Moreover, research could be conducted to open more vistas for future research more developed than this current one.

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# 3

## CHAPTER

# TRAINING AND RETRAINING AGAINST CHARLATANS IN THE PROFESSIONS

**Esv. Chikezie Okoronkwo FNIVS.**  
*Department of Estate Management,  
Federal Polytechnic Nekede Owerri, Nigeria*

### Introduction

**T**raining is the process of developing skills and learning new concepts. It is the building up and acquisition of ideas, knowledge and attitudes of people especially the young and middle aged. The wage indicator foundation of Ghana (2018) is of the opinion that training is most often intended to “change the attitude, knowledge and skills of employees at work to enable them perform their assigned duties creditably”. Indeed, training is also needed to equip employees with important and very strategic competencies that could assist them in achieving higher productivity, adopting new and appropriate behavior for higher and improved performance as well as greater efficiency. Training could be academic or practical; in character and or learning. Whatever, it essentially targeted at changing the ways of doing things to achieve greater degree of efficiency and profitability.

Professionals require retraining to keep up with changing circumstances and trends, innovations and technology. Retraining is a process of learning new skills or trade, often in response to a change in the work environment. The need for retraining cannot be overemphasized as it is usually always

required to avoid personnel obsolescence due to technological changes and the tendency to forget. Rampbel (2013) confirms that retraining is required often for older adults than for teenagers. He observed that “while older Americans do not face as high a rate of unemployment as the country teenagers and young adults, when they do find themselves employed, they remain unemployed for more than twice as long as teenagers.” Retraining is important and a practice most employers require to keep their staff abreast of emerging trends and situations in the industry or the professions. Through retraining, they learn new skills to continue to be relevant and even be better viable candidates should they have the need to look for new employment elsewhere. Indeed, this is one of the several reasons that inhibit most employers from training and retraining their staff. It has been severally suggested that training a staff who may move to other employments is better than not training at all since the training will benefit not just the staff but the greater community.

### **Training and Retraining in the Professions**

The need for training and retraining especially in the professions seems to be more than necessary especially in the face of encroachments by charlatans and quacks. These are people who did not pass through the appropriate channels of training for the particular professions as required by the laws establishing the professions. The profession of Estate Surveying and valuation for instance has three levels of training and retraining – academics (in accredited institutions of higher learning), practical (in approved professional offices and industries) and professional (by attending Mandatory Continuing Professional Development seminars). Each of these levels are compulsorily required to first of all upgrade one to be a professional as well as continue to be relevant in the profession by keeping abreast of emerging trends in the professions.

Academic training is done through teaching and learning in institutions of higher learning. For the profession of Estate Surveying and valuation, there are several universities and Polytechnics scattered all over the country that are accredited to offer courses in Estate Management. These universities are regulated by the National University Commission (NUC) while the Polytechnics are regulated by the National Board for Technical Education (NBTE). The National University Commission (NUC) is the body tasked to

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regulate and act as a catalyst for positive change and innovation for the delivery of quality university education in Nigeria. The National Board for Technical Education (NBTE) supervises, regulates and oversees educational programs offered by polytechnics through an accreditation process. These bodies structure the curriculum and monitor the implementation of the training by constant and regular accreditation exercises. According to the National Universities Commission (NUC), there are 40 Federal Universities, 44 State Universities, and 68 Private Universities.

Within the period of academic training, students are expected to gather practical experience through industrial training. Student Industrial training also known and referred to as Student Industrial Attachment Program (SIAP) is a work-based experience program that provides a real-life organizational context for students to develop specific or generic skills, valuable to their professional development (Vocational Training Council Hong Kong 2018). Through this process students can apply and enhance their skills in reality, contribute to the organization, and, at the same time, obtain invaluable guidance from their mentors. In Nigeria just like in most other countries of the world industrial experience affords most students the opportunity to gather some work experience relevant to their studies and career prospects. This is important as it affords the student a competitive edge over graduate with no work experience, expose you to real life working environment and hands-on-experience, broaden their understanding of many concepts, help them to nurture and good communication skills in the work environment, learn discipline and principles of work ethics and meet different people in their future career among others (Toscany Academy, 2018).

After graduation and the mandatory one year national youth service, graduates of Estate Management and valuation are required to further acquire practical professional training in an approved professional office for a minimum of two years before they could aspire for upgrading through professional examinations into associate/professional membership of the Nigerian Institution of Estate Surveyors & Valuers (NIESV) and thereafter registered by the Estate Surveyors & Valuers Registration Board of Nigeria (ESVARBON). This is a series of academic and practical training that establishes the candidate for the practice of the profession.



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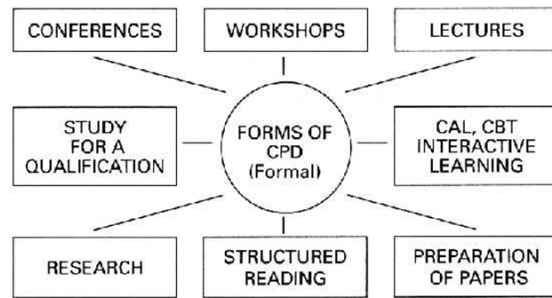
Yet, training and retraining is necessary because a brain that is not poked always remain dormant. This time, the training and retraining assume the status of executive training sometimes called continuing professional development to keep the professional in constant alertness of trends in the professions. Continuing Professional Development refers to the process of tracking and documenting the skills, knowledge and experience that you gain both formally and informally as you work, beyond any initial training.

The wave of change which has influenced the Estate Surveying and Valuation profession over the past decade is unimaginable that professionals cannot just stand akimbo any more. According to the International Federation of Surveyors Article 15 (1996) "professionalism relies increasingly on an ability to respond quickly to changing market conditions, to client requirements and to the influences of government policies". Change is inevitable especially in the professions and to adapt to these changes require that new skill must be acquired such that professional and organizational success can be assured. The response of the Estate Surveying and valuation including many other professions to this challenge has been to promote the concept of Continuing Professional Development (CPD).

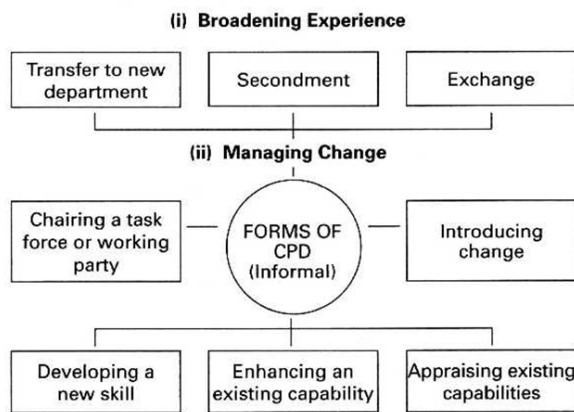
The Royal Institute of Chartered Surveyors (RICS) United Kingdom defines Continuing Professional Development as the systematic maintenance, improvement and broadening of knowledge and skills and the development of personal qualities necessary for the execution of professional and technical duties throughout the practitioner's working life. In a similar way Munsie in the Australian Surveyor Educational Supplement (1994) defines Continuing Professional Development as 'the process by which a professional person maintains the quality and relevance of professional services throughout his/her working life'.

Training and retraining through Continuing Professional Development could be formal or informal. Figure 1 and 2 summarize the distinctions between these two forms of learning.

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**Figure 1: CPD – Formal Model of Learning**  
**Source:** Adapted from Kennie, T. and Enemark, S. (1996)



**Figure 2: CPD - Structured 'Development' Model of Learning**  
**Source:** Adapted from Kennie, T and Enemark, S. (1996)

Continuing Professional Development (CPD) is a necessary requirement of membership of the Nigerian Institution of Estate Surveyors and Valuers (NIESV) as well as the Estate Surveyors & Valuers Registration Board of Nigeria (ESVARBON). It is compulsory hence the name Mandatory Continuing Professional Development. It is organized as workshops or seminars with the aim of helping a professional to reflect, review and document his learning and to develop and update his professional knowledge and skills. The need and merits of professional development are

gargantuan some of which include:

- 1) Providing overview of professional growth and development
- 2) Reminder of achievements and progress
- 3) Directing career and helping to keep track of goals
- 4) Uncovering gaps in skills and capabilities
- 5) Opening up of further development needs
- 6) Demonstrating professional position to clients and employers
- 7) Helping with your career development or a possible career change.

Organizationally however, four areas of improving professional and technical abilities, enhancing organizational management abilities, developing interpersonal and self management abilities as well as actualizing analytical and entrepreneurial abilities stand out as the results of professional success through Mandatory Continuing Professional Development.



**Fig. 3: Merits of Mandatory Continuing Professional Development**

The effectiveness of Mandatory Continuing Professional Development depends on it being Continuous that is throughout the professional's working life; Professionally/Organizationally focused that is being targeted and necessary for the execution of professional and technical duties and related to maintaining the quality and relevance of professional services; Broad Based that is knowledge and skills and the development of personal qualities; and Structured that is systematic maintenance, improvement and broadening.

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The need to retrain workers is often thought to apply to older members of the workforce, many of whom saw their occupations disappear and their skills lose value as technology, outsourcing and a weak economy combined to erode their ability to make a living. Research especially (Okoronkwo 2015) has proved this to be wrong. The Nigerian Institution of Estate Surveyors and Valuers has always been in the forefront of engaging members in continuing professional development. A committee of Council of NIESV known as and called National Mandatory Continuing Professional Development (NMCPD) in collaboration with the Estate Surveyors & Valuers Registration Board of Nigeria oversees this aspect of training. There is also the NIESV Learning Centre where professionals and members get regular training.



**Fig. 5: Training on information technology on land for officers of lands and housing department, Federal Ministry of Lands, Housing and Urban Development**



**Fig. 5: Training on information technology on land for officers of lands and housing department, Federal Ministry of Lands, Housing and Urban Development**

Resource persons seated 1<sup>st</sup> from left (Dr. I. I. Kakulu FNIVS) and 2<sup>nd</sup> from right (Esv. Chikezie Okoronkwo FNIVS)

### **Charlatans in the Professions**

Cameron (2012) could not hide his disgust for the presence of charlatans in the professions. He argues that in many professions, there exist unskilled people who pass themselves off as skilled, in their bid to make a living. These are charlatans. Though they may sometimes give appropriate service and may some other times essentially sell a worthless service to consumers, they pollute the profession. Charlatans are present everywhere but specially in a market that has short supply of professionals. One of such professions is the Estate Surveying and valuation profession.

A charlatan who may also be referred to as a swindler is a person practicing quackery or some similar confidence trick or deception in order to obtain money, fame or other advantages through some form of pretense or deception especially by profession of skills he does not possess (Berk, and Binsbergen 2017). Charlatans are everywhere. From playboy pretenders to lawyers worried about everything but the law, charlatans are a hazard of both professional and personal life. Readon (2018) was exasperated with the incidence of charlatans that he was apt in quipping how infuriating and

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downright shocking they are “from the chicanery of bankers to fortune tellers, nannies to receptionists, builders to politicians, the amateur zookeeper who could not control his lion to the negligent chemistry teacher who blew up his laboratory, from the nefarious homeopath who urged his clients not to trust medical remedies to the reckless businessman who threw away his marriage for the sake of a game of golf, this humorous and informative volume offers a story to suit everyone's taste” They insinuate themselves into every aspect of our lives and professions.

They mask themselves sometimes and may appear in the open. They learn the trade and even develop tricks to make the trade rosier. They are smart and innovative but cunning and rude. Some may be gentle but you may doubt if indeed they are what you think and label them to be. These are charlatans; those who profess what they are not. They are expected to be checked by law and regulation but they have a way of circumventing the rules. In most situations, they had gone ahead to sponsor legislations to legitimize their practice.

The incidence of charlatans who may appear in every guise is a source of worry to the professions. In Estate Surveying and Valuation profession, charlatans are rampant in the practice of Estate Agency, Compensation claims and even have made forays in valuation. Owing to their swiftness, they source briefs with rapt attention and most times corruptly reduce the fees to get their way. Though not experts, they learn the tricks of the trade from experts or connive with client representatives to keep going. In some situations, the client suffers their ineptitude when they grossly perform below standard. It may happen that they may get a juicy package in favour of their clients by corruptly enriching the other party or his representatives.

Charlatans create competition in the market which may be unwieldy for the professional who is not equipped technically. This is the most singular reason why the professional must be well equipped technically and academically beyond any reasonable doubt to keep pace with new trends and innovations. The only way this could be achieved is through continuing professional development. It is not that charlatans cannot undertake to undergo development but he will still be left behind should professionals take that first leap. It is true that there are other areas that could be tapped to

keep the professional ahead but the use of Continuous Professional Development offers the most plausible option.

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# 4

## CHAPTER

### **MIGRATION FROM ANALOGUE PROCESS TO DIGITAL PROCESS IN CERAMIC PRODUCTION**

**Ganiyu Sulayman Olubunmi**

*Department of Fine and Applied Arts,  
Adeyemi College of Education, Ondo, Nigeria*

#### **Introduction**

**C**eramics, to many people, is a modern endeavour devoid of any trace of traditional or local origin. To some others, it is simply an artistic vocation that does not go beyond the production of pots, cups, jugs and other items and utensils useful only for man's domestic needs. To erase this narrow viewpoint and put the records straight, this paper hereby traces the development of ceramics from the era of traditional processing methods to the era of digital influence in ceramics processing techniques by looking at the materials, tools and equipment, and techniques of production.

#### **Background to the study**

Ceramics or pottery (simply put), to a lot of people, is just an art of making pots, cups, mugs and china wares. Many needs of humanity have made ceramic products relevant in places such as homes, offices, and religious centres. Its relevance in the other professions such as engineering, medicine and home-economics cannot be over emphasized. Hence the development of materials like dental porcelain for the repairs of human dental deformity; diodes and microchips for electrical appliances; and many more of such materials that are highly valuable and useful for human development.

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Ceramics, which, according to Fournier (1977), is derived from the Greek word '*keramos*' means '*burnt stuff*' or '*an earthen vessel*' and has so wide an application as to have lost much of its meaning. It not only applies to the silicate industries but also to articles and non-metallic materials made permanent by heat. The range of its meaning has today been cast wider to include cements and enamelling on metal. It has therefore transcended its earlier image as a potter's craft. It has graduated with human development through ages and stages to become a technology. And this is why we can talk about digital ceramics today.

However, to avoid the unending arguments amongst contemporary scholars of ceramics about the difference between ceramics and pottery, this paper shall use the two terms interchangeably.

The paper therefore aims at tracing the various developmental stages of ceramics from the era of traditional processing methods to the era of digital influence in ceramics processing techniques by looking at the materials, tools and equipment, and techniques of production. The stages are basically divided to three namely:

- i. The stage of traditional approach;
- ii. The stage of trado-digital approach; and
- iii. The stage of digital approach.

#### **Traditional approach to ceramics production**

This was a stage in the production of ceramics or pottery when methods and techniques evolved instinctively following man's quest to satisfy his immediate pressing domestic needs. There were claims by scholars of Art History that the introduction of pottery generally coincided with the adoption of agricultural lifestyle by man. This was a time when durable and strong vessels were needed by man to transport their farm produce (Violatti, 2014). Although ceramics is one of the most ancient crafts ever evolved by man, its origin still remain shrouded in speculations according to Areo & Areo (2011). It is however believed that ceramics was developed when man stopped his nomadic wandering of fruits and nuts collection to settle down to communal life.

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According to archaeological evidence, pottery first appeared during the era of Palaeolithic art in East Asia (China, Japan, and the Amur River basin in Eastern Russia), before eventually spreading to the Middle East and the Mediterranean basin during the Neolithic period, thousands of years later (Encyclopedia of Art, 2016). The first ceramic sculpture - the Venus of Dolni Vestonice, dating to about 25,000 BCE - was discovered at a Stone Age settlement in the Czech Republic, but the first ceramic pots are the Xianrendong Cave Pottery (18,000 BCE), found in North Eastern Jiangxi Province in southeast China. Up until the Jiangxi discovery, the earliest art of this type was the Yuchanyan Cave pottery (16,000 BCE) discovered in China's Hunan province. In Europe, the oldest pottery was developed in the Czech Republic. Another very ancient example is Vela Spila Pottery (15,500 BCE) from Croatia and Amur River Basin Pottery dating to 14,300 BCE (ibid.).

Up till the 1990s, according to the Encyclopedia of Art (2016), most archeologists and anthropologists were of the opinion that pottery was first made during the period of Neolithic art (c.8,000-2,500 BCE) after the Ice Age ended, when humans turned from hunter-gathering to farming and animal husbandry. However, the discoveries at Xianrendong and Yuchanyan, together with the collection of Jomon pottery discovered at Odaiyamamoto I site (14,540 BCE) at Aomori Prefecture, Japan, prove beyond doubt that ceramic pottery been in existence ten thousand years earlier, during the European era of Solutrean art (20,000-15,000 BCE). And this is a surprising development given the relative absence of Chinese cave art during this period (ibid.).

#### **Materials and techniques**

In prehistoric times, according to Lakesidepottery.com (2016), most likely water was carried in woven baskets lined with river clay. After the water was poured out of the container the layer of clay dried. The loss of moisture caused the shape to shrink and separate from the sides of the basket. When the clay, now shaped like a pot, was removed, and dried in the sun on hot sand, it retained the basket pattern.

For primitive Stone Age cooking pots, all that was needed was a supply of clay and a source of heat. Thus most Chinese pottery of the Upper Paleolithic (until about 10,000 BCE) was roughly made earthenware, fired in bonfires

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for a short time at temperatures up to 900 degrees Celsius. Vessels were made with round bottoms thus avoiding any sharp angles or rims that would be more prone to cracking. Glazes were not used, while decoration was limited to the use of coiled "ropes" and basketry. In Japan, from about 14,000 BCE, the "Jomon" culture was named after the decorative technique of leaving impressions on the outside of the pot, by pressing rope into the clay before firing it (Encyclopedia of Art, 2016).



