DEVELOPING THE YORUBA ALPHABET AS A TYPOGRAPHIC FONT STYLE FOR APPLICATION ON COMPUTER GRAPHIC DESIGN FOR YORUBA AUDIENCE

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P16EVID9177

A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA NIGERIA IN PARTIAL FULFILLMENT FOR THE AWARD OF DOCTOR OF PHILOSOPHY (Ph.D.) IN INDUSTRIAL DESIGN

DEPARTMENT OF INDUSTRIAL DESIGN,
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AHMADU BELLO UNIVERSITY, ZARIA NIGERIA

SEPTEMBER, 2018

DECLARATION

I declare that the work in the thesis entitled "DEVELOPING THE YORUBA ALPHABET AS A TYPOGRAPHIC FONT STYLE FOR APPLICATION ON COMPUTER GRAPHIC DESIGN FOR YORUBA AUDIENCE" was conducted by me in the Department of Industrial Design under the supervision of Professor D. J. M. Yakubu, Professor S. U. Dakyes and Dr. J. I. Azi. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at any university.

_____	_____	_____
Name of student	Signature	Date

CERTIFICATION

This thesis entitled "DEVELOPING THE YORUBA ALPHABET AS A TYPOGRAPHIC FONT STYLE FOR APPLICATION ON COMPUTER GRAPHIC DESIGN FOR YORUBA AUDIENCE" by SHAGAYA, Mashood Olanrewaju meets the regulations governing the award of the degree of Doctor of Philosophy of Ahmadu Bello University, Zaria; and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This thesis is dedicated to my late parents: Alhaji Sulyman Oba Shagaya and Hajiya Ralyat Ajoke Shagaya who lived an exemplary life worthy of emulation; for their advice to make honesty my best policy and to be sincere in all my life undertaking. Also to the birth of my beloved children hence were named after my parents and myself: Sulyman Folajomi Shagaya (Papa), Ralyat Emiola Shagaya (Mama), Mashoodat Ayoola Shagaya (Sisi) and Mashood Olanrewaju Shagaya Jnr. (Bobo)

ACKNOWLEDGEMENTS

Praise be to Allah (SWA), the Cherisher and Sustainer of the World for seeing me though this programme successfully in Ahmadu Bello University, Zaria.

With high esteem, I extend appreciable regards to the Chairman, supervisory committee of my research, Professor D. J. M. Yakubu for his patience and endurance in reading and effecting corrections a line after another in each of my submissions to make this study a scholarship. Professor D. J. M. Yakubu's fatherly guidance and counseling to the success of this research shall for ever be appreciated and remembered.

Same regards go to the members of my supervisory committee: Professor S. U. Dakyes and Dr. J. I Azi. Their sagacity and prudent intellectual counsel made this work metamorphosed into the present stage; without which my task would have been quite herculean. They carefully read the manuscript, improved the phraseology and clarity of the text. I am greatly indebted, may God appreciate you all.

My profound gratitude goes to the immediate past and the present Head of Department of Industrial Design, Ahmadu Bello University, Zaria; Professor S. Maiwada and Dr C.V. Alkali respectively for their academic counseling throughout the study. My appreciation also goes to Professor Muazu Sani, Dr. Ken Okoli, Dr. Lasisi Lamidi, Dr. Kevin Damden all of the Department of Fine Art, Ahmadu Bello University, Zaria; Mr. Rasaq Yusuf of Department of Fine and Applied arts, Federal College of Education, Zaria; Dr. M. O. Awogbade (Department of Fine and Applied Arts, Kwara State University, Molete–Ilorin) Zaria, for their words of encouragement.

Also, my appreciation goes to: Mr. Ibrahim Sikiru Adekunle (White Bird International) for guiding me through some techniques in "FONT CREATOR" software usage; Miss Sarah Idoko (A.B.U. Community Market) for guiding me thought the typing of the thesis; Mr

Lukman Busari, my research assistant in statistical data analysis. Dr. E.V. Opoku (Department of Industrial Design Post Graduate Coordinator) and Dr. K. I. Tijani (Faculty of Environmental Design Seminar Coordinator) for their immense academic impute from the beginning to the end of this study. I also wish to thank my colleague: Mr. Peter Ighodaro (Department of Graphics, Yaba College of Technology), Malam Aminu Abdullahi of Department of Industrial Design, Ahmadu Bello University Zaria. Tribute to my academic adviser, Dr. Sale Peter of Department of Industrial Design, University of Maiduguri; Hajiya Fatima Sulyman and Mr. S. Ogunwole (a.k.a. Sunny Best) both of the Department of Industrial Design, Ahmadu Bello University, Zaria. I greatly appreciate their keen contributions to this study.

Among my family and relatives, I would like to be grateful to Allah (SWT) for granting me an exceptional treasure in the; my darling wife Sarat Mashood Shagaya, for her faithful courage, patience, prayers, material/financial support and encouragement throughout the period of the study. My four lovely children: Sulyman Folajomi Shagaya (Papa), Raliyat Emiola Shagaya (Mama), Mashoodat Ayoola Shagaya (Sisi) and Mashood Olanrewaju Shagaya Jnr. (Bobo) who passionately endured my absence at the peak of compilation of this thesis.

I thank you all and I wish you all the best in life and hereafter.

ABSTRACT

Developing the Yoruba alphabet as a typographic font style for application on computer graphic design for Yoruba audience, emerged from observations on incessant adoption of English alphabetic symbols as typographic font styles for encoding text elements of graphic design for Yoruba audience through graphic design software such as CorelDraw. Five objectives with five research questions and four hypotheses were formulated. The study examined the usage of typographic font styles in some selected Yoruba movie posters and investigated the effectiveness of the font software used in encoding their text elements. It also examined the codes/signs adopted as typographic font styles in some selected Yoruba movie posters and investigated the effectiveness of the literal language interpretation in relation to orthographic Yoruba language. The study developed orthographic Yoruba typographic font style for application on digital graphic design for Yoruba audience, and evaluated the efficacy of the newly created orthographic Yoruba font style on Yoruba movie posters in terms of readability in literal Yoruba language. Survey and Experimental methods were adopted for the study. The population sample was determined by purposive sampling and census population of 28 graphic designer and 34 Yoruba Movie Producers from the chief host of the population of the study such as Lagos in north-west Yoruba (NWY) were used for the sample size. Five point Likert scale designers' and Yoruba Movie Producers' questionnaire with close-ended statements (in items 1-9), (1-6), (1-6) and (1-10) respectively were adopted. The result was observed and analyzed from mean and standard deviation of respondents. The four null hypotheses were tested using student's *t*-test statistics at (0.05) alpha level of significance. The findings revealed that letters of orthographic Yoruba alphabet are not trendy as typographic font styles in encoding captions of Yoruba movie posters and the graphic design software used in encoding captions of Yoruba movie posters were found unsuitable in encoding text elements of graphic design for Yoruba audience through graphic design software such as CorelDraw. Based on the findings, it was concluded that the codes/signs used as typographic font styles in encoding captions of Yoruba movie posters cannot adequately interpret literal meaning of orthographic Yoruba language. The orthographic letters of Yoruba alphabet was developed into Yoruba typographic font and the efficacies (success) of the newly created Yoruba typographic font style used to encode the captions of the new Yoruba movie poster were accepted. The study recommends that graphic designs for Yoruba audience's text elements to be encoded in letters of orthographic Yoruba alphabet through an enlightenment campaign. Yoruba media producers should adopt the use of appropriate font styles to encode captions and other text elements of graphic designs for Yoruba audience; and the governments of Nigeria's Yoruba speaking states, Teachers of Yoruba language and Yoruba media producers should promote the adoption of orthographic Yoruba alphabet to encode captions and other text elements of graphic designs for Yoruba audience through public service campaigns, workshops, and seminars.

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DEFINITION OF TERMS

1. **Font extension-** The newly created Yoruba font style
2. **Literal Yoruba -** Yoruba Language developed from (N.W.Y.) (Y.C.) (S.E.Y.) vowels and the variety learnt at schools, spoken by news readers on the radio, television and other media like in encoding captions of Yoruba movie posters.
3. **Mother font** - The font from which Yoruba font style is being created
4. **New Yoruba movie poster**- The redesigned Yoruba movie poster through the use on the font extension
5. **N.W.Y. -** North West Yoruba refers to Abeokuta, Ibadan, Osun and Lagos
6. **Old Yoruba movie poster**- The existing Yoruba movie poster collected during the pilot study
7. **S.E.Y. -** South East Yoruba refers to Okitipupa, Ondo, Owo and Sagamu.
8. **TRIZ –** The model of Product Development adopted for creation of the typographic font style
9. **Y.C. -** Yoruba Central refers to Igbomina, Yagba, Ilesa, Ife, Akure and Ijebu

CHAPTER ONE

1.0 Introduction

This chapter discussed the introductory aspect of the research under the following sub-headings:

1.1 Background of the Study
1.2 Statement of the Problem
1.3 Aim of the Study
1.4 Objectives of the Study
1.5 Research Questions
1.6 Hypothesis
1.7 Justification of the Study
1.8 Significance of the Study
1.9 Scope of the Study
1.10 Delimitation of the Study
1.11 Limitation of the Study

Yoruba is one of the major ethnic groups in Nigeria. There are substantial indigenous Yoruba communities in the Republic of Benin and Togo. Numerous Yoruba diaspora communities are found in the United States of America, Bahie region of Brazil and the United Kingdom, constituting close to 50 million people in total (Odutola, 2013). The Yoruba people speak Yoruba language. Adegbola (2003) described Yoruba language as the largest spoken mother tongue in Africa.

The language spoken by the Yorubas is Yoruba language. Redmond (2008) affirmed that "Majority of the Yorubas speak the literal Yoruba language". Simon (2013) stressed that Yoruba language is based on Latin character with many diacritics which makes it a tonal or lexical language where a word could have more than a meaning if proper attention is not given to the diacritics placement; for example *OWO* could be $OW\acute{O}, \grave{O}W\grave{O}$ or $\acute{O}W\acute{O}$ and ỌWỌ could be ỌWỌ́, ỌWỌ̀ or Ọ̀WỌ̀

respectively. The word "*ṢHARE*" could be read as an English word SHARE, "$FÚN$" as FUN and "$SÚN$"as SUN in English words in graphic designs for Yoruba audience. Shagaya (2011) agreed that readers' reading habits are conditioned behaviors and whenever they depart from what is familiar to their experience, they may experience reading or understanding problems. As to this, the signs, letters and symbols recognized by a particular set of audience should be used to encode messages meant for them.

Nigeria Yoruba language consists of several dialects; various dialects in Yoruba land of Nigeria can be classified into three major dialect areas: North West Yoruba (NWY) which consists of: Abeokuta, Ibadan, Ogun, and Lagos. Yoruba Central (YC) is made up of the following locations: Igbomina, Yagba, Ilesa, Ife, Ekiti, Akure, Efon and Ijebu, (Odutola 2013). Odutola (2013) explained that "South East Yoruba (SEY) consist of Okitipupa, Ilaje, Ondo, Owo, Ikare, Sagamu, and part of Ijebu, that the Yoruba Central (YC) forms a traditional area in that its lexicon (word) has much in common with North West Yoruba (NWY) and it also shares many ethnographical features with South-East Yoruba (SEY) vowels system"; and that the "South-East Yoruba (SEY) vowels system is the least innovating and most stable of the three dialect groups in which literal Yoruba is developed".

Odutola (2013) therefore concluded that

> *...the literal Yoruba has its origin in the 1850s when Samuel, Ajayi Crowther, an evangelical vicar, published a Yoruba grammar book and started his translation of the Bible; Literal Yoruba is the variety learnt at schools, spoken by news readers on the radio, television and other media. Literal Yoruba has nonetheless been a powerful consolidating factor in the emergence of Yoruba identity.*

From the above assertion, literal Yoruba could be said to be a communication tool that is basically used for exchanging information through encoding and decoding common system of signs, sound or alphabetic letters of Yoruba language through spoken or written media. Communication through literal Yoruba language is therefore an inevitable phenomenon in any Yoruba community. Dare (1985) (as cited in Salawu 2004) attempted a review of a popular saying credited to Aristotle by saying that: "Communication is the fundamental social process and man in society is not basically a political animal as Aristotle held, but a communicating animal; for politics, like every other activity in society, is based on communication". Meanwhile, communication in modern societies has gone beyond the interpersonal or a situation where participants in a communication event come together flesh and blood, because heterogeneity of the modern society and vast technology has made this impracticable.

1.1 Background of the Study

The emergence of broadcast technology and the invention of printing and desktop publishing technology have made communication effective in modern society, most importantly in the aspect of communication through visuals. For instance, Schramn 1964 (as cited in Salawu 2004) noted that since the development of printing, the print media have become tools of political and social change. Lisa (2016) explained that communication visual is the preferred medium for information delivery because of its expediency and brevity.

Electronics and computers have completely changed the mode of the printing and publishing processes from traditional to digital method with effects on the literal use of letters or symbols of the Yoruba alphabet. And, without any gain saying, the media of graphic design plays tremendous roles in information dissemination about politics, culture, goods, services, entertainment and economic development of man. Lisa (2016) viewed visual content as a tool

that has been recognized to help increase brand awareness as well as driving traffic to a particular brand.

Salawu (2015) posited that the indigenous language of a community is the best for conveying any message to the people of the community. This study is premised on the assumption that accurate encoding of graphic designs' messages that are rendered in Yoruba language could lead to effective dissemination of information for promotion of economic development.

This assumption lends credence to Sapir (1929) who argued that "The fact of the matter is that the 'real world' is to a large extent unconsciously built upon the language habits of (a) group. No two languages are ever sufficiently similar to be considered as representing the same social reality." (Quoted in Mandelbaum, 1942: 162). Therefore, no particular people's language's alphabet can represent other people's real language's alphabet. In other words, a symbol or sign of Sri Lanka might not effectively decode English message and symbol; nor can a symbol of Hausa language effectively decode Igbo messages. This contention premised on the theory of semiotic in the chapter two, page 68.

1.2 Statement of the Problem

This is in line with Puppy (2006) who asserted propitiously that using symbols (signs) effectively requires an understanding of its communication and visual potential. But where such symbols or signs have bearing to literal or written language, that potential must be considered or explored within the context of a language. The phenomenon of adopting English alphabet as a font style for Yoruba literature, for example, creates readability and communication problem, Yoruba being a tonal language, typically. The shift from traditional to digital printing and publishing processes has further complicated the problem as computer lacks the appropriate Yoruba alphabetic font styles and its signs on computer keyboards that could be applied through electronic graphic design to produce Yoruba literature.

Although appreciable efforts have been made to develop font styles to ease the use of Yoruba alphabet on standard keyboards with multiple key combinations, these efforts have been limited to "Arial Unicode" font style and applicable only to Microsoft word (Adebusola, 2012; Adegbola, 2003; African Portal, 2012; Tavultesoft, 2013).

This study therefore explores the development of Yoruba alphabet as a typographic font style (containing Yoruba-related signifiers) to be deployed on computer graphic design software, such as CorelDraw for application.

1.3 Aim of the Study

The aim of the study is to develop the Yoruba alphabet as a typographic font style for application on computer graphic design for Yoruba audience.

1.4 Objectives of the Study

The objectives of the study are to:

1. investigate the current trend of typographic usage in Yoruba movie posters with reference to letters of orthographic Yoruba alphabet as typographic font styles;
2. examine the type of application's (graphic design software) fonts used in encoding captions of Yoruba movie posters with the view to ascertaining its effectiveness in usage;
3. investigate the effect of the customized typographic font styles used in encoding captions of Yoruba movie posters in term of language interpretation in relation to literal meaning of orthographic Yoruba language;
4. develop orthographic Yoruba typographic font style for application on computer graphic design for Yoruba audience;
5. evaluate the efficacy of the newly created orthographic Yoruba font style on Yoruba movie posters in terms of readability in literal Yoruba language.

1.5 Research Questions

To achieve the objectives of the study, the following questions were raised.

1. What is the current trend of typographic font styles usage in encoding captions of Yoruba movie posters in relation to the use of letters of orthographic Yoruba alphabet as typographic font styles?
2. What type of application's (graphic design software) fonts used in encoding captions of Yoruba movie posters with the view to ascertaining its effectiveness in usage?
3. What is the effect of the customized typographic font styles used in encoding captions of Yoruba movie posters in terms of language interpretation in relation to literal meaning of orthographic Yoruba language?
4. What procedures can guide the process of developing the letters of orthographic Yoruba alphabet into typographic font style for usage on graphic design software such as CorelDraw suite for encoding captions of Yoruba movie posters?
5. What manifestation would lend credence to the efficacy (success) of the newly created orthographic Yoruba typographic font style in term of readability in literal Yoruba language?

1.6 Hypothesis

From the problems, objectives and research questions of the study, the following null hypotheses are formulated:

$HO_{1:}$ There is no significant difference between the current trend of typography usage as typographic font styles and the use of letters of orthographic Yoruba alphabet as typographic font styles to encode captions in Yoruba movie posters;

$HO_{2:}$ There is no significant difference in the usage of application (graphic design software) adopted in encoding captions of Yoruba movie posters and effectiveness in its usage for encoding captions of Yoruba movie posters

$HO_{3:}$ There is no significant difference between the language interpretations of the customized typographic font styles used in encoding captions of Yoruba movie posters and the literal meaning of orthographic Yoruba language

$HO_{4:}$ There is no significant difference in the efficacies (successes) of the newly created orthographic Yoruba typographic font style applied on the new Yoruba movie poster and the typographic font styles used to encode captions of the old Yoruba movie posters in term of readability in literal Yoruba language.

1.7 Justification of the Study

Orthographic letters of the Yoruba alphabet is an important element for encoding text messages of graphic design for Yoruba audience. However, it is desirable for the graphic designers to effectively make use of the letters of Yoruba alphabet as typographic font style through computer electronics and appropriate graphic design software, (such as CorelDraw) for effective graphic design productions for Yoruba audience.

1.8 Significance of the Study

The study aims to uncover the trend of typographic usage in graphic design for Yoruba audience and provides information on the usage of graphic design software for encoding text element of graphic design for Yoruba audience. It would introduce yet another font style extension on Yoruba typographic font styles into the profession of graphic design. The study would also improve the skills of graphic designers in encoding texts of indigenous language

especially the Yoruba language and would establish knowledge on literal decoding of text element in graphic design for Yoruba audience.

The study intends to provide a reference point for researchers working in the similar area, as well as the students of typography, typographers, graphic designers and other related disciplines. The study targets preservation of an important feature of Yoruba cultural heritage, since styles of writing is an integral part of Yoruba people's way of life. In the course of this study, the researcher also gained more knowledge on font creation, modification and design techniques using graphic design software such as CorelDraw, Font Editor and FontCreator.

1.9 Scope of the Study

The main focus of the study is on the content analysis of typographic font style as they are being utilized in relation to orthographic letters of the Yoruba alphabet in every graphic design for Yoruba audience such as: movie captions, titles on compact disk packages, advertising movie posters, political campaign posters, billboards, mobile and automobile graphic designs, editorial graphics, television graphics and etcetera.

1.10 Delimitation of the Study

For the purpose of effective collection of data for the study, the researcher delimited the scope to Yoruba movie posters. The researcher sought to identify the alphabetic signs and symbols used as typographic font style on the Yoruba movie posters, noting that the codes/signs operate within the orthographic letters of Yoruba alphabet. In order to achieve this, the researcher placed emphasis on captions of the selected Yoruba movie posters produced in the south-west Nigeria.

1.11 Limitation of the Study

The major limitation encountered was on non availability of professional typographer on electronic font design programs in Nigeria that could improve on the researcher on the knowledge of font creation. Another limitation is the inadequate online training on font creation software from the United State of America and Netherland, the researcher received; and lack of sufficient literature on the Yoruba typographic font styles usage in indigenous graphic design.

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CHAPTER TWO

REVIEW OF PERTINENT LITERATURE

2.0 Introduction

In order to achieve the intentions of the study, it became necessary to examine relevant literature in tandem with the objectives of the study. Libguides (2014) asserted that literature review provides evaluative report of information found on the literature related to the selected area of study.

In view of the need to review literature relevant to the goals of the research as viewed by different authorities, the information gathered was synthesized and logically presented under the following headings:

2.1 Historical Evolution of Alphabet

2.2 Yoruba Alphabet

2.3 Typography

2.4 Understanding Typographic Font Style Application in Graphic Design

2.6.0 Software Developments and Usage in Computer Graphic Design

2.7 Signs and symbols usage in Graphic Design

2.8 Semiotics in Graphic Design

2.9 Language

2.11.0 Model of Product Development

2.11.1 New product development

2.11.2 Stage-Gate model

2.13 Modification of Existing Fonts

2.14 Type font editor 3.2

2.17 Diacritics

2.18.6 Kerning

2.19.0 Theoretical Framework

2.19.1 Semiotics

2.20.0 Conceptual Framework

2.1 Historical Evolution of Alphabet

Alphabet and Typography are key words in this study, for that reason, it is important to look into what history provides on the two key words and their relevance in graphic design production.

Fradkin (2009) defined alphabet as set of letters or other symbols, each representing a distinctive sound of a language that letters of an alphabet typically have names and a fixed order, that only a few languages, such as Chinese and Japanese, do not use an alphabet. Redmond (2008) gave an account of the origin of alphabets that early systems of writing used pictures to represent things and then to represent the sounds of those things. Pictographic writing, in which a simplified picture of the sun stood for the word sun, was probably the first step toward a written language. The author explained the Chinese began as a pictographic language to represent abstract ideas where by the writing system combined pictographs, for example, the pictographs for sun and tree were combined to represent the concept of east, that the method of combining pictographs to represent the words for ideas is known as an ideographic system, also that in written Chinese today, most of the characters for tangible items no longer resemble specific objects.

Pictographs and ideographs provide an inefficient system for writing because there are too many things to represent. Moreover, pictures cannot reproduce what language creates with a grammatical structure. A crucial step in the development of writing was freeing the

pictograph or ideograph from the thing it represented and linking it to a sound (Redmond, 2008). Redmond (2008) submitted that a phonetic, or sound, system greatly reduces the number of written characters needed, because languages have only a limited number of sounds. However, several ancient cultures employed both the old ideographs and the new phonetic symbols. Redmond (2008) further stated that the first alphabet was probably developed at least 3,500 years ago by people who lived on the eastern shore of the Mediterranean Sea and spoke a Semitic language, in addition, the earliest surviving alphabet is that of the Phoenicians; that around 3,000 years ago the Phoenician alphabet spread east to other Semitic peoples and west to the Greeks. The Greeks helped spread alphabetic writing to the Etruscans and the Romans and through much of the rest of the ancient world.

Redmond (2008) concluded that there are about 50 individual alphabets in use today; vary greatly in appearance, historical descent, and the degree to which they conform to the ideal of one letter for one sound; that most alphabet has between 20 and 30 letters. The author explained that languages with comparatively few sounds require fewer letters; the sounds of the Hawaiian language, for example, are written using only 12 letters of the Roman alphabet, the fewest letters of any language and finally concluded that other alphabet, such as Sinhalese, the alphabet of Sri Lanka, have 50 letters or more, Arabic 28. Odutola (2013) confirmed that the Yoruba alphabet consist of twenty- five letters and also documented the emergence and descriptions of the Yoruba alphabet as discussed below. In view of the above, alphabets can be said to be the most used type of writing in the world today, as the letters can be combined to write all the words of a language.

2.2 Yoruba Alphabet

Yoruba alphabet originated from Yoruba language (natively èdè Yorùbá); it is one of the major languages spoken in Nigeria. Odutola (2013) narrated that in the 17th century, Yoruba

language was written in the Ajami script, a form of Arabic symbols. Modern Yoruba orthography originated in the early work of Church Missionary Society (CMS) missionaries working among the Aku (Yoruba) of Freetown. One of their informants was Samuel Ajayi Crowther (1806-1891); an evangelical vicar, who later proceeded to work on his native language himself. Simon (2013) described Bishop Samual Ajayi Crowther (1806-1891) as the person who made the biggest contribution to Yoruba literacy, who studied many of the languages of Nigeria, including Yoruba, and wrote and translated in some of them. The author stated that Crowther was also the first Christian bishop of West African origin.

Odutola (2013) narrated that in early grammar primers and translations of portions of the English Bible, Crowther used the Latin alphabet largely without tone markings that the only diacritic used was a dot below certain vowels to signify their open variants (ɛ) and (ɔ), viz. (ẹ) and (ọ). Over the years the orthography was revised to represent tone among other things. In 1875 the Church Missionary Society (CMS) organized a conference on Yoruba Orthography; the standard devised there was the basis for the orthography of the steady flow of religious and educational literature over the next seventy years (Odutola, 2013).

The author further explained that the current Yoruba alphabet used in Nigeria derives from a 1966 report of the Yoruba Orthography Committee (YOC), along with Ayọ Bamgboṣe's (1965) "Yoruba Orthography" on study of the earlier Latin alphabets and an attempt to bring Yoruba orthography in line with actual speech as much as possible. He documented that the Yoruba Orthography Committee (YOC) worked largely and similar to the older alphabet, it employs the digraph (gb) and three diacritics were introduced on the vowels to indicate the Yoruba language's tones: an acute accent **(́)** for the high tone, a grave accent **(̀)** for the low tone, and an optional macron **(̄)** for the middle tone and the traditional vertical line set under the letters (ṣ). In many publications the line is replaced by a dot (ẹ), (ọ), (ṣ). The vertical line

had been proposed to avoid the diacritic being obscured by an underline, the author explained. Simon (2013) presented upper and lower letters of the Nigeria Yoruba alphabet as displayed in Figure 2.1 and Figure 2.2

Figure 2.1: Upper case of Nigeria Yoruba alphabet

A B D E Ẹ F G GB H I J K L

M N O Ọ P R S Ṣ T U W Y

Source: Simon (2013) http://www.omniglot.com

Figure 2.2: Lower case of Nigeria Yoruba alphabet

a b d e ẹ f g gb h i j k l

m n o ọ p r s ṣ t u w y

Source: Simon (2013) http://www.omniglot.com

The Latin letters ⟨c⟩, ⟨q⟩, ⟨v⟩, ⟨x⟩, ⟨z⟩ are not included in formation of the Yoruba alphabet.

Odutola (2013) narrated that the pronunciation of the letters without diacritics corresponds more or less to their international phonetic alphabet equivalents, except for the (g͡b) (written) (gb), in which both consonants are pronounced simultaneously rather than sequentially. The diacritic underneath vowels indicates an open vowel, pronounced with the root of the tongue retracted, (ẹ) is pronounced (ɛ) and (ọ) is (ɔ). (ṣ) represents a post alveolar consonant (ʃ) like the English (sh), (y) represents a palatal approximant like English (y), and (j) a voiced palatal plosive, as is common in many African orthographies (Odutola 2013).

When more than one tone is used in one syllable, the vowel can either be written once for each tone (for example, (òó) for a vowel (o) with tone rising from low to high) or, more

rarely in current usage, combined into a single accent. Simon (2013) also listed the vowels used in Nigeria Yoruba alphabet as presented in Figure 2.3 and Figure 2.4

Figure 2.3: Upper letters of the vowels used in Nigeria Yoruba alphabet

Á À Ā É È Ē Ẹ / Ẹ Ẹ́ / Ẹ́ Ẹ̀ / Ẹ̀ Ẹ̄ / Ẹ̄ Í Ì Ī

Ó Ò Ō Ọ / Ọ Ọ́/ Ọ́ Ọ̀ / Ọ̀ Ọ̄ / Ọ̄ Ú Ù Ū Ṣ / Ṣ

Source: Simon (2013) http://www.omniglot.com

Figure 2.4: Lower letters of the vowels used in Nigeria Yoruba alphabet

á [é è ē ẹ / ẹ ẹ́ / ẹ́ ẹ̀ / ẹ̀ ẹ̄ / ẹ̄ í ì Ī ó

ò ọ / ọ ọ́ / ọ́ ọ̀ / ọ̀ ọ̄ / ọ̄ ú ù ū ṣ / ṣ

Source: Simon (2013) http://www.omniglot.com

Lisa (2006) affirmed that the 26 letters of Latin alphabet are amazingly effective communication tools; that combining and recombining the 26 letters into words, phrases, and sentences allow people to effectively communicate complicated messages to other people. As to the above, the twenty-five letters of the Nigeria Yoruba Alphabet could communicate effectively in communication visuals for Yoruba audience.

2.3 Typography

Fradkin (2009) defined typography as the art and craft of designing letters and symbols, and arranging letters and symbols for display. As thus, typography is an integral part of alphabet; since there cannot be art of designing letters without the creation or existence of those letters.

Typography evolved from man's earliest attempt at producing and keeping records of his life. Contemporary typographers view typography as craft with a very long history tracing its origins back to the first punches and dies used to make seals and currency in ancient times. The basic elements of typography are at least as old as civilization and the earliest writing systems (Man, 2002).

Man (2002) gave brief history of typography that it dates back to as far as 30,000 years, evidence of the first example of printing from movable type was discovered in 1908 by an Italian archaeologist on the Island of Crete; that the Italian archaeologist found a disc in the ruins of the palace of Phaistos in a stratification dated about 1500BC. Printing from movable type appeared in China and Korea in the 11th Century. In 1041, a Chinese Pi-sheng, developed type characters from hardened clay but they were not wholly successful.

Redmond (2008) also explained that the Sumerians began writing about 3200 BC by drawing pictures on tablets of wet clay and the Sumerians found it more efficient to press the pictures into the clay with a writing instrument made from a reed. The author further explained that the wedge-shaped marks produced by the reed, which are now known as cuneiform, soon lost their resemblance to the original pictures; that because the Sumerian language was largely monosyllabic (consisting of single-syllable words), the sign for a word could equally well stand for the sound of that syllable. The author explained that sumerian cuneiform was a mixture of word signs and syllables; some symbols served both purposes, some were simply word signs.

In continuation to the above, Man (2002) narrated that type cast from metal in Korea was widely used in China and Japan, and by the middle 1200s type Characters were being cast in bronze. The author discussed further that the oldest text known was printed from bronze type in Korea in 1397 AD and half a century later in 1440, probably unaware of the crude type

developed in the orient, Johanns Gutenberg brought the West up to date with his invention of movable metal type in 1450 that until Gutenberg's system of separate characters for printing on a press with ink on paper, all books were laboriously handwritten by scribes in a situation where “every man was by himself”.

Man (2002) submitted that typography, type-founding and typeface design began as closely related crafts in mid-15th-century in Europe with the introduction of movable type printing at the junction of the medieval era and the Renaissance; that the hands written letter forms of the mid-15th century embodied 3000 years of evolved letter design, and that they were the natural models for letter forms in systematized typography and the scribal letter known as texture or textualis produced by the strong gothic spirit of block letter from the hands of German area scribes, served as the model for the first text types.

Progressively, from the time of Gutenberg (1400?-1468) a German printer and pioneer in the use of movable type, sometimes identified as the first European to print with hand-set type cast in molds. Kunz (2003) reported that the fundamental principles of typography are “simple powerful means to sophisticated ends” which were further developed by man’s modern visual revolution. The author added that, most manual crafted and machine compositions have been replaced by photo and computer typesetting methods such that photography that is controlled by densitometers is the reign of the day. As to this, it can be said that computer electronics have been responsible for encoding digital typographic font styles in the present days graphic design production. The above submission furthers the discussion into the typographic font style application in graphic design.

2.4 Understanding Typographic Font Style Application in Graphic Design

Typographic usage has been evident throughout the history of graphic design. Just as every person has a name, so does every typeface. It would be very difficult to describe typefaces without names, just as it would be difficult to describe each human being without a name as

well. There are several thousand fonts in use and available to the graphic designers for prints. Flene (2006) confirmed there are over forty thousand typefaces in existence; for example Arial Black, High Tower Text, Times New Roman, Arial, Universe, Grill sans and a host of others. "Seasoned designers can tell you that it is almost impossible to know the names of all the typefaces available. However, if you can learn to identify a portion of the main fonts utilized for clarity in readable content, then you should feel confident" (Joel, 2009). One or combination of more of the over forty thousand typefaces in existence can be used to encode text messages of graphic design.

Lisa (2006) described typography as the foundation of publication design; that it allows us to communicate verbal content by putting words and sentences into printed form. Joel (2009) confirmed that typography is readily classified as the official language of graphic design. If typography seized to exist, most designs would become irrelevant or obsolete.

In view of this, graphic designers working with computer have become the typographers of today, and their work being greatly determined and influenced by how well they are trained to work with letter forms in relation to fundamental principles of typographic usage. Puppy (2006) affirmed that designers, who know how to work with types effectively, use it to enhance content, to engage an audience and create visual appeal, while communicating intended messages in a dear or compelling manner.

James 1992 (as cited in Shagaya, 2011) stated that "typography is an important subject which students of design should study in design schools and that professional graphic designers may never be called upon to create an illustration or photography, but they will certainly be called upon to use their typographic skills; which is important for proficiency, throughout their entire career", the author added that "Illustrations and photography may attract attention, but in the end "the words are what sell".

Bernard (2002) saw typography as the visual symbols seen as printed images on a suitable printing surface; character is another term used to identify all of the visual symbols used to compose a visual image; and that the assortment of images such as letters, figures, punctuation marks and assorted symbols (Dollar, Pound, Naira signs, Ampersands) make up the characters necessary to put words into such visual outlay.

James 1992 (as cited in Shagaya, 2011) explained typography is wonderfully versatile; it can be solemn, serious, businesslike, playful, and downright silly and there are times when typography can "shout". Poppy (2006) supported same view that typography can be trendy, grungy, youthful, or antiquated and that typography is like colour, it can convey period look as well as an ethnic or cultural sensibility; that typography should be visibly unobtrusive, and that by whatever approach, it should be appropriate to the subject matter and the audience.

The typographer must decide which type style best represents the needs of specific graphic design for a particular target audience; this aspect of art requires so much learning and training, designers need to study the history and principles of typography (World of Fonts, 2008). Lisa (2006) supported that "if you need to communicate your idea to another person via a page, then you need to have some understanding of the power of typography"; the author said that typographer must determine how the manuscript should be expressed in type, hence, for typographer to choose font(s) that enhances the message one is trying to convey is probably one of the most important components of effective typography. From the above provided knowledge, typography can therefore be said to be the most important element of any graphic design.

Much has been written about designing with types. Chris 2000 (as cited in Robin, 2011) stated that "the most important thing to keep in mind when designing with type is that its purpose is to communicate. It needs to be comprehended, usually quickly and easily. Type is

inherently verbal in nature, which is not to say that it doesn't have a visual component as well"; it was further stated that "every type face has characteristics that convey meaning, however, subtle or overt. Consider black letter, wood type, and script faces, letterforms from these categories contain an abundance of culturally informed information; but the visual aspects of type are meant to reinforce the verbal message" The author further explained that "types provide context for the voice of the speaker, whether an individual or institution. As such, type choice is a critical aspect of effective communication".

Type treatment could provide subtle levels of meaning to the reader. Violations of typographic norms can communicate in their own right but they usually result from lack of care or skill on the part of the designer (Robin, 2011). Following these norms with respect to anatomy of type like letter forms, proportions, letter spacing, word spacing and etcetera, result in messages that effectively convey the meaning of the encoder. It can be concluded that a typographer is someone who designs type not just as fancy typesetter but as someone who uses types in all its variations according to its principles. Berry (2008) identified such fundamental principles in graphic design as explained in 2.5.1, 2.5.2 and 2.5.3 in page 24-25

2.5.0 Aesthetics of typography in Graphic Design

Danto (2009) described aesthetic as branch of philosophy concerned with the essence and perception of beauty and ugliness. In typography, Riggs (2007) agreed that what separates good from bad in typography lies in the expertise of the designer to select the appropriate type face for each project, that because the status of aesthetics is secondary in design, emphasis should be on functionality that is complemented by beauty rather than pure aesthetics in itself. Therefore, aesthetics could be assessed through the anatomy of the selected font styles.

Robin (2011) stated that type is form and should be evaluated based on aesthetic criteria of shape, proportion, and balance; he further explained that types communicate on a denotative and connotative level; type has to be thoughtfully integrated with visuals and type should be readable, the author stressed. Kunz (2008) supported that the choice of a typeface is often first and foremost; Martin (2007) also added that all visible language used in graphic technique to communicate the message include selection of typefaces to convey information and pictorial reality.

However, in selecting types for design, the designer must choose a typeface that appeals to him and the understanding of the target audience. Dynamo may appeal to one designer and Futura to another. Either ways, based on the above, encoding text elements of graphic design for Yoruba audience should be centered on the understanding of the target Yoruba audience.

2.5.1 Personality of typography in graphic design

In graphic design, the use of font styles that conform to the understanding of the target audience, topic, and the product should be considered. Berry (2008) agreed that typefaces have personalities and will probably appeal to different readers and convey different mood. In what could be regarded as good typography or otherwise. (Scotland Government [SG], 2007) advised to pick one font that is readable at a distance and as well as use of dramatic title in a font that suit your subject matter. As to this, graphic designers for Yoruba audience are implored to consider the language of the target audience in the selection of typographic font styles. Plate 2.1 shows personality of typography; if graphic designer's topic is an action, horror, romance, it should be depicted through the selected font style. Therefore, to enhance the personality of the font style used in encoding text messages of graphic designs for Yoruba audience, the font style must depict the symbols of the Yoruba alphabet.

Plate 2.1: Personality of typography



Source: Scotland government (2007

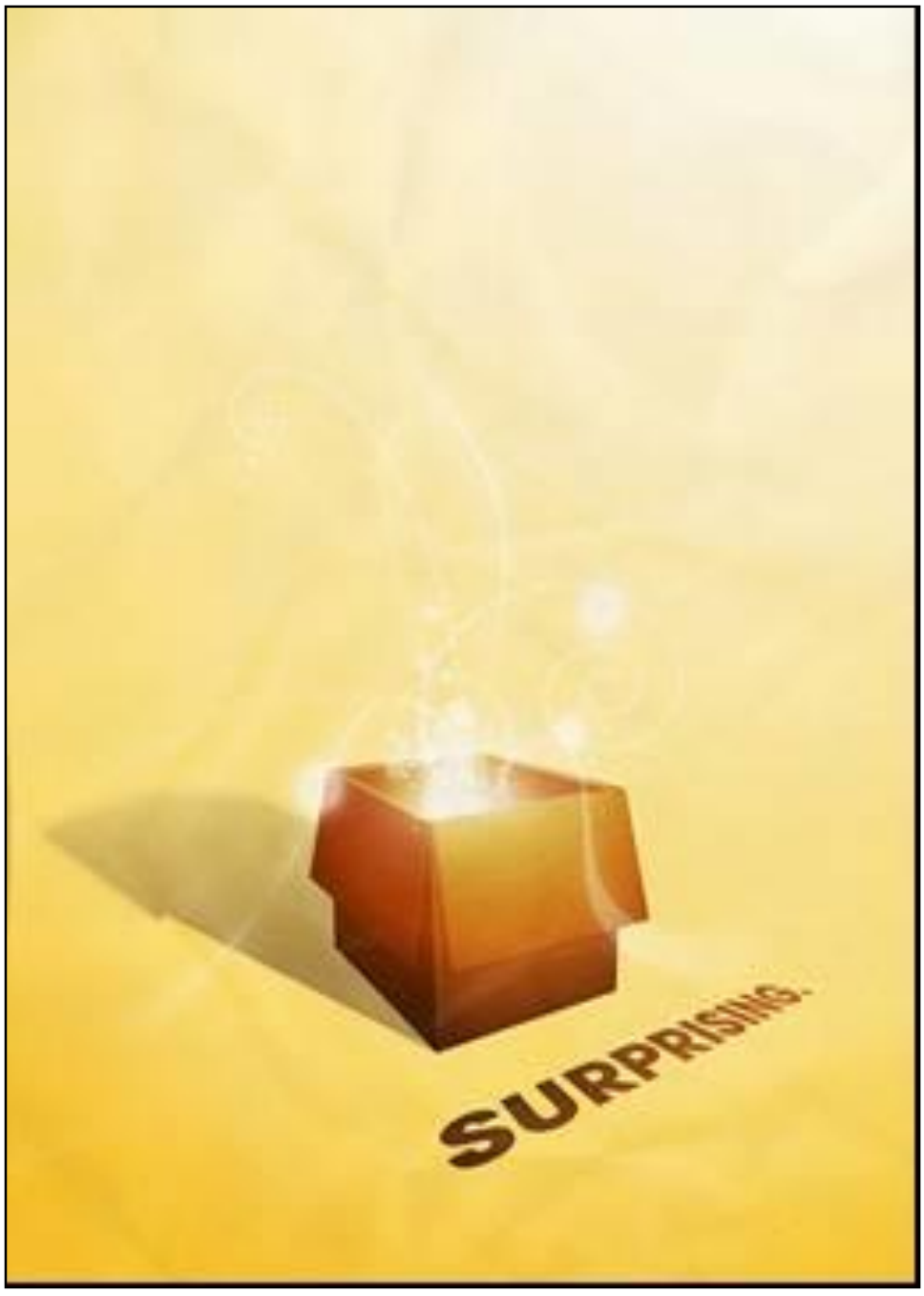
In addition to appropriate selection of typeface for graphic designs, Joel (2009) stated that, typography requires a firm understanding of font families, appropriate use of line-height, kerning and tracking, that advertising industry is primarily about communication and therefore needs clean, readable, well designed type. Hess (2006) advised not to use font that are 'crazy' to the point of being difficult to read, that it is important to limit the number of fonts usage in graphic designs. The author further stated that the more fonts, the potential for confusion. In all, typography usage simply requires someone who is skillful.

2.5.2 Legibility and readability of typography in graphic design

Karen, (2015) stated that readers are accustom to what they are familiar with and they experience understanding problems in unfamiliar reading elements. The typeface which designers use should be readable and legible, that is, the reader should be able to read it without strain. Tova (2006) defined readability as the ease of reading a printed page and legibility as the speed with which each letter word can be recognized; and readability as the type arrangement and legibility as the type design. Kunz (2008) supported that legibility is simply a matter of type size. Tova (2006) also agreed that readability and legibility of typography depends upon several factors that must be considered when selecting a typeface; that the factors include texture and finish of paper, colour of ink, typeface, and size of type such as length, spacing, and etcetera.

From the above information, reading compatibility of typography is based on fundamental principles of legibility and readability of typography, without this however; typography cannot communicate just as language cannot communicate without grammar, vocabulary and possibly syntax. So all good typography whether in books packaging or posters is based on these principles as long as letters, words and sentences are employed to transmit information and in whatever new form the future might bring. As to this, a typographer is someone who designs type not just as fancy typesetter but as someone who uses types in all its variations according to its principles. Plate 2.2 provides information on legibility and readability of type in posters.

Plate.2 2: Legible and readable of typeface in poster



Source: http://designwashere.com/50-excellent-poster-about-design, (2010)

Plate 2.3: Use of legible and readable typeface in poster



Source: http://designwashere.com/50-excellent-poster-about-design, (2010)

The typographic font style adopted in encoding text elements in Plate 2.2 and 2.3 were described readable and legible because the posters are for English speaking audience while

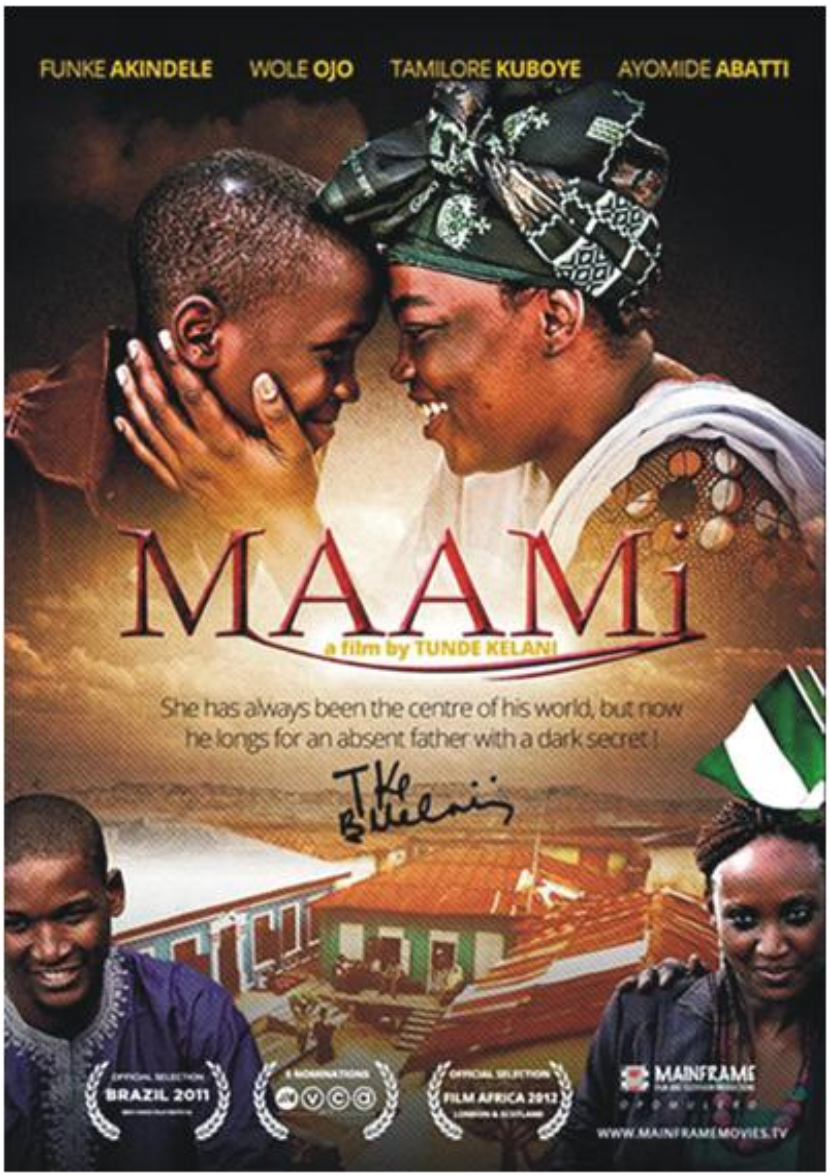
the typographic font style adopted in encoding text elements in Plate 2:4 to 8 were described improper use of typography in Yoruba Movie poster (Use of typography, 2016).