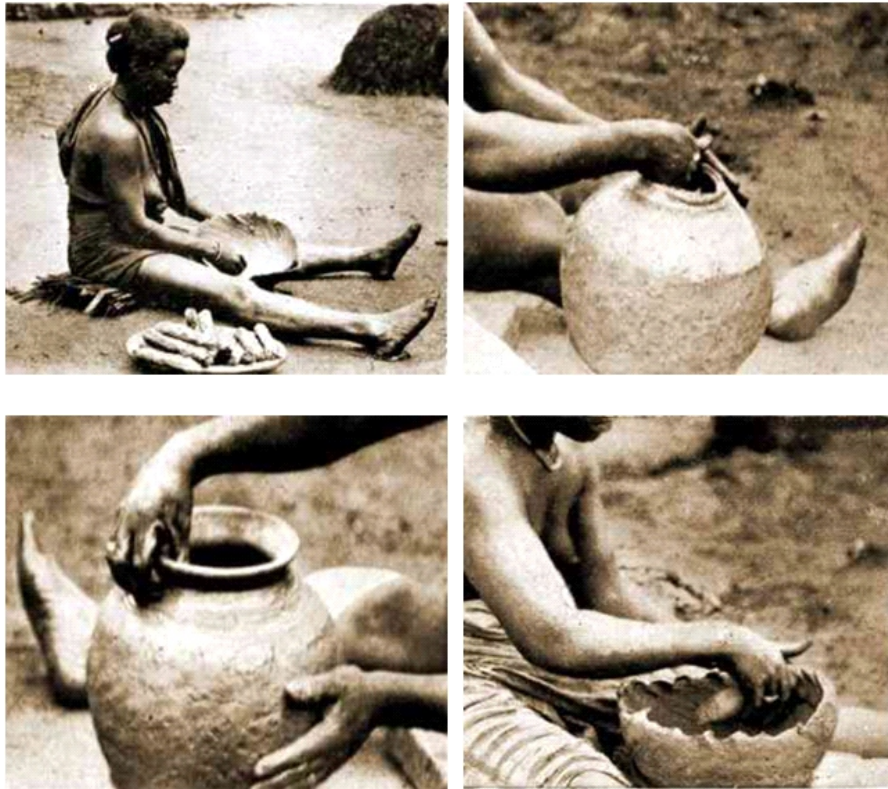
**Plate 1: Cord-Patterned Deep Bowl from the Ancient Jomon Period.**

**Source:** Encyclopaedia of Stone Age Art, (2016)

Prior to the invention of the principle of a potter's wheel in Mesopotamia (present day southern Iraq) around 3000BC, a series of handbuilt methods were used by potters for forming clay into shapes (Bryant, 2016). Lakesidepottery.com (2016) identify three basic ancient pottery techniques as pinched method, coil method and slab method.

Most of the early ceramic works were hand built using simple coiling technique of rolling a lump of clay into long threads of coil that were then pinched and beaten together to form the body of the vessel or pot. In this type of technique, all the energy required for forming the main part of a pot or ceramic ware is supplied indirectly by the hands of the potter. Early pots built by coiling were often placed on mats or leaves or cloths rolled to form a base on which the pots were turned round to allow the potter work round the sides of the pots being produced (Tititudoancea.org, 2016).

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### **Plate 2: Ancient methods of pottery production (Bryant, 2016)**

At the beginning, all that were produced by the potters were for domestic consumption. Hence, the production of just cooking pots, pots for water storage and domestic utensils like plates and bowls for eating and drinking. There were therefore less concentration on aesthetics and decoration.

But as time went on, human's taste and quest for class, leisure and luxury began to rise. Potters began to develop new sophisticated and easier ways of producing ceramics or pottery wares. This led to the invention of Earliest stone potter's wheel in the city of Ur, Mesopotamia by 3000BC. There were also records of the Egyptian potters developing the first turntable shaft for potter's wheel around this same period of human history (Encyclopedia of Art, 2016).

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The Potter's Wheel was not suddenly invented. According to Bryant (2016), it must have gone through the stages of using a shallow dish, bowl or even a large shell for building a coiled pot. This technique probably dates back to perhaps 4000 BC. The invention of a simple wooden turntable probably occurred before 3000 BC. Ancient Egyptian tomb paintings depict potters using turntables made from wood and stone. The earliest turntables were probably not very free-turning and could only be used for easier coiling. When the pottery turntable/wheel was being developed in Southern Iraq during the 4th millennia B.C., production increased rapidly. Pottery making became a full-time occupation. Men became the potters as against its previously been the female profession. Small turntables became larger. A smoother running shaft with a heavier throwing head or large flywheel and bearings with less friction progressively improved the speed and power of the wheel. A potter's assistant could turn the wheel around or a low flywheel could be slowly kicked by the potter. Strangely, the technique of making a pot changed only gradually. The "Fast Coiling" method using a wheel is still common in many village potteries of the Mediterranean, the Middle East and Asia even today. "Throwing" derives from the Old Saxon term "to twist".



**Plate 3: Ancient Egyptian tomb paintings depict potters using turntables made from wood and stone. (Bryant, 2016)**



**Plate 4: Typical Traditional Indian Potter's Wheel. (Lakeside Pottery, 2016)**

By 3000 BCE, Chinese ceramicists had achieved a standard of craftsmanship which was quite exceptional. Designs included saw tooth lines, gourd-shaped panels, radial spirals, and zoomorphic figures. The important Longshan Culture (3000-2000 BCE) based around the central and lower Yellow River region was characterized by eggshell-thin black pottery with added spouts, legs, and handles. Many of its ceramic containers were created specifically for ceremonial rites linked with the worship of ancestral spirits (Encyclopedia of Art, 2016).

**Decoration methods**

As stated earlier, in the ancient periods, little attention was paid to aesthetics decorations of pots since the main concern of man was survival. However, there were indications that water was carried in woven baskets lined with river clay after which the water was poured out of the container when the layer of clay dried. The loss of moisture caused the shape to shrink and separate from the sides of the basket. When the clay, now shaped like a pot, was removed, and dried in the sun on hot sand, it retained the basket pattern. This was probably the early man's method of decoration.

Later on, decoration was limited to simple designs applied by stamping and impressing techniques. There were also the art of burnishing which was the technique of polishing pottery to a beautiful shine without the use of glaze. According to Harnetty (2011), ancient potters used the burnishing

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techniques to produce their wares before glazes and kilns were developed even though modern ceramists still use burnishing to create works of great beauty. Burnishing the surface of pottery wares may be done prior to firing by rubbing with a suitable instrument of wood, steel or stone to produce a polished finish that survives firing. It is possible to produce very highly polished wares when fine clays are used or when the polishing is carried out on wares that have been partially dried and contain little water, though wares in this condition are extremely fragile and the risk of breakage is high. Pottery painting has been used since the early prehistoric times, and can be very elaborate. The painting is often applied to pottery that has been fired once, and may then be overlaid with a glaze afterwards. Many pigments change colour when fired, and the painter must allow for this.

Perhaps glazing is the most common form of decoration that also serves as protection to the pottery, by being tougher and keeping liquid from penetrating the pottery. Glaze may be clear, especially over painting, or coloured and opaque. There is more detail in the section below.

Pottery vessels may be decorated by shallow carving of the clay body, typically with a knife or similar instrument used on the wheel. This is common in Chinese porcelain of the classic periods. According to the 6<sup>th</sup> edition of *The Columbia Electronic Encyclopedia* (2012), painted pottery of the Neolithic period has been found in China. By the second century BCE, the Early Han period had developed a green glaze which may have come from the Middle East. In the Sui period (A.D. 581–618) and the T'ang period (618–906), porcelain and porcelaneous ware (the envy of the Western world) began to be made and exported to Korea and Japan and to the Islamic world.

### **Firing techniques**

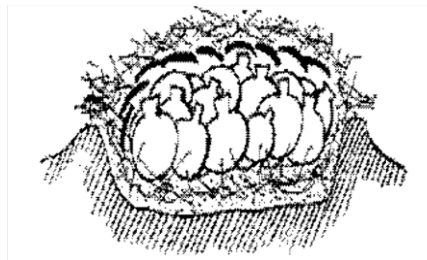
The earliest method for firing pottery wares was the use of bonfires or open firing or pit fired pottery. Firing times were short but the peak-temperatures achieved in the fire could be high, perhaps in the region of 900 °C (1,650 °F), and were reached very quickly (Barnett & Hoopes, 1995). Open firing could be used for single large pots or for as many as a collection of hundreds of pots. Brushwood is laid out to cover a circular area. Or a large collection of pots, starting from the centre, pots are piled on each other to build a



dome-like structure gradually enlarged to cover the circle of the brushwood. More brushwood are added on top of the pots and fire is then started (see Plate 5).

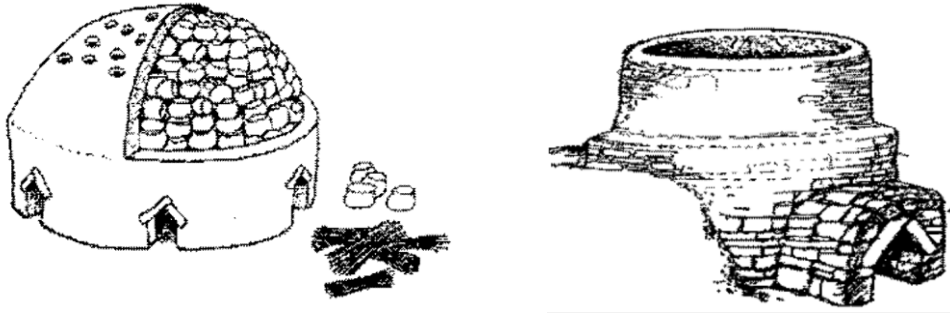


**Plate 5: Ancient methods of firing pots (Bryant, 2001)**



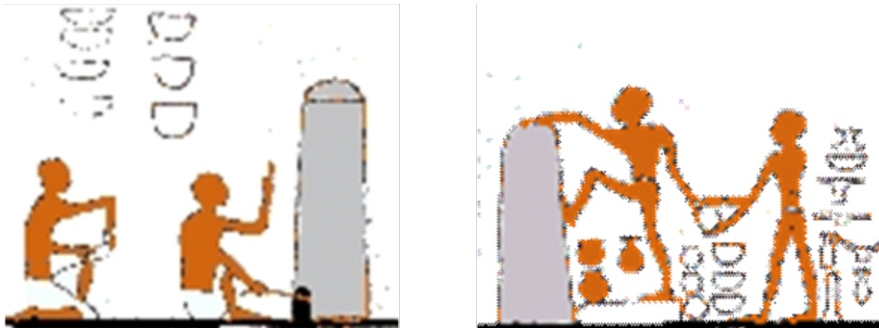
**Fig. 1: A sketch of an open firing of multiple pots (Bryant, 2001)**

A later advancement of the open firing method involve the construction of a rough circular stonewall made from lumps of stone and shards with clay mud. There were openings for stoking the fire. A temporary domed roof was plastered over the pots for protection with openings left for the heat and smoke to escape (Bryant, 2001).

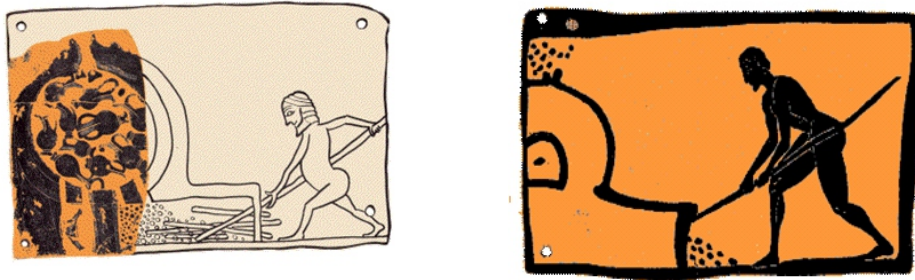


**Fig 2: Sketches of later improvements on open firing (Bryant, 2001)**

There were tomb wall paintings that seem to show tall dome kilns in early Egyptian art. Throughout the Middle East and the Mediterranean, there were also descriptions of kilns similar to the one in Plate 6. There were also evidences of an improvement to these kilns by the Greeks and probably elsewhere in the 1<sup>st</sup> Millenium BCE (see Plate 7).



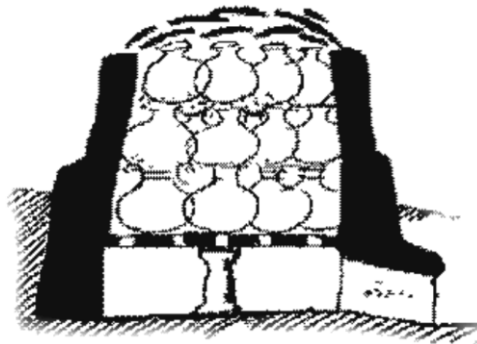
**Plate 6: Egyptian Tomb Drawings depicting the use of simple Updraft Kiln (Bryant, 2001)**



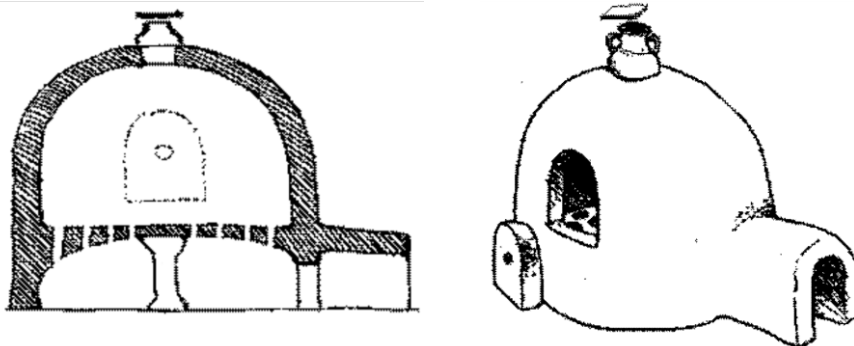
**Plate 7: Evidence of Greek improvement on Egyptian Kilns (Bryant, 2001)**

By the 5<sup>th</sup> Millenium BCE, potters had achieved a considerable control over their firings through the development of these enclosed updraft kilns:

- i. Pots separated from the fire;
- ii. A permanent chamber with a door or bricked up opening; and
- iii. A short chimney with provision for controlling the draft on atmosphere of the kiln using a tile or blocking or reducing fire mouth opening.



**Fig. 3: Sketch of later improvements on earlier kilns by separating the fire chambers from the kilns (Bryant, 2001)**



**Fig. 4: Later improvement by inclusion of short chimneys (Bryant, 2001)**

#### **Tradi-digital approach to ceramics production**

As human development began to improve by the years, so also was the improvement on the development of approaches to the production of ceramics. The hitherto domestic and local needs of man began to develop into complex desire for luxury, beauty and aesthetics.

With the passage of human civilisation from Stone Age to Iron Age, from Classical period to the period of Industrial Revolution, ceramic production began to metamorphose from a local craft to a sophisticated design and technology. The processing of materials improved and so were the evolvement of new techniques of production. There was therefore a gradual shift from the ancient and traditional approach to ceramics production to a trado-ditgital approach.

This was also not unrelated with the evolvement of new civilisations and empires. For instance, the Early Islamic pottery followed the forms of the regions which the Muslims conquered. Eventually, however, there was cross-fertilization between the regions. This was most notable in the Chinese influences on Islamic pottery. Trade between China and Islam took place via the system of trading posts over the lengthy Silk Road. Islamic nations imported stoneware and later porcelain from China. China imported the minerals for Cobalt blue from the Islamic ruled Persia to decorate their blue and white porcelain, which they then exported to the Islamic world. Likewise, Islamic art contributed to a lasting pottery form identified as Hispano-

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Moresque in Andalucía (Islamic Spain). Unique Islamic forms were also developed, including fritware, lusterware and specialized glazes like tin-glazing, which led to the development of the popular majolica. One major emphasis in ceramic development in the Muslim world was the use of tile and decorative tile work (Nelson, 1966).

Equally, the early inhabitants of Europe developed pottery at about the same time as in the Near East, circa 5500–4500 BCE. These cultures and their pottery were eventually shaped by new cultural influences and technology with the invasions of Ancient Rome and later by its conquest by Islamic civilisation. The Renaissance art of Europe was a melding of the art of Classical era and Islamic art.

This development continued till the invention of computer in the early 19<sup>th</sup> century when the world began an upward movement toward digitalisation.

This period witnessed a lot of experimentation of ceramic materials while some ground-breaking techniques of ceramics production were developed. For example, according to Encyclopedia of Art (2016), between 1600 CE and 1900 CE, first Portuguese explorers and traders were able to collect samples of kaolin clay from China as an essential ingredient in porcelain production and Ehrenfried Walther von Tschirnhaus (1651-1708) at Meissen was able to create the hard, white, translucent Chinese-style of porcelain while the architects in England and America started to use unglazed terracotta in order to decorate the exterior surfaces of buildings.

In the Americas, the first whiteware was made in 1684 a stoneware factory was opened in New York in 1735 CE, while terra-cotta works were operating in Massachusetts and Pennsylvania after the middle of the 18th Century. Palatinate refugees produced slip-decorated and graffito earthenware, and their product formed the foundation of Shenandoah pottery (The Columbia Electronic Encyclopedia, 6th Ed., 2012).



**Plate 8: Renaissance Ceramics (Thatsarte.com, 2016)**



**Plate 9: Evidence of Chinese and Byzantine ceramics on Islamic ceramics**  
([https://en.wikipedia.org/wiki/Islamic\\_pottery](https://en.wikipedia.org/wiki/Islamic_pottery))

In the 19th century, with the invention of the electric light by Thomas Alva Edison and the telephone by Alexander Graham Bell, a new era which could be referred to as the "era of electricity" began. Ceramics, previously used only as vessels, started to play entirely new roles suited to this new era (Global.kyocera.com, 2016).

In general, ceramics do not conduct electricity. Compared to other insulators, such as paper and wood, ceramics are less affected by environmental factors such as temperature and humidity, giving ceramic

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components higher reliability. Ceramics have thus come into widespread use as insulators or as insulating materials in areas ranging from power lines to household products and have become important materials that allow people to use electricity easily (ibid.).



**Plate 10: Porcelain High-Voltage Insulator (Wikipedia, 2016)**



**Plate 11: kitchen Knife with a Ceramic Blade (Wikipedia, 2016)**

#### **Digital approach to ceramics production**

Technology has indeed assisted ceramics to migrate from ordinary traditional production processes to digital production and printing. The strong influence of mechanised tools on designs can not to be underestimated.

Today, there is Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) in modern ceramics production. A good example is the first digital printer to use inkjet technology to decorate tiles that was launched in 1999 by KERAjet, with very limited success, and it was not until

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2007 that digital technology decoration really broke through and became the 'must have' process as it is today. The catalyst was the launch of the Xaar 1001 print head and its integrated ink recirculation technology (TF Technology™). The features of digital inkjet decoration solve some of the problems with traditional ceramic.

The all-round capability of the Xaar 001 enables the application of decorative coloured glazes, structure and flood glazes. Ceramic tile manufacturers can now use digital techniques to create exciting new tile designs both before and after decoration, adding structure and contrast to flat tiles. Also, adding structure digitally with the Xaar 001 now allows manufacturers to vary the relief pattern on every single tile. Because the Xaar 001 has the ability to lay down up to 700 g/m sq. of fluid it can also be used for other applications, such as applying engobe and glaze to the tile body. Digitalizing this process will reduce the amount of fluid used potentially saving costs and allowing further creativity such as mixing effects on a tile. It is equally possible to add functional coatings to tiles such as non-slip, antibacterial, water repellent or other layers (Xaar.com, 2014).

There are computer aid extruders, computer assisted continuous kilns, computer assisted tools and milling machine that creates custom ceramic restorative devices in bioceramics and computer aided ceramic sintering.