Plate 2.4: Improper use of typography in Yoruba movie poster



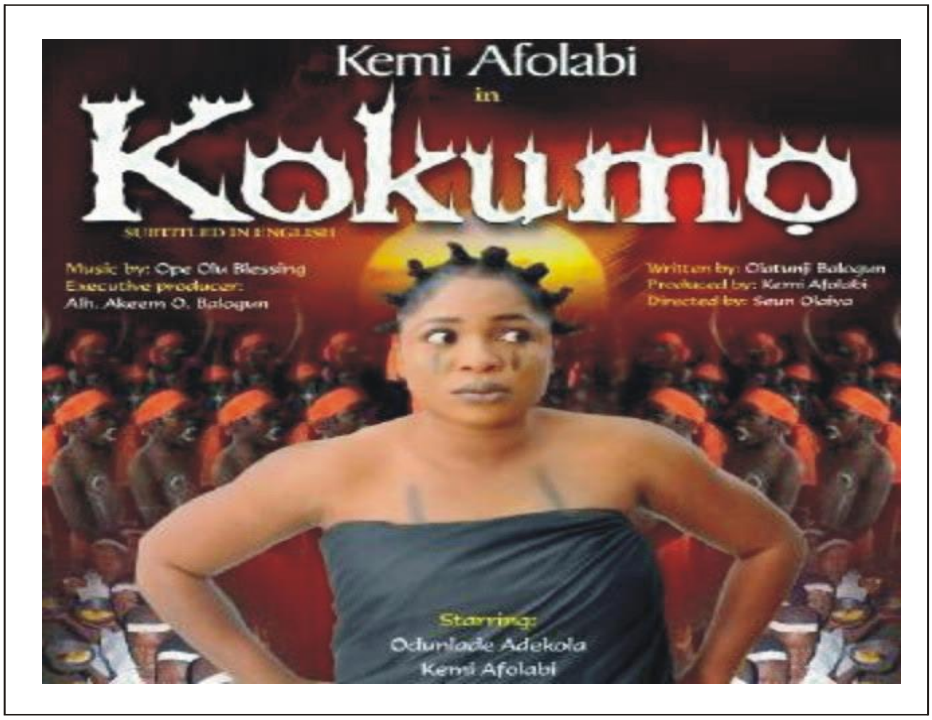
Source: http:www.bing.com/image

Plate 2.5: Improper use of typography in Yoruba movie poster



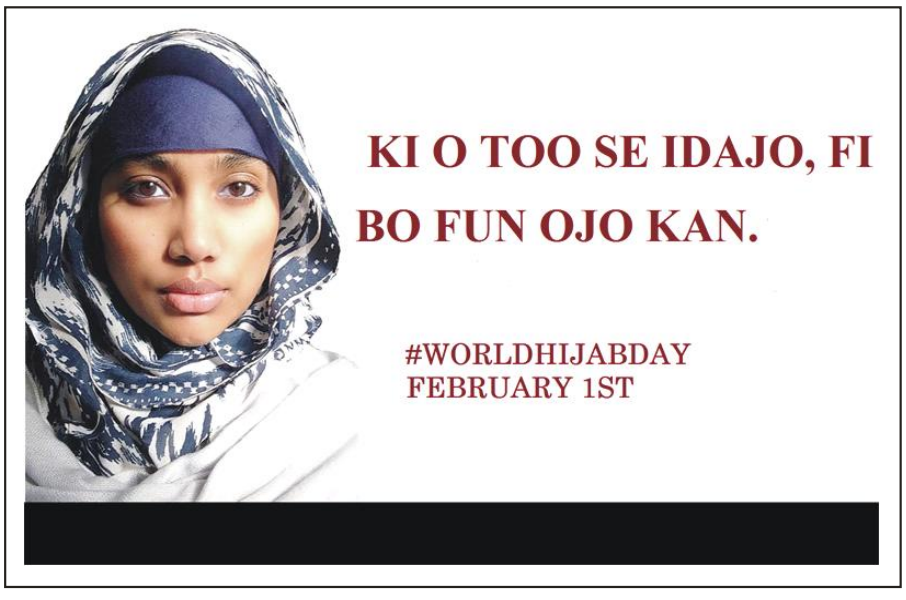
Source: www.connectingnigeria.com

Plate 2.6: Improper use of typography in Yoruba movie poster



Source: http:www.bing.com/images

Plate 2.7: Improper use of typography in Yoruba movie poster



Source: www.connectingnigeria.com

Plate 2.8: Improper use of typography in Yoruba movie poster



Source: www.connectingnigeria.com

The typographers of the above posters encoded the captions not in Yoruba typographic font styles (Use of typography, 2016). Salawu (2004) opined that people would understand information better in their indigenous language than in a foreign language. As to this, for effective readability and legibility of typographic font style in encoding texts of graphic

design for Yoruba audience, the typographer should encode text elements in Yoruba typographic font styles.

The typographic elements of the graphic designs are being encoded through graphic design software in computer electronics, therefore, it is important to explore their types and functions in graphic design productions.

2.6.0 Software Developments and Usage in Computer Graphic Design

Progressively, from the time of Gutenberg, Sue (2017) postulated that computer graphic design software have been responsible for many improvements in cost and productivity in graphic design process.

Graphics design software has a pretty broad definition in many people's minds, but in the context of this study, it is any kind of software which can be used to create, edit, and manage two dimensional (2D) computer graphics. Sue (2017) defined graphic design software is a subclass of application software used for graphic design, multimedia development, stylized image development, technical illustration, general image editing, or simply to access graphic files.

Sadie (2016) explained that graphic design software is used for creating designs from scratch. Its tools allow graphic designer to digitally draw whatever doodle graphic designer’s heart desires that the only limitation is graphic designer’s imagination. The author explained that in addition to modifying or creating original logos, graphic design software allows graphic designer to combine images, text or other graphic forms to create print and digital advertisements, publications, brochures, postcards and more. Printers often prefer the file to come from graphic design software like Illustrator or InDesign because they can tweak, scale and adjust layers and elements of the design easily, the author concluded.

As to the above, computer electronics and specialized graphic design software (such as Corel Draw) are used to combine text and graphics through a computer input device (keyboard) to create documents that can be printed on either a laser printer or a typesetting machine for reproduction; this is as well called "Desktop Publishing". History revealed that since Johannes Gutenberg perfected the art of printing from moveable type in the mid-fifteenth century, there have been many updates in technology. National Diet Library (2004) asserted that no change has been more dramatic than the introduction of desktop Publishing; it further stated that desktop Publishing have completely changed the mode of the printing processes bandwagon effect on typography.

Tova (2006) accounted that by the mid-1980s, a growing number of people were beginning to understand and use fonts as graphics design software became commercially available, that people manipulate and even originate typefaces digitally- and at terrific speeds compared to traditional type founding.

In 1985, "AltSys" released a font design software program called Fontographer, at the same time Aldus released the first user-friendly desktop publishing program called Pagemaker, These software packages led to the development of a multitude of user-friendly graphics programs, with a wide variety of growing capabilities, by Aldus Corporation, Adobe Systems Incorporated, Corel Corporation, and others. By the early 1990s, digital composition had almost entirely replaced photocomposition for commercial printing, and digital type foundries had become standard.

With the proliferation of the computer electronics and graphic design software, typography has become increasingly experimental, explorative and created according to the wills of people who find themselves in the profession of graphic design. Kunz, (2008) was of the opinion that such flexibilities have always boosted the creative enthusiasm of such professionals and non professionals. This development has created series of opportunities of

encoding text elements of graphic design in different typographic font style for different target audience. However, the types and functionality of the most used graphic design software packages were explored and the available knowledge on them is as explained below.

2.6.1 CorelDraw

CorelDraw is a graphic suite for drawing and editing photo images for professional graphic designer. Margaret (2015) explained that CorelDraw is a vector graphics editor developed and marketed by Corel Corporation. It is also the name of Corel's Graphics Suite, which bundles CorelDraw with bitmap-image editor Corel Photo-Paint as well as other graphics-related programs; that CorelDraw is designed to edit two-dimensional images such as logos and posters.

Margaret (2015) stated that the first CorelDraw version was designed for the Windows 2.1 platform. The Corel Corporation has since released 18 CorelDraw versions, with X8 the latest version released. Most CorelDraw versions were designed for the Windows platform. CorelDraw X8 is compatible with Windows versions 7, 8, and 10 the author concluded that the latest version is marketed as Graphics Suite 2017, and was released in April 2017.

With CorelDraw software, graphic designer can add special effects to images; alter their contrast and color and manage multipage documents. The software is built with typographic font styles that can help users to encode text elements of graphic design.

2.6.2 Photoshop

The software is particularly popular amongst professional photographer and graphic designers because it is an image editing software developed and manufactured by Adobe system incorporation. The software allows users to manipulate, crop, resize, and correct colour on digital photos. Margaret (2015) described Photoshop application software as an

Adobe's photo editing, image creation and graphic design software that the software provides many image editing features for raster (pixel-based) images as well as vector graphics.

The author further explained that the software uses a layer-based editing system that enables image creation and altering with multiple overlays that support transparency; that the layers can also act as masks or filters, altering underlying colors, shadows and other effects can be added to the layers. The author concluded that Photoshop actions include automation features to reduce the need for repetitive tasks. An option known as Photoshop CC (Creative Cloud) allows users to work on content from any computer. Photoshop is used by photographers, graphic designers, video game artists, advertising and meme designers. The software is also built with typographic font styles that can help users to encode text elements on digital photo images.

2.6.3 Illustrator

Sadie (2016) explained that Illustrator is one of the most popular graphic design software used in the workforce, specifically for creating vector art, that there is a pretty steep learning curve, but once graphic designer learns the program and all its capable of then it’s pretty user-friendly. The author added that one great feature is it restores project if the program crashes or if forget to save. Illustrator is also set up to work in the proper printing color format, which means that what one create on the device will look the same when it’s printed. It also allows graphic designer to upload a sketch or switch between using tablet and desktop, so graphic designer can use other tools for drawing, the author concluded.

2.6.4 InDesign

Sadie (2016) also explained that InDesign is similar to Illustrator in that it is another product within the Adobe family but it’s tough to say which is better, they are both great options depending on the needs of graphic designer. Illustrator is better for creating illustrations

(hence the name) whereas InDesign excels at creating multiple-page layouts and designs that are more text heavy. Sadie (2016) stated that publications are often created in InDesign because it's so easy to create a design template and apply that across multiple pages, there are, there many benefits of using an Adobe product including: quality performance, a plethora of features, great customer service as well as constant product improvements and updates.

2.6.5 Microsoft paint

Microsoft (2016) described Microsoft Paint or 'MS Paint as a basic graphics/painting utility that is included in all the Microsoft Windows versions. MS Paint can be used to draw, colour and edit pictures, including imported pictures from a digital camera. Microsoft Paint or 'MS Paint' is a basic graphics/painting utility that is included in all the Microsoft Windows versions. Microsoft (2016) explained the functions of Microsoft Paint as below

- MS Paint can be used to draw, colour and edit pictures, including imported pictures from a digital camera for example.
- MS Paint is found in the Windows Start menu within the Accessories Folder.
- It can save creations in standard formats such as .jpg and .bmp
- Paint can enable 'painting' by dragging the mouse and using different types of artistic brushes or pens that can give for example a watercolour or oil effect. The paint also 'runs out' on certain brushes after a period of time so that the brush needs to be put back into the colour again, as if it was a real painting brush.
- More recent versions of Paint allow up to three colours to be picked at a time using the primary colour with left mouse click, the secondary colour with right mouse click and the tertiary colour with the control key on the keyboard and any mouse click

- Features included in paint are pencil, brush and airbrush tool. The ability to add text, lines and shapes. Also included are an eraser, magnifier, and fill colour tools.
- Many complex graphics software applications have concepts that are included in Microsoft Paint and the same principals can be applied in these from learning within Microsoft Paint.

Sadie (2016) submitted that Graphic designer can use a graphic design program exclusively or in conjunction with another program like a photo editing program. Often time Graphic designer will touch up a photo in a photo editor and then import it into a graphic design program or visa versa. Graphic designer can create a logo or piece of art using graphic design software and then use a photo editing program to scale, resize or change the file format. From the above knowledge, graphic designer can work simultaneously on two or more graphic design application software.

2.6.6 Unicode in computer software

Chris (2009) described Unicode as a computing industry standard for the consistent encoding, representation, and handling of text expressed in most of the world's writing system; the latest version contains a repertoire of 136,755 characters covering 139 modern and historic scripts, as well as multiple symbol sets; that the Unicode Standard is maintained in conjunction with International Standard Organization (ISO) International Electrotechnical Commission (IEC) and both are code-for-code identical**.**

Chris (2009) affirmed that fundamentally, computers just deal with numbers; they store letters and other characters by assigning a number for each one. The author discussed further that before Unicode was invented, there were hundreds of different systems, called character encodings, for assigning these numbers. The author discussed further that these early character encodings were limited and could not contain enough characters to cover all the

world's languages. Even for a single language like English no single encoding was adequate for all the letters, punctuation, and technical symbols in common use.

Chris (2009) stated that the Unicode Standard provides a unique number for every character, no matter what platform, device, application or language. It has been adopted by all modern software providers and now allows data to be transported through many different platforms, devices and applications without corruption, and concluded that support of Unicode forms the foundation for the representation of languages and symbols in all major operating systems, search engines, browsers, laptops, and smart phones.

In attempt for searching for a system of encoding text messages for documentation and publication in non international language such as (Yoruba language) through computer electronics; many researchers have explored Unicode; for example, Adebusola (2012) developed "Yoruba Ok" to ease the use of Yoruba alphabet on standard key board with multiple key combinations with restriction to Arial Unicode font style, applicable and useable only on Microsoft Word. Adegbola (2003) submitted that "in order to harness technology to preserve rather than erode indigenous language, the African Language Institute, headed by Yunde Adegbola adopted symbols of Arial Unicode as font, to write orthographic Yoruba alphabet on Microsoft Word software".

In another effort, Information Technology Development Agency, Abuja released a freeware font on how to type Yoruba font on the (QWERTY) standard key board with multiple key combination; the freeware is applicable to Arial Unicode font style, downloadable and useable on Microsoft Word software (African Portal, 2012). Oge (2012) developed the multiple combinations of keys in typing of characters in Igbo, Hausa and Yoruba directly from the Unicode font like Arial Unicode in Microsoft Word for some of the marks to show correctly; and Tavultesoft (2013) developed a pay ware on Yoruba alphabets on standard

keyboard with multiple combination keys, assessable in Arial Unicode font style on Microsoft Word software.

In view of the above submissions on the efforts being made to render Yoruba literature in its orthographic form through exploration of Unicode signs and symbols for encoding text messages, it is important to discuss further the interpretation of the signs and symbols as regards to the there are guiding rules on effective usage for encoding and decoding of messages.

2.7 Signs and symbols usage in Graphic Design

Signs and symbols are important element of graphic design and ability to effectively utilize the appropriate sign and symbols –that is letters of alphabet as typographic font style in encoding information messages is a skill to accomplish; hence the primary objective of graphic design is to advertise products or services and to create awareness leading to the acceptance of the products or service, and to create awareness leading to the acceptance of the products or service. Azi 1999 (as cited in Obisesan, 2009) postulated that for a clear method of relaying successful communication messages for proper perception and comprehension, the need to understand the perception and cognition of the target audience cannot be overemphasized.

In order to explain how communication takes place, models of the flow of communication are often created.

The early communication model characterized of three (3) basic components:

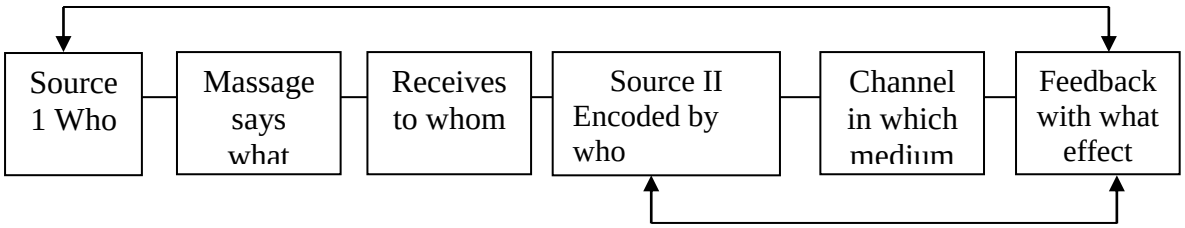
- The senders, who is sending the message out
- A channel, the way the message is being sent
- A receiver, who is supposed to received and use the message.

In Gallante (2003) the above model was slightly expanded in the Lasswell (1948)'s formula, which can be summarized by the following function.

- Who?
- Say what?
- In which channel?
- To whom?
- With what effect?

Ejembi 1989, (as cited in Ebigbaha, 2010) Figure 2:5 modified the Lasswell's formula above. In the revised mode, source II (the Graphic encoder) is introduced while feedback replaces effect. The introduction of graphic encoder is important as it emphasize the important role that the graphic encoder plays in graphic design process.

Figure 2:5: Basic model of graphic communication



Source: (Ebigbaha, 2010)

In alignment to the above channels of communication, the sender who is sending the message out could be movie producers, political organizations, government body, and etcetera. The channel in the medium which the message is being sent is through graphic design production; and the receiver, who is supposed to receive and use the message, is the Yoruba audience. However, the graphic design's text encoder's knowledge on appropriate use of available font styles plays a decisive role in encoding the information messages; otherwise the encoded information would have no effect on the receiver i. e. decoder of the message. Robbs (2008)

stated that meaning can only be achieved when the sender and receiver share a thought or idea. In encoding information messages in graphic design for persuasive advertisement, it is assumed that both sender and receiver share thought. The study of semiotic analyzed the relationship between the encoder and decoder of information as earlier discussed 1.3, page four and below.

2.8 Semiotics in Graphic Design

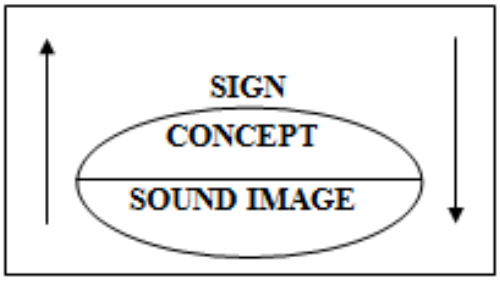
In addition to the explanation provided in the theoretical framework in page four to five, on Semiotics theories of Charles Sanders Peirce and Ferdinand de Saussure, regarding signs and meaning enables the researcher to analyze the effectiveness of signs and symbols; (letters of alphabet) as typographic font style usage in Yoruba movie posters in relation to literal meaning of orthographic Yoruba language.

Chandler 1994 (as cited in Obisesan, 2009) shown that signs take the form of words, images, sounds, acts or objects, but such things have no intrinsic meaning and become signs only when we invest them with meaning. "Nothing is a sign unless it is interpreted as a sign" (Reschke, 2005). Anything can be a sign as long as someone interprets it as 'signifying' something referring to or standing for something other than itself. We interpret things as signs largely unconsciously by relating them to familiar systems of conventions. It is this meaningful use of signs which is at the heart of the concerns of semiotics. The two dominant models of what constitutes a sign are those of the linguist Ferdinand de Saussure and the Philosopher Charles Sanders Peirce. De Saussure defined a sign as a dyadic model which is composed of:

- A signifier - the form which the sign takes
- The signified- the concept the sign represents

De Saussure offered a two part model of the sign as shown diagrammatically in figure 2.6 where he referred to the concept as the signified and the sound image as the signifier figure.

Figure 2.6: Saussure's graphical representation of the sign as being made up of a sound image and a concept



Source: (Underwood, 2003)

The submission of Charles Sanders Peirce and Ferdinand de Saussure on signs with reference to language usage by an encoder to the decoder provides reasons to a take look at the word language and what it means to human existence.

2.9 Language

Languages, whether indigenous or foreign, are indispensable tools in the life of individuals because there is no aspect of human activities that can be successful without the effective use of language (Ayodele, 2013). Language is connected to the way of life of a group of people. It will be difficult for people to exist without language. In other words, language is the bedrock of any society or group of persons. It is through the influence of language that people communicate, interact and live together. Every activity in the world is absolutely connected to language. Therefore, language can be acknowledged as the key vehicle of all development. Ayodele (2013) agreed that to participate effectively in the democratic process, there must be language in place, to make economic impact language is required, beside air and water which is a free gift of nature, language is another necessity of life. The author further stated that if

education is a basic factor for development in any society, then language through which the education is passed to the people is as important as the education itself.

Adedeji (2014) described language as an integral part of human behaviour and it serves as the primary means of interaction between people. Odegbenle (2013) also described language as a form of communication which allow animal (both lower and higher) to engage in transaction and share thoughts, beliefs, notions, ideas, experiences and so on which are presumably known to both parties.

Jibir (2014) said, it is so important to the growth and sociability of a people that it is among the very first forms of behaviours that we learn as children, and latter when we learn other skills and acquire more knowledge, much of this reaches us only through the medium of language. Language is one of the indispensable resources of man, necessary for his day to day transaction and activities. Language lives and dwells with the people, and the perception of the real world is construed by the language habit of the people or group of speakers (Emeka, 2015). Alhassan & Ali (2015) explained that language is important to the meaningful existence of the human race and it is used by man as a means of social, cultural transmission as well as a means of knowledge advancement and educational development.

Language is the unique property of human beings and all the developments of man, be it intellectual, ethical, political, social or economic revolves entirely on the instrumentality of language (Ene, 2007). As to the above, language can be said to be an essential part of human existence because it is the major exchange channel of information be it gesture, audio or visual.

2.10 Use of Indigenous Language

Ene (2007) submitted that instead of making a foreign language enjoy the states it is enjoying presently, indigenous language and courses in teacher education institutions should be planned to equip every teacher with the capacity of teaching in both foreign and indigenous

languages. As noted by Olafia (2014) many societies are faced with the challenges of language loss, language shift or even language death and this to him, may be linked to the fact that a large percentage of the languages are still not properly documented.

Akabogu & Mbah (2013) contended that the government should see the indigenous languages more clearly for what they had been all along vis-vis, a veritable and practical means of communication, some of which could very easily be harnessed for effective national integration which is a matter of paramount importance for a country still struggling to consolidate its independence. Similarly, Adzer (2012) averred that the government should give more attention to the development and promotion of indigenous languages than it is presently giving to English, French or other foreign languages being imposed on children to whom the mother tongue is alien.

As noted by Jibir (2014), indigenous languages are not argued to be development's ''saving grace'', rather they are seen as a tool with which to facilitate positive transformation and advancement by creating not only wider acceptance of existing diversity but also of facilitating a greater number of social opportunities to speakers of minority languages. In conclusion to the above, Salawu (2015) stated that "Language is the repository of culture. For indigenous languages and our communities to survive and grow the media, especially the printed media, must be encouraged to use them. Printed media aid literacy; therefore, by reporting in these languages, our people can be effectively informed for development purposes" Gdtedtalk (2017) reported that there are currently many revitalization efforts in place to help keep the languages alive and typographic design is being used to aid in these efforts. As to the above, indigenous alphabet as typographic font styles usage will communicate better in graphic design for Yoruba audience.

The fact that designers of graphic design for Yoruba audience make use of signs and symbols of alphabet as typographic font styles in encoding text messages; the creation of those signs

and symbols to meet the requirement are very important. Therefore, the researcher explored the principles and procedures involved in the creation of signs and symbols for encoding texts of graphic design with reference to the models of product was discussed below.

2.11.0 Model of Product Development

A product model gives structure and meaning to product design problem, enabling the would-be design to negotiate the design task with a semblance of conscious understanding (Robert, 2016). Model helps to visualize the problem and break it down into discrete, manageable unit. The value of a specific model is determined within the context of its use and like any other instrument; a model assumes a specific intention of its user (Ellen, 2016). However, a model should be judged by how it mediates the designer's intention, how well it can share a work load and how effectively it shifts focus away from itself toward the object of the design activity.

2.11.1 New product development

In business and engineering**,** new product development (NPD) is the complete process of bringing a new product to market. New product development is described in the literature as the transformation of a market opportunity into a product available for and it can be tangible (that is, something physical you can touch) or intangible (like a service, experience, or belief) (Krishnan, 2001)

A good understanding of customer needs and wants, the competitive environment and the nature of the market represent the top required factors for the success of a new product. Kenneth, (2013) explained that cost, time and quality are the main variables that drive the customer needs, that aiming at these three variables, developers develop continuous practices and strategies to better satisfy the customer requirements and increase their market share by a regular development of new products. There are many uncertainties and challenges

throughout the process which developers must face. The use of best practices and the elimination of barriers to communication are the main concerns for the management of NPD process (Kenneth, 2013).

Development theory is a conglomeration or a collective vision of theories about how desirable change in society is best achieved. Such theories draw on a variety of social science disciplines and approaches. In this study, multiple theories are explored and discussed as follows.

2.11.2 Stage-Gate model

The "New Product Development Process" (aka the "NPD" process), is a highly critical part of the innovation in business process. The NPD process is often referred to as the Stage-Gate Process, and according to its developers it is, "a carefully designed business process and the result of comprehensive research into understanding the reasons behind product success and failure" (http://www.stage-gate.com/).