**Plate 12: Xaar 001 Digital Printer (Xaar.com, 2014)**

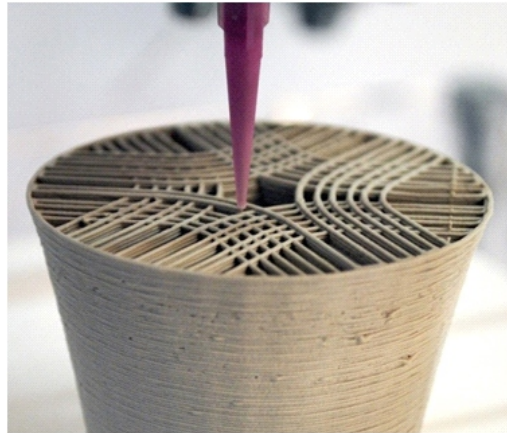




**Plate 13: Extruding Ceramic Cup**  
(<http://3dprintingindustry.com-prototyping-png.png>)



**Plate: Printed Ceramic Wares**  
(<http://3dprintingindustry.com-prototyping-png.png>)



**Plate 15: Large-dsc1023 printing intersecting lines**

**Source:** <http://3dprintingindustry.com-prototyping-png.png>

### **Conclusion**

Conclusively, it would be interesting to note that in buildings technology, much of the construction industry depends on the use of ceramic materials. These include brick, cement, tile and glass. Cement is used to make concrete which in turn is used for roadways, dams, buildings and bridges. Uses of glass in the construction industry include various types of windows, glass block and fibres for use in insulation, ceiling panels and roofing tiles. Brick is used for homes and commercial buildings because of its strength, durability and beauty. Brick is the only building product that will not burn, melt, dent, peel, warp, rot, rust or be eaten by termites. Tile is used in applications such as flooring, walls, countertops and fireplaces. Tile is also a very durable and hygienic construction product that adds beauty to any application.

In electricity, ceramic high tension insulators make it possible to safely carry electricity to houses and businesses. In glass technology, refractory ceramics are enabling materials for the glass industry and other industries as well. The chemical, petroleum, energy conversion and other ceramic industries all rely on refractory materials. The electronic industry would not exist without ceramics as ceramics can be excellent insulators, semiconductors, superconductors and magnets. This benefits products like mobile phones, computers, television and other consumer electronic products.

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Fibre optic fibres have provided a technological breakthrough in the area of telecommunications. Information that was once carried electrically through hundreds of copper wires is now being carried through high-quality transparent silica (glass) fibres. The reliability of the transmitted information is also greatly improved with fibre optic fibres. In addition to these benefits, the negative effects of copper mining on the environment are reduced with the use of silica fibres.

Orthopaedics has advanced greatly with the aid of Ceramic artificial bones. Surgeons are already using bio-ceramic materials for repair and replacement of human hips, knees, shoulders, elbows, fingers, eyes and wrists. Ceramics are also being used to replace diseased heart valves while dentists use ceramics for tooth replacement implants.

These and many more are recent contribution of ceramics to modern human development and there is still room for more development in the future.

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# 5

## CHAPTER

### THE USE OF WHATSAPP AS LEARNING TOOL AMONG UNDERGRADUATE STUDENTS IN UNIVERSITY OF JOS, NIGERIA

<sup>1</sup> Japheth Sublim Ajiya & <sup>2</sup>Larai A. Keswet

<sup>1</sup>Department of Languages,

Government Secondary School, Shendam

<sup>2</sup> Department of Science and Technology,

Faculty of Education, University of Jos, Nigeria.

#### Introduction

The study is a survey on the use of WhatsApp as a learning tool among undergraduate students in the University of Jos, Nigeria. To achieve the objective of the study, three research questions and two hypotheses were formulated. Literature on the use of WhatsApp as a learning tool was reviewed. A cross-sectional survey design was adopted for the study. The population of the study consisted of 4,913 students in 300 level. From the population, 491 respondents were drawn as samples which represent 10% of the population. The samples were drawn using the proportional stratified sampling technique. Questionnaire for Social Media Use as Learning Tool (QSMULT) was used to collect data for the study. 491 questionnaires were distributed but 448 were returned representing 91% return. Data collected was analysed using simple percentage for the three research questions. Null hypothesis one was tested using one way ANOVA while the null hypothesis two was tested using t-test. All the analysis was done using the Statistical Packages for Social Science (SPSS). Findings reveal that most undergraduate

students in the University of Jos use WhatsApp as a tool for learning. In carrying out assignments, research, engaging in academic discussion with their colleagues and sometimes in preparation for tests and examination. It was found that the use of WhatsApp is effective in achieving students learning purposes. Students' use of WhatsApp as a learning tool is moderate. Hypothesis one show that students in the different faculties of the University differ in their use of WhatsApp as a learning tool. Hypothesis two reveal that male and female students use WhatsApp the same way.

### **Background to the study**

WhatsApp is a social media that has become a common phenomenon in society today. Mere observation of events in society shows that both the younger and the older generations are conversant with the use of WhatsApp. WhatsApp falls within the category of the social networking sites and it allows users to create individual and group profiles and to host their profile pictures. A WhatsApp user can only communicate with or access information from another user where they share each other's phone number.

The App is a cross-platform instant messaging application for smart phones that utilises the internet for transmission of messages (Wikipedia, 2017; Statista, n.d.). It uses the Internet to make voice calls, one to one video calls, send text messages, images, videos, documents, audio files, phone contacts and voice notes to other users using standard cellular mobile numbers. It also has a feature called Status, which allows users to upload photos and videos that are visible to all contacts; similar to Facebook and Instagram Stories (Wikipedia, 2017).

WhatsApp was founded by Brian Acton and Jan Koum and it was incorporated on February 24, 2009 in California. In February 2014, it was acquired by Facebook. As at February 2016, WhatsApp had a user base of over one billion users worldwide (Wikipedia, 2017). According to Statista (n.d) WhatsApp has more than 1.2 billion monthly active users worldwide as of January 2017. Furthermore, the app also handles more than 600 million photos and 64 billion overall messages every day.

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Although WhatsApp started as an alternative to Short Messaging Services(SMS) and it is mainly used to stay in touch with friends and family, anytime and anywhere (WhatsApp, 2017), it has become a tool for learning. In a study on WhatsApp Goes to School: Mobile Instant Messaging between Teachers and Students',Bouhnik & Deshen (2014) found that class WhatsApp groups are used for four main purposes viz: communicating with students, nurturing the social atmosphere, creating dialogue and encouraging sharing among students, and as a learning platform. Furthermore, the use of WhatsApp creates a pleasant environment foran in-depth acquaintance with fellow students, accessibility of learning materials, teacher availability, and the continuation of learning beyond class hours.

Learning tools are equipment, gadgets, hardware or software, electronic or mechanical, which can be employed in the teaching and learning process in order to aid, enhance or facilitate learning. Traditionally, conventional learning tools such as chalkboard, charts, diagrams, models, radio and television are used in education. In recent times, sophisticated and more technologically advanced learning tools have been developed and are being incorporated into the teaching learning process.

Although literature are lacking on the use of WhatsApp as learning tools among undergraduate students in the University of Jos, Nigeria, available studies show that students engage themselves with social media for social as well as for academic purposes. Olaniran (2014) found that the students of the University of Jos use Twitter as an alternate research medium for academic works, forming and maintaining social relationships with friends and admired personalities.

#### **Statement of the Problem**

Literature reveals that WhatsApp is viable tool that can enhance students' research activities, aid learning and advance their academic performance. In spite of the vast opportunities for the use of WhatsApp in educational practices, the potentials inherent its use as a learning tool is yet to be fully tapped by students. Despite the popularity of WhatsApp for personal use, a low percentage of students use them for academic practice. Rather, most students engage the WhatsApp for social interaction, entertainment, religious and political activities among others.



Furthermore, in Nigeria and other developing nations, not much research has been conducted on the use of WhatsApp as learning tool. Most studies concentrate on the general use of the WhatsApp among students. Available researches show that academic contents have not been deliberately designed by academics and uploaded online for learning by students on the WhatsApp platform. Rather, in this 21<sup>st</sup> Century, much teaching and learning is still done through conventional means and methods such as lecture method for lesson delivery and the use of chalkboard. This study was therefore carried out to investigate students' use of WhatsApp as learning tool. It is to unravel the academic purposes and the extent to which students use WhatsApp as learning tool.

### **Purpose of the Study**

The general purpose of the study is to survey the use of WhatsApp as learning tool among undergraduate students of the University of Jos, Nigeria.

1. Find out the extent to which undergraduate students in the University of Jos use WhatsApp as a learning tool.
2. Examine the extent to which the use of WhatsApp by undergraduate students in the University of Jos is effective in achieving their learning purposes.
3. Find out how often undergraduate students in the University of Jos use WhatsApp as a learning tool.

### **Research Questions**

The following research questions guided the study.

1. To what extent do undergraduate students in University of Jos use WhatsApp as a learning tool?
2. To what extent is the use of WhatsApp by undergraduate students in University of Jos effective in achieving their learning purposes?
3. How often do undergraduate students in the University of Jos use WhatsApp as a learning tool?

### **Hypotheses**

The following null hypotheses were formulated and tested at 0.05 level of significance.

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1. There is no significant difference among students in the different Faculties of the University of Jos in their use of WhatsApp as a learning tool.
2. There is no significant difference between the female and male students in their use of WhatsApp as a learning tool.

#### **Methodology**

The cross-sectional survey design was used to conduct the study. The population of the study consisted of 4,913 respondents in 300 level from nine Faculties in the University of Jos comprising Faculties of Arts, Education, Natural Sciences, Social Sciences, Management Sciences, Environment Sciences, Law, Medical Sciences, and Pharmaceutical Sciences. The sample size for the study is 491 study which is 10% of the study population. 491 sample size is ideal for the study because Ibanga (2002) cited in Ajayi (2014) recommended that 10% - 20% of population is ideal for a research sample in a survey study. Proportional stratified sampling technique was used to draw the sample from the population of the study. A uniform sampling fraction was used to draw units from each strata (Awotunde & Ugodulunwa, 2004). As a result, each strata contributed one-tenth of its size to the sample.

The Questionnaire for Social Media Use as Learning Tools (QSMULT) was used for data collection. QSMULT was a structured questionnaire with five-point Likert rating scale developed by the researcher. The reliability of the instrument was estimated using the Cronbach's Alpha method of estimating reliability. The reliability coefficient of the instrument is .892. Percentages and frequencies were used to analyse and answer the research questions while one way ANOVA and t-test were used to test null hypotheses one (HO1) and two (HO2) respectively. All the analyses were done using SPSS version (22.0).

#### **Results**

The results of the findings are presented in tables 1 - 5

#### **Research Question One**

To what extent do undergraduate students in University of Jos use WhatsApp as learning tool?

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**Table 1: Percentage analysis showing the extent of use of WhatsApp as learning tool**

SN	ITEM	NU	AN	S	AET	FU
1	I use my WhatsApp account to gather Information for doing my school assignments.	105(23.4%)	40(8.9%)	210(46.9%)	49(10.9%)	44(9.8%)
2	I use my WhatsApp account to gather information from colleagues for conducting academic research	78(17.4%)	47(10.5%)	201(44.9%)	73(16.3%)	48(10.7%)
3	My WhatsApp account is not used to gather information for doing assignments.	33 (7.4%)	32(7.1%)	116(25.9%)	83(18.5%)	171 (38.2%)
4	I discuss academic issues with my colleagues through WhatsApp.	54 (12.1%)	35(7.8%)	149(33.3%)	107(23.9%)	97(21.7%)
5	I discuss academic matters with my lecturers through WhatsApp.	308 (68.8%)	36(8.0%)	55(12.3%)	24(5.4%)	12(2.7%)
6	I do not discuss academic matters with colleagues and lecturers through my WhatsApp account.	34 (7.6%)	36(8.0%)	98(21.9%)	100(22.3%)	169(37.7%)
7	I use my WhatsApp account to access classroom lectures/lecture notes.	140 (31.3%)	42(9.4%)	114 (25.4%)	71 (15.8%)	74(17.0%)
8	I use my WhatsApp account to access study materials from other colleagues in preparation for tests and examination	100 (22.3%)	37(8.3%)	141(31.5%)	83(18.5%)	82(18.3%)
9	Study materials are not accessed through my WhatsApp account in preparation for tests and examinations.	28 (6.3%)	30(6.7%)	110(24.6%)	89(19.9%)	181 (40.4%)
10	My class' WhatsApp group account is used to aid the doing of assignments.	94(21.0%)	52(11.6%)	146 (32.6%)	73 (16.3%)	73(16.3%)
11	My class' WhatsApp group account is used to aid the conduct of academic research.	128 (28.6%)	69(15.4%)	136 (30.4%)	53 (11.8%)	57(12.7%)
12	We use the class' WhatsApp account to discuss academic issues.	87 (19.4%)	34(7.4%)	158(35.3%)	83(18.5%)	84(18.8%)
13	I discuss academic matters with my lecturers through WhatsApp.	48 (10.7%)	38(8.5%)	62(13.8%)	64(14.3%)	225(50.2%)
14	My class WhatsApp account is used to access classroom lectures/lecture notes.	229 (51.1%)	60(13.4%)	90(20.1%)	37(8.3%)	22(4.9%)
15	We discuss classroom lectures/lecture notes using the class' WhatsApp account.	318 (71.0%)	62(13.8%)	32(7.1%)	19(4.2%)	6(1.3%)

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16	Classroom lectures and lecture notes are not discussed through my class' WhatsApp group account.	40 (8.9%)	24(5.4%)	56(12.5%)	71(15.8%)	237(52.9%)
17	My class WhatsApp account is used to share study materials in preparation for tests and examination.	196 (43.8%)	46 (10.3%)	108(24.1%)	49(10.9)	39(8.7%)
<b>Overall Total</b>		<b>2020</b>	<b>720</b>	<b>1982</b>	<b>1128</b>	<b>1621</b>

**Source:** Researcher field work, 2016

The results of the analysis in table 1 show the extent of the use of WhatsApp as a learning tool. From the responses, the extent of the use of WhatsApp as a learning tool is moderate. 210(46.9%) of the respondents indicate that they sometimes use their personal WhatsApp account to carry out school assignments. 201(44.9%) sometimes use it to conduct academic research while 149(33.3%) use it to discuss academic issues with their colleagues. Furthermore, majority of the respondents, 141(31.5%) indicated that they sometimes use their WhatsApp account to access study materials from their colleagues in preparation for tests and examinations. Similarly, majority of the respondents 146(32.6%) sometimes use their class' WhatsApp group account to do their assignment. 73(16.3%) and 73(16.3%) frequently and almost every time use the group account for assignment. 158(35.3%), 84(18.8%) and 83(18.5%) indicated that they sometimes, frequently and almost every time respectively, use their class group account to discuss academic issues. Only 87(19.4%) and 34(7.4%) respondents indicated that they never and almost never use the class group account to discuss academic issues.

The result however show that 229(51.1%) never use their class group account to access classroom lectures and lecture notes. 318(71.0%) never use the group account to discuss classroom lectures and lecture notes. 196(43.8%) indicate that they never use the group account to share study materials in preparation for tests and examination. However, 108(24.1%) indicated that they share study materials through their WhatsApp group account in preparation for tests and examination. From the analysis of result, students use their personal WhatsApp account to do assignments, conduct research, and discuss academic issues with their colleagues. On the

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contrary majority of the respondents do not use their classgroup WhatsApp account to access lecture notes, discuss classroom lectures/notes neither do they use it to share materials in preparation for tests and examination. Hence the use of WhatsApp as a tool for learning in the study area is moderate.

**Research Question Two:**

To what extent is the use of WhatsApp by University of Jos undergraduate students effective in achieves their learning purposes?

**Table 2: Percentage analysis on the use of WhatsApp in achieving learning purposes.**

S/N	ITEMS	VI	I	A	E	VE
1	The use of WhatsApp in carrying out my assignments is	46(10.3%)	47(10.5%)	118(26.3%)	106(23.7%)	126(28.1%)
2	My use of WhatsApp in conducting academic research is	37(8.3%)	47(10.5%)	128(28.6%)	115(25.7%)	115(25.7%)
3	Using WhatsApp for assignments purposes is not	55(12.3%)	70(15.6%)	76(17.0%)	164(36.6%)	62(13.8%)
4	Conducting research through WhatsApp is not	64(14.3%)	70(15.6%)	81(18.1%)	167(37.3%)	55(12.3%)
5	using WhatsApp to discuss academic issues with my colleagues is	31(6.9%)	54(12.1%)	111(24.8%)	123(27.5%)	114(25.4%)
6	Discussing academic matters with my lecturers through WhatsApp is	99(22.1%)	105(23.4%)	113(25.2%)	75(16.7%)	47(10.5%)
7	Engaging in academic discussion through WhatsApp is not	64(14.3%)	64(14.3%)	84(18.8%)	157(35.0%)	70(15.6%)
8	Use of WhatsApp to access and share classroom lectures/lecture notes is	48(10.7%)	63(14.1%)	97(21.7%)	121(27.0%)	109(24.3%)
9	Using WhatsApp study materials to prepare for tests and examination is	13(2.9%)	17(3.8%)	55(12.3%)	121(27%)	238(52%)
10	Preparing for tests and examinations with study materials from WhatsAppis not	69(15.4%)	37(8.3%)	125(27.9%)	71(15.8%)	126(28.1%)
	<b>Overall</b>	<b>526</b>	<b>574</b>	<b>987</b>	<b>1220</b>	<b>1062</b>

**Source:** Researcher field work, 2016

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From the analysis of the results in table 2, 126(28%) and 106(23.7%) respondents indicated that the use of WhatsApp is Very Effective and Effective, respectively in carrying out assignments. Only 46(10.3%) respondents indicated that WhatsApp is Very Ineffective in carrying out assignments. 115(25.7%) respondents indicated that WhatsApp is Very Effective in conducting research and another 115 (25.7%) also indicated that WhatsApp is Effective in conducting research. 114(25.4%) and 123(27.5%) respondents indicated that the use of WhatsApp is Very Effective and Effective in discussing academic issues with colleagues. On the contrary, 99(22.1%) and 105(23.4%) respondents indicated that the use of WhatsApp is Very Ineffective and Ineffective respectively in discussing academic issues with their lecturers. Only 47(10.5%) respondents indicated that WhatsApp is Very Effective in discussing academic issues with their lecturers. On the use of WhatsApp to access and share classroom lectures and lecture notes, 109(24.3%) and 121(27%) respondents indicated that WhatsApp is Very Effective and Effective respectively. 48(10.7%) only, indicated that it is very ineffective in accessing and sharing lectures and lecture notes. Furthermore, 238(52%) respondents, representing the majority, indicated that the use of study materials through WhatsApp is very effective in preparing for tests and examinations. From the analysis, most respondents allude to the fact that they use WhatsApp almost every time in achieving their learning purposes. This shows that WhatsApp plays a significant role in achieving effective learning.

#### **Research Question Three:**

How often do undergraduate students in the University of Jos use WhatsApp for learning?