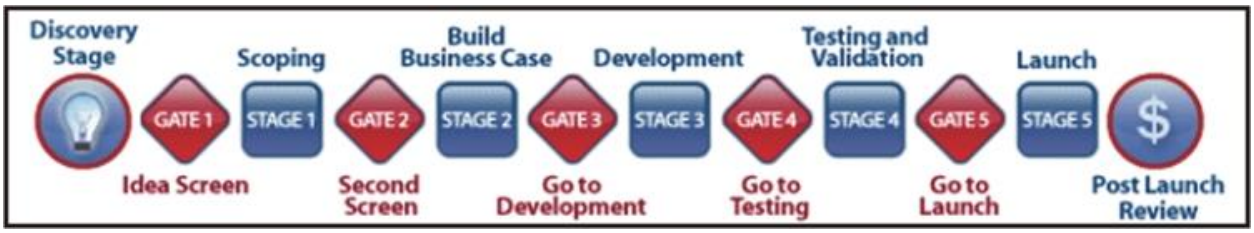
Robert (2011) submitted that Stage-Gate System is a conceptual and operational road map for moving a new-product project from idea to launch. Stage-Gate divides the effort into distinct stages separated by management decision gates (gatekeeping). The author explained that the cross-functional teams must successfully complete a prescribed set of related cross-functional activities in each stage prior to obtaining management approval to proceed to the next stage of product development.

2.11.3 How does the Stage-Gate process work?

Product innovation begins with an idea and ends with the successful launch of a new product. The steps between these points can be viewed as a dynamic process. Stage-Gate divides this

process into a series of activities (stages) and decision points (gates) as shown in plate 2.9 (Robert, 2011)

Plate: 2.9: Stage-gate process activities (stages) and decision points



Source: (Robert 2011) http://www.prod-dev.com

The author continued that the stages are where the action occurs; the players on the project team undertake key activities to gather information needed to advance the project to the next gate or decision point. Stages are cross-functional (there is no research and development or marketing stage) and that each activity is undertaken in parallel to enhance speed to market. He stated that to manage risk, the parallel activities in a certain stage must be designed to gather vital information - technical, market, financial, operations - in order to drive down the technical and business risks. Each stage costs more than the preceding one, resulting in incremental commitments. As uncertainties decrease, expenditures are allowed to rise and risk is managed. In addition to the discover stage, the author stated five key stages:

Stage 0 - Discovery: Activities designed to discover opportunities and to generate new product ideas.

Stage 1 - Scoping: A quick and inexpensive assessment of the technical merits of the project and its market prospects;

Stage 2 - Build Business Case: This is the critical homework stage - the one that makes or breaks the project. Technical, marketing and business feasibility are accessed

resulting in a business case which has three main components: product and project definition; project justification; and project plan;

Stage 3 - Development: Plans are translated into concrete deliverables. The actual design and development of the new product occurs, the manufacturing or operations plan is mapped out, the marketing launch and operating plans are developed, and the test plans for the next stage are defined;

Stage 4 - Testing and Validation: The purpose of this stage is to provide validation of the entire project: the product itself, the production/manufacturing process, customer acceptance, and the economics of the project;

Stage 5 - Launch: Full commercialization of the product - the beginning of full production and commercial launch.

2.11.4 The benefits of using Stage-Gate

Robert (2011) analyzed that Stage-Gate Product Innovation system has been referred to as the single most important discovery in product innovation - empowering almost 85% of all North American companies to achieve improved returns on their product development dollars and to achieve new growth.

When implemented properly, Stage-Gate delivers tremendous impact:

Accelerates speed-to-market

Increases likelihood of product success

Introduces discipline into an ordinarily chaotic process

Reduces re-work and other forms of waste

Improves focus via gates where poor projects are killed

Achieves efficient and effective allocation of scarce resources

Ensures a complete process - no critical steps are omitted

Stage-Gate is a more effective, efficient, faster process that improves your product innovation results the author concluded.

The model divides effort into distinct time-sequenced stages, separated by management decision gates. Multi-functional teams must successfully complete a prescribed set of related cross-functional tasks in each stage prior to obtaining management approval to proceed. The framework of the stage-gate process includes work-flow and decision-flow paths, and defines the supporting systems and practices necessary to ensure smooth operation.

2.11.5 Fuzzy Front End (FFE)

Kim and Wilemon (2007) and Koen et al. (2001) described Fuzzy Front End (FFE) as the front end where the organization formulates a concept of the product to be developed and decides whether or not to invest resources in the further development of an idea. It is the phase between first consideration of an opportunity and when it is judged ready to enter the structured development process. It includes all activities from the search for new opportunities through the formation of a germ of an idea to the development of a precise concept. The Fuzzy Front End phase ends when an organization approves and begins formal development of the concept.

Husig and Kohn (2003) agreed that the Fuzzy Front End may not be an expensive part of product development, it can consume 50% of development time and it is where major commitments are typically made involving time, money, and the product's nature, thus setting the course for the entire project and final end product. The author added that consequently, this phase should be considered as an essential part of development rather than something that happens "before development," and its cycle time should be included in the total development cycle time.

Koen; et al. (2007) distinguished five different front-end elements not necessarily in a particular order:

1. Opportunity Identification
2. Opportunity Analysis
3. Idea Genesis
4. Idea Selection
5. Idea and Technology Development

- The first element is the opportunity identification. In this element, large or incremental business and technological chances are identified in a more or less structured way. Using the guidelines established here, resources will eventually be allocated to new projects which then lead to a structured NPPD (New Product & Process Development) strategy.
- The second element is the opportunity analysis. It is done to translate the identified opportunities into implications for the business and technology specific context of the company. Here extensive efforts may be made to align ideas to target customer groups and do market studies and/or technical trials and research.
- The third element is the idea genesis, which is described as evolutionary and iterative process progressing from birth to maturation of the opportunity into a tangible idea. The process of the idea genesis can be made internally or come from outside inputs, e.g. a supplier offering a new material/technology or from a customer with an unusual request.
- The fourth element is the idea selection. Its purpose is to choose whether to pursue an idea by analyzing its potential business value.

- The fifth element is the idea and technology development. During this part of the front-end, the business case is developed based on estimates of the total available market, customer needs, investment requirements, and competition analysis and project uncertainty. Some organizations consider this to be the first stage of the (New Product & Process Development) strategy (NPPD) process (Stage 0).

Husig and Kohn (2003) stated that the universally acceptable definition for Fuzzy Front End (FFE) or a dominant framework has not been developed so far, that in a glossary of Product Development & Management Association (PDMA), it is mentioned that the Fuzzy Front End generally consists of three tasks: strategic planning, idea generation, and, especially, pre-technical evaluation; that the activities are often chaotic, unpredictable, and unstructured. In comparison, the subsequent new product development process is typically structured, predictable, and formal. The author stated that the term Fuzzy Front End was first popularized by Smith and Reinertsen (1991), that Cooper (1988) described the early stages of NPPD as a four-step process in which ideas are generated (I), subjected to a preliminary technical and market assessment (II) and merged to coherent product concepts (III) which are finally judged for their fit with existing product strategies and portfolios (IV).

However, each main activity stage is followed by an evaluation phase, before the project proceeds. The identification of these evaluation activities represents a more detailed breakdown, arguably inherent in other models.

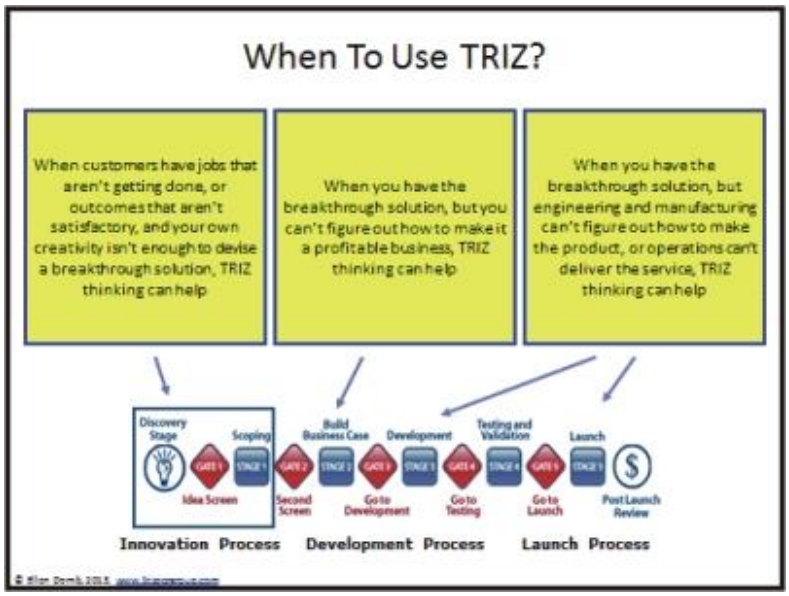
2.11.6.0 "TRIZ" models of product development

In continuation of the discussion on theory of product development with reference to Ellen (2016)'s graphics on "TRIZ" Models of Product Development in figure 1.2 on page seven. A "model" is like a mental practice that helps the understanding of something that cannot be seen directly Mergel 1998 (as cited in Azi, 2009). Product design models, like myths and

metaphors, help us to make sense of our world, whether it is derived from impulse or from serious research, a model offers its user a means of comprehending an otherwise incomprehensive problem (Michael, 2016).

Ellen (2016) stated that while the modern innovation industry's Stage-Gate Process is widely used for new product development and is supremely more effective than undisciplined development, sometimes the Stage-Gate Process is not enough, especially in cases where the new product is exceptionally innovative and mandates solving very challenging inventive problems and issues. In such instances, one may be able to improve the innovation process and ultimately achieve better results by introducing the TRIZ method into the NPD/Stage-Gate Process. Ellen (2016) combined the principles of TRIZ and the NPD/Stage-Gate Process to achieve effective results as shown in plate 2.10.

Plate: 2.10 When to use triz?



Source: (katie, 2016) http://www.innovationcoach.com

The TRIZ models of New Product Development and the Stage-Gate and TRIZ models of New Product Development are common in term of their components as shown in plate 2.6.

In addition, TRIZ is a problem solving method based on logic and data (Ellen, 2016). In a challenging situation when appropriate codes like symbols are to be used for encoding text elements of graphic design, Ellen (2016)'s graphics on "TRIZ" Models of Product development as shown in plate 2.10, page four is appropriate for providing symbols for encoding text elements of graphic design for Yoruba audience as explained below.

2.11.6.1 Innovation process

Innovation is invention (device or process), creation of new devices, objects, ideas, or procedure useful in accomplishing human objectives (Redmond, 2008). Ellen (2016) encouraged to apply TRIZ Innovation Process "When customers have jobs that are not getting done or outcomes that are not satisfactory, and your own creativity is not enough to devise a breakthrough solution" The principle of innovation process can be adopted by examining the probable graphic designers of graphic designs for Yoruba audience on their challenges in encoding text elements of the graphic designs for Yoruba audience through computer electronics. This is essential in the sense that it would assist the researcher to determine the adequacy and effectiveness of the typographic font style adopted in graphic designs for Yoruba audience. Such an understanding provides the breakthrough on the necessity for the creation of the orthographic Yoruba typographic font style.

2.11.6.2 Development process

Ellen (2016) advised to think TRIZ Development Process "When you have the breakthrough solution; but you cannot figure out how to make it a profitable business". This principle of the TRIZ Development Process is useful. It provides understanding on the basic elements of orthographic Yoruba alphabetic such as: the letters of the vowels, consonants, and diacritics that would enable the researcher determine the guiding procedures to be used on the anatomy (such as: spacing, leading, descended, ascender, side bearing, overshoot, uppercase,

lowercase, sheriff and baseline) of the letters of orthographic Yoruba alphabet, the designing of the letters and the creation into font extension usable on computer electronics.

2.11.6.3 Launch process

Ellen (2016) advised to apply launch process on the developed product "when you have the breakthrough solution, but engineering and manufacturing cannot figure out how to make the product, or operations deliver the service" The launch process system can also be adopted in the evaluation of the efficacy (success) of the developed model (the newly created orthographic Yoruba typographic font style). In order to rates its breakthrough by knowing what works and what does not, redesigning the captions of some collected sample posters could be done using the newly created Yoruba font style extension; the data generated through the launch process can be analyzed for improvement. Reddi (2005) refers to the process of data gathering and analysis as part of the design and development process.

2.12 Creation of Typographic Font Styles

Typography is the design of letter forms, readable in two – dimension space (for print and screen media) and in space and time (for motion and interactive media) (Robin, 2011). Typographic font styles are in sizes with distinct names. Lisa (2006) described typographic font styles as measured and described in a language that is unique to the world of the printed word that many of the typographic font styles terms and conventions in use today have their roots in the days of Gutenberg when type was set in metal.

The digital revolution's ensuing boom in new typeface designs has surpassed the typeface explosion of the industrial revolution considerably. Yet, just as there is always room in the world for one more innovation to meet the need of people, so it is with typeface. New typefaces are created for many reasons like self expression, personal statements about the

world, to fulfill a specific design or illustrative need or to create a distinctive corporate image (Tova, 2006).

Creation of typographic font styles is the act of crafting type, symbol, or letter. In creation of every digital typeface from free to pay font pack goes through a similar design process. It's rigorous for a beginner and does require an understanding of foundational typographic principles. But for what it's worth, learning how to create a font from scratch is one of the most fulfilling creative endeavors in digital design (Jake, 2015)

In view of the above submissions, the designing of typographic font styles for Yoruba audience required a good understanding that most letters of orthographic Yoruba alphabet are characterized by diacritics as explained in figure 2.1, 2.2, 2.3 and 2, 4, page 16 and 17 However, the existing digital typographic font styles in usage by graphic designers are appropriate for modification into Yoruba typographic font styles (Tova, 2006).

Tova (2006) describes modifying existing fonts as what designers do to revive an old existing type, or modify an existing digitized font due to decision regarding proportions and shapes; the author added that sometimes designers simply modify an existing digitized font due to the decisions regarding type's proportions and shapes; and concluded by issuing warning that this approach can also be a bit stick because there are legal and ethical issues involved (Tova, 2006).

2.13 Modification of Existing Fonts

Cambridge dictionary (2010) defined modification as to change something such as a plan, opinion, law or way of behavior slightly, usually to improve it or make it more acceptable. As thus, modification of the existing font is making adjustment by adding or subtracting desired features on the font. Tova (2006) gave details explanation on font designing and modifying that if one wishes to make font to be true to the original design, one will first need to find

clean printed samples to work from-the larger the samples, the better. Scan the font image at a high resolution, at least 300 dots per inch (DPI) in order to capture as much detail as possible. Once scanned, one can trace the glyphs. As one traces, one may want to compensate for the bleeding of the ink in the sample by tightening the forms. One may decide to use one's software's autotrace feature, but keep in mind that this function is likely to assign too many points to the shape, and may not trace the glyph perfectly. If one uses Autotrace, one will definitely need to go back and clean up the results by hand; removing extra points and repairing incorrectly traced areas.

Once the original glyphs have been traced, one can eliminate one's templates and perfect the glyphs. The author further stated that one may want to reproduce a true revival of the font, or create a derivative work by adding own preferred modifications; that if one does this, make sure that your changes represent consistent and purposeful improvements. Also, if the typeface designer of the original font is known, credit should most certainly be given.

In addition, Tova (2006) also stated that, it is possible to import a font into one's font editing software; that has already been digitized, and then trace the glyphs. However, unless one plans to modify the glyphs enough that they could be reasonably considered an original work, one should be wary of this technique for legal, if not ethical, reasons. Digitalized font style could be imported into one of the font creator software described below, modified by embedding diacritics on them to depict Yoruba typographic font styles.

2.14 Type font editor 3.2

Type font editor 3.2 has been continuously developed since 2006, so it is a proven and reliable solution for small business and home users alike. The latest version boasts several innovative, easy-to use features to help you create awesome looking fonts. Type 3.2's unique autotracer takes the guesswork out of vectorising handwriting and drawings. Showing one a

real-time preview as one adjust filter and trace settings (https://www.cr8software.net/type.html).

2.15 FontCreator 10.0

FontCreator 10.0 puts font creation within the grasp of the average personal computer (PC) user, typographers and graphic designers. The editor lets one easily select and modify the entire character set of any TrueType font and fonts based on OpenType font technology. Features include the ability to convert images to outlines, thus enabling one to create fonts with own signature, logo and handwriting. The intuitive interface makes FontCreator the perfect tool for both new and experienced users. The advanced validation features make the design process easy and help one avoid common mistakes (http://www.high-logic.com/).

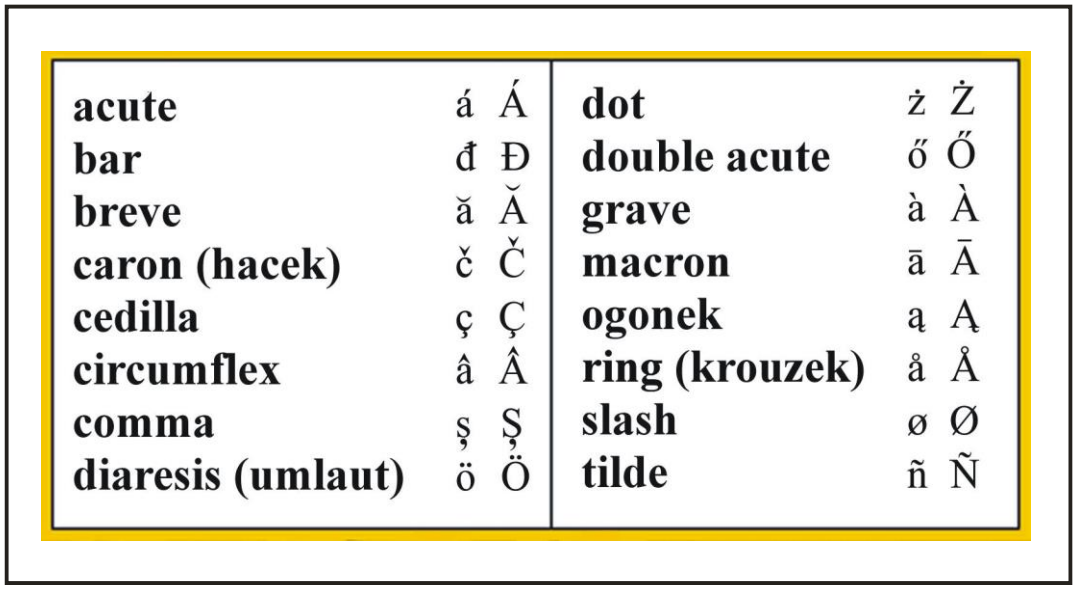
2.16 FontCreator 11.5

FontCreator 11.5 When one creates or opens a font, the FontCreator displays an overview of all available characters. One can simply add missing characters, or select an existing character, and modify its appearance. One can import (scanned) images of self signature or company logo, or make a font from self handwriting. With FontCreator one can also fix character code-points, font names, glyph names, kerning pairs, and at all times, preview of the typefaces can be done before installing. OpenType features are preserved upon opening a font. This professional font editor supports both quadratic- and cubic-based contours, and has several smart features to ensure smooth connections where needed. The validation features help to locate and fix possible outline issues (http://www.high-logic.com/font-editor/fontcreator.html).

2.17 Diacritics

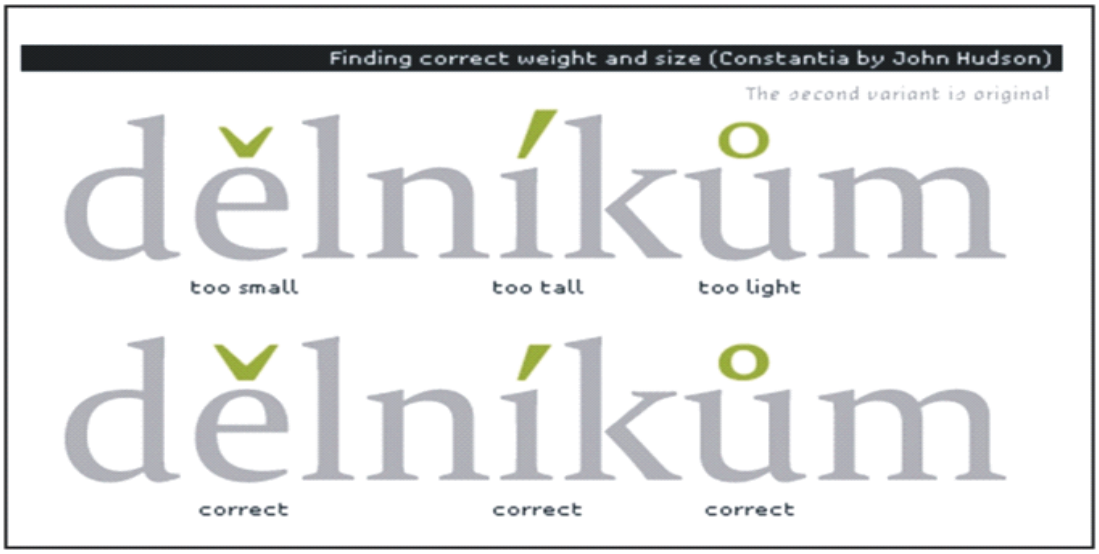
Diacritics are also known as marks. Chris (2009) defined diacritic as a mark added to, or combining with, a letter, often used to change the sound value of the letter to which the mark is added. Some diacritical marks (such as the 'acute' and 'grave') are often called accents. Diacritical marks may appear above or below a letter, within it or between two letters. There have been various issues with encoding non-Western characters since the early days of computers, and people became accustomed to writing emails and other ephemeral electronic communications without accents especially in encoding text elements of graphic design for Yoruba audience. This does not mean that the accents could be omitted in contemporary designs. They are still essential in transmitting meaning precisely, and in aiding readability (David, 2009). Plate 2.11 shows different type of diacritics and their functions.

Plate 2.11: Type of diacritics and their functions



Source: http://www.languagegeek.com

Plate 2.12*:* Weight and size of diacritic



Source: http://www.ilovetypograpy.com

Weight and placement definitely have greater influence on readability than stylistic harmony. Nevertheless, stylistic harmonization should never be underestimated (David, 2009). Plate 2.12 shows- too small; too tall and the correct placement of diacritics

Plate 2.13: Positioning ogonek

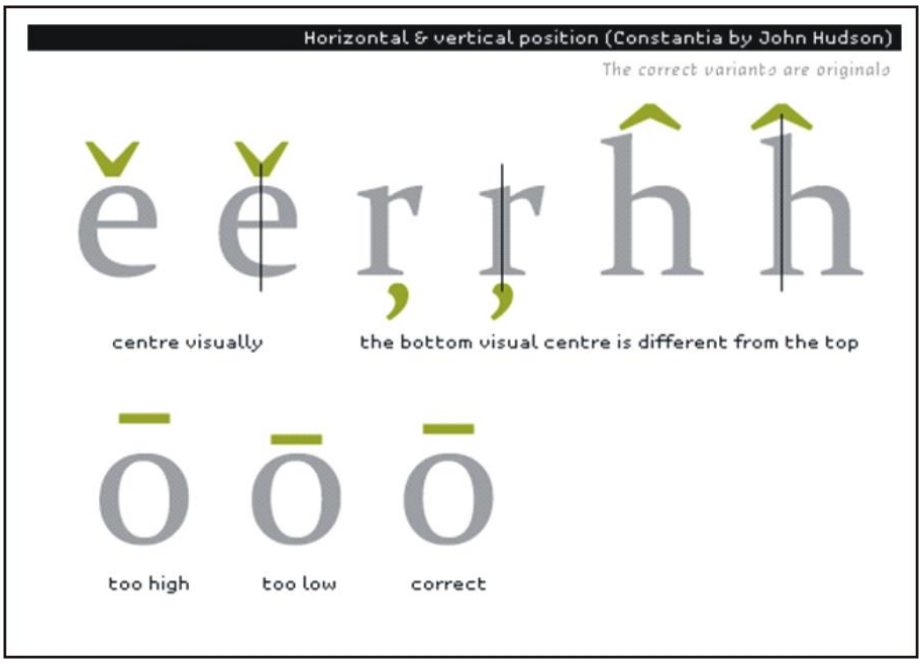


Source: http://www.ilovetypograpy.com

David (2009) explained that position of the accent is crucial in order that the correct accent is attributed to the right letter while reading. Many of the accents are visually centered above or

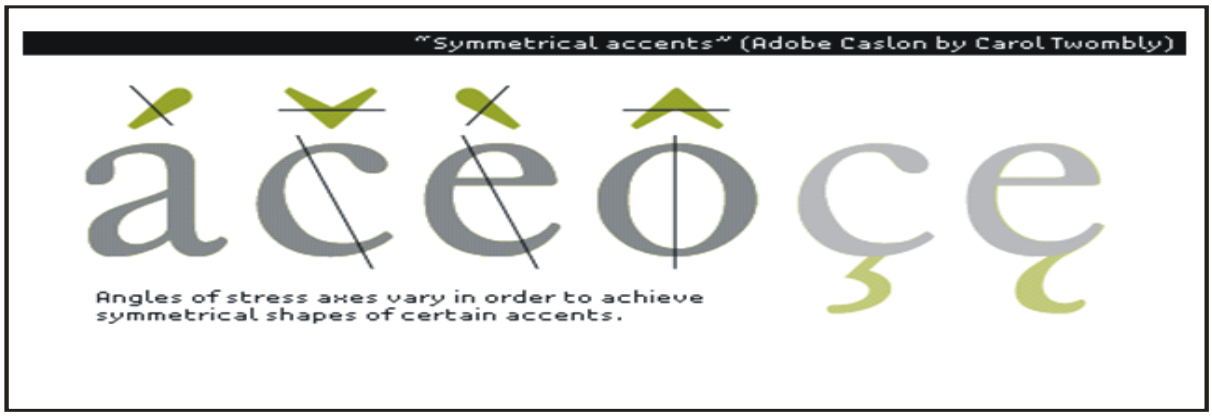
below letters, that however, there are exceptions where the accent needs to be positioned to the right side of the letter (ogonek in letters -a,e,u- for example) in plate 2:13. The author added that the general rule of thumb might be that the accents should not fall off the base letters — neither to the right nor to the left — when centered and neither should they appear to belong to adjacent letters. The knowledge on proper positioning and proximity of the accents is crucial in design and modification of font.

Plate 2.14: Horizontal and vertical position



Source: http://www.ilovetypograpy.com

Plate 2.15: Symmetrical accent



Source: http://www.ilovetypograpy.com

David (2009) advised that in order to achieve better legibility and articulated shapes, designers often use so-called symmetrical accents for their text typefaces; Plate 2:15 and 16 shows achieving a very good compromise between stylistic unity and readability; the stress axis in these accents varies, for the main goal is to produce symmetrical shapes.

David (2009) emphasized that as there is limited space above the capitals, special uppercase accents need to be used; smaller and shallower letters are better complement of the capitals. The author concluded that styling of the accents should not be too similar to each other. Too shallow an acute accent may be mistaken for a macron accent; too rounded a caron mistaken for a breve. For the sake of legibility, the design of diacritics should not stray too far from their standard, accepted forms.

Plate 2.16: Collision and kerning



Source: http://www.ilovetypograpy.com

David, (2009) argued that diacritics should not collide and produce illegible shapes as in plate 2.17 for that reason, careful fitting and kerning is required. No type designer can foresee every possible diacritical combination, so typographers are strongly advised to apply their own judgment and taste. Chris (2009) said a letter modified by a diacritic may be treated either as a new, distinct letter or as a letter–diacritic combination. This varies from language to language, and may vary from case to case within a language. As to this, diacritic are features that can be manipulated as desired when designing font; however, they should be embedded appropriately in accordance to the quality of the letters they accompany.

2.18.0 Font Anatomy

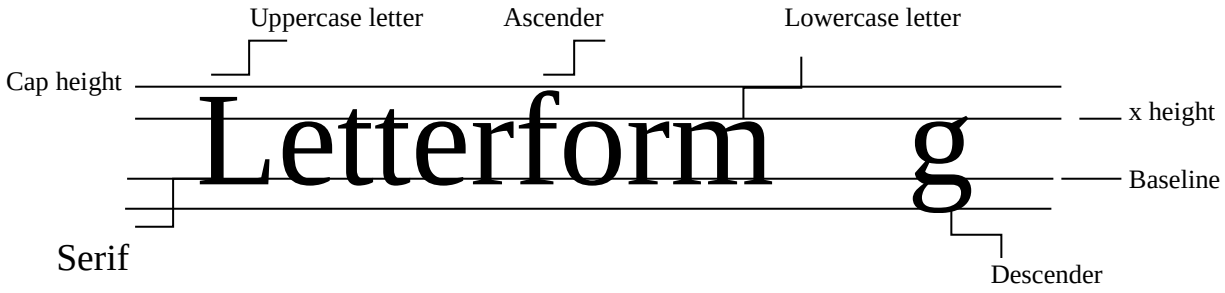
Typeface anatomy is the description of the graphic elements that make up printed letters, like the strokes of a letter are the lines that make it up. Tova 2006 advised that "if you are interested in designing a typographic font styles, you will need to decide what your reasons

are, and what purpose the end-product will serve" the author also suggested that if one is creating typographic font styles, question on the type style and characters to be included in the font and should be asked; Jake (2015) supported that "it is imperative that you understand how typography is structured before you start designing characters. The incipient design phase requires knowledge of terms like baseline and x-height. If you're unfamiliar with these terms please skim"

In planning to design new font styles with reference to the knowledge provided on modification of digitalized font in 2.11, page 56. Jake (2015) highlighted the most important things the type designer or creator needs to have good knowledge on as below

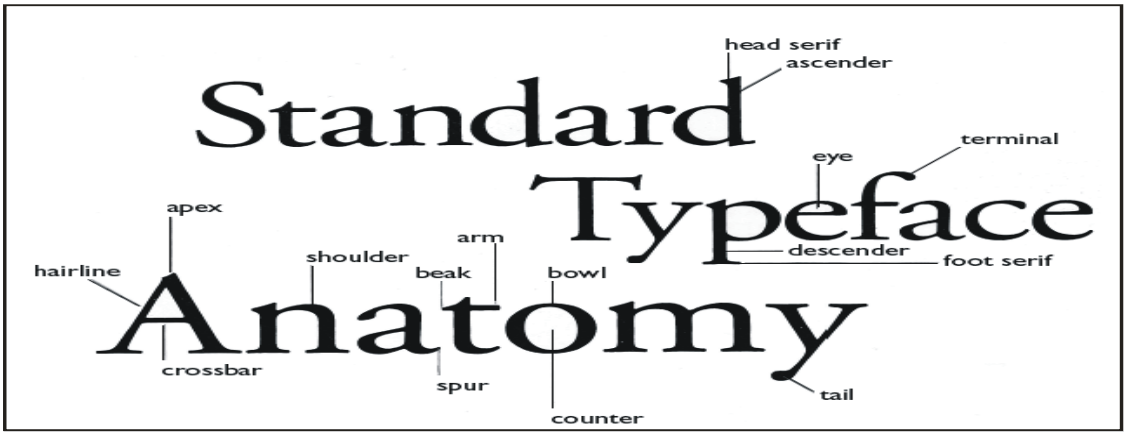
- **Baseline**: Where all the letters sit. Think of this like a shelf where the bottom of each letter should rest.
- **Overhang**: Rounded bottoms of letters like O and B which dip just below the baseline.
- **X-Height**: A line delineating the height of most lowercase letters (notably the letter "x").
- **Cap Height**: A line delineating the height of most capital letters.
- **Ascender Height**: Often resting above the cap height, the ascender height limits the very tip of lowercase letters such as "k".
- **Descender Height**: The length of descending marks from characters like "y" and "q".
- **Overshoot**: Extra the portion typically added to rounded character or serifs that extended above the x-height or below the baseline.
- **Sidebearing:** Extra horizontal portion typically added to the left or right edges of rounded or serifs characters.

Plate 2.17: Anatomy of type



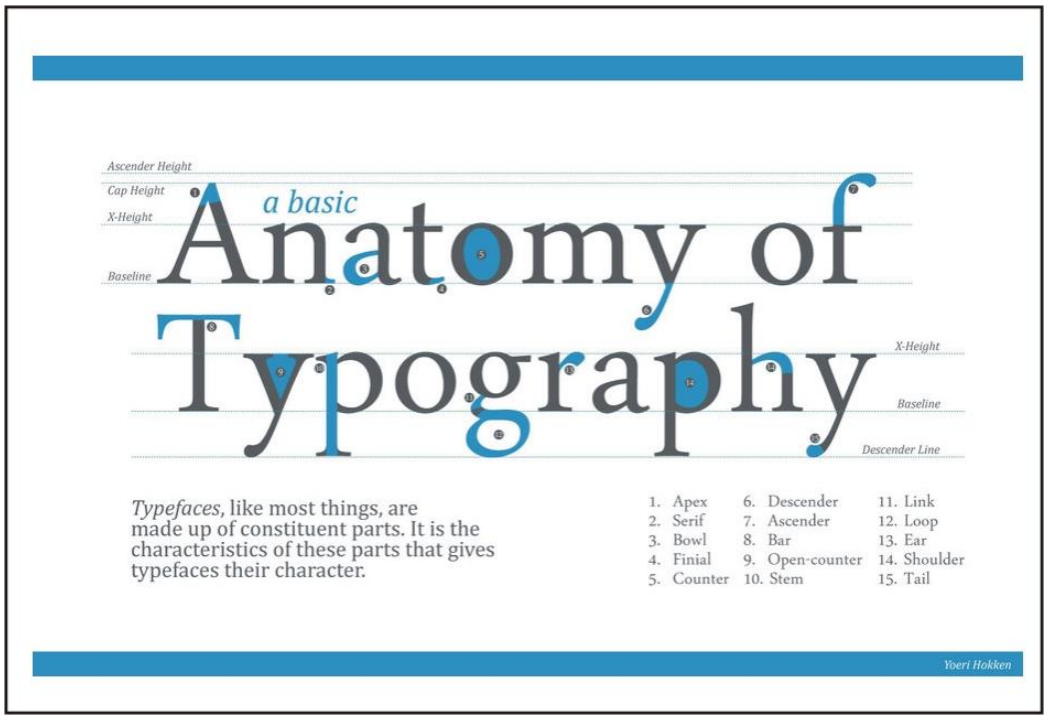
Source: (Puppy, 2006)

Plate 2.18: Anatomy of type



Source: http://www.blogspot.com

Plate 2.20: Anatomy of type



Source: http://www.blogspot.com

Meggs (2007) explained the features of type in plate 2.18, 19 and 20 as that the strokes are the components of a letterform. Strokes may be straight, as in (k l v w x z), or curved, as in (c o s); that if straight, they may be horizontal, vertical, or diagonal; if curved, open or closed. Typographers also speak of an instroke, where one starts writing the letter, as at the top of (a c f), and an outstroke, where the pen leaves off, as at the bottom of (c e j k t y).

The author explained further that typefaces are born from the struggle between rules and results. Squeezing a square about one percent (1%) helps it look more like a square; to appear the same height as a square, a circle must be measurably taller; that the two strokes in an X are not the same thickness, nor are their parallel edges actually parallel; the vertical stems of a lowercase alphabet are thinner than those of its capitals; the ascender on a (d) is not the same length as the descender on (a p), and so on. The author also stated that for the rational mind, type design can be a maddening game of drawing things differently in order to make them appear the same.

Puppy (2006) provided more explanation on plate 2.23 above that a main vertical stroke is called a stem. The letter (m) has three, the left, middle, and right stems. The central stroke of an (s) is called the spine; that when the stroke is part of a lowercase and rises above the height of an (x) (called the x height) is called an ascender. The author explained that letters with ascenders are (b d f h k l); stroke which drops below the baseline is a descender and the letters with descenders are (g j p q y).

Meggs (2007) and Puppy (2006) agreed that an arching stroke is called a shoulder as in the top of an (R) or sometimes just an arch, as in (h n m). A closed curved stroke is called a bowl in (b d o p q) (D O P Q); (B) has two bowls; that a trailing outstroke, as in (j y) J (Q R) is called a tail, the inferior diagonal stroke in K is called leg and a short horizontal stroke, as in the center of (e f) and the middle stroke of (E F), is called a bar. The authors explained further that when the strokes connect as in (A) and (H) or cross strokes as in (t) is also known as crossbar, a longer horizontal stroke at the top or bottom, as in (E T), is called an arm, the bottom of the two-story (g) is called a loop; the very short stroke at the top is called the ear, (i j) each have a dot, jot, or tittle and that angles of strokes are called apices if at the top and vertices if at the bottom. (W) has one apex and two vertices; (v) has one vertex, the font shown in the example is stressed: strokes have varying widths. In this example, the stroke at the top of the (g) is thinner at the top and bottom than on the sides – a vertical stress, the authors concluded.

2.18.1 Terminals

Meggs (2007) explained that the terminals (ends) of instrokes and outstrokes often end in serif or sans-serif, that a seriffed terminal may be described as a wedge, bulbous, teardrop, slab, etcetera, depending on the design of the type. Sorting typefaces can be practical based

on its look. A clue feature is to define the serif style. Some designs also have spurs, which are smaller than serifs and appear on angles rather than at a terminal, as on (e) or (G).

2.18.2 Space

With reference to plate 2.17, 2.18, 2.19 and 2.20, Tova (2006) explained that areas of negative space (white space) formed by straight or curved strokes are called counters, closed counters are found in (a b d e g o p q A B D O P Q R), and open counters in (a c e f h m n r s t u) that the close counter in (e) is also named eye. Angles of white space, as in (w), are corners (w has three corners); the term is not used for angles of strokes. The small corner formed by a serif, whether curved or angular, is called the serif bracket.

2.18.3 Proportions

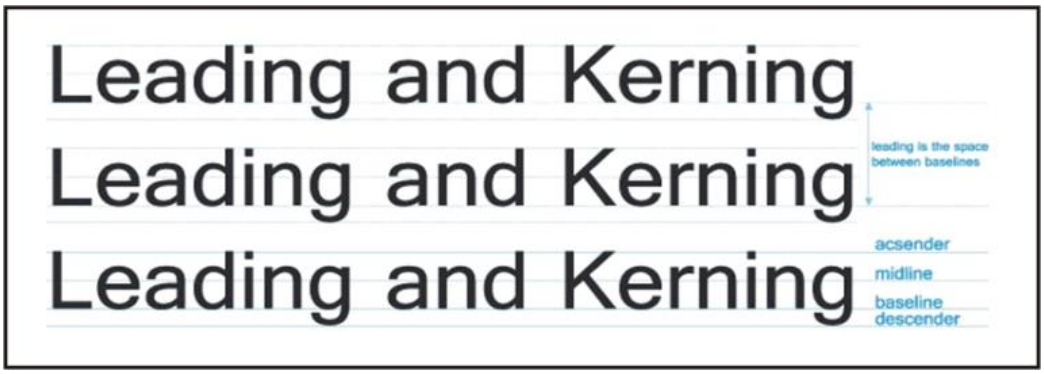
Tova (2006) explained that a subtle change in proportion impacts weight, perception, measure, and legibility of font. The letterform height compared to its stroke width modifies the aspect; this slight change in weight sometimes helps to create emphasis; that the disparity between thick and thin strokes, known as stress, alters optical perception. The author gave an example; the initial san serif typefaces used a constantly thin stroke. The technological advances allow drawing thinner strokes. Condense type occupies less space than expanded type, then the text written on a page can be reduced to half a page that the capline and x-height ratio improve or decrease word legibility.

2.18.4 Kerning and Leading

Kerning and Leading are ways to control the spacing between characters. Giovanni (2011) explained that spatial manipulation in type can be a very important tool; some fonts need to have individual characters adjusted to help create better readability and a more aesthetically pleasing layout. The author further stated that changes to kerning and leading often go

unnoticed, but in most situations, the designer will only want a subtle change that fixes readability, Plate: 2.21 show leading in typography.

Plate 2.21: Anatomy of type Leading and Kerning in typography



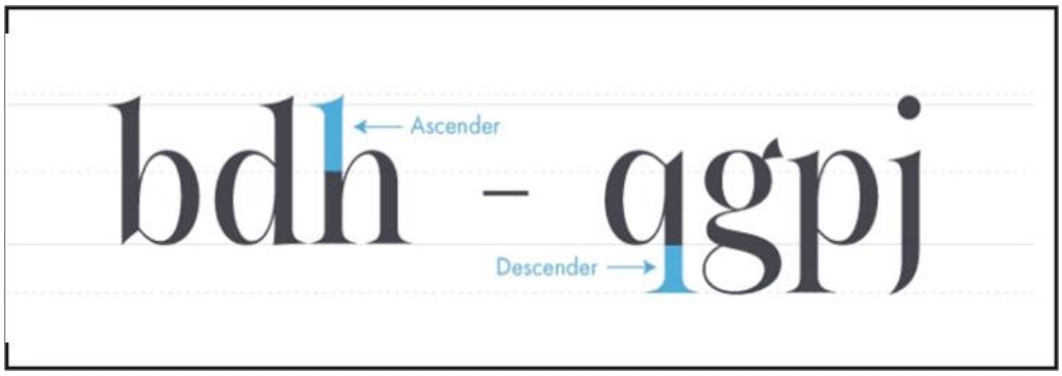
Source: https://mmprint.com

2.18.5 Leading

Leading is the spacing between the baselines of type. The term leading is derived from the practice of placing lead strips between lines type on older hand set printing presses such as a letterpress (Giovanni, 2011). Adjusting the leading is also a very useful way of saving or using space on a page. Leading can also be used to change the aesthetics when dealing with a typographical design.

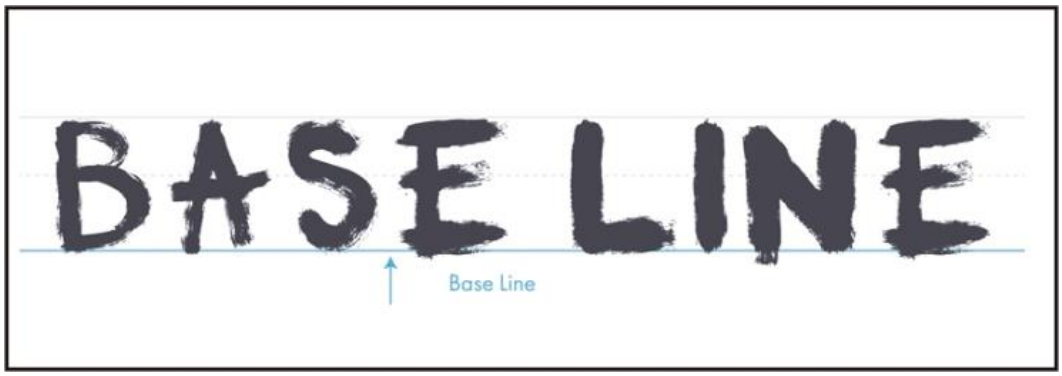
Creative (2016 explained that leading is measured from the baseline of each line of text where the letters “sit.” Descenders, the parts of certain letters that are longer, such as a lowercase g, fall below the baseline. Ascenders are the opposite, letters with taller features, such as the letter “h” need to be considered as well when determining the leading distance as shown in Plate 2.21 and Plate: 2.22

Plate 2.22 Leading in typography



Source: https://creativemarket.com

Plate 2.23Leading in typography



Source: https://creativemarket.com

2.18.6 Kerning

Giovanni (2011) described Kerning as the spacing in between individual characters. Most fonts will have specific default kerning for individual character sets so that the spacing in between the letters in words feels more natural. The plate 2.24 shows letters with and without custom kerning.

Plate 2.24 Letters with and without custom kerning



Source: https://creativemarket.com

Creative (2016) agreed Kerning also adjusts space, but of the distance between two letters. Set too closely together, words are indecipherable; set too far apart, and they're awkward to read. Worse yet, if some letters have wider spacing and others narrower, it can be frustrating for someone to read without fully understanding what's wrong.

One of the most important aspects of successful kerning is to have proportional spacing between each letter, taking into consideration any serifs or stylistic flourishes that may need special attention. Most of the time, it just takes a keen eye, practice and diligence to kern a font to precision (Creative, 2016)

The creation of typographic font style is an important task in advancing effective graphic design communication and its creation must be centered on the fundamental rules and procedures. The above knowledge on font diacritics, creation, modification, anatomy can be used as guides and yardsticks for creation of new font style.

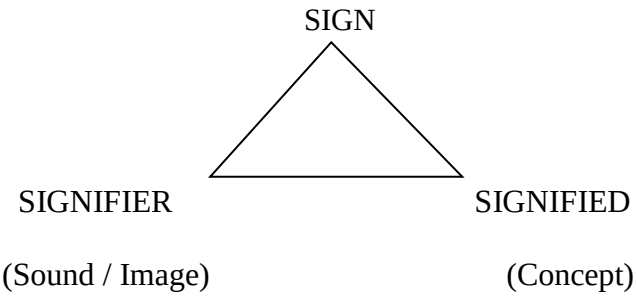
2.19.0 Theoretical Framework

2.19.1 Semiotics

Semiotics, also known as semiology, the science of signs, is concerned with the relationship between "form" and "meaning" as they relate to language. An American philosopher, Charles Sanders Peirce, (1839-1914) and the Swiss linguist, Ferdinand de Saussure (1857-1913) are cited (Redmond, 2008) as justifying their theories of semiotics on the understanding that a "sign" is composed of two parts, the "signifier" and the "signified" The signifier is a "sound" or "image", the aural or written word "tree". Following the same example, the signified is the "concept" or "idea" of tree. Together, the signifier and the signified constitute the sign. The sign is therefore, the whole that results from the association of the signifier with the signified.

A sign or symbol becomes anything that stands for something else-that is, a sign stands for an object or concept. The "stand for" process is the point where meaning is created both through encoding and decoding – the two terms deriving from the term, "code". Messages are made of signs and symbols and are also conveyed via sign and symbols' system, called code. Codes are letters or signals that are used to represent something in a shorter or more convenient form. Figure 2.7 shows Saussure's preferred terminology for the sign.

Figure 2.7: Saussure's preferred terminology for the sign



Source: (Underwood, 2003)

The relationship between the signifier and the signified is referred to as “signification”. The signifier is the term for the sign itself (the image), while the signified referrers to the mental concept (the meaning). Being a linguist, Saussure was mainly interested in the semiology of language and the way image signs (words) related to other signs (words) rather than to an object. To him the signified (concept or meaning) would be common to members who share the same language. He debuts any connection between the signifier of the signified where signs are arbitrarily applied. Consequently, it should follow that, a clear and logical relation must exist between the signifier and the signified in order for meaning to be deciphered from a sign.

Signs and symbols are important element of graphic design; therefore, signs and symbols of the Yoruba ethnic group should be used as typographic font style in encoding text messages of its graphic design for effective communication.

A major concern of this study is the creation of signs and symbols - that is, Yoruba typographic font styles for signification in graphic design for Yoruba audience; therefore, it is imperative to anchor the creation the product on relevant concept of product development.

2.20.0 Conceptual Framework

Myriads of conceptual models on product development have been objectively designed in order to facilitate a smooth process, some of which are relevant sources of reference for the design and development of the Yoruba alphabet into typographic font styles. TRIZ model of New Product Development is appropriate for this study, because its components identified important stages and steps to follow if a new product is to be introduced. Robert (2016) advised that in the process where the new product is exceptionally innovative and mandates solving very challenging inventive problems such as the creation of indigenous typographic font style for encoding text elements, issues towards solving problem specific to a target

audience; to improve the innovation process and ultimately achieve better results, TRIZ model theory may be introduced.

2.20.1 TRIZ Models of Product Development

According to Katie (2016), TRIZ is a (Russian) acronym for the "Theory of Inventive Problem Solving", which was developed by G.S. Altshuller (1946-1985) in the former U.S.S.R.; that "TRIZ is a problem solving method based on logic and data, not intuition, which accelerates the project team's ability to solve these problems creatively; TRIZ also provides repeatability, predictability, and reliability due to its structure and algorithmic approach." He further explained that as opposed to psychologically-based common creativity tools, TRIZ is an international science of creativity that relies on the study of the patterns of problems and solutions, not on the spontaneous and intuitive creativity of individuals or groups. The author also affirmed that TRIZ solves all kinds of problem not just those involving patentable entities, that more than three million patents have been analyzed to discover the patterns that predict breakthrough solutions to problems.