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**Table 3: Percentage analysis on the response on how often students use WhatsApp.**

S/N	ITEMS	N	R	S	O	A
1	WhatsApp is used for doing my assignments.	55(12.3%)	57(12.7%)	159(35.5%)	94(21.0%)	76(17.0%)
2	I conduct academic research using WhatsApp.	49(10.9%)	59(13.2%)	156(34.8%)	106(23.7%)	71(15.8%)
3	My assignments are not done using WhatsApp.	39(8.7%)	48(10.7%)	126(28.1%)	115(25.7%)	108(24.1%)
4	I discuss academic issues with my colleagues through WhatsApp.	46(10.3%)	73(16.3%)	173(38.6%)	85(19.0%)	62(13.8%)
5	I discuss academic matters with my lecturers through WhatsApp.	204(45.5%)	90(20.1%)	95(21.2%)	36(8.0%)	15(3.3%)
6	I use WhatsApp to access classroom lectures/ lecture notes.	101(22.5%)	77(17.2%)	149(33.3%)	67(15.0%)	43(9.6%)
7	I use WhatsApp to access study materials in preparation for tests and examination.	65(14.5%)	66(14.7%)	171(38.2%)	86(19.2%)	53(11.8%)
8	WhatsApp is not used for engaging in academic discussions	30(6.7%)	54(12.1%)	139(31%)	105(23.4%)	109(24.3%)
9	Preparation for tests and examinations are not done through the use of materials from WhatsApp.	40(8.9%)	49(10.9%)	138(30.4%)	116(25.9%)	98(21.9%)
	<b>Overall</b>	<b>631</b>	<b>573</b>	<b>1306</b>	<b>810</b>	<b>635</b>

**Source:** Researcher field work, 2016

From the responses on table 3, students sometimes use WhatsApp as learning tools and this has the potential to improve their learning. According to the result, 159(35.5%) indicate that they sometimes use WhatsApp to do their assignments. 76(17%) and 94(21.0%) indicate respectively that they always and often use WhatsApp in doing their assignments. Only 55(12.3%) and 57(12.7%) indicate that they never and rarely use WhatsApp to do their assignments. Furthermore, 156(34.8%) indicate that they sometimes use WhatsApp for conducting academic research. 71(15.8%) always use it for research while 106(23.7%) often use it for conducting research. 49(10.9%) and 59(13.2%) never and rarely use WhatsApp to conduct research.

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The result further show that 173(38.6%) sometimes use WhatsApp to discuss academic issues with colleagues. 62(13.8%) and 85(19.0%) always and often use WhatsApp to discuss academic issues with their colleagues. On the contrary, fewer respondents, 46(10.3%) and 73(16.3%) never and rarely use WhatsApp to discuss academic issues with their colleagues. 171(38.2%) indicate that they sometimes use WhatsApp to access study materials in preparation for test and examination. 53(11.8%) and 86(19.2%) always and often use WhatsApp to prepare for test and examinations while 65(14.5%) and 66(14.7%) never and rarely use it for that purpose. Most of the respondents, 206(45.5%) indicate that they never use WhatsApp to engage in academic discussion with their lecturers while only 15(3.3%) always do. 149(33.3%) indicate that they sometimes use WhatsApp to access classroom lectures and lecture notes. 43(9.6%) and 67(15%) always and often access lecture notes through WhatsApp while the majority of the respondents, 101(22.5%) and 77(17%) never and rarely do. The responses show that students in University of Jos often use WhatsApp for assignments, conducting research, engaging in academic discussion with colleagues and accessing study materials in preparation for tests and examination. However, they rarely use WhatsApp to engage in academic discussion with their lecturers and for accessing lectures and lecture notes. This shows that the rate at which students in university of Jos use WhatsApp as learning tools is moderate.

#### **Hypothesis One**

There is no significant difference among students in the different Faculties of the University of Jos and their use of WhatsApp as learning tools.



**Table 4: ANOVA analysis for different faculties and the use of WhatsApp**

	<b>Sum of significance Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F-ratio</b>	<b>Sig.</b>
Between Groups	17385.057	8	2173.132	2.266	.022
Within Groups	420104.679	438	959.14		
<b>Total</b>	<b>437489.736</b>	<b>446</b>			

**Source:** Researcher field work, 2016

The result of the Analysis of Variance (ANOVA) of the hypothesis one in table 4 shows that the F-value is 2.266 while the P-value or significant P-value is 0.022. Therefore, the null hypothesis is not retained hence there is a significant difference among students in the different faculties in the University of Jos in their use of WhatsApp as learning tools.

### **Hypothesis Two**

There is no significant difference between the female and male students in their use of WhatsApp as a learning tool.

**Table 5: t-test analysis for gender and the use of WhatsApp as a learning tool**

<b>Gender</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>df</b>	<b>t</b>	<b>P-value</b>
Male	269	205.89	31.041	445	.050	.960
Female	178	205.74	31.824			

**Source:** Researcher field work, 2016

The result of the t-test analysis in table 5 shows that the calculated t-test value of 0.50 is less than the P-value of 0.960 therefore, the null hypothesis was retained. This shows that there is no significant difference between male and female students in the use of WhatsApp as learning tool among University of Jos undergraduate students.

### **Discussion**

The main purpose of this study was to determine the use of WhatsApp as a learning tool among undergraduate students in the University of Jos, Nigeria. Three research questions were raised and two hypotheses were formulated to guide the study. Findings from research question one show that WhatsApp is a social media site that is used by undergraduate students in the University of Jos, Nigeria in carrying out assignments, research, engaging in academic discussion with their colleagues and sometimes in preparation for tests and examination. This finding is in agreement with Ezeah, Asogwa & Edogor (2013) who among other findings, reported that students use social media for the purpose of getting education and information. Furthermore, the finding is also in line with Eke, Omekwu & Odoh (2014) who found that students engage themselves with social networking sites for academic purposes and that the use of these sites encourages students to meet with co-researchers, build their self-esteem, strengthen interpersonal relationship and helps to develop students reading and writing web skills. The findings further reveal that students do not engage in academic discussion with their lecturers. This finding is in tandem with Al-Rahmi & Othman (n.d.) who found that interactivity between students and teachers is lower than interactivity with peers. This is because sometimes, students are not allowed to interact with teachers on social media and in some instances, students are shy to interact with their teachers through the social media. It is also in agreement with the views of Yeboa & Ewur (2014) that WhatsApp is used for group discussion of assignment that is given to students in the class.

Research question two shows the extent to which WhatsApp effective in achieving students learning purposes. The findings show that students frequently use WhatsApp in achieving their learning goals. This is also in agreement with the assertion of Al-Rahmi, Othman & Yusuf (2015) that social media enables a researcher to accomplish tasks more quickly and it

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enhances research effectiveness and that when used in collaborative learning, it improves the academic performance of students and researchers.

Furthermore, research question three shows the results of the responses on how often undergraduate students in the University of Jos use WhatsApp. The result show that a larger percentage of the respondents often use WhatsApp as learning tool. This also is in agreement with Ezeah, Asogwa & Edogor (2013) and Yeboah & Ewur (2014) who found that students spend much of their time on social media although, not mainly for educational purposes but for social interaction.

Again, results from the hypothesis one shows that the null hypothesis failed to be retained. Here, there is significant difference among students in the different faculties in the University of Jos in their use of WhatsApp as learning tool. This position is similar to that of Browing (2011) cited in Guy (2012) who noted that students from different faculties use social media differently depending on the purpose of research. Furthermore, findings in hypothesis two show that there is no significant difference between male and female students in the use of WhatsApp. This finding is in agreement with a PEW Research Centre study reported by Perrin (2015) that women and men use social media at similar rates.

#### **Summary of Findings**

The results obtained showed that a high percentage of the undergraduate students in the University of Jos use WhatsApp as a learning tool. The use of WhatsApp by the students is effective in achieving their learning purposes. WhatsApp as learning tool plays significant role in addressing the students learning needs when used properly. The use of WhatsApp as learning tool among undergraduate students in the University of Jos is moderate. Furthermore, there is a significant difference in the use of WhatsApp as learning tools among students in the different faculties in the University of Jos and lastly, there is no difference between the male and female students in their use of WhatsApp as learning tool.

### **Conclusion**

Based on the findings from the study, it is concluded that most students in the University of Jos use WhatsApp as a learning tool. Its use is effective and significant in achieving the learning needs of undergraduate students in the University of Jos. In spite of its educational benefits, the use of WhatsApp as a learning tool among undergraduate students in the University of Jos, is moderate. That is, students do not always use WhatsApp as a learning tool. The undergraduate students in the different faculties however, differ in their use of WhatsApp. Their use is based on the different needs of their respective faculties. Gender wise, the students do not differ in their use of WhatsApp as learning tools. That is to say, male and female students use WhatsApp for learning in the same way.

### **Recommendation**

In view of the findings, it is recommended that WhatsApp should be incorporated into the teaching and learning process in the University of Jos in order to facilitate students' learning. Lecturers should deliberately engage WhatsApp as a tool for teaching their students. Furthermore, the university authority should give official recognition to the use of WhatsApp as a learning tool in the teaching and learning process. The learning environment should be created where students and lecturers can freely engage WhatsApp for teaching and learning.

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# 6

## CHAPTER

# THE INFLUENCE OF COMPUTER DECISION MAKING IN GRAPHIC DESIGN AND PRINT PRODUCTION

**Siyانبola Afeez Babatunde**  
*Department of Industrial Design,  
Ahmadu Bello University Zaria*

### Introduction

This paper provides an insight into the impact of computer technology in contemporary graphic design and print production. It enunciates how the digitalization of the sequential phases in design and printing has optimized the work flow in printing production. Printing phases includes pre-press, press and post-press. The paper discussed the usage of different off-shelf computer aided software packages (CAD) such as Coredrawl, Photoshop, Illustrator and Indesign in the pre-press phase. Computerization of the modern printing processes ranging from colour separation, printing machines (direct image), monogram machines, three dimensional printing and packaging are also enumerated.

### Background to the Study

Graphic design is defined as the arrangement of type and visual elements along with specifications for paper, ink colors, and printing processes that combines to convey a visual message (Kenly & Beach, n.d). Graphics design synergizes typography, colour, and other visual elements for effective display on diverse media channels. Computer graphics is a discipline centered on producing images for manipulation, rendering, converting a



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scene to an image, editing, rasterization, shading, illumination, and animation. Graphic design processes includes conceptualizing, page layout, typography, illustration, image selection, color decisions, and producing final computer files

Graphics has always been associated with the display of information. Examples of the use of orthographic projections to display floor plans of buildings can be found on 4000-year-old Babylonian stone tablets (Floor, 2015). Mechanical methods for creating perspective drawings were developed during the Renaissance. Computer-aided design (CAD) software packages are resourceful off-shelf computer based tools which support graphic designers, engineers, architects and other design profession in their daily practice. Contemporary design and printing production have become computer-driven. Computer technology significantly redefines the processes of printing and design from prepress to press and post press. The impact of computer is necessary in enhancing a cost effective quality printing and production. The processes of printing are segmented into three phases, they are prepress, press and post press. Computer is prominently utilized at the prepress stage more than press and post press stages. The roles of computer at the different stages of design printing are discussed below:

#### **Prepress**

Prepress can be referred to as the process of preparing a document ready for printing in any environment, through a laser or other digital printing format. This is also known as the procedures that are undertaken to create a print layout for actual printing. Prepress processes involve the composition of text, photographs and artwork which are assembled to produce a "rough layout" of the designed printed job. The next stage is the production of lithographic plates or an image carrier for mounting on a printing press machine for final printing of images. The processes in the prepress are highly supported by the computer. The relevance of the computer in the prepresswork flow is elaborated in the following:

#### **Type Setting**

This is the creation of textual prototype design on the computer. It is also referred to as desktop publishing (DTP). However, before the development of

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digital typesetting and computer, printed materials were produced by compositors or typesetters working manually. The advent of computer contributed to the rapid diffusion of computer aided design software application (CAD) which has simplified and digitalized design and printing. Desktop publishing involves the compiling of text, image, and graphics elements digitally into complete pages using layout programs and the outputting of these by laser imaging units on film (Szentgyorgyvolgyi, 2008). The application of software's also covers stages in typesetting which include copy-editing, screening, imposition and others.

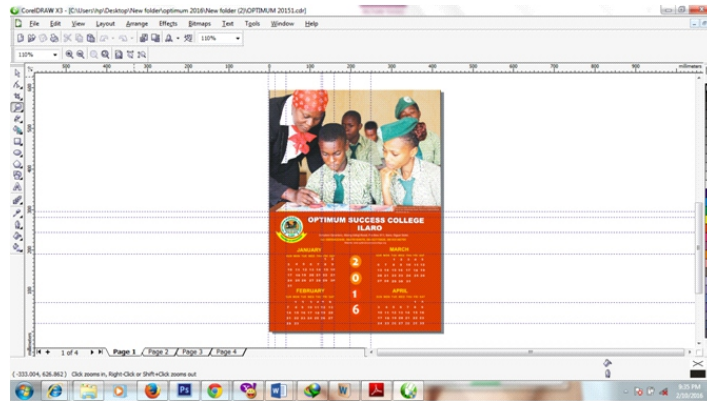
Gordon & Gordon (2002) defined graphic art software as a subclass of software's used for design, multimedia development, stylized image development, technical illustration, general image editing, or simply to access graphic files. Art software utilizes raster or vector graphic reading and editing methods to create, edit, and view design. Prepress Software's are enables efficiency in the prepress workflow as possible. These computer applications can be accessed and utilized online; this allows individuals in different locations to work on a particular printing project at the same time. Key features in the design software's are functionally automated to reduce errors and enhance creativity in design and print productions.

### **Computer Design Packages and their Usage**

#### **a. CorelDRAW**

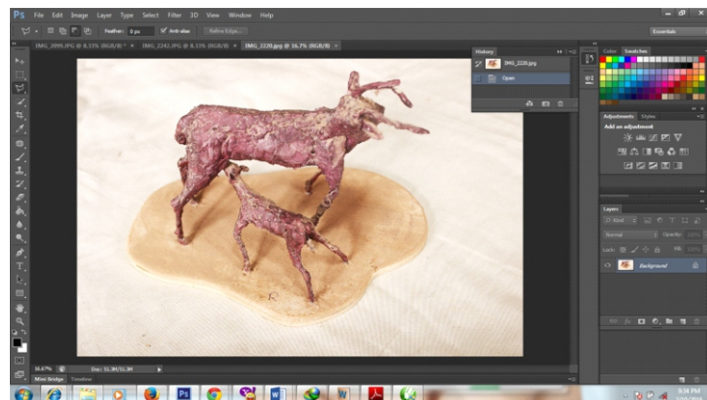
CorelDRAW is a vector drawing tool, essentially used to create logos, signs and to create vector images or new fonts. CorelDRAW is user friendly and has robust design features. Most graphics designs jobs meant for mass production are created on this software. There is a broad embrace of this computer application amongst practitioners in the printing industry due to its flexibility and versatility. CorelDRAW bundle includes bitmap-image editor, Corel PHOTO-PAINT as well as other graphics-related program.

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**Plate 1: A design meant for printing on CorelDRAW**

**Source:** Authors Computer (2016)



**Plate 2: An image exported to Photoshop for editing**

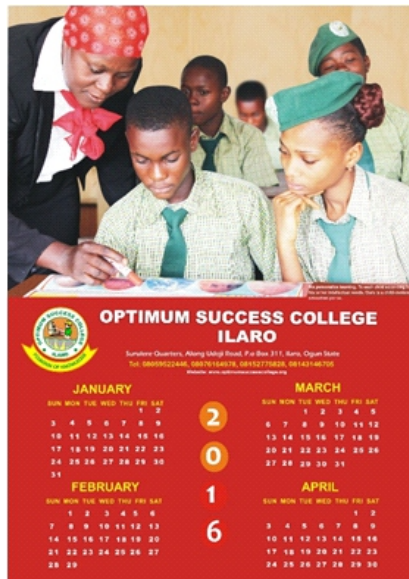
**Source:** Authors Computer (2016)

### **b. Adobe Photoshop**

Photoshop dynamic and well-utilized graphics application in the print and design industry. It can edit and compose raster images in multiple layers and supports masks, alpha compositing and several color models including RGB, CMYK, Lab color space, spot color and duotone. Photoshop has vast support for graphic file formats but also uses its own PSD and PSB formats which support all the aforementioned features. In addition to raster graphics, it has

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limited abilities to edit or render text, vector graphics (especially through clipping path), 3D graphics and video (Wikipedia, 2014). It is also used for retouching and enhancing photographic images. The embedded features in this software make it a unique platform for creating vector graphics. This includes creating graphics, mock up websites, painting digital art and so on. Basically, it's an engine room of graphic design workflow.

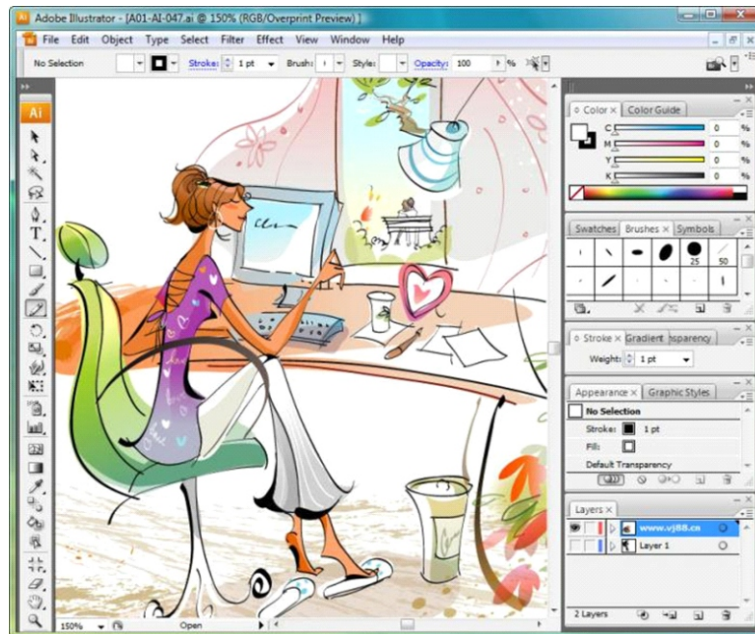


**Plate 3: A calendar design achieved with the aid of Photoshop and CorelDRAW**

**Source:** Authors Computer (2016)

### c. Adobe Illustrator

Adobe Illustrator is an essential tool for designers. Basically, adobe illustrator is employed in creating logotype, sketches, 3-dimensional prototype designs and typography. It has the capability of creating graphics and illustrations in various vector formats. This differ a bit form Photoshop, as it cannot retouch works in raster formats. Simply put, vector graphics can be scaled endlessly while raster graphics have a limited number of pixels and eventually will lose some quality as they are scaled. Illustrator also allow users to create logos extrude or revolve shapes to create simple 3D objects.



**Plate 4. Adobe Illustrator Software homepage**  
**Source:** digivisualart.wikispaces.com (2016)

**d. InDesign –Layouting**

InDesign is a design software package suitable for desktop publishing and creating layouts. It's an advanced version or replacement for PageMaker design software previously used for desktop publishing and layout design. For instance, when creating a book, magazine, pamphlet the logotype will be created in Illustrator, images and other possible graphics created in Photoshop, and arranged together in a layout on InDesign. InDesign is a very powerful tool as it is used to create everything from small brochures to entire books as well as e-magazines. InDesign package enables the creations of design layout both for print as well as interactive material for the web.

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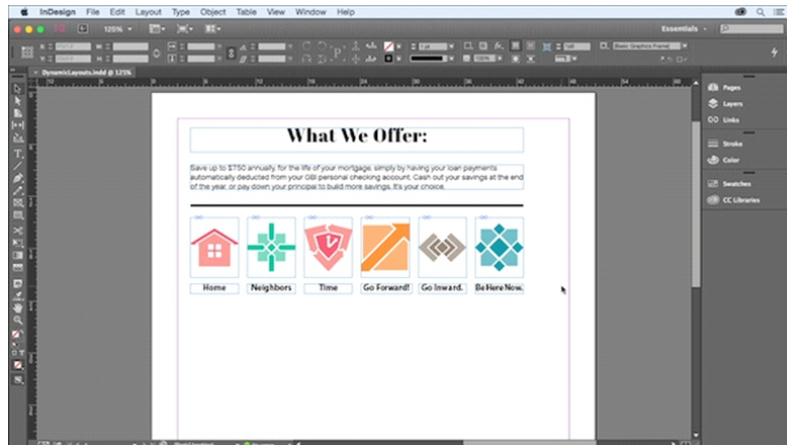
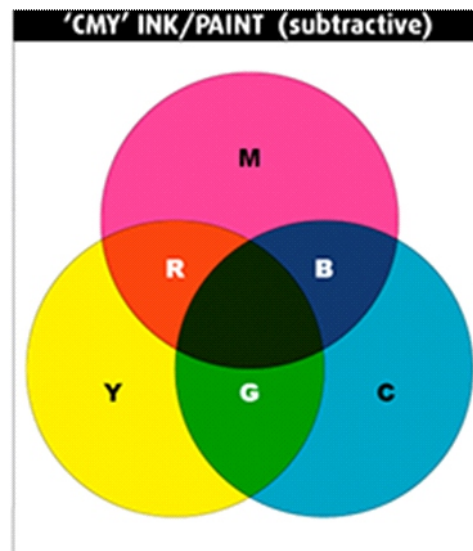


Plate 5. InDesignSoftware homepage

Source: lynda.com (2016)

### **Cyan Yellow Magenta Black (CYMK)**

When an art work design is being prepared for printing on an offset printing machine, the colours on the original artwork are separated in to four basic colours components which are cyan, magenta, yellow and black, also known as (CYMK). These corresponding components colours are necessary for process colour printing. Process color printing involves overprinting halftone dots of each of these four colors in varying densities, the various combinations producing the wide range of reproducible colors (Printwiki, 2015)



**Plate6.Colour representation of CYMK**

**Source:** Africa Media Online (2016)

According to Szentgyorgyvolgyi, (2008), the digitalization of colour separation processes started with the use of color scanners and phototypesetting systems used to digitize, drum scanners read the original electronically, carry out color corrections and colour separations in the processing unit, and record the result on film. However, the introduction of desktop publishing implies that text, image, and graphics were available in a digital form. In 'Desktop Color Separation', computers coupled with the strength of off-the-shelf page layout software such as PageMaker and Quark Xpress, and PostScript-based image setters, enabled high-quality color output at a fraction of the cost of high-end proprietary color prepress systems (Printwiki, 2015). Desktop color separation functions almost identically as high-end electronic separation. The primary dissimilarity in both separation methods are the scanners used on desktop systems. The color separation of artwork designs result into four substrate colour images which are transferred to printing plates. Cyan (blue), magenta (red), yellow and black (the k in CMYK), which are the substrate colours reproduces the original color image (Print for less). The whole spectrum of colors reproduced from the four process ink colors are printed on an image setter

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(also itself known as a film recorder), to films. Thereafter, the films are transferred to a plate making machine where they are exposed to lithographic plates respectively. The four color printing process is universally adopted in the graphic arts and commercial printing industry for the duplication of color images and text.

Computerization at the prepress stage ends with Computer to Plate (CTP). Recently, there is a computer technology that expunges the use of films in digital separation of processed colours. The designed artwork is directly transferred to the printing plate from the digital sheet assembly without generating any film. This technology is known as laser imaging and the lithography plates are quite different.

#### **Press**

This is the section where actual printing takes place. This is the mechanical process of applying ink to paper via an offset or digital press. Digital printing employs computer technology in delivering quality prints. This innovative technology utilizes digital data file by transferring artworks from the computer directly to the automated printing machine. In computer to press, the plate is imaged within the press, no stand-alone computer to plate equipment is needed (printing.org, 2016). The plate making machine is integrated into the printing press. Using computer to press, the plate is situated within the digital printing machine, no stand-alone computer to plate equipment is needed.

In comparison there are computer to print printers which work without a job-specific printing form, examples for this are the E-Print 1000 from Indigo and the DCP-1 digital printing press from Xeikon (printing.org, 2016). The new generation of computer to press, the Quick master DI from Heidelberg using Direct Imaging technology, is described in detail as a complete system solution (printing.org, 2016). Direct imaging printers manufactured by Scitex, Mitsubishi and Delphax for multicolor, are high speed printing machine. Also, in computer to press technology is the concept of using rewriteable printing surfaces described in the patent literature and several conferences (printing.org, 2016). Separation films are output on an image setter (also itself known as a film recorder), where it can then be sent for plate making, stripping, or other prepress activity. Computer to press and



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computer to print indicate the inherent importance of computer in design and print production.



**Plate 7. Offset Digital Printing Machine**

Source: Staplez,(2014)



**Plate 8. Large format digital printer**

Source: Wikipedia (2014)

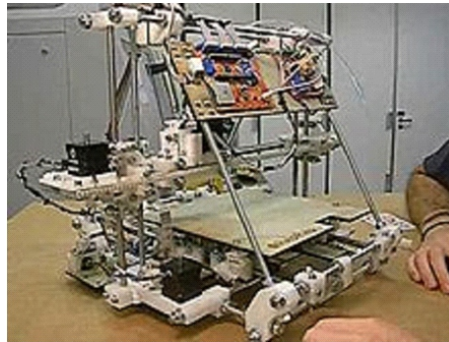
### **Three Dimensional Printing**

The computer anchors the development and operation of 3d printing technology. According to Tyagi (2014) 3D printing is a form of additive manufacturing technology where a three dimensional object is created by laying down successive layers of material. It is also known as rapid

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prototyping, is a mechanized method whereby 3D objects are quickly made on a reasonably sized machine connected to a computer containing blueprints for the object. Tyagi (2014) further noted that the 3D printing concept of custom manufacturing is exciting because it's a revolutionary method for creating 3D models with the use of inkjet technology. It is cost effective and time saving by eliminating the necessity to design; print and glue together separate model parts. A complete model can be created in a single process using 3D printing. The fundamental principles of 3D printings include materials cartridges, flexibility of output, and translation of code into a visible pattern.

3D Printers are machines that deliver physical 3D models right from computer to printing surfaces in layers. It can also be utilized in achieving physical models of objects either designed with a CAD program or scanned with a 3D Scanner. Varieties of industries including jewelry, footwear, industrial design, architecture, engineering and construction, automotive, aerospace, dental medical industries, education and consumer products make use of 3D printing.



### **Plate 9. Typical 3 dimensional Printer**

**Source:** Tyagi (2014)

### **Monogram Printing**

Monogram printing creates interlaced designs with thread as embroidery are often printed on stationeries or clothing. Monogram printing is also a replica of 3d printing but less-complex. Computer designs are created and transferred via storage devices to the inbuilt system in the monogram

machine for printing. Modern monogram printing machines are digitally oriented, the integrated inbuilt system communicates the colour configuration of the art designs to the weaving section of the machine which produce designs by weaving the corresponding colours of thread on the surface to be printed on. These machines effectively showcase the relevance computer in design and printing.



**Plate 10. Monogram Printing Machine**  
**Source:** Luki (2015)

### **Post Press**

Printed documents are incomplete until when they get delivered at the post press. This is the section where the final look, shape and feel of printed product are done. The tasks in the post press include sorting, arrangements, trimming, embossing, foiling, die-cutting, scoring, folding and bindery. However, in some cases the post press tasks are automatically done by the printing machines. Some digital printing machines which are not large format printers have inbuilt sections that enable scoring, folding and binding. Digital printing machines significantly reduce the possibilities of human error from printing to packaging. There are also computer aided folding machines with precise folding and clean binding devoid of any gumming marks give the final printed product unique superior quality. Also, cold set lamination, UV curing, dies punching, wire stitching are sometimes automated. Invariably, computerized finishing add sluster, durability and value to the printed works and packaging.



**Plate 11. Digital Die-Cutting Machine**

**Source:** Adgraph (2016)

### **Conclusion**

The 21<sup>st</sup> century printing and design is indispensably anchored and driven by digital technology. Modern developments in printing and design are influenced by need to leverage real-time seamless printing workflow influenced by the ease-of-use features in the design packages and ergonomics functions of printing machine components. Integration of digital technology into all phases of printing has remarkably made printing less tedious and less-time consuming. The delivery of value-oriented printed design and product packages are essentially enhanced by the sophistication of the printing technologies. Investment in the development of technological solutions for the printing sector globally are consistently driven by the need to produce fascinating packages for products that enhances sale and enabling effectiveness in communication print platforms. *Prints are medium for information and communication, with dynamic economic and social functions which are related in technological and environmental trends to meet the requirements of information consumption.*

Computer aided software's motivate designers to sharpen their skills and inspires creativity. Designers are desirous to give expression to their ideas and creative tendencies. However, in recent times, hybrid printing technologies that combines conventional printing with digital is gradually

fading away to a wholly digitally driven printing technology. Although digital printing is more expensive than hybrid printing, but the premium placed on clarity and quality by the industry is paving the way for its embrace in today's printing business.

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CHAPTER

**THE DEVELOPMENT OF INDIGENOUS  
TECHNOLOGY IN IWHURUOHNA  
1500-2000: A HISTORICAL  
IMPERATIVE**

**Solomon A. Ikunga, PhD**

*History and Diplomatic Studies, Faculty of Humanities,  
Ignatius Ajuru University of Education,  
Port Harcourt, Nigeria*

**Introduction**

**T**his paper will take a comprehensive look into the development of indigenous technology in Iwhuruohna (Ikwerre). And it will lay specific emphasis on the period under review, 1500-200AD. The development of indigenous technology in Iwhuruohna, remains as one of the most interesting aspects of the history of the Iwhuruohna (Ikwerre) ethnic nationality which is presently made up of Emohua local government area, Obio/Akpor local government area, Ikwerre local government area and Port Harcourt city local government area, formerly known as Igwuocha or Obomotu. Also included are the people of Ohaji which was wrongfully included in Imo State, now in Ohaji/Egbema local government area of Imo State. This paper will also critically look at the Ikwerre in historical perspective. The rudiments of her indigenous technologies and how they were evolved will also be carefully analyzed.

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Farming has remained the primary occupation of the Iwhuruohna people (Ikwerre). Although there are other supporting activities which include fishing, trading, lumbering, hunting and gathering of wild fruits. But the practice of indigenous technology has thrived side by side with these supporting ventures. The technology that thrived, started from the early period in the history of the Iwhuruohna (Ikwerre) people.

The term indigenous can be defined as what is born or engendered in native to a land or region especially before intrusion, that is innate or in born. While technology can be defined as the organization of knowledge for practical purposes. It can also be defined as all the different and usable technologies developed by a culture or people.

Some of the product of Iwhuruohna (Ikwerre) indigenous technology was exchanged by barter, when no currency was in use, but when currency was introduced it now became the medium of exchange. The indigenous technologies that was evolved by the Iwhuruohna (Ikwerre) people in the early period of its history included local distillery, salt-making, processing of cassava, processing of sugar, wood carving, wood works, production of local musical instruments, pottery/production of ceramics, palm oil and palm kernel oil and other by products. Other types of indigenous technologies include the building of houses for shelter and other accessories used in the art of building construction. It is worthy to note that these indigenous technologies had already been evolved before the arrival of the Europeans to the coast of West Africa. A historical record has also proved that the Iwhuruohna (Ikwerre) people have preserved these indigenous technologies from generation to generation, thus its prospects and sustainability has also continued to be threatened. This paper will also focus on the Iwhuruohna people and who they are on the face of several assumptions. *Iwhuruohna* (Ikwerre) in Historical perspective

Several questions have been asked about the origin of Iwhuruohna people. For instance, are Iwhuruohna people an autochthonous ethnic group? Or did they migrate into their present location? If they migrated into their present location, from somewhere? Did they come from one direction or several directions? This paper will also seek to answer the question which seeks to know whether the Iwhuruohna people are a homogenous or a



heterogeneous ethnic group. There are several versions of Iwhuruohna history concerning its origin, and this paper will look at the various versions and then come up with the most acceptable version.

According to John Amabibi Nsirim of Isiokpo, Iwhuruohna people migrated from Arochukuwu (Nzirim, 1975:2). But Bekwelle Wosu of Ogbakiri, and D.AH. Emejuru of Elele, disagree with him. Instead, they both hold the view that Iwhuruohna people are related to the Ekpeye's and the Ogba's. they hold the view that they were branch of the Benin Empire. They also hold the view that they have one genealogical route. The summary of Emejuru's theory is that Akalaka of the father of Ekpeye and Akugba (Ogba) were half brothers of Ochichi. According to Emejuru, Ochichi having moved across the Sombreiro River and settled at Elele with his family, Ochichi's younger brother, Wezena moved further south. His descendants found settlements which developed to form the Clans of Odegu, Emohua, and Ogbakiri. Emejuru further stated that Ochichi had four sons, Elele (formerly Omerelu), Elu (now Omerelu), Egbe (now Egbeda) and Mini (now Alimini, Isiakpo). He also stated that these other three brothers of Elu (Omerelu) were strategically located and were later deployed to ward off any sporadic attacks from possible enemies.

Alimini settled to the South – East, Elu to the North and Egbe to the North – West. Livinus Didia (1976) repeated the theory that Ochichi, Ekpeye and Akugba (Ogba) has close genealogical relationship. It is not worthy that though both Emejuru and Didia have obtained their information from different sources and people, yet they arrived nearly at the same conclusions. They further stated Ubima, Omuanwa and Apani are none indigenous or stranger elements in the Ishimbam geographical area, so are the Akpabu/Itu and Eligbo. A historical account also has it that some settlers in Apani migrated from Etche and from the region North of the Otamiri River (Etioha).

The actual origin of Ubima and Omuanwa is still unknown. Still further, in order to give a historical account of the Iwhuruohna people (Ikwerre), it is important to quote an itinerant administrative officer who was perhaps a historian, (P. Amaury Talbot) who was able to recognize the Iwhuruohna (Ikwerre) people as a "Distinct group from the other major ethnic

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neighboring groups of Ijo, Igbo, Ekoi etc" (P.A. Talbot 1926:39). From the foregoing, it will be worthwhile to say that except for the general classification of Akpor communities as one of the seven major groups in Iwhuruohna land, and the linguistic evidence, the people stand out distinct in the present state of our knowledge of the Iwhuruohna origins and migrations. For the Obio people, however without any specific reference to the Benin tradition, it is acknowledged that Obio is one of the descendants of Iwhuruohna (Ikwerre).

Some traditions mention Ochichi as the great ancestor of the people, others lack the Ochichi element in their history origins. However, Obio is regarded as the common ancestor of the Evo and Apará communities, Evo is the Senior partner made up of the present kingdoms of Oro – Evo, Oro – Potoma and Oro – Esara. Evo is the largest kingdom in terms of size and population as it is made up of Eighteen densely populated communities.

On the other hand, Apará people have a founding father who was variously named Apará or worlu or Ekwubudike. They include Rumuigbo, Rumueprikom, Eneka, Rumuadaolu, Rumurosi, Rukpokwu, Rumuola, Rumuowuta and, Rebisi which has metamorphosed into one of the largest and prominent kingdoms in Iwhuruohna land. Rumueme is also a significant kingdom in Iwhuruohna land, because investigations have revealed that Rumueme is not a biological son of Apará but a son of Apará by adoption.

Another version of the history of the Iwhuruohna people which has helped in the reconstruction of the history of Iwhuruohna, relies heavily on oral tradition, because oral tradition has made tremendous contributions to the documentation of the history of the Iwhuruohna people. It is worthwhile to take a critical look at the history of the Iwhuruohna people, which off course cannot be isolated from the history of the people of Ekpeye and Ogba. The narration of Chief N.M.T Solomon (2004), a native of Ikodu Ubie in Ekpeyeland is very significant here. In his narrative, he drew heavily from the now authenticated written historical records delivered by various informed sources including Eketu (Kieber) of Ubeta who was assumed to have lived for over two hundred (200) years as the oldest man in all Ekpeye, Ogba and Iwhuruohna, At the time, he was asked to narrate the history and customs of Ekpeye, Ogba and Iwhuruohna which was unfolded to him through Oral tradition.

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His evidence has been authenticated by all the accounts gathered in the course of getting this work together. According to Oral tradition, Ekpeye was born in Benin and that he was the first son of the three sons of Akalaka. Akalaka later moved to Agboh (or Ndoni), from Benin where he later married a second wife in order to gain the love and favour of the people of Agboh. It also stated that the new wife gave birth to a son which he named Ogba. Akalaka was still in Agboh (Ndoni) when his first wife, the mother of Ekpeye gave birth to his third son called Ihuruonha, Iwhuruohna (Ikwerre).

Corroborating this historical facts, J.N. Olisa (1991) averred that " Akalaka, a member of the Benin Royal family fled with his wife from Benin to Ndoni. A community located close to the River Niger to save the life of his new born baby (Ekpeye) while at Ndoni, Akalaka took a second wife Akalaka had two sons Ekpeye and Iwhuruohna born to him by his Benin wife and Ogba born to him by his Ndoni wife. After the death of Akalaka at about 1452 AD, his two sons, Ekpeye and Ogba had conflict which compelled Ogba, the younger son to move northwards where he founded Ohiakwo (Obigwe) and settled with his family. Ekpeye remained at Ula – Ubie and had seven sons, namely, Ubie, Akoh, Upata, Igbuduya, Ekpe, Awala and Asa. The last four sons Ekpe, Awala, Asa, and Iwhuruohna crossed to the other side of the Sombreiro River. They occupied the present day Iwhuruohna land and settled there between 1500 and 1538 AD.

The crucial point here, which is of great importance in tracing the joint origin of the ancestors of the old Ahoada division is the mention of the number of children that Akalaka had, namely Ekpeye, Ogba and Iwhuruohna (Ikwerre). It is note worthy that the name Iwhuruohna obviously took its root from this original name Ihuruonha.

Thus, Oral tradition has helped in the documentation of the history of the Iwhuruohna or Iwhuruohna people through the establishment of a very vital historical link which has been missing in literature on Iwhuruohna origin. That would assume more significance in the discourses of Iwhuruohna genealogy in the future especially if we accept that Akalaka was the direct father of (Ikwerre). Iwhuruohna in Ikwerre parlance means the face of the community (town or village).