Katie (2016) explained that TRIZ research first began with the idea that there are universal principles of creativity that form the basis for technology-advancing creative innovations. The author added that the TRIZ researchers hypothesized that if these universal principles of creativity could somehow be objectively identified and codified, then they could be made teachable to people and make the innovation process more predictable. The author added that the short version of this is:

> *Somebody someplace has already solved this problem (or one very similar to it.)*
> *Creativity is now finding that solution and adapting it to this particular problem.*

2.20.2 The Benefit of TRIZ

The benefit of TRIZ is, understanding that contradictions can be methodically solved with application of innovative solutions. Three fundamental principles of TRIZ conceived as follows:

1. The ideal design is goal.

2. Contradictions help to solve the problems.

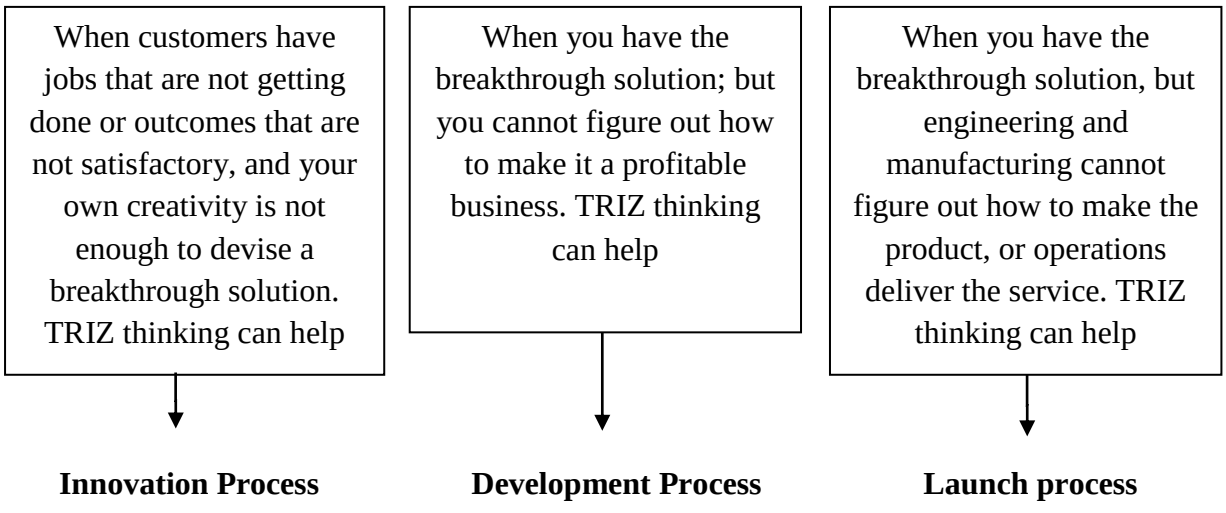
3. Innovation process can be configured as systematic.

The main goal of TRIZ method is to find the ideal solution or perfection (Katie, 2016)

2.20.3 When to Use TRIZ

Ellen, (2016) provided an easily-digestible answer to the question through the graphics; shown in figure 2.8. The development of the Yoruba alphabet into typographic font styles premised on the Ellen, (2016)'s graphics on "TRIZ" Models of Product Development:

Figure 2.8: Ellen, (2016)'s Graphics on "TRIZ" models of product development



Source: (Katie, 2016) http://www.innovationcoach.com

The information provided in the “TRIZ” Models of Product Development provide guides for the researcher on the production stages of the product to be developed as earlier discussed in 2.11.6.0, 2.11.6.1 and 2.11.6.2 in page 49-52..

2.21 Summary of the Review

This chapter has discussed the historical evolution of alphabet to the emergence of Yoruba alphabet, the history of typography and the fundamental principles of typographic usage in graphic design. The chapter also documented issues on software, its developments usages, and theories of communication, and communication in indigenous languages; conceptual models of product development as it relates to conceptions of idea, development and testing the developed product; designing and modification of types with reference to placement of diacritics. Most of the literature reviewed in this chapter focused on typography, creation and its effective usage in encoding text elements of graphic designs. This study ultimately focused specifically on development of the Yoruba alphabet as a typographic font style for application on computer graphic design for Yoruba audience.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This Chapter discussed the research methodology adopted. It was discussed under the following sub-headings:

3.1. Research Method Adopted

3.3 Population of the Study

3.3 Sample Size and Sampling Technique

3.4 Instrument for Data Collection

3.5 Validity and Reliability of Instrument

3.6 Research Procedures

3.7 Procedure for Data Collection

3.8 Procedure for Data Analysis

3.1 Research Method Employed

The study employed two research designs; survey and experimental methods, focusing on product development. It aimed at introducing new font extension on orthographic Yoruba alphabet font styles. Muaz (2013) referred to product development type of research as a complete process of bringing a new product to market. The research was also a survey type, because, it studied typographic usage in Yoruba movie posters, and conducted a statistical analysis to form opinion about the research topic.

The study was experimental, because it required the test and trials in order to produce acceptable and applicable orthographic Yoruba alphabetic font styles in accordance with fundamental principles of typography. In the course of the experimentation, the researcher

embarked on practical studio work, using graphic design hardware materials, drawing tools, and graphic design software such as CorelDraw and Font Editor and font creator to create Yoruba alphabetic font style.

3.2 Population of the Study

This affirmed Kolo (2003) finding that the issue of population in research goes beyond people. It can also refer to a well defined set of events, materials and observations. Selection of the population sample was done by purposive sampling method. This type of sampling ensures that only those elements that are relevant to the research were included.

The population of this study consisted of 62 Yoruba movie posters, according to the (Field observation, 2016). On the part of designers of Yoruba movie posters, 28 designers constituted the population as obtained from the (Office of the Chairman Lagos State Printers Association, Mushin, 2016). On the part of the producers of Yoruba movies, 34 producers constituted the population as obtained from the (Office of the Director, Lagos State Council for Arts and Culture, Ikeja, 2016).

3.3 Sample Size and Sampling Technique

The researcher used the entire members of the population of this study. This is called census population. The entire members of the population were used as the sample because the population was small and also to avoid under coverage of the population (Stat, 2016). Bernard (2012) opined that if the population of the study in research is less than two hundred (200), the entire members of that population can be used.

However, due to heterogeneity of the Yoruba dialect areas, the researcher collected data from a town in the three major Yoruba dialect areas identified as the chief host of the population of the study such as Lagos in northwest Yoruba (NWY). Lagos was the hub of Yoruba movie poster production; the designers of Yoruba movie posters were contacted in their offices and

the Yoruba movie producers were contacted in the Lagos State Council for Arts and Culture (LSCAC), Ikeja-Lagos.

3.4 Instrument for Data Collection

Structured questionnaire was to obtain respondents' opinions about the research topic and to gather a broad range of opinion on the research problems under examination. The use of questionnaire, according to Mbali (2001), apart from keeping the respondents mind facilitating on the subject as well as the process of tabulation, analysis and scientific generalization, questionnaire provides the easiest known way of assembling mass information.

Questionnaire makes it possible to measure what a person likes or dislikes; what a person thinks or what a person knows; information obtained could be transformed into qualitative data by the use of attitude scaling or rating scaling techniques (Mbali, 2001). Questionnaire technique was used and the Likert scaling for data gathering was employed.

The Likert techniques assigned a five scale value to each item on the structured Producers and Designers' Questionnaire to indicate respondents' judgment for the value of each item as follows:

SA: Strongly Agree (Score- Five), A: Agree (Score- Four), D: Disagree (Score- Three) SD: Strongly Disagree (Score- Two), U: Undecided (Score- One).

For the statement opposing this point of view, the items are scored in opposite order. In this study, a closed-ended type, with five point scale questionnaire to source information as attached in the appendix was used. The response obtained after the test of both the old and new Yoruba movie posters were assigned numerical values, and by summing up individuals' response to all the statements, a total score helped to determine the respondents' view on the

variable being measured. This was done by stating clearly strongly agree, agree; undecided and strongly disagree and disagree.

3.4.1 Producers' questionnaire

The producers' questionnaire is divided into two parts titled "Producers' Questionnaire on Old Yoruba Movie Posters" and "Producers' Questionnaire on New Yoruba Movie Posters". The Producers' Questionnaire on Old Yoruba Movie Posters addressed research question 1 and 3 with close-ended statements (in items 1-6) in each, with section A and B. The "A" dealt with the personal data of the respondent such as sex, age group; while "B" sourced required information on the current trend of typographic usage in Yoruba movie posters with reference to letters of orthographic Yoruba alphabet and also sought the role of the customized typographic font styles used in encoding captions of Yoruba movie posters in terms of language interpretation in relation to literal meaning of orthographic Yoruba language as attached in the appendix.

The producers' questionnaire on new Yoruba movie posters addressed research question 5 with close-ended statements (in items 1-11), with section A and B. The section "A" also dealt with the personal data of the respondent such as sex, age group; and "B" sourced required information on behavioral manifestation on the efficacy (success) of the newly created orthographic Yoruba typographic font style in terms of readability in literal Yoruba language and on the appropriate ways of writing the caption of the poster sample in orthographic Yoruba language as attached in the appendix

3.4.2 Designers' questionnaire

The designers' questionnaire is titled "Designers' Questionnaire on Old Yoruba Movie Posters". It addressed research question two (2) with close-ended statements (in items 1-9) with section "A" as in the producers' questionnaire. The section "B" sourced information on

the type of application's (graphic design software) fonts used in encoding captions of Yoruba movie posters with the view to ascertaining its effectiveness in usage as attached in the appendix. The research question four (4) was responded to by the researcher as it dealt with the guiding procedures adopted in developing the Yoruba alphabet as a typographic font style extension for application on computer graphic design for Yoruba audience with reference to pertinent literature on font creation and modification.

3.5 Validity and Reliability of Instrument

To ascertain the validity of the instrument used, content validity was done by checking the structured questionnaire items in tandem with the objectives of the study, research questions and the formulated hypothesis. This was in order to determine the extent to which the instrument relates to the stated objectives and ensure that the instruments convey the same meaning to all respondents and measures accurately what it intends to measure.

3.5.1 Usability of instrument

The inter-rate score was used to test the reliability coefficient of the instrument. Five Likert-type scale (1-5) was used for scores of responses and measurement parameters for the test.

Very appropriate -5

Appropriate -4

Fairly appropriate -3

Slightly appropriate -2

Not appropriate -1

S/N	Statement	1	2	3	4	5
1	Appropriate design pattern of the research questions					
2	Relevance of questions with the research topic					
3	Relevance of questions with the objectives of the study					
4	Relevance of questions in relation to the research questions					
5	Appropriate use of grammar in structuring wordings of the research questions					
6	Scores of the responses in to the questions					
7	Coverage of the questions in regards to the objectives of the study					

Based on the inter-rate score; the structured questionnaire and a sample of collected Yoruba movie poster were submitted to graphic design experts to score and make constructive input to the research instrument. Pilot test was conducted to test the reliability of the instrument.

3.5.2 Pilot test of the instrument

In order to get reliable data for the research, pilot test of the instrument was conducted at Lagos State Council for Arts and Culture (LSCAC), Ikeja and Graphic Design Shops in Mushin. Ten copies of the instrument were used during pilot testing for determining the reliability of the instrument. The selection was based on the submission of Umar (2013) who agreed that in conducting a study with large population, the researcher can use a few number of the population for the pilot study.

To determine the reliability of the instrument, Guttman Split-half reliability using Alpha Cronbach reliability coefficient was used to compute the reliability of the instrument. The

results of the analyses were 0.87 and 0.85 for producers and designers respectively. Sekaran, (2016) asserted that in Cronbach's Alpha reliability analysis, the closer the Cronbach's Alpha to 1.0, the higher the internal consistency of reliability. Hence, the instrument was reliable for data collection. The summary of the results was as presented in the table below.

Table 1 Reliability Coefficient for Producers and Designers from the Questionnaire. Source: Pilot Study 2016

Category	Cronbach's Alpha Obtained	Cronbach's Alpha Based on Standardized items	**N**	Mean	Remark
Producers	0.87	0.962	10	28.8000	Reliable
Designers	0.85	0.932	10	29.0000	Reliable

3.5.3 Result of pilot test of research instrument

The researcher's initial pilot test procedure was to arrange for two separate meetings at a venue on two different occasions; for the two sets or groups of respondents which was the Yoruba movie producers and the graphic designers respectively; display the selected ten (10) posters and serve the respondents the questionnaires forms for their responses.

The system could have caused the individual respondent to respond to the ten (10) different posters at one meeting because the questionnaire was structured to appraise ten (10) different posters titled "A"- "J", but it was found difficult to assemble each group of respondents at once and in one place. Some respondents were not interested; some said the researcher should not waste their time. The above narrated experience made the researcher to restructure the questionnaire in a format where by each respondent had access to a poster and a copy of structured questionnaire form for appraisal at their convenient time. The graphic design terminologies like *typography, font style and font software* that were found ambiguous to the producers were written as *alphabet, letters and computer* respectively. The researcher

observed that some questionnaire items meant for the graphic designers found in the Yoruba movie producers questionnaire were restructured appropriately.

3.5.4 Pilot study procedure

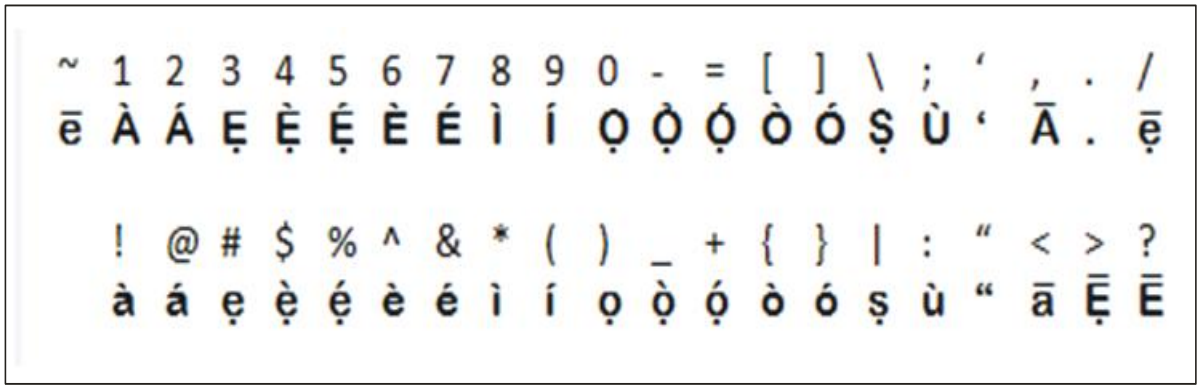
In order to get reliable data for the research, pilot study was conducted at Yoruba movie sellers' centres, and public places like hotels, churches, mosques, etcetera within Lagos metropolis, where the researcher collected and took photographs of some most recent Yoruba movie posters. The researcher was able to collect one hundred and two (102) pieces of Yoruba movie posters that gave typography prominence; in quest of appropriate information on designing Yoruba movie posters. The researcher then, looked out for professional graphic designers in Mushin where he met the Chairman of the Lagos State Printers Association (LSPA). In another effort to locate the prospective producers that could address the research questions, the researcher visited Lagos State Council for Arts and Culture (LSCAC), Ikeja, and held discussion with the director who was also a Yoruba language lecturer, movie director and producer by name, Gbenga Omo Iroye.

During the pilot study, a series of visitation and telephone conversations were made between the researcher and the computer software engineer on efforts made by different people who have interest in the creation of Yoruba alphabet font style, the desire and intention of the researcher to develop the Yoruba alphabet into digital typographic font style and the time frame for the production. The researcher also requested for a demo on how some designed vowels' letters presented to the software engineer could be incorporated onto the standard keyboard and be installed on CorelDraw suite. After agreeing on the cost of production, the computer software engineer was able to produce a demo that was subjected to criticism and modification by the researcher.

3.5.5 Result of pilot study on the Yoruba alphabetic font style

The demo that was produced on the vowels of Yoruba alphabet was named “AKOWE” which means “The Writer” It was successfully installed on graphic design software, Corel draw; when it was tested, it functioned by disabling functions of some keys on the standard key board; for example, vowel “Ọ́” can be written by pressing Key “=”; and “*Ò*” can be written by pressing key “]”. Other functioning keys on the standard board were also disabled to allow lowercase of the vowel of Yoruba alphabet to function, as shown in plate 3.1

Plate 3.1: Demo produced on Yoruba Typographic font style



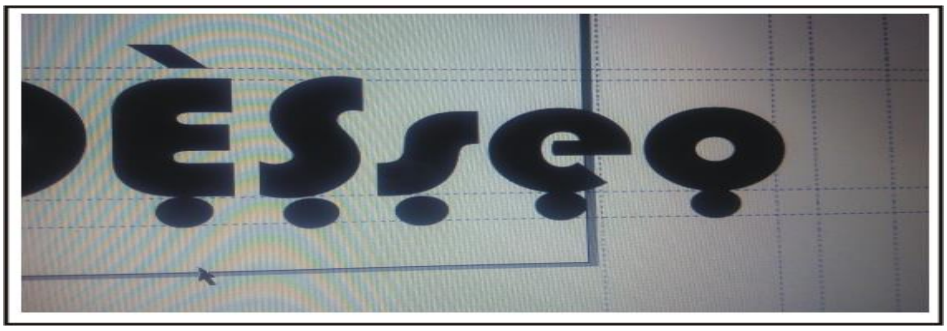
Source: Pilot study, 2016

In the demo, if using the font “AKOWE”, the graphic designer will not be able to write number and make use of some symbol signs like (%), (#), (&), etcetera, except the graphic designer toggles between the “Mother” font and the “AKOWE” font.

The researcher noticed that the attention of the software engineer who produced the Demo was just to produce the symbol without emphasis on legible shapes; fittings and kerning of the elements involve in the typographic font style productions. This was noticed in the Demo and the sample produced on Yoruba font style as shown in plate 3.1., 3.2 and 3.3. The plate 3.1 is the Demo, 3.2 is the test-run of the sample and the 3.3 shows the observed inappropriate placement and proximity of the diacritics in relation to the typographic font

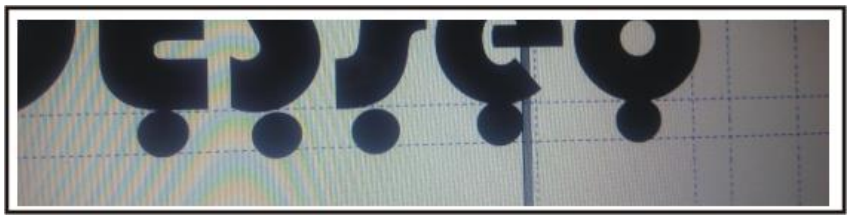
style produced. Plate 3.3 shows that the diacritic under letter **"~" "x"** and **"c"** touches the letters, while the diacritic under letter **V" "v"** touches not the letters they accompany.

Plate: 3.2. Inappropriate placement and proximity of the diacritics in relation to the typographic font style produced



Source: Pilot study, 2016

Plate: 3.3. Inappropriate placement and proximity of the diacritics in relation to the typographic font style produced



Source: Pilot study, 2016

Having noticed inconsistency in the placement and proximity of the diacritics in relation to the typographic font style produced, the researcher then intimated the software engineer that the appropriate appearance of the letter could only be created by the researcher and requested the researcher to be trained on the programming of the created typographic font style. The software engineer stated categorically "I cannot train you! Must you come and stay in the studio with me?"

The researcher's efforts to pacify the software engineer to understand how the (QWERTY) standard keyboard could be re-programmed proved abortive. The researcher consulted

colleagues in the field of graphic design, but no one had sufficient and required knowledge on how the created typographic font style can be programmed into (QWERTY) standard keyboard.

The researcher consulted a series of pertinent literature and got to understand the existence of some FontCreator software, such as font creator 10.0, FontCreator 8.0, FontEditor 11.5, Fontographer 5.2, FontCreator 6.5 and FontEditor 3.2. The researcher purchased the relevant FontCreator software, which is (FontCreator 10.0) online and began to learn its usage through the instructional manual. The researcher severally contacted the authority of the purchased Font Creator for effective coaching through “Skipes” and “Youtube”

The researcher referenced and modified the Demo’s format in the production of the main typographic font style extension and also ensured that the number and other important sign keys functioned in the main typographic font style extension that was created.

3.6 Research Procedures

The researcher adopted two part research procedures which were studio and fieldwork as described below:

3.6.1 Studio work

The studio work consisted of four procedures to practicalize the objectives of the study.

3.6.2 First procedure

3.6.2.1 Description of the letters of Yoruba alphabet

The first procedure dealt with the study of the general characteristics of letters of orthographic Yoruba alphabet, the vowels and the diacritics as suggested in the “TRIZ” Models of Product Development and Understanding Typography Structure, (Ellen, 2016 and Jake, 2015).

The letters of Nigeria Yoruba Alphabet were 25 and in both upper and lower case as shown in the Figure 3.1 and 3.2.

Figure 3.1 Upper case of the Nigeria Yoruba alphabet

A B D E Ẹ F G GB H I J K L

M N O Ọ P R S Ṣ T U W Y

Source: Simon (2013) http://www.omniglot.com

All the letters were adopted from Latin alphabetic symbols with exception of the Latin alphabetic symbols like: **C**, **Q**, **V**, and **X**; each of the Yoruba alphabetic symbols represented a letter, except the eighth letter which combined two symbols to make the letters "**GB**". The fifth, seventeenth and twenty-first in the arrangement of letter of Yoruba alphabet are characterized by a diacritic sign underneath as presented in Figure 3.1, these features are also found in the lower case of the Yoruba alphabet as in shown in Figure 3.2

Figure 3.2: Lower case of the Nigeria Yoruba alphabet

a b d e ẹ f g gb h i j k l

m n o ọ p r s ṣ t u w y

Source: Simon (2013) http://www.omniglot.com

The list of vowels used in Nigeria Yoruba Alphabet was also identified and studied as "**A**" "**E**" "**Ẹ**" "**I**" "**O**" "**Ọ**" "**U**". The letters of the vowels of the Yoruba alphabet have diacritic above them as shown in Figure 3.3 and 3.4. The diacritics embedded on each vowel

was identified and studied as an acute accent (◌́) for the high tone, a grave accent (◌̀) for the low tone, and an optional macron (◌̄) for the middle tone as illustrated in Figure 3.3 and Figure 3.4

Plate 3.3: Upper case of the Vowels of Nigeria Yoruba alphabet

Á À Ā É È Ē Ẹ́ / Ẹ́ Ẹ̀ / Ẹ̀ Ẹ̄ Ẹ̄ Í Ì
Ī Ó Ò Ō Ọ́/ Ọ́ Ọ̀ / Ọ̀ Ọ̄ / Ọ̄ Ú Ù Ū

Source: Simon (2013) http://www.omniglot.com

Figure 3.4: Lower case of the Vowels of Nigeria Yoruba alphabet

á é è ē ẹ́ / ẹ́ ẹ̀ / ẹ̀ ẹ̄ / ẹ̄ í ì Ī ó ò
ọ́ / ọ́ ọ̀ / ọ̀ ọ̄ / ọ̄ ú ù ū

Source: Simon (2013) http://www.omniglot.com

The study on letters of Yoruba alphabet enabled the researcher to carry out experimental drawings and designs incorporating them as text elements on how typographic font styles could be created from the letters of orthographic Yoruba alphabet. Jake (2015) advised that it is important to understand how typography is structured before one start designing characters.

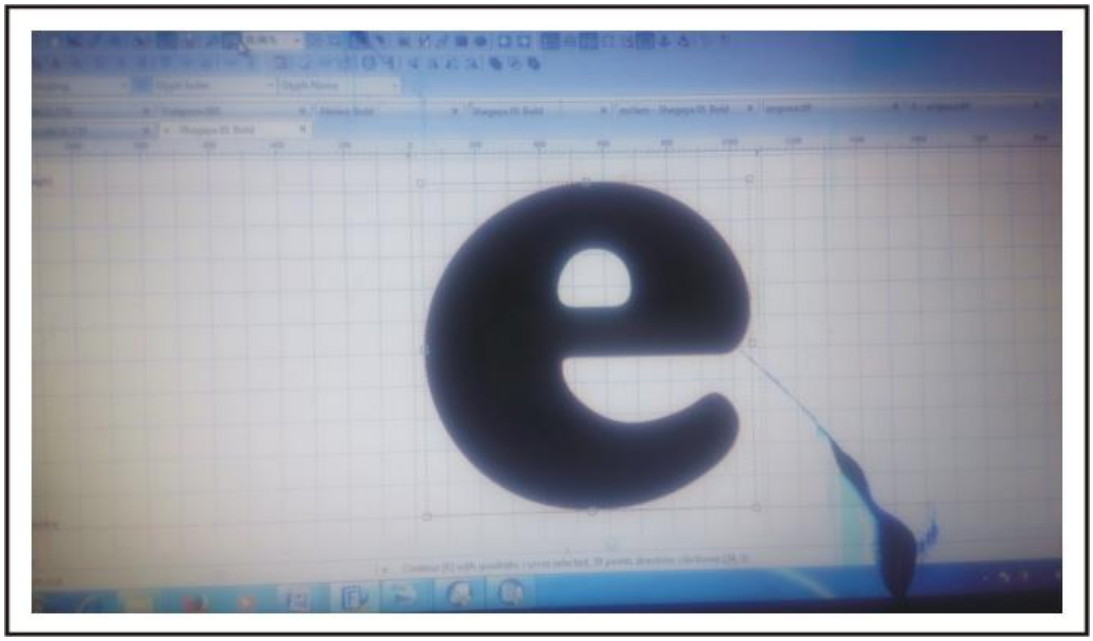
3.6.2.2 The procedures for the creation of letters of the Yoruba alphabet into typographic font styles

In the creation of the Yoruba alphabetic font styles, the researcher used the principle of font creation, modification, terms that identify typographic form and anatomy of types (Tova 2006). It required less of paper and pencil work, since the designs and modifications was done on the existing digital fonts. The researcher selected existing font styles and the symbols to be used for the diacritics. In order to make the selected font style to be true to the original design of the selected fonts and symbols, a clean printed sample of the selected fonts and the

symbols to work from was produced. The larger the printed copy samples, the better the image of the selected fonts.

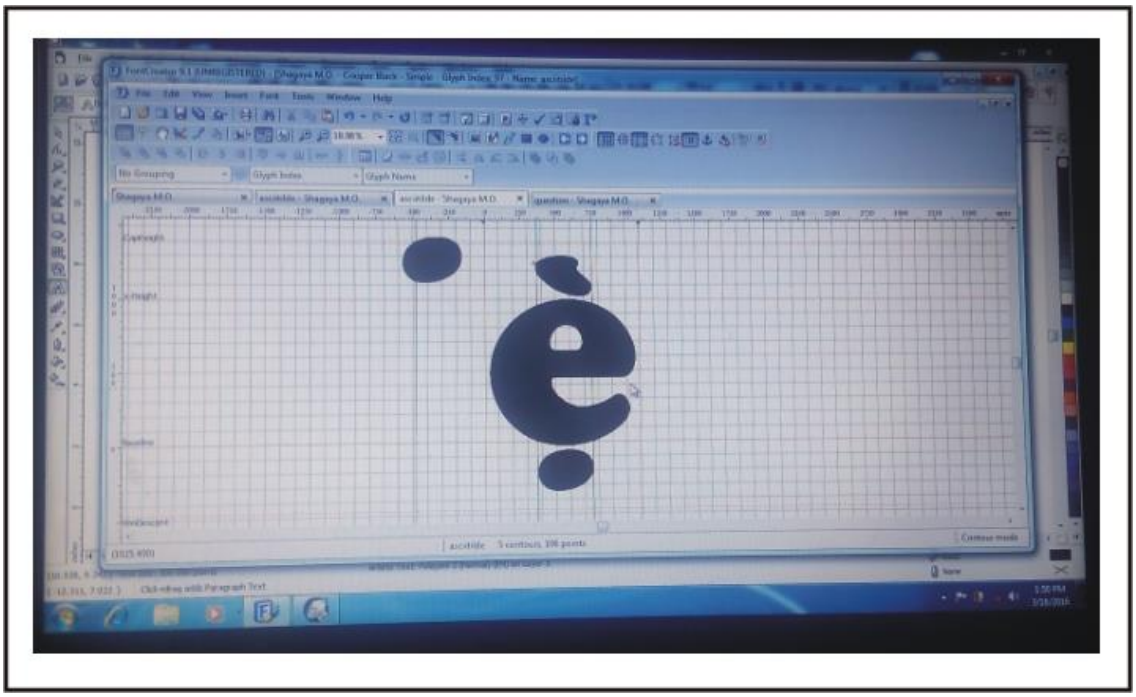
In order to capture as much detail as possible, the samples were scanned at a high resolution of 300 dots per inch (DPI) into font creation software. After scanning, the glyphs were traced and the templates were eliminated to perfect the glyphs by the use of font creation software's features (autotrace) as shown in plate 3.2 and began the work of placement, sizing and resizing of diacritics on the selected glyph as shown in plate 3.3.

Plate 3.2: The scanned and traced small letter "e"



Source: Studio work, 2017

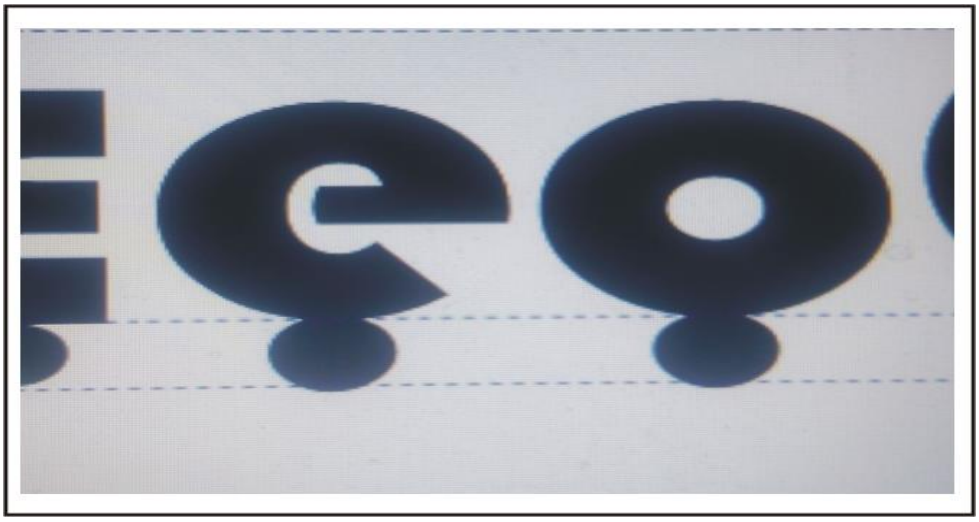
Plate 3.3: Sizing and resizing of diacritics in small letter “e”



Source: Studio work, 2017

The researcher reproduced the revival of the fonts and created modifications work by consistently maintaining the positioning, inclinations, alignments and proximities of the identified diacritic on the appropriate letters of the vowels in relation to the letters of the consonants and in accordance to the guiding typographic principles of organizing, planning, emphasis, simplicity, clarity, legibility and readability (Berry, 2008; Chris, 2009; David, 2009; Tova, 2006) as shown in plate 3.4 and 3.5

Plate 3.4: Planning of spacing and leading in relation to the diacritics



Source: Studio work, 2017

Plate 3.5: Planning of spacing and leading in relation to the diacritics

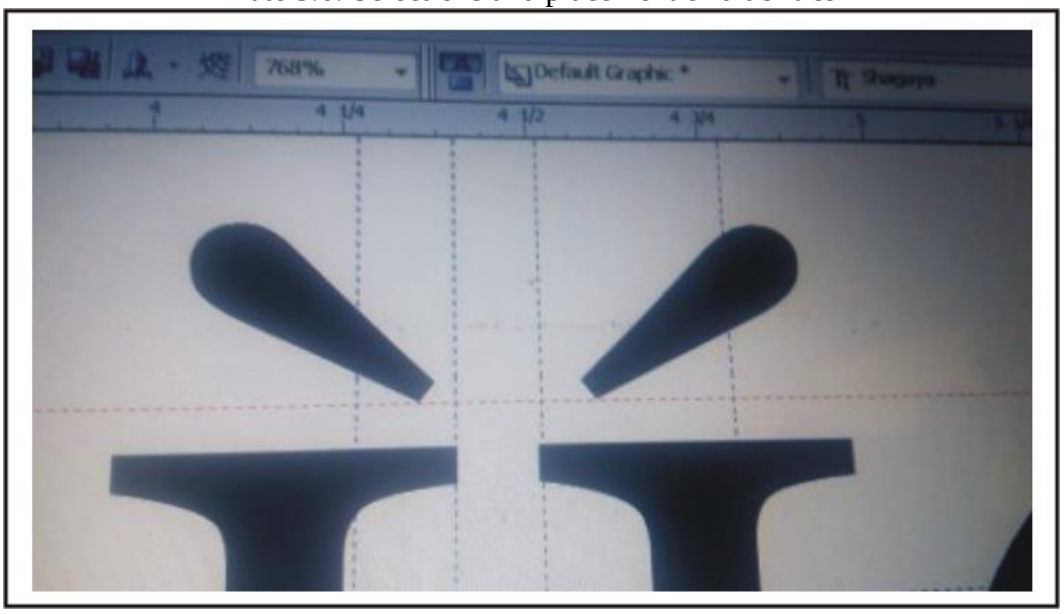


Source: Studio work, 2017

The layouts of the selected glyphs were planned in accordance with different tones of diacritic. In order to enhance harmony for effective legibility and readability, the researcher made sure that the selected glyph and diacritics were from the selected font's family as shown in plate 3.6 and 3.7. Chris (2009) advised that accents/diacritics should form a

harmonious whole with the letter-shapes they accompany, as they are intended to make consistent word-shapes to communicate meaning and/or word sound.

Plate 3.6: Selections and placement of diacritics



Source: Studio work, 2017

Plate 3.7: Placements of diacritics of the same font family

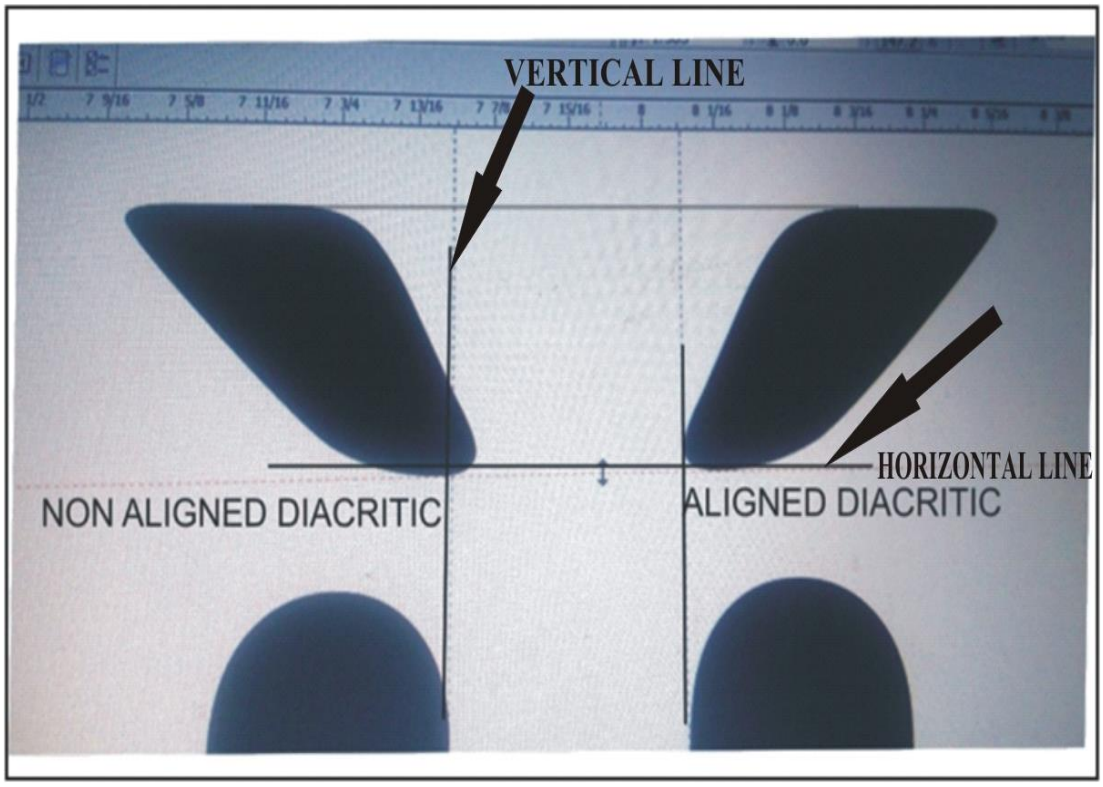


Source: Studio work, 2017

The diacritic representing macron ascent was not embedded as it was categorized optional and not often used in Yoruba literature (Odutola 2013). Tova (2006) advised that if the typeface designer of the original font is known, credit should be given.

Plate 3.8 shows the process of applying diacritics on the Yoruba glyph "{". The glyph aligned to the left indicates that the diacritic exceeded the front of the vertical bar and it also exceeded under the horizontal bar, this indicates that the applied diacritic is not aligned. The glyph aligned to the right indicates that the placed diacritic did not exceed the front of the vertical bar and it did not fall under the horizontal bar, this shows that the applied diacritic is aligned. David (2009) advised that diacritics should not collide and produce illegible shapes.

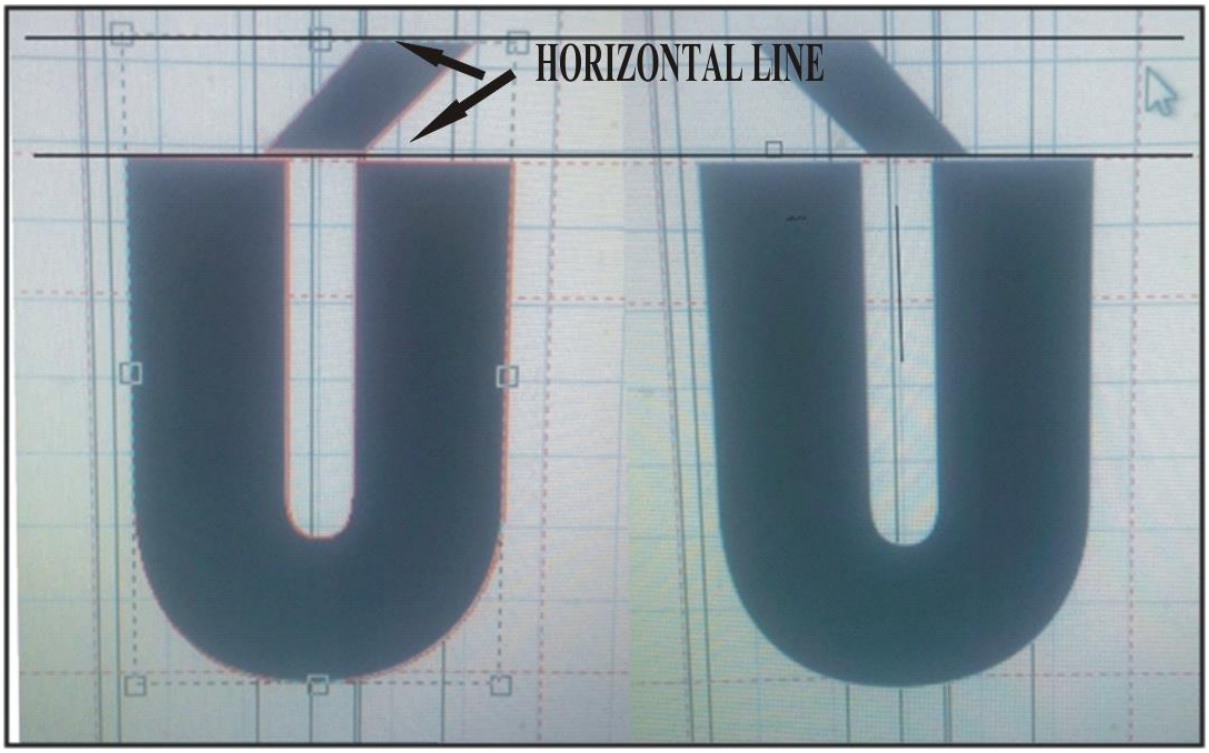
Plate 3.8: The process of applying diacritics on Yoruba glyphs



Source: Studio work, 2017

Plate 3.9 shows the application of diacritics on Yoruba glyphs ">" where the diacritics were perfectly positioned on the glyphs and in between the horizontal bars. None of the diacritics exceeded the horizontal bar.

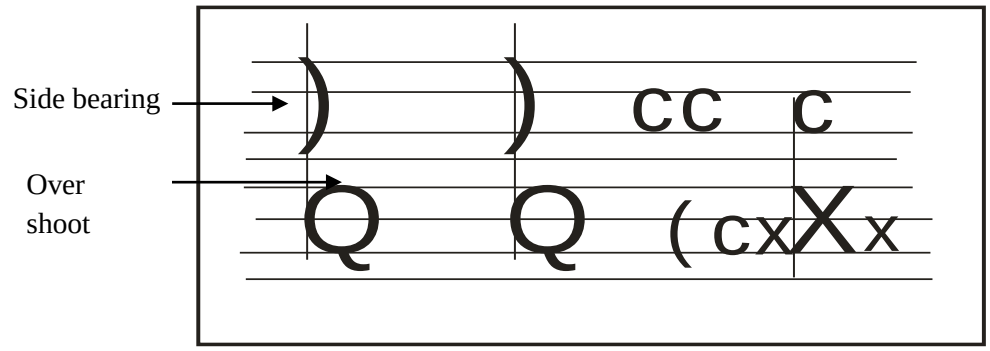
Plate 3.9: The application of diacritics on letter “&”



Source: Studio work, 2017

The researcher organized the selected font components like side bearing and overshoot to be in conformity with spaces between each letter as to avoid one letter touching another. The Figure 3.5 shows detail of side bearing in some selected letters.

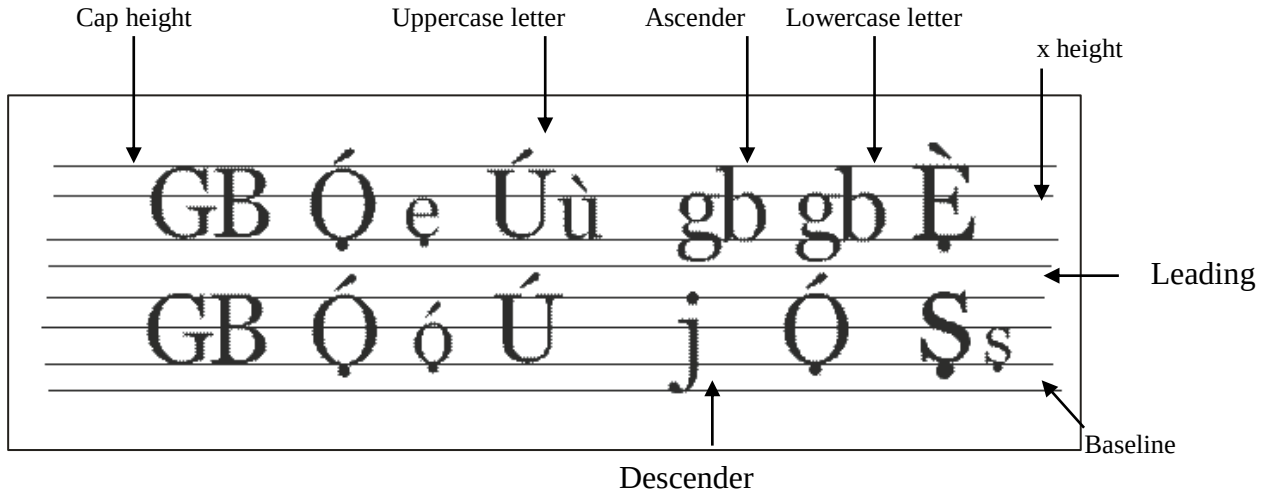
Figure 3.5: Anatomy on side bearing and overshoot of the newly designed Yoruba font styles



Source: Studio work, 2017

Figure 3.6 shows the design of the Uppercase, Lowercase, Cap height, Ascender, Descender, Serif of Yoruba fonts in relation to letter spacing, leading, Cap height, X height and Baseline.

Figure 3.6: Anatomy of the newly designed Yoruba font styles



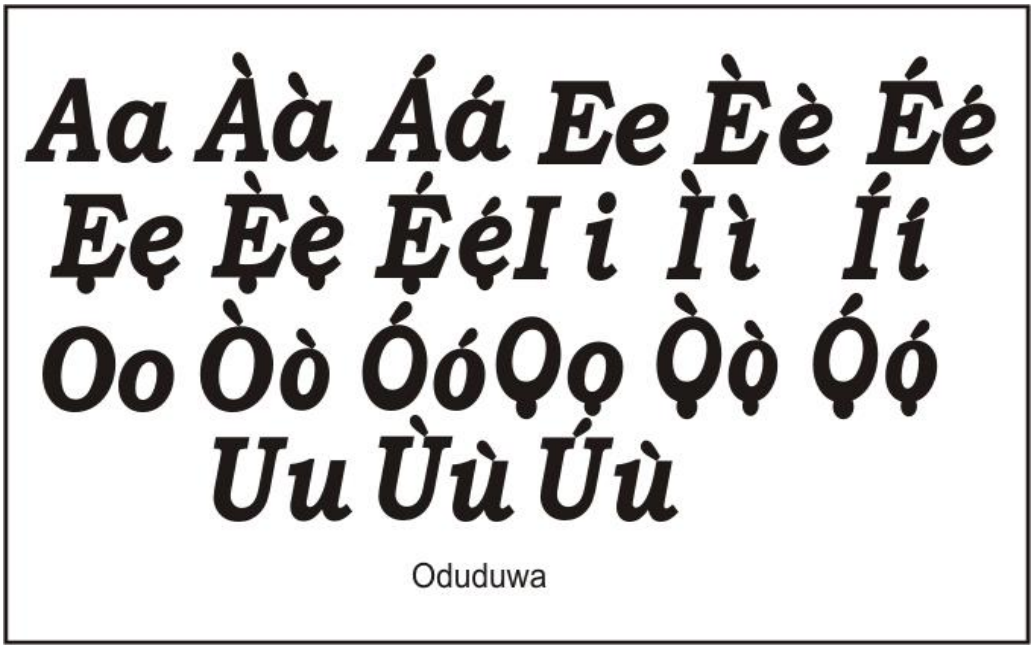
Source: Studio work 2017

Tova (2006) stated that, "*it is possible to import a font into one's font editing software; that has already been digitized, and then trace the glyphs. However, unless one plans to modify the glyphs enough that they could be reasonably considered an original work, one should be wary of this technique for legal, if not ethical, reasons".*

Based on the above statement, it was advisable to change the names of the modified glyphs. Five number of Yoruba typographic font style were scanned into font editing software,

modified the design as illustrated in Figure 3.7, 3.8, 3.9, 3.10 and 3.11, named as "ODUDUWA", "AKOWE", "AYO'OLA" "SHAGAYA" and "FOLAJOMI" respectively and then saved in the folder titled after the created font style on the computer desk-top