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According to this story Iwhuruohna, in turn begat Ochichi. Some traditions mentioned Ochichi as the great ancestor of others clans in Ikwerre whereas others lack the Ochichi element as said earlier. Rebisi, which metamorphosed into one of the largest and prominent kingdoms in Iwhuruohna (Ikwerre) land houses in Port Harcourt, Igwuocha and Obomotu and these were the real names of the Crown land of Port Harcourt before its name was changed by Lugard after its acquisition in 1913. Again Oral tradition has also revealed that the Iwhuruohna people speak Ikwerre language.

In summary, it is clear that opinions differ marginally on Iwhuruohna traditions of origin. Different writers have divergent views about it. In this work oral tradition has been most useful in tracing the origin of Iwhuruohna which has been shrewd in mystery before now.

Till today, Iwhuruohna has no central history and for that reason each Iwhuruohna ethnic group tends to reconstruct its own history of origin and migration in its own way. Since not all clans migrated at the same time and from the same source, their origins are variously discussed by their separate group historians. Iwhuruohna, therefore could be said to be a heterogeneous society. I, therefore discuss here the different versions of Iwhuruohna origin by other writers and from Oral tradition.

There are six hypotheses on the origin of Iwhuruohna. The first has to do with Benin factor relating to one Ochichi as the progenitor of Iwhuruohna people. However, the Ochichi story is only common among Northern and Southern people of Elele and Obio. The story begins with the reign of Oba Ewuare of Benin who was said to be a tyrant and an intolerant ruler. According to Egharevba (1960), Oba Ewuare was formerly known as Ogun before being crowned with the title of Oba Ewuare or Owuruare, meaning it is cool or the trouble has ceased after the death of the incumbent Oba Owai fiokun whom it was claimed that he overthrew through a palace coup. Having ascended the throne in about 1410 A.D. Oba Ewuare caused a great conflagration in Benin which lasted two days and two nights as a revenge for his previous banishment. Egharevba explained further that Oba Ewuare was a Magician, Physician, Warrior and Traveler having travelled to such countries as Ghana, Guinea and Congo. And because he was powerful, courageous and

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sagacious, he exerted much influence in the area. Ewuare fought and captured two hundred and one (201) towns and villages in Ekiti, Ikare, Eka, Kukuruku and parts of Igbo land. In fact, Ewuare took his petty rulers captive and caused many to pay tribute to him. He was the first ruler to make contacts with Europeans in this part of the world; he became so ruthless with his subjects that several of them went into self exile in order to escape torture. It was in the midst of this crisis in Benin that the founders of Iwhuruohna clans such as Ochichi, Odegu, Ndele, Emohua, Rumuekpe, Uvuawhu, among others left to settle in other safer lands.

It was claimed that when Ochichi settled at present day Elele, he begat four sons who founded such communities as Elele. Egbeda. Omerelu and Mini. The other communities in Northern Iwhuruohna, according to the assumption are stranger elements. This may just be an assumption without any historical facts since during the period of migration waves of migration took people to different locations.

The second hypothesis relate to the claim of Isiokpo to one Okpo Wagidi as being their progenitor and the descendants being founders of other Iwhuruohna communities. Oral tradition in Isiokpo claims that Okpo Wagidi, a war Lord migrated from Arochukwu to a place called Alimini and settled there. It was based on this claim that some argued to the contrary that the founder of Isiokpo is Mini and not Okpo Wagidi. The Ochichi story by northern Iwhuruohna writers to the fact that Isiokpo is one of the sons of Ochichi deviates remarkable from the assumptions of oral tradition in Isiokpo itself concerning Okpo Wagidi. Controversy has raged on between Isiokpo and Elele concerning supremacy of one over the other and it has not ended. Oral tradition in Rundele attests to the Okpo Wagidi story as the progenitor of Isiokpo people when in Rundele it is common to hear people exclaim thus, "Kezi ke wagidi" meaning since the time of Wagidi. It could also be interpreted to mean since time immemorial.

This however, draws some parallels with the hypothesis of Igbo origin. According to Ikunga (2006:53) the greatest Iwhuruohna undoing is the lack of indigenous historians who could have put Iwhuruohna history in proper perspective. The influence of Igbo historians on the proper history of Iwhuruohna origin has cast doubts to the objectivity of historical

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reconstruction. He went further to state that Talbot (1926), Afigbo (1981), Echeruo (1982) and Jones (1963) have been the greatest offenders in obscuring the origin of Iwhuruohna people. They grouped Iwhuruohna among the subscribers of Igbo. It must be noted that Talbot and Jones, the two British colonial writers made conclusions from what Igbo interpreters informed them about the people of Eastern Nigeria and not what they actually knew about the area. At the time, Igbo in eastern Nigeria had monopoly of education and an upper hand in the British colonial government. They succeeded in putting the records according to their imagination and perception in order to humiliate the minorities in the then East. For Afigbo and Echeruo, they espoused the theory of Igbo origin based on assumptions and linguistic similarities. Assumptions are not acceptable in historical reconstruction neither can linguistic affinity alone be sufficient enough to trace the origin of a people. To properly say that Iwhuruohna people migrated from Igbo, there must be studies on both sides based on oral tradition, archaeology, anthropology, sociology, ethnology, cultural and linguistic similarities. It has been the Igbo dream to perpetually undermine the existence of Iwhuruohna people and put them under their domination and control. This, however, succeeded for sometime. Efforts are today being made such as this, to come out of that internal colonialism and assert some levels of independence.

Again, Nkutura Mandah (2003) has also in his hamitic hypothesis espoused the theory that Iwhuruohna people migrated from the Middle East possibly a native of Edom on Mt. Seir. The Edomites are descendants of Esau and Iwhuruoha left there in a boat called Ogbo-oru through the Mediterranean sea to the Atlantic and finally Niger Delta.

There is yet another hypothesis based on Ijo tradition. This hypothesis claims that there was a movement Northwards from the Niger Delta region. Alagoa and Kiebel (1989) contended that even Obio, the ancestor of Evo and Apara communities migrated from Ukwuani in Aboh division to their present abode. They state further that a language affinity exists between Obio in Ikwere-Iwhuruohna and Ukwuani in Delta State. Even though there was a North ward movement from the Niger Delta, the Ijo tradition seems not to be so plausible as no oral tradition exists among the Iwhuruohna people on this theory. What probably brought Ijo in close affinity with Iwhuruohna may be

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commercial and trade contacts. Ukwuani people are not Ijo proper rather they seem to establish closer affinity with the Ibos.

Finally, there is the claim of autochthony among the Akpor people of Ikwerre-Iwhuruohna. They claim that they have been there from time in their present location. Their existence has nothing to do with any kind of migration from outside their present settlement. This claim is only common among Akpor people and no where else in Iwhuruohna land. It could also be reasoned that the people lost sight of their source of migration or that it must have disappeared from their memory and therefore the claim of autochthony.

From the above analysis of the various hypothesis, it can be seen that Iwhuruohna is distinct and unique both in language, culture and traditions of origin. There is no doubt that in intermigrations several Igbo elements emptied into Iwhuruohna-Ikwerre and inter-mingled with them especially during the slave trade when Aro of Igbo land made Ikwerre land their area of trade and a gate way to the waters of Bonny from where the slaves were transported to other lands. On the other hand Iwhuruohna migrated to Igbo land during the same period of migration. For instance, traces of Ikwerre people inhabit sections of Umuapu, Umuagwo, Ohaji/Egbema and Awarra axis all in Imo state. They speak Ikwerre and possess the same customs and traditions of Iwhuruohna people. It is no wonder, therefore, that a good number of those Iwhuruohna people in Imo state showed some sympathy to Iwhuruohna people during the civil war when it was glaring that they were not welcome in Igbo land by the men folk of Igbo origin. During the same period of migration, several Iwhuruohna people also migrated to Igbo land such as the people of Rumuigbo who are found in parts of Ngwa land of Abia State. On the whole, there are no evidences of archaeological excavations in Ikwerre land to determine their initial place of early settlement. The origin of Iwhuruohna people and the date of early settlement remain a subject of further investigation. Oral tradition alone cannot provide full answer.

Indeed Language is very important here in historical reconstructon because Oral tradition alone may not be all encompassing. It is not only about the source of history but it is itself a history of language, culture, society and tradition. It also helps the scholar to discover how these languages were

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evolved. A good example can be taken from the language spoken by the following groups, Ekpeye, Iwhuruohna, Ogba, Egbema, Ndoni, Etche, and Ndoki. These language groups are called Igboid or lower Niger group and this was strongly noted in a joint article contributed by Alagoa and C.B. Kiebel (1989) in which they explained that communities also discover their relationship to other communities through language, common dialect etc. Language suggests common experience, community traditions do indeed, make effort to explain relationship on these grounds and these score modern linguists agree that kingship and contacts between communities can be reflected in languages. They agree that where the speakers of two languages can understand each other. The kingship must be close and even few similarities can be important indication of contact, (Alagoa and Kiebel 1989).

Oral traditions have also revealed that Iwhuruohna (Ikwerre) language and other sister languages except Ekpeye are a language cluster. According to Kay Williamson (1973) "in a language cluster we distinguish different languages where there are weaknesses in the lines of communications without claiming that there is a total break in mutual intelligibility. That is, the ability of speakers from one group to understand those from another group.

Thus, the historical account given by Chief N.M.T Solomon of Ubeta in Ekpeye remains as the most acceptable version due to its comprehensive coverage of virtually all aspects of Iwhuruohna history and its origin.



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The major lineage groups of Iwhuruohna are as follows:

**ISHIMBAM (ELELE DISTRICT)**

Elele Clan  
Egbeda Clan  
Elele Alimini Clan  
Apani Clan  
Omerelu Clan  
Omudioga Clan  
Ubimini Clan

**OBIO/BRANCH**

Oro – Evo  
Oro – Esara  
Oro – Potoma

**REBISI (PORT HARCOURT BRANCH)**

Oro – Worukwo  
Elekahia / Olozu  
Orogbum/Oro-Abali  
Oromerezimgbu  
Orochiri/Rumukalagbor  
Oro Ije/Orominieke  
Rumu Worji/Nkpolu Oro – worukwo

**APARA BRANCH**

Rumuigbo/Rumueprikom  
Rumuola/Rumuadaolu  
Rukpokwu/Rumuokwuta  
Eneka/Rumueme (Adopted son)

**AKPOR BRANCH**

Rumuokparaeli/Rumuosi,  
Choba/Rumuekini  
Rumualogu/Alakahia  
Ozuoba/Mgbuoshimini  
Akamini/Rumuolumeni  
Rumuokwachi

**ESILA BRANCH**

Isiokpo Clan/Aluu Clan  
Igwuruta Clan/Omagwa Clan  
Omademe Clan/Omuanwa  
Clan/Ubima Clan  
Ipo Clan

**RUMUJI/EMOHUA/OGBAKIRI BRANCH**

Obelle Clan  
Odegu Clan  
Emohua Clan  
Ogbakiri Clan  
Uvahu Clan

**OHAJI BRANCH**

Umuapu  
Ihie  
Awarra  
Assah  
Umuagwo  
Nkarahia  
Ovurugwo  
Lule  
Umuosu  
Obitti etc

From the above analysis, one is tempted to critically reconstruct some of the language groupings which chief Solomon Wrongly put together. Thus, in Esila Branch a most suitable classification can be as follows:

**Isiokpo Clan**

**Igwuruta/Aluu Clan**

**Omademe/Ipo/Omagwa Clan**

**Emohua/Rumuji/Runde/Ogbakiri Branch** is rather arranged suitably as Rumuji/Emohua/Ogbakiri Branch today known as REO Branch or Risimini by Ogbakor Ikwerre. Obelle is under Uvawhu Clan. Rundele and Rumuekpe are separate clans under this language branch.

The various branches that make up the Iwhuruohna nation are numerous. Some clans have as many as twenty communities under their umbrella.

**The Development of Indigenous Technology in Iwhuruohna Development in Local Distillery**

The vegetation of Iwhuruohna (Ikwerre land) is made up of innumerable creeks, rivers and marshlands, including abundant swamps. All that made it possible for Raphia palm to be found in abundance. The tapping of Raphia palm is widely believed to have begun in the early period after the settlements of some clans in Iwhuruohna land, probably at about 1500AD. The Tapping of palm gave birth to the distillation of the local gin which became one of the most important economic activities of the people.

Before the raphia palm is exploited, it must grow into maturity. The tapping of the palm wine is usually initiated by the tapper by preparing the raphia tree for tapping and the preparation period could last for between four to seven days before the actual tapping is done. Firstly, the tapper identifies the face of the raphia palm, which is known in Iwhuruohna as "Ruwhu Ngwor" (face of the Raphia palm). After its identification, the tapper starts the tapping by using an instrument that has the shape of a chisel made from hard wood because there was no iron at that time.

After creating a hollow trunk at the topmost part of the Raphia palm tree a calabash is usually fastened and positioned at the tip of the hollow trunk to make the collection process of the wine easy. The tapper also uses the bigger

branch of bamboo with strong wood crossing in between the bamboo to form the ladder. The tapper also makes use of special leaves to place at the tip of the hollow trunk which serves as a funnel to direct the palm wine into the calabash.

After the collection of the palm wine, it is stored in an earthen pot and left to ferment for seven days and it must allowed to ferment without adding any sugar substance in it. The significance of the fermentation is anchored on allowing the process of the alcohol to separate itself from the other contents of the palm wine to enable the distillation process succeeds. During the process of distillation the pipes which were used was Indian bamboo since Iron pipes were not yet in circulation as at the 15<sup>th</sup> century. The water in the square chambers where the Indian bamboo passes through serves as coolant to remove the alcohol from the gaseous state to visible alcohol. After the first distillation, the second distillation process is also made to enable the final product of the local gin ready for drinking. Pieces of bamboo strings were used as funnel and inserted into the Indian bamboo pipes to serve as funnel to enable the local gin drop into the smaller earthen pots as there was no plastic container during the period under review.

### **Storage**

During fermentation, the palm wine is stored inside a big earthen pot. A powdery substance that is made from a special bark of a tree called "ICHE" in Iwhuruohna language, today known as yeast is pounded into a powdery form and poured into the palm wine which helps the fermentation process to occur. Then fire is set under the big earthen pot, which helps the palm wine to boil into a gaseous state and the alcoholic content/local gin escapes from the earthen pot and passes through a chamber made of mud, filled with water before dropping into the smaller earthen pots. After the final distillation and the finished local gin is achieved, it is usually stored in a ceramic container called IZOGO. The drinking of the local gin, involves the use of empty calabash which was the shape of a tumbler or with the use of the horn of a goat, while the noble men made use of the horn of a ram or the horn of the native cow to drink the local gin. Sometimes empty shells of a coconut were also used to drink the local gin.

### **Use of Modern Developments**

However, the process of distilling local gin moved gradually from one stage to another. As time went on, some of the instruments of tapping and distillation were improved upon. For example, the instrument used for tapping was replaced with a chisel made from Iron as blacksmiths started to produce instruments with the use of Iron ore. The year 1800 has been suggested by some historians and even argued that the use of iron ore to forge instrument did not commence until about 1895. The use of the earthen pot for storage to enable fermentation take place was also replaced with a big plastic rubber around 1905, when plastic/rubber containers were brought in by the early European traders/merchants. The cooking of the palm wine with the big earthen pot was also replaced within this period with the use of Iron drum.

The use of mud to build the square shaped wall where the Indian bamboo pipes passed through which was filled with water was also replaced with the use of burnt bricks in the early 1800 while the use of concrete made from cement replaced it in the early years of 1900s. The use of plastic containers was also introduced in the early years of 1900 to collect the local gin after distillation. Plastic containers were also used for storage, while glass bottles now replaced the ceramic containers called IZOGO.

The combustion chambers which once had Indian bamboo as the pipes were replaced with Iron pipes. While plastic funnels were used to replace the strings of bamboo which was used to suspend the earthen pot that is used to boil the palm wine still remained as muse since it retained enough heat.

### **The Uses of Local Gin**

In Iwhuruohna (Ikwerre land) the use of local gin which is called "Akamere" is very relevant till date. The local gin is used during traditional marriages sometimes no provision is made for an alternative to the local gin. The prospective suitor is expected to present the local gin to the family of the bride. Local gin is also used during burial ceremonies. It is also used during the following ceremonies, the celebration of new yam festivals known as 'ori-iji Ukne'. It is also used during the hunting expedition called the "Ogba ohia". The local gin is also used during the process of divorce of marriages.

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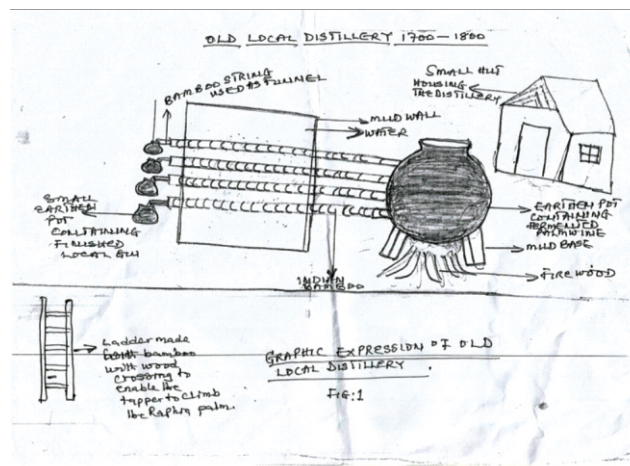
Before the sharing of farmland, it is used to pour libations to the gods before the farmland can be shared.

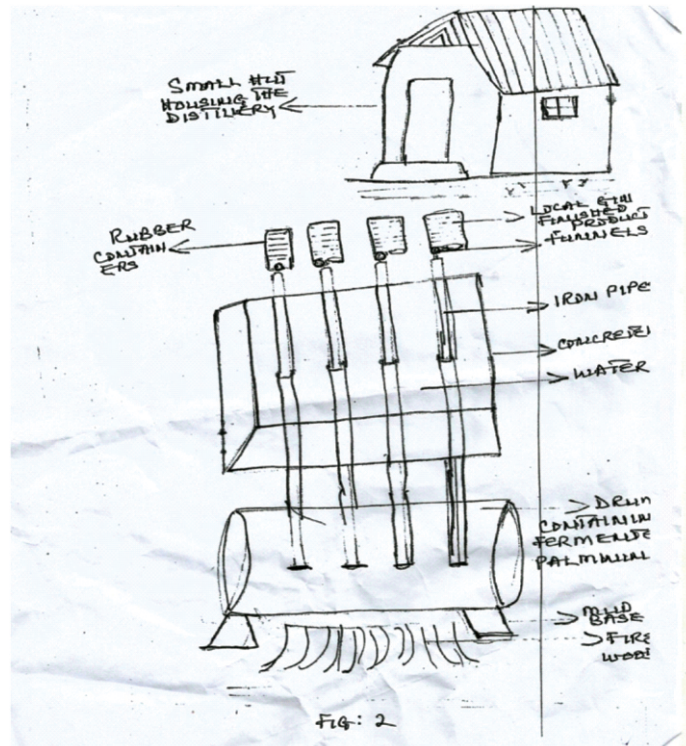
The local gin also serves the following purposes, it is used to pour libations by those who serve deities, and it is used during the celebration of initiation into age grades. Local gin is also used during the ceremony of the setting up of a new home for a man who moves out of his father's compound to set up his own home. It is also used when a new married woman is initiated into her own kitchen which empowers her to cook for her husband and serves him food from her kitchen and later her children. The ceremony is called "Ovu-oro". It is also used when chief priests want to appease the gods.

The local gin is also used by individuals as a preservative to preserve herbs or roots which are used for the treatment of various ailments. It is also used during burial ceremonies, and for the purpose of entertaining visitors. The local gin is also used by individuals to cook pork meat and dog meat in order to eliminate tape worms in the meat.

Finally, it is used by persons who live near the coast, as they drink it in order to stabilize their body temperature due to the cold weather that is prevalent in the coastal areas of Ikwerre land.

**Fig. 1. Old Local Distillery 1700 - 1800**



**Fig. 2. Mordern Local Distillery 1800-1960**

### Salt Making in Iwhuruohna Land

There is indigenous technology involved in salt making has been reported as one of the leading technologies evolved by the Iwhuruohna people. Unlike the local distillery which involves the use of several equipment, that of salt making does not involve ambiguous instruments. Thus, it is simple and easy to apply during the process of salt production.

The raw material for salt making is salt water from coastal areas where salt water exists. There are special areas where the natural salt is found. In the salt water, was usually collected by the early salt makers, and stored in an earthen pot. It was allowed to stay in a cool place where rain nor sun will not fall on it. Having stayed for some days, some sediments of salt would gather at the bottom of the pot. After this process has been completed, the sediments were collected and filtered. The water is then poured into a

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cooking earthen pot and placed on the fire. It was allowed to boil for a long period in order to ensure that the water completely dries off leaving the pure natural salt at the bottom of the cooking earthen pot. One interesting thing to note here is that the salt made by the people was not just an ordinary salt but had some properties which made it medicinal.

When Iron cooking pots were introduced in the middle of the 19<sup>th</sup> century, the iron cooking pots and iron long spoons now replaced the wooden long spoon and the earthen cooking pots used from the onset.

#### **The Uses of Pure Natural Salt**

The people have so many areas that salt is used in their day to day life. Firstly, salt is used when cooking virtually all kinds of food, and when preparing food for consumption during ceremonies which people celebrate. It is also used in the preservation of fish be it smoked fish or cooked fresh fish. It is also used in preserving bush meat by hunters. During some festivals such as the new yam festivals, salt is used as one of the items that is presented to the king in any given clan as a gift, with the tubers of yam and other products such as palm oil.

There are also some local herbs that cannot be used without the use of salt. In summary some historians refer to salt as the sustainer of life.

#### **The Origin of Cassava**

The processing of cassava did not start from the fifteenth century. This was as a result of two factors.

Firstly, Christianity head way in West Africa in the 15<sup>th</sup> century. Secondly, cassava had not yet been introduced into West Africa as at the 15<sup>th</sup> century. But in the sixteenth century, the nature of the Christian presence in West Africa was totally changed, essentially as a result of changing attitudes in Europe towards the westernization of Africa.

In the eighteenth century, there was a great movement among English Protestants called the Evangelical Revival. Also the Church Missionary Society (CMS), the Wesleyan Missionary Society and the Catholic Missionary Revival started to establish their presence in West Africa.

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Notable among the early establishment was the founding of churches in Freetown, Sierra Leone.

The Missionaries which had the greatest impact on West Africa were the Society of African missions and the congregation of the Holy Spirit. The later grew out of a congregation founded in France in 1844 by a converted Jew, father Libermann. In 1848 it joined an older body, with the name, the congregation of the Holy Spirit. The Society of Africa Missions was founded in 1858 by Bishop Melchior de Marion Bresillac, a French Aristocrat who had previously worked in India. The Presbyterian Mission was established at Calabar in 1846 and was partly staffed with black West Indians. The missionaries worked patiently on the banks of the Niger Delta. Their greatest success was in the Delta, especially among the slaves of Bonny. One Bonny Christian, Joshua Hart was said to have met a Martyr's death in 1875. Some historians strongly believe that it was the early missionaries that introduced cassava into Nigeria in the early 16<sup>th</sup> century from Brazil. But other historians believe that cassava originated in Northern Brazil and Central America (Roger, 1963). This popular crop is now grown in almost every tropical country. In Nigeria it was introduced by the Portuguese Explorers in the 16<sup>th</sup> and 17<sup>th</sup> centuries. Firstly, into the present Edo/Delta state of Nigeria (Lean, 1976). By the late 17<sup>th</sup> century it reached the Igbo communities (Isichei, 1976).

Similarly Ohadike, (2007) reported that cassava was introduced into Africa from South America in the 16<sup>th</sup> century by the early Portuguese exporters. However, cassava did not become important in the country until the end of the 19<sup>th</sup> century, when processing techniques were introduced as many slaves returned home (Odoemenem, and Otanwa 2011).

#### **The Processing of Cassava in Ikwerre Land**

The processing of cassava in Iwhuruohna land is believed to have started in the 18<sup>th</sup> century. This was as a result of the late arrival of the stems in the land.

Fortunately for the Iwhuruohna people their soil became the most suitable soil for the cultivation and the growing of the cassava tubers. Thus, within a very short period, the cultivation of cassava became a part and parcel of the

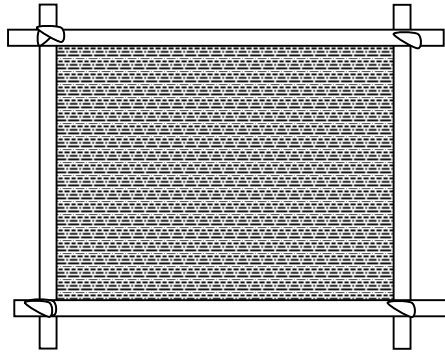


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way of life of Ikwerre people. The cultivation of cassava tubers is usually done by making round ridges which the cassava stems are inserted and it takes at least nine to (12) twelve months for the cassava tubers to grow into maturity. The cultivation is divided into two periods, the early period and the modern period. The early period spans between 1800 to 1900, while the modern period spans between 1900 to 2000.

The early period of cassava processing in Iwhuruohna land was with a lot of problems due to the unavailability of the modern instrument of processing. Firstly, during the early phase there was no grating Engine/machine. Rather the people mostly preserved the cassava tubers which have been uprooted and peeled with the kitchen knife: Carefully they washed them before they were either soaked into water and left to ferment or grated with hands using the randomly perforated aluminum sheets which served as grater during the early phase. After the grating, the soft cassava is put into the sack bag and sticks were used to tie the cassava in the sack bag to enable the water contents to be eliminated so that the cassava can be sheaved in order to remove the chaff from the cassava.

The next process that produced the finished product called "Garri" involves the use of a hollow Iron pot to fry the cassava which has Garri as its finished product. The instrument that is used to separate the chaff from the better part of the cassava is called "ECHAKIRI" by Emoha people but wiya by odeggu people and it is one of the greatest works of local craft that has been invented by the people. This is because it is made up of bamboo which is used to form the four Corners while a string made from the dried parts of a plant that is called "ANHAA" is used to form the entire sheave. (See figure 3 below)



**Fig. 3. Local Sheave Used by the Iwhuruohna People to Filter Cassava**

It is interesting to note that this process is entirely an indigenous initiative. Because there was no external influence on this early processing technique. The second phase which spans from 1900 to 2000AD has witnessed the introduction of the cassava grating engine/machine which has made the processing of cassava to be less cumbersome, unlike the old method which inflicted a lot of injuries on the fingers of the person who makes use of the old grater manually. Another system of processing cassava involves soaking it in the water for some days to ferment.

Having soaked them in the water, they were allowed to ferment for at least 4 days or seven days. After the fermentation stage, the fermented cassava is also filtered with the use of a small basket and the chaff is separated from the edible cassava. The edible part is molded into the shape of a football and cooked inside a pot, and there after pounded which goes into a second cooking and pounding process which provides the finished product that can be eaten with varieties of soup. The finished product is called "ntara" or ntara-akukoro.

Iwhuruohna people also use the fresh cassava to produce cassava flakes by cutting it into tiny pieces which is in turn boiled with water in order to eliminate the chemical content. They are then ready for consumption after the flakes must have passed through a process of purification, which involves washing, and then soaking them with hot water before they can be consumed.

### **The Uses of Finished Cassava Products**

The finished cassava products such as “Garri”, fermented cassava (ntara-akukoro) and cassava flakes (akukoro-osa), are used as a staple food by Iwhuruohna people. Virtually all the ceremonies that abound in Ikwerre Land, involve the use of cassava products to entertain the guests. Apart from its use as a staple food, Cassava production is one of the main economic activities of Iwhuruohna people. It also yields revenue to every farmer.

### **Origin of Sugar Cane in Iwhuruohna (Ikwerre Land)**

Sugar Cane is not also an indigenous plant to Iwhuruohna people. It is believed that Sugar Cane is a tropical plant which existed in South East Asia and in Brazil (South America). It was introduced in Nigeria between the 16<sup>th</sup> and 17<sup>th</sup> century, mostly in the northern parts of Nigeria and later it got to the Igbo communities. It got to the city states of the Niger Delta and to the hinter lands, where the Ikwerre people (Iwhuruohna) are located. Sugar Cane was cultivated by Iwhuruohna people in the opening years of the 18<sup>th</sup> century, and it soon became very popular among them.

### **The Processing of Sugar by Iwhuruohna People**

The processing of sugar started as soon as sugar Cane was cultivated in Iwhuruohna land. The processing is not cumbersome. It only involved the gradual pounding of the sugar Cane in a mortar, after the removal of its skin with kitchen knife. After the pounding the water that comes out of the sugar Cane is carefully filtered with the use of a small basket in order to separate the chaff from the water, and it was poured into either an earthen pot or an iron pot. It is then set on fire to enable it boil until all the water evaporates, leaving the dry substance of the sugar to settle at the bottom of the pot.

### **The Use of Sugar in Iwhuruohna Land**

Sugar, is used for different purposes, it is used as a sweetener when eating Garri one of the products of cassava. It is also used as one of the ingredients that are used during the distillation of the local gin till date.

### **Wood Carving/Wood Works in Iwhuruohna Land**

The history of wood carving is as old as the history of Iwhuruohna people. Wood carving became very rampant in Iwhuruohna history from time immemorial.

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The abundance of various kinds of trees actually facilitated the early indulgence of the Iwhuruohna people in wood carving/wood works which began as early as the 16<sup>th</sup> century.

Oral tradition holds that Iwhuruohna people started using wood to carve masquerades, effigies to represent their ancestors as early as the 16<sup>th</sup> Century. A concrete example can be taken from the Effigy of "UDE" who is believed to be the founder of Elibrada Emohua, which has since been stolen and sold out as an artifact. The Effigy is believed to have existed for over 300 years. The instrument that was used in carving wood includes sharp stone and other minor instruments.

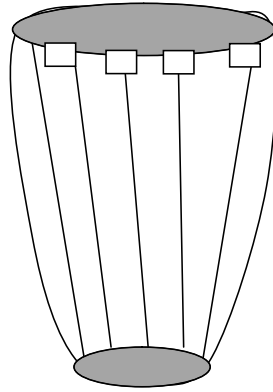
Wood works in Iwhuruohna land are also notable. They are used to construct doors and windows. There are some local furniture which includes chairs and tables. It was also used in carving fanciful art works that were used to decorate the palaces of Kings and the Noble men.

#### **The Uses of Wood Works**

Oral traditions have also stressed the importance of wood carving/wood works in traditional Iwhuruohna setting. Apart from its use in carving masquerades/Effigies it was also used in the art of building houses and in the building of family shrines, as some hard woods were used to represent some of the ancestors in the family shrine.

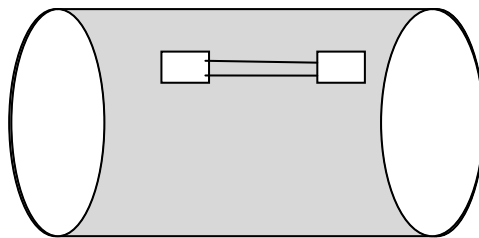
#### **Production of Local Musical Instruments**

The production of local musical instruments is not new to the Iwhuruohna people. This culture/indigenous technology have been with the people from early the 16<sup>th</sup> century. Wood is usually used to frame the local drum, which of course has several shapes, while animal skin which was removed from animals like the antelope, the crocodile, the hyena and from wolves, are used to form a surface on the wood. See figure 4.



**Fig. 4. This drum is called “ogbudu”**

Iwhuruohna people also used tree trunks to carve a type of musical instruments that is used in Iwhuruohna musical entertainment. It is done by making two holes in the tree trunk and creating a wide vacuum inside the tree trunk which enables the tree trunk to produce an interesting sound. And this makes the sound to be a unique one from the sounds produced by other Ethnic groups in the Niger Delta. This musical instrument is called the “OKWO|” (See Figure 5).

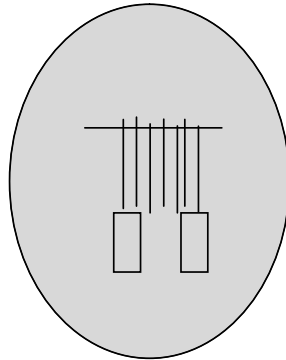


**Fig. 5. The “Okwo” Musical Instrument**

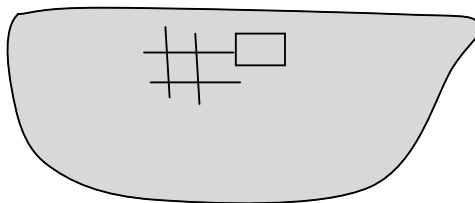
Iwhuruohna people are known for the production of a local Xylophone called the “UBOR” and this special instrument is made from the calabash. It is made by cutting the big calabash into two equal parts and using a flat wood to form a base where two openings were created for the player to

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place his hand and thus use his finger to play the local Xylophone by pressing the little metal strings which creates a fascinating sound see figure 6.



**Fig. 6. Local Xylophone Called "UVOR"**

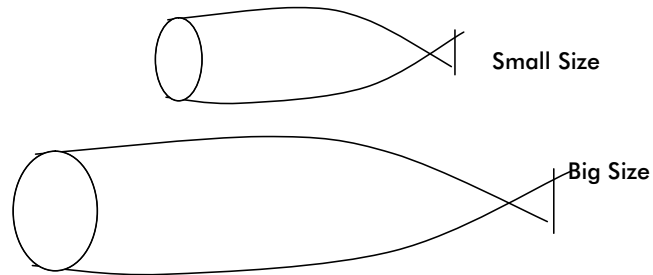


**Fig 7. Side View of the "UVOR"**

The use of the musical instrument was popularized by notable Ikwerre musicians such as Boro, Jimmy Conter, Majority Onuchukwu, Thompson Elewa, Promoter Eze, Tufiakwa etc.

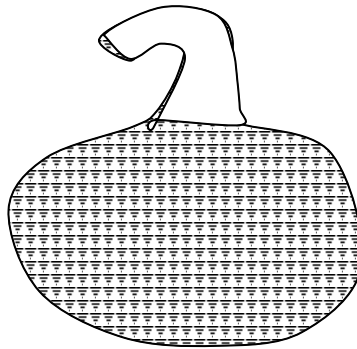
When iron works became popular in Iwhuruohna and blacks smithing was introduced Iwhuruohna people also used metal forge. The native gong called "OGELE" both the bigger and the smaller sizes were fabricated. (See fig 8.)

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**Fig. 8**

Another musical instrument which was made by the Iwhuruohna people was the local tambourine which was made with a small calabash and adorned with tiny beads that enables it give a special musical sound. See fig 9



**Potterty/Production of Ceramics**

Iwhuruohna people were very skillful in the making of pottery/ceramics. This is because they had the raw materials in abundance which is mud. Pottery making, started as early as the 15<sup>th</sup> century. The use of quality mud to make earthen pots and ceramics was evolved by Iwhuruohna people.

Local oven was constructed using mud, while an opening where the molded earthen pot can put in the oven and closed to enable the heat from the firewood make it strong. Potters can be divided into two categories, one those who make ritual pots and those who make ceramics with mud and with a mixture of precious stones which were grinded into powdery form and mixed with mud before it was fired in the oven.

### **Palm Oil Production and Palm Kernel Oil Productin And Other Bye Products**

The oil palm (*Elaeis Guinensis*) originated from West Africa where evidence of its use as a staple food crop dates as far back as 5,000 years. Iwhuruohna people also have the palm trees in abundance, and the processing has been part of its economic activity from time immemorial.

Palm oil production also contributed to the economic, political as well as the socio-cultural development of Iwhuruohna people. The processes involved in palm oil production starts with the cutting of the palm fruits and its evacuation of the local mill, where the palm fruits are separated from the bunch and boiled in a big earthen pot but later when iron pots were introduced they now replaced the earthen pot. After boiling the palm fruits in fire, they are removed and poured into a big mortar where they were pounded in order to remove the skin from the shells.

When this has been done, the skin is put into another big earthen pot which is filled with water and it is stirred continuously to enable the raw oil settle on top of the water which makes it easy for the raw oil to be transferred into another earthen pot and set on fire to boil until the finished oil is produced while the residue settles on the bottom of the pot. The oil is later separated from the water underneath.

When iron pots were introduced in Iwhuruohna land it now replaced the use of earthen pot in the boiling of the oil. The palm kernel oil was also produced by breaking of the shells in the palm kernel and cooking the palm kernel on fire with the earthen pot for a long period while the palm kernel oil comes out of the palm kernel. Other bye products include the chaff, from the skin of the palm fruit, the water that settles under the palm oil and the shells from the palm fruits.

### **The Uses of Palm Oil and Palm Kernel Oil**

The uses of palm oil are too numerous. Firstly it had remained as a staple food in Iwhuruohna land. It is used in all the ceremonies in Iwhuruohna. Without palm oil it is difficult to prepare any food. It forms the major economic activity of the Iwhuruohna people.



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The palm oil generates enormous revenue for the average farmer in Iwhuruohna. It is also one of the biggest employers of Labor in the land.

The palm kernel oil is also very important as it serves as a source of medication for little children who suffer from convulsion. It is also used as pomade by Iwhuruohna people and other neighboring tribes mostly the people of the city states of the Niger Delta.

#### **Building of Houses for Shelter and the Processing of Building Accessories.**

The Iwhuruohna people had a unique style of building houses for shelter. Firstly, before any house is built, live sticks were usually cut from the bush and used to frame the building by using bamboo brinks strong ropes to fasten the sticks together in order to form a strong wall. After this has been done, thatches that are made from the Raphia palm leaves were used to make the roof of the building while bamboo branches were also used to form the skeleton of the roof with the use of strong ropes which were removed from branches of the Raphia palm tree which was called "ERIRI AKWARA". After the tying process has been completed the mud was dug out of the inner soil and mixed with water and used to form the walls of the building. This indigenous technology has moved from one stage of development to the other as the use of modern Zink was introduced by the middle of the 18<sup>th</sup> century. Other innovations also followed such as the use of burnt bricks and the use of treated wood to build story buildings, using the treated wood to form the decking of the story building.