Figure 3.7: Vowels of the "Oduduwa" font style



Source: Studio work, 2017

Figure 3.8: Vowels of the "Akowe" font style



Source: Studio work, 2017

Figure 3.9: Vowels of the “Ayo’ola” font style



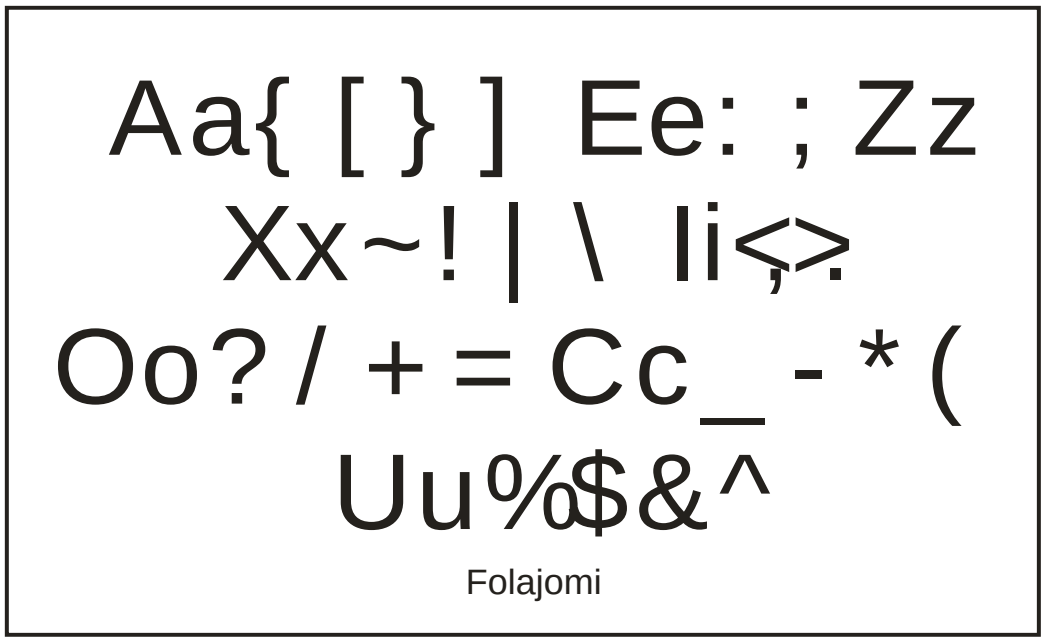
Source: Studio work, 2017

Figure 3.10: Vowels of the “Shagaya” font style



Source: Studio work, 2017

Figure 3.11: Vowels of the “Folajomi” font style



Source: Studio work, 2017

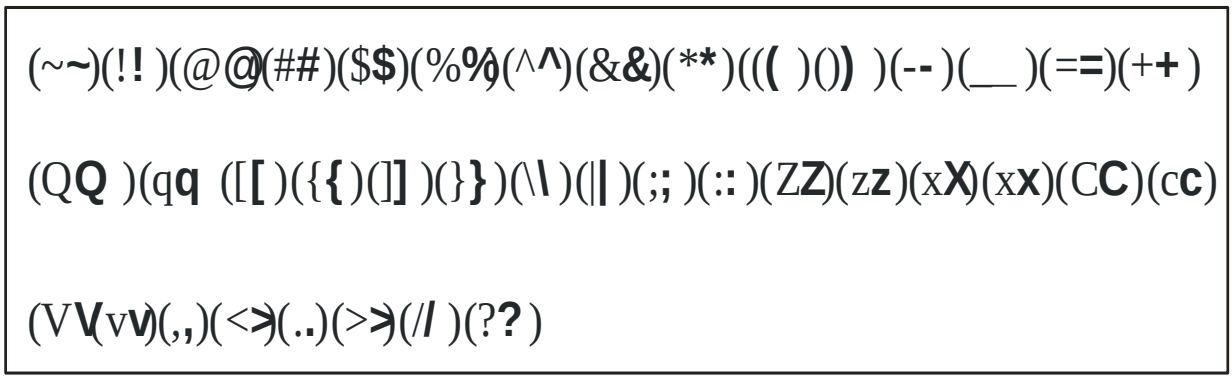
3.6.2.3 Characteristics of the created Yoruba font styles

Joel (2009) stated that typographic font styles come in many different shapes, colors and forms and this is what gives graphic design its unique and favorable personality that if a graphic designer does not learn the difference between families and styles of type, or how and when to best use them, they will not be fluent enough to communicate. Berry (2008) agreed that typefaces have personalities and will probably appeal to different readers and convey different mood. In order to enhance the personality and aesthetic of the created Yoruba typographic font styles, the researcher designed and positioned the diacritics of the font “ODUDUWA’’,“AKOWE” and “AYO’OLA”, touching the glyphs; and in the font “SHAGAYA01” and “ FOLAJOMI”, the diacritics were designed and positioned not to touch the glyphs.

3.6.3 Second procedure

The second procedure dealt with the conversion of the created Yoruba fonts into key codes that the computer electronics can understand when a key or button is pressed. The keyboard layout was created to indicate the key responsible for a particular letter of Yoruba typographic font style. The Yoruba keyboard functioned based on disabling functions of some keys on the (QWERTY) standard key board as observed during the pilot study; the researcher disabled the symbols that are not commonly used in design on CorelDraw and replaced them with the symbols of Yoruba typographic font style. The newly designed letters of Yoruba alphabet shows up on computer monitor when a key is pressed on the (QWERTY) standard keyboard as shown in Figure 3. 12 below:

Figure 3.12: The converted designed Yoruba font style into key code in the computer electronics



Source: Studio work 2017

The function of the key responsible for the Latin letter **(Q)** was changed into the function key for Yoruba letter **(GB)** as presented in Figure 3.12, also the function of the key for any Latin letter was able to be changed into function of any Yoruba letter as presented in Figure 3.12

The Yoruba keyboard layout was printed on paper as instructional-guide for the users of the newly designed Yoruba fonts as shown in Figure 3.13

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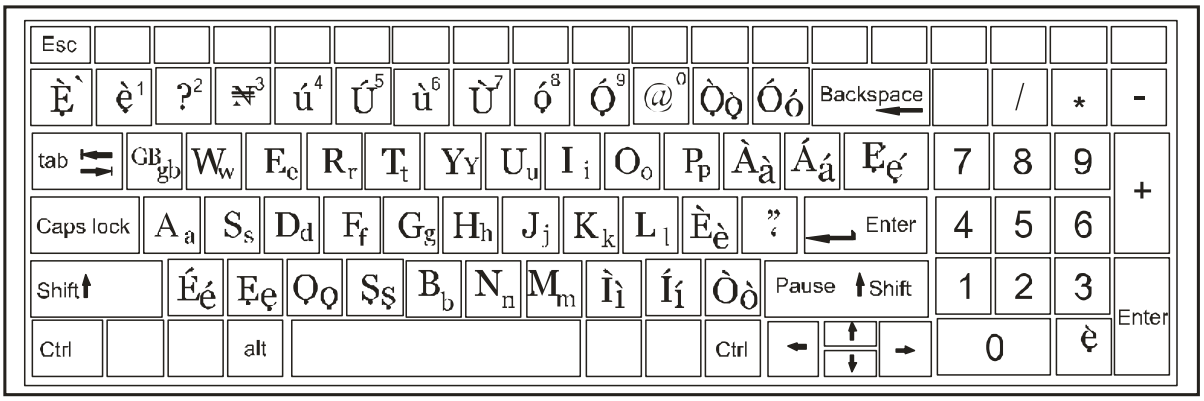
Figure 3.13: Yoruba fonts style key board layout



Source: Studio work 2017

Figure: 3.13 indicates the position of each letter of the created Yoruba typographic font styles on the Yoruba fonts style Key board Layout.

3.6.4 Third procedure

The third procedure was on the conversion of the designed Yoruba font styles into font style extension for third party usage through copy devices like, flash drive, Bluetooth, compact disc, etcetera; and the installation of the created Yoruba typographic font style onto computer electronic. This was done by selecting the created font filename; sent it to Window font folder, double-clicked on it and selected install command.

3.6.5 Fourth procedure

The fourth procedure dealt with the re- encoding captions of some collected samples of Yoruba movie posters, using the newly installed Yoruba typographic font style through the guide of the key board layout on Yoruba typographic font style on graphic design application software (such as: CorelDraw) as displayed on plate 4.2, 4.4, 4.6, 4.8, 4.10, page 118-122. The standard keyboard used to encode Yoruba alphabetic font style was also programmed to be used to encode English alphabetic font style.

3.6.6 Fifth procedure

The fifth procedure dealt with the description, organization and analysis of data collected, which was conducted after the field work as presented in chapter four.

3.6.7 Fieldwork

After collecting letters of introduction from the Head of Department of Industrial Design, the researcher conducted the fieldwork by visiting Printing Village in Mushin, Lagos. The researcher met the chairman, Lagos State Printers Association (LSPA) to register his arrival and the chairman introduced the researcher to the professional graphic designers. The researcher shared the questionnaire forms titled: Designers' Questionnaire on Old Yoruba Movie Posters alongside a copy of an old Yoruba Movie Poster amongst the graphic designers for appraisal.

In another effort to locate the prospective producers that could address the research questions, the researcher visited Lagos State Council for Arts and Culture (LSCAC) Ikeja, and held discussion with the director who was also a Yoruba language lecturer, movie director and producer. The director also mobilized the few respondents around and told the researcher to come to the National Theatre Iganmu-Lagos the next day to meet with additional respondents.

The researcher shared two types of questionnaire forms titled: Producers' Questionnaire on Old Yoruba Movie Posters for appraisal of the old Yoruba Movie Posters and the Producers' Questionnaire on New Yoruba Movie Posters for appraisal of the new Yoruba Movie Posters. The first set of the questionnaire forms were served alongside with a copy of an old Yoruba Movie Poster while the second set were served together with a copy of an old and a redesigned (new) Yoruba movie posters. This is because the second set of the questionnaire forms required comparison between the old and the redesigned Yoruba movie posters.

The aim of appraising the old Yoruba movie posters was to ascertain the claim that the captions of Yoruba movie posters were not encoded in orthographic Yoruba alphabet as observed by the researcher while the appraisal of the new Yoruba movie posters was to enable the researcher to evaluate the efficacy of the new Yoruba font style applied to re-designed some samples of the existing Yoruba movie poster.

3.7 Procedure for Data Collection

The researcher personally distributed and collected back copies of the distributed questionnaire. The researcher followed the respondents to their various locations during data collection. Some of the respondents completed the instruments given to them on the spot. Two weeks were spent to distribute and collect back the instruments. Most of the respondents that could not complete questionnaire form on the spot, called the researcher to collect the instruments after they were completed. That was done through calling the researcher using his phone number as the number was written on the first page of the questionnaire form for that purpose.

3.8 Procedure for Data Analysis

Descriptive statistics was used to analyze the data collected from the research questions. In terms of data collected to test the hypotheses, Software Package for Social Sciences (SPSS) (Inferential Statistic) was used to analyze the data obtained.

This method was found suitable and reliable by several investigators and researchers in the related field, for example, Kayode (2011) on Inter-relationship of Visual Design Concepts, Consumers, and Project Advertisement on Out-door Billboards in Lagos, Nigeria; came up with findings that were found reliable.

CHAPTER FOUR

DATA ANALYSIS

4.0 Introduction

This chapter presented the data collected, analyzed and discussed. These were presented under the following sub-headings:

4.1 Response Rate

4.2 Demographic Analysis of the Respondents

4.3 Descriptive Statistical Analysis

4.4 Inferential Statistical Analysis

4.1 Response Rate

The researcher used questionnaire for data collection. Two set of questionnaire as they relate to the objectives and research questions of the study were administered to two sets of audience drawn from the population. The first set which was the Yoruba movie producers' questionnaire which totaled 34, two giving 5.88% of the producers' questionnaire was not returned; 32, giving 94.12% response rate were duly completed and returned.

The second set of 28 questionnaires was for the graphic designers, of which all were returned i.e. 100% examined and found useful for the analysis. Table 4.1 presented the distribution of the response rate of Yoruba movie producers and graphic designers.

Table 4.1: Number of Questionnaire distributed and returned by Producers and Designers

	Yoruba Movie Producers		Graphic Designer	
Items	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Returned Questionnaire	**32**	**94.12%**	**28**	**100%**
Not returned Questionnaire	**2**	**5.88%**	**0**	**0.00%**
No of Questionnaire Distributed	**34**	**100**	**28**	**100**

From Table 4.1, a high response rate was realized. This was achieved due to the fact that the researcher administered and collected the questionnaires personally. In addition, good relationship was established between the researcher and the respondents which led to on-the-spot completion of the questionnaire by some of the respondents and invitation to collect completed questionnaire forms through telephone calls.

4.2 Demographic Analysis of the Respondents

This section presents the demographic information of the respondents, though; the socio-economic component seemed not to be much relevant, since the main objectives of the study were more into typographic usage aspect than the socio- economic. This included their sex, age group, number of years in practice and academic qualification of the respondents.

The respondents in this study comprised both male and female Yoruba movie producers and Graphic designers. The inclusion of gender as a variable in this study is very important because it made the study free from gender bias. The distribution of the gender of the respondents is presented in Table 4.2.

Table 4.2: Distribution of Respondents by Gender

	Yoruba Movie Producers		Graphic Designer	
Variable	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Male	**28**	**87.50%**	**24**	**85.71%**
Female	**4**	**12.50%**	**4**	**14.29%**
Total	**32**	**100**	**28**	**100**

The Table 4.2 revealed that majority of respondents were males represented 87.50%, while only 12.50% were females. On the part of the Graphic designers, 85.71% were males while only 14.29% were females. The reason for the higher percentage of the male respondents compared to that of female was that more male are into the practice of graphic design and Yoruba movie production than their female counterpart. This implied that males dominated their female counterparts in the two professions in the south- west Nigeria.

On the age of respondents, among the Yoruba Movie Producers, nine were below 30 years, 15 between the ages of 30-40, eight between 41-50 years. For the Graphic designers, 32.14%were below 30 years, 50.00% between the age of 30-40 and 17.86% between 41-50 years. This indicates that majority of the producers and graphic designers were in their youthful ages as was presented in Table 4.3.

Table 4.3: Distribution of Respondents by Age

	Yoruba Movie Producers		Graphic Designer	
Variable	**Frequency**	**Percent**	**Frequency**	**Percent**
Below 30	**9**	**28.13%**	**9**	**32.14%**
30-40	**15**	**46.87%**	**14**	**50.00%**
41-50	**8**	**25.00%**	**5**	**17.86%**
Above 70	**0**	**0.00%**	**0**	**0.00%**
Total	**32**	**100**	**28**	**100**

Table 4.4, page 103, indicates that majority of the respondents had formal education. A total of 52 respondent attended higher institutions (College of Education, Polytechnic and University). This indicates a higher level of literacy amongst the Yoruba movie producers. Regarding the level of education of the graphic designers, a total of 24 respondents had formal Education in College of Education, Polytechnic and University. Only four indicates they have Secondary School Certificate.

Table 4.4: Distribution of Respondents by Academic Qualifications

	Yoruba Movie Producers		Graphic Designer	
Variable	**Frequency**	**Percent**	**Frequency**	**Percent**
Primary Sch.	**0**	**0.00%**	**0**	**0.00%**
Sec. Sch.	**8**	**25.00%**	**4**	**17.86%**
College of Educ.	**9**	**28.13%**	**6**	**21.43%**
ND	**9**	**28.13%**	**10**	**35.71%**
HND/B. Sc/B.A	**6**	**18.74**	**5**	**17.86%**
M. Sc/M.A.	**0**	**0.00%**	**2**	**7.14%**
PhD	**0**	**0.00%**	**0**	**0.00%**
Total	**32**	**100**	**28**	**100**

On the number of year of practice among Yoruba movie producers, 31.25% were below five years in practice. 25.00% were in between 6-10, 21.87% were between the range of 11-15service15.63%were between16-20 and 6.25%were above 20 years in practice of Yoruba movie production. Among the graphic designers, six were below five years in practice eight were in between 6-10, four were between the range of 11-15service, five were in-between 16-20 and five were above 20 years in practice of graphic design. This indicates that majority of the movie producers and graphic designers have been practicing between eight to ten years as shown in table 4.4.

Table 4.5: Distribution of Respondents by Experience (Years in Practice)

	Yoruba Movie Producers		Graphic Designer	
Variable	**Frequency**	**Percent**	**Frequency**	**Percent**
Below 5	**10**	**31.25%**	**6**	**21.43%**
06-10	**8**	**25.00%**	**8**	**28.57%**
11-15	**7**	**21.87%**	**4**	**14.29%**
16-20	**5**	**15.63%**	**5**	**17.86%**
Above 20	**2**	**6.25%**	**5**	**17.86%**
Total	**32**	**100**	**28**	**100**

4.3 Descriptive Statistical Analysis

This section presented the data collected and its analysis, using descriptive statistics. The data collected through research question one, two, three and five were converted into frequency scales and percentages while the research question four was descriptively analyzed. The study adopted Likert scale of five potential choices with accorded marks as followed: SA: Strongly Agree (Score- Five), A: Agree (Score- Four), D: Disagree (Score- Three) SD: Strongly Disagree (Score- Two), U: Undecided (Score- One). Based on decision rule that a statement is considered positive if the calculated mean is equal or and above 3. That is any

response with a mean of 3.00 or above (+ or = 3.00) would be regard as agreed, while below 3.00 would be regard as disagreed. Standard deviation was used to measure the statistical dispersion from the mean through the use of SPSS.

4.3.1 Research question one:

What is the current trend of typographic font styles usage in encoding captions Yoruba movie posters in relation to the use of letters of orthographic Yoruba alphabet as typographic font styles?

The first research question was raised to find out the trend of typographic font styles usage in encoding captions on Yoruba movie posters, in relation to the use of letters of orthographic Yoruba alphabet as typographic font styles. In order to answer this research question, a copy of an old Yoruba movie poster alongside with a set of statement contained in the questionnaire form were provided for the Yoruba movie producers to tick appropriately their level of acceptability. Table 4.6 presented the statements, data collected and the observed mean scores from respondents on the research question.

Table 4.6: The current trend of typographic font styles usage in Yoruba movie posters (N=32)

S/N	ITEMS	SA	A	U	D	SD	MEAN	REMARK
1	Typographic font style are being used to encode advertizing captions on Yoruba movies posters	20	6	0	1	5	4.09	Accepted
2	Letters of Yoruba alphabet are not being used for encoding captions Yoruba movies posters	20	6	0	3	3	4.15	Accepted
3	Letters of Yoruba alphabet are flourishing as typographic font style on Yoruba movies posters	5	3	0	15	9	2.38	Unaccepted
4	Yoruba movie posters rendered in Yoruba alphabetic font styles are accepted by Yoruba movie producers	15	10	0	3	4	3.91	Accepted

5	Yoruba movie posters' captions are encoded or written in English typographic font style,	20	10	0	2	0	4.50	Accepted
6	Any letter of alphabetic font style are being used to encode captions of Yoruba movie posters	20	10	0	2	0	4.50	Accepted
	Grand Total						4.15	Accepted

Key: SA: Strongly Agree (Score- Five), A: Agree (Score- Four), D: Disagree (Score-Three) SD: Strongly Disagree (Score- Two), U: Undecide (Score- One).

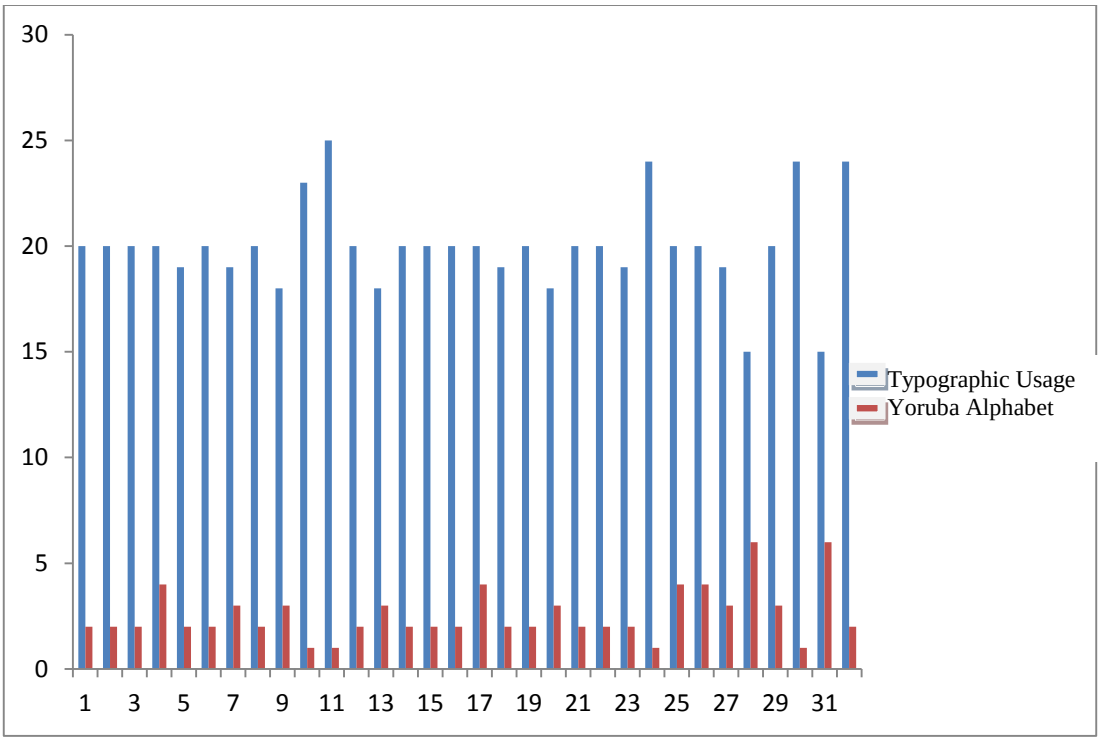
Source: Field Work, 2017

Table 4.6 shows the respondents' opinions on the current trend of typographic font styles usage in Yoruba movie posters. From the table, four items from questionnaire were accepted while one other item was rejected. From the mean rating scores recorded on the items that were accepted, shows that: Typographic font style are being used to encode advertizing 1captions on Yoruba movies posters with a mean score of 4.09, letters of Yoruba alphabet are not being used for encoding captions Yoruba movies posters with a mean score of 4.15, Yoruba movie posters rendered in Yoruba alphabetic font styles are accepted by Yoruba movie producers with a mean score of 3.91,Yoruba movie posters' captions are encoded or written in English typographic font style with a mean score of 4.50 and any letter of alphabetic font style are being used to encode captions of Yoruba movie posters with a mean score of 4.50. Also from the table, one item was rejected: Letters of Yoruba alphabet is flourishing as typographic font style on Yoruba movies posters with a mean score of 2.38.

Table 4.7: Mean and Standard Deviation of typography usage and the usage of letters of orthographic Yoruba alphabet

Variable	N	Mean	SD	Mean Diff
Typographic Usage	32	22.88	3.01	
				20.88
Yoruba Alphabet	32	2.00	1.39	

Plate 4.1: Responses on typographic usage and Yoruba alphabet



Source: Field work, 2017

The red bar in Plate 4.1 shows the level of responses on the current use on typographic usage on Yoruba movie posters while the blue indicates the level of responses on Yoruba Alphabets.

4.3.2 Research question two:

What type of application (graphic design software) font software is used in encoding captions of Yoruba movie posters with the view to ascertaining its effectiveness in usage?

This sought the types of application (graphic design software) font software that are used in encoding captions of Yoruba movie posters with the view to ascertaining their effectiveness in usage. In order to obtain information on the research question, a copy of an old Yoruba movie poster was provided for appraisal and nine items were formulated in the questionnaire form to

be addressed by graphic designers. Table 4.8 shows the items, information and the mean scores on research question two.

Table 4.8: Type of application (graphic design software) used and its effectiveness in usage (N=28)

S/N	ITEMS	SA	A	U	D	SD	MEAN	REMARK
1	I find CorelDraw font style appropriate for encoding captions of Yoruba movie posters	1	1	0	20	6	1.96	Unaccepted
2	I find Photoshop font style appropriate for encoding captions of Yoruba movie posters	0	0	0	26	2	1.93	Unaccepted
3	There is Yoruba font style useable on graphic design software such as CorelDraw	2	2	0	20	4	2.21	Unaccepted
4	I like designing Yoruba movie poster that requires orthographic Yoruba alphabet for writing of text messages	1	1	0	23	3	2.07	Unaccepted
5	I use computer visual symbols to serve as orthographic letters of Yoruba alphabet to encode captions of Yoruba movie posters.	10	14	0	4	0	4.07	Accepted
6	I adopt English alphabet in place of Yoruba alphabet to encode captions of Yoruba