During the early period in Iwhuruohna history, mud was used to form bed inside the living room, which bamboo branches were used to frame beds and it was called "UKPATA".

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CHAPTER

**ADOPTING AND ADAPTING LAND  
SWAP MODELS TOWARD BOOSTING  
URBAN HOUSING STOCK IN  
NIGERIA**

**Agwu, Kenneth**

*Department of Estate Management,  
Federal Polytechnic Nekede, Owerri, Imo State*

**Introduction**

One problem that man has seriously contended with since modern civilization is the problem of housing. Shelter is one of man's basic needs. According to Abraham Maslow's hierarchy of needs, food, clothing and shelter are man's basic needs. Diverse issues about shelter have often constituted major problems-availability, accessibility, affordability and quality- and man has struggled to cope with them. In the rural areas, due to limited human pressure on housing, the issues are not as pronounced except for issues like quality of housing. Due to the relatively low economic activities, land is usually available and so, local housing using local input resources do hardly constitute so much problem. More so, the social living character of rural populace as it were makes housing a not-too-serious problem in the rural areas.

Urban housing problems have increasingly become not only a national challenge but international as well. According to Adedeji (n.d.), the major housing problems in urban areas are lack of affordability, informality in housing ownership or rental arrangements, poor housing conditions and inadequate public services. Onibokun and Faniran (n.d.) noted that overcrowding, substandard buildings and infrastructural inadequacies are some of the problem of urban housing in Nigerian cities. These problems have left many people homeless, some living in substandard houses built with substandard materials, building failure and collapse, deaths, and even so many are leaving under serious threat of survival. Shanties, twilight areas and slums have resulted from the imminent decay and man is often at the centre of these crises.

Generally, housing shortage in Nigeria is reported to be estimated at between 14 to 16 million housing units with an estimated whopping sum of N4.7 trillion required to meet this deficit (Guardian, 2008 cited in Agwu, 2011). Mabongunje (2007) cited in Kabir and Bustani (n.d) stated that housing deficit (in Nigeria) is put at 15 million houses while N12 trillion will be required to finance the deficit. The Federal Government concurs that this shortage is about 12 million homes. Adesina (2009), Corporate Nigeria (2009) and Anonymous (2008) both cited in Agwu (2011) agree with these figures. Mban (2009) in Adegoke (2013) pointed out that the ever-growing population in the country and the resultant cumulative housing deficit has today left the country with between 16-17 million housing units deficit.

This is unarguable too huge an amount for government alone to contend with. Hence, there is the need for a private sector participation in housing development and investment in the country. The increasing pressure on the few existing houses in Nigerian cities coupled with dwindling financial fortunes of the federal and state governments have not helped matters one bit.

Land has been fingered as a major factor in the urban housing debacle. The lack of access to land and the increasing prices of urban

land have kept land out of the reach of many urban dwellers. Little wonder why most governments have embarked on land reform measures. In 1978, Nigeria did the same and came up with the present day Land Use Act of 1978 aimed to free land, which was hitherto held in the bondage of customary laws and practices. As urban population began to soar in all the urban centers, even the 1978 land reform has become questionable for its inability to provide solution to Nigeria's land access needs. This made many states of the federation to think out solutions to the problem. Land swap became an option set by the Federal Capital Territory (FCT) Administration in 2013 to overcome these challenges. This option has been tested in different climes in the world.

Hence, this study attempts to seek land swap model options that have worked in different climes as strategy in boosting urban housing stock in Nigeria. It looks at the concept, models in other climes, its advantages, the concept of urban housing, urban housing problems, land as a factor in the urban housing problem in Nigeria, land swap as a solution, conclusion and recommendations.

### **Concept of Land Swap**

Land swap is a land-based financing of infrastructure development. In other words, land is exchanged by government for infrastructure provision by the investor. It involves the granting of land to competent real estate developers who will in turn provide infrastructure such as good roads, electricity, portable water, drainage sewer lines and communication ducts to the residents without any financial or technical demand to the government. Land swap is a policy that has been endorsed by the World Bank as suitable for any country experiencing budget crisis like Nigeria-Our budget is seldom sufficient for the needs of the people. Land swap has also been defined as the substitution of a piece of land in one place with another in either the same locality or elsewhere depending on the preferences of the parties involved in the swap (Umar, 2014). Land swap has made private participation in housing provision necessary.

#### ARTS, TECHNOLOGY & DEVELOPMENT PATTERNS

Countries like France, Japan, USA, China, Germany, Egypt, India and Denmark adopted land swap policies during periods of rapid urban development as is presently witnessed in Abuja, the third fastest growing city in the world and the fastest in Africa. Senator Bala Mohammed who was the minister of the federal capital territory under the reign of president Goodluck Jonathan, introduced the Abuja land swap initiative.

Under the Abuja land swap initiative, 330,249 hectares of land belonging to 22 predominantly poor indigenous villages and communities in the FCT were compulsory taken away, partitioned and parceled out to thirteen private property developers. The test case of the land swap initiative began in April 2013 with a pilot project at the Dallas Carraway District, adjacent Mogadishu Cantonment in the Abuja Federal Capital City (FCC). The size of the new low-density hilly district is 230 hectares (Oghifo, 2015).

According to Ozoene (2015) cited in Nwolu-Frank (2015), "the main objectives of the land swap initiative is to

- i) Ensure comprehensive development of the districts in line with the Abuja Master Plan,
- ii) Unlock dead capital by freeing up land with issuance of title documents to catalyze globally acceptable business activities in the FCT,
- iii) Crash property rental value in Abuja and to
- iv) Catalyze a paradigm shift from land ownership to home ownership".

The land swap initiative has the potential for value enhancement and rapid development of a typical metropolitan city because the initiative would save a real estate developer cost of about 30-35 percent... This is a form of PPP (Public Private Partnership) with government (Ogunwusi cited in Oghifo, 2015). According to Adediji cited in Oghifo (2015), the land swap initiative can fast tract Abuja's overall development. He noted, "there are so many development models and one of this is the land swap. The system looks at people who have the



resources and then you can step down the high cost of access to land for them to provide infrastructure". This infrastructure for land model has the advantage of harnessing the potentials in the private sector and providing access to land with minimal difficulty.

### **Land Swap in Different Countries**

In Israel, there is the Arab Israel land swap deal. Arab population in Israel is only one-fifth of the total population of the country. The Jews and other tribes make up the rest of the population. Arab and Jews have never been best of friends in Israel. A proposal was made to swap some Arab communities in Israel for Jewish settlements in the West Bank as part of a peace-deal effort with Palestinians. This proposal has however remained controversial.

In British Columbia, there is the case of Haro Woods, a forest in Cadboro Bay which was twice eyed to host large sewage treatment plant, but redesigned to be preserved as parkland, minus a parcel dedicated to an underground sewage holding tank. According to Edward Hill of the Victoria News, the Mayor and each councilor of the Saanich Council voiced strong support for a land swap with the Capital Regional District (CRD), which would give the municipality ownership of the majority of the forest. Under a deal, the CRD would give Saanich 4.33 hectares of forest in exchange for 1.5 hectares to house the 5,000 cubic meter underground tank, which was designed to capture overflows from sewer lines during major storms. Saanich will retain another 1.4 ha of forest next to the tank site. The entire 8.5 ha forest including a portion owned by the University of Victoria, should appear as one, after vegetation is planted over the tank (Umar, 2014).

The iconic tower in the United Kingdom, UK, called the shard of London was built through land swap. It was formerly known as the London Bridge Tower. It is an 87-storey skyscraper that forms part of the London Bridge Quarter Development. The shard's construction began in March 2009 and was completed in November 2012. Standing approximately 306 meters (1,004, ft) high, the shard is the

tallest building in European Union. Sellar property and the State of Qatar (Agbo, 2014) jointly own the property.

In New York, USA, a greater era of city building after the Civil War leveraged on a variety of land swap. The city was expanding up Manhattan Islands and needed new streets, more water distribution, sewage collection and mass transit systems. Shantytowns were demolished for urban renewal. New York's municipal debt tripled between 1867 and 1871 as it borrowed to finance public infrastructure. As an alternative to borrowing, Boss Tweed, then commissioner of public works, used land-based financing for a private sector development of the entire block bounded by Fourth Avenue, Madison Avenue, 68th street, 69th Street and installation of the city water supply without any financial liability to the municipal authority (Agbo, 2014).

China utilized the land swap model to reconstruct the Outer Ring Road encircling the region around Changsha, the capital of Hunan Province in central China. The same also holds for the new Greenfield airports in Bangalore and Hyderabad as well as the modernization and expansion of existing airports in the cities of Chennai, Delhi, Kolkata and Mumbai, all in India. The total investment in the China project was about \$750 million, while India's airport modernization drive chaired by its prime minister in 2006 totaled about 40,000 Crore (about \$10 billion). The Republic of Turkey used land swap to raise \$1.5 billion for its capital investment budget in Istanbul to transform an abandoned central bus station in 2007 (Agbo, 2014).

There's also an unprecedented land swap to protect the Tai Po enclave of Sha Lo Tung... The plan for Sha Lo Tung follows years of deadlock over how to conserve the ecologically sensitive site in Pat Sin Leng Country Park (Hong Kong). "We are actively considering long-term conservation through non-in-situ land exchange for private land with high ecological significance at Sha Lo Tung "(Leung cited in Kao, 2017). The government would offer the restored Shuen Wan landfill in Tai Po to the developer for a golf course, as was originally the plan for Sha Lo Tung, which in 2004 became one of 12 priority sites for

enhanced protection under the government's "New Nature Conservation Policy".

Land swap has featured prominently in the peace deal negotiated between Israel and Palestine. The Palestinians have insisted on taking over the West Bank and Gaza occupied by Israel since the Six Day War of 1967. When in the 1990s several back channel efforts were made to end the feud between Israel and Palestine, "... Israel academics involved in these back channel talks accepted the principles that the Palestinians would obtain 100 percent of the territory (held by Israel)... and they proposed giving Israeli land to the Palestinians as compensation for any West Bank land retained by Israel" (Dore, 2011).

In Preston, Community Gateway Association wanted to build on land of Truro Place in St Mathew's, but neighbours launched a campaign to keep the open space. Now Preston council and community Gateway have agreed to a land swap, meaning, the site known as Paul's Pad will be saved, and up to 28 affordable homes will be built at a larger site at St Paul's Road, Deepdale (Lancashire Post, 2015).

The reconstruction of Paris in 1852 used the land swap model. It was a complex mix of boulevards, massive infrastructure of roads, water and sewage lines, including multiple aqueduct systems, one of which delivered water from sources 600km distance. The infrastructure cost was F2.5 billion, over 44 times the annual budget of Paris in 1851 (Agbo, 2014). In Nigeria, according to Agbo (2014), the land based financing variants have been in use too. It was used in the rehabilitation of terminals in Apapa port by Flour Mills PLC and those of Onne port terminals by the duo of Intels limited and West African Continental Limited at the cost of over \$300 million through a programme of amortization.

Criticizing the Abuja land swap initiative, Umar (2014) noted; "above are only few of the prominent cases of actually what constitute the land swap concept. One would agree that there are swaps of a land with another, at the same time decipher the difference between what

is ongoing land swap policy in FCT. We have once made the assertion that 'wherever our handlers got their model of land swap, it is different from the normal swapping of land with another land in order to achieve different targeted goals of the interested parties. Referring to the Abuja model as land swap is a misnomer'... we still maintain that what is introduced is financing urban infrastructure with land value as put forward by G.E Peterson which is completely different from the real concept of land swap..." Agbo (2014) attempted a response to Umar's view when he remarked that the Federal Capital Territory Administration (FCTA) considered the type of land-based financing most suitable in Nigeria". Agbo (2014) concluded, "The FCTA considered the modern land swap model more realistic. It takes the best in the entire previous model avoiding their pitfalls".

### **Merits of Land Swap Models/Initiatives**

Government cannot do everything for everybody. In countries as Nigeria where poverty and hardship have been forced on the people through bad leadership and corruption in high and low places, there is the urgent need to engage the private sector to contribute to the development of the nation. No doubt, land has remained a major factor in private sector investment projects. Land acquisition takes whole lot of processes and time, perfecting the instruments of land ownership is an issue of its own. Therefore, partnership with government will make acquisition far more easier and documentation and easy thing.

Land swap initiative, being one of the diverse forms of public private partnership arrangements offers private sectors opportunity to participate in national development. It will ease land acquisition, access to land and engender development. It will also enhance the infrastructure base of the nation and guarantee effective infrastructure management. Therefore, the major advantage is that land is easily released to private individuals and access to it by these investors ensures a robust infrastructural base of the nation and gradual ease of pressure away from government.

### **Concept of Urban Housing**

Urban housing in its simplest form refers to houses built in urban centers like towns, cities, metropolis etc. This contrasts with rural housing that has to do with all processes involved in the production and delivery of housing to the rural dwellers. Urban housing is characterized by good planning, design, construction and the application of modern and sophisticated techniques/methods and materials. Urban housing delivery is an organized setting involving, in most cases, professionals in the built industry – Estate Surveyors and Valuers, Architects, Building Surveyors, Quantity Surveyors, Construction Managers, Civil Engineers, Structural Engineers, Urban and Regional Planners, Project Managers etc.

Rural-Urban migration, high built rates due to high life expectancy, low morbidity rate in Urban areas result in usually high and ever growing urban population. The Osmotic pressure tends to favour the urban centers with high concentration of modern life-changing facilities, better job opportunities, independent life styles and better socio-economic amenities. These factors help to over populate the cities and towns to the detriment of the rural areas- the villages and suburbs. The concomitant effect of the rise in population is the pressure on housing. Note that housing connotes shelter which according Maslow, is one of the three basic needs of Man, the others being food and clothing. The concepts of freehold and leasehold, landlord and tenant in residential and commercial properties, are common with urban housing.

The rising pressure on urban housing subjects these facilities to deterioration and decay. Very often, urban renewal is the response of government to such problems of decay to give the cities befitting face lifts. Also, mounting pressure on existing housing stocks result in housing shortage and scarcity. Housing shortage/scarcity has become a recurring problem and in some cases, a monster that most governments have done everything with minimal success to contend with.

### **Urban Housing Problems in Nigeria**

Problems of urban housing in Nigeria are many and varied. The challenges of rural-urban migration, high birth rates and low mortality rates in urban centers have exacerbated the problem of urban housing in Nigeria. Among the urban housing problems in Nigeria are:

- i. Congestion in the available accommodations. According to Emankhu, Ubangari and Ayeni (2012), "the buildings are characterized by overcrowding, with high proportions of people living in single rooms".
- ii. Spring up of slums
- iii. High cost of land and building due to high demands
- iv. Scarcity of accommodation
- v. Substandard housing caused by natural aging of the buildings, lack of maintenance and neglect, wrong use of the buildings, poor sanitation in the disposal of sewage and solid waste, wrong development of land and increasing deterioration of the natural landscape (Emankhu et al, 2012).
- vi. Negative effects of land speculation
- vii. Poor neigh boardhood facilities and in some cases, these facilities are absent. Such facilities include good source of drinking water, electricity, good roads, good sanitary conditions, good drainage systems, sound security facilities etc (Agwu, 2011).
- viii. Lack of maintenance culture (Emankhu et al, 2012 and Agwu, 2011)
- ix. Access to land and finance for housing has been problematic.

### **Land Issues in Urban Housing Problems in Nigeria**

Land question constitutes a major problem in home ownership or housing development problem. The degree of accessibility in terms of availability and cost remain a big challenge. The cost of urban land is a big discouragement to the urban poor. Only marginal land, with no title document and infrastructure at the periphery are available for the poor to build on. This has resulted into urban sprawl land housing development that cannot qualify as homes. The cost of processing title

document is exorbitant and a major concern. Perfecting land documents takes minimum of two years and is like camel passing through the proverbial eye of the needle. Cost of land and documentation account, in most cases, for about half of what is required for housing development (Nubi, n.d). Chief Chuka Odom, one time Federal Minister of Housing in Nigeria, once admitted that "one of the problems that have militated against effective housing delivery in Nigeria has been the problem of titling to land" (Agwu, 2010).

Land is therefore paramount in the urban housing crisis in Nigeria. Difficulty in obtaining the certificate of occupancy and other issues advanced earlier are teething problems relating to land acquisition and ownership. There is also the question of prohibitive cost of urban land and the inability to access fund for housing because of evident failures in the National Housing Policy and the Mortgage Bank scheme in Nigeria.

### **What the Land Swap Models can offer in Setting the Urban Housing Debacle**

The land swap model as conceived by the FCT administration in Nigeria has the major intention of releasing land, which hitherto was locked through tiring bureaucratic processes involved in accessing it. Access to land in Nigeria involves very cumbersome and procrastinating processes such as is the case with getting the certificate of occupancy (C of O) from the Governor.

Therefore, this model of public private partnership/participation will ensure a 50-50 responsibility between the government and the private sector so involved. Government breaks the protocol involved in getting the C of O by donating or making land available to the private sector party involved in the arrangement, while the private sector party provides needed facilities including the required funds.

The private sector party builds the houses, provides the facilities necessary to keep the housing in good and habitable standard such as roads (access), electricity, pipe borne water, security, safety etc.

Government (through its agency, which is party to the deal) also provides the required political environment including making enabling laws/policies, loans etc needed to facilitate the partnership. The result is an avalanche of housing facilities for the urban dwellers.

## **Summary, Conclusion and Recommendations**

### **Summary & Conclusion**

Access to land is a major challenge to housing development in urban areas of Nigeria. Government alone can not provide the required housing to satisfy the urban housing needs. Basic infrastructures like, tele communication, sanitary, fire service, horticulture/ ornamentals, safety, schools, hospitals, markets and housing itself, are costly to provide and maintain. This straddles government budgets beyond elastic limits. Therefore, sector into the calculation to ease public expenditure. By 1992, ownership of land is the preserve of government to swap land which it owns with facilities which is costly to provide, but which a consortium of private corporate bodies can bring. By so doing, housing will be provided for the teeming urban population thereby reducing pressure on government and well enable government deliver the dividends of democracy to the masses.

### **Recommendations**

The following recommendations are suggested as drawn from this work.

- i. Since land is a big challenge to housing development in urban centres of Nigeria, government must partner the private sector in facilitating housing development through lands swap.
- ii. Government should also create the enabling environment for programmes of government should be geared towards encouraging the private sectors to flourish.
- iii. Cumbersome processes for acquiring the C of O and politicization of C of O must be stopped if Nigeria must make any headway in property development and indeed urban housing



- iv. Maintenance culture or programmes should be inculcated in land swap deals (public private partnership deals) for sustainable development.

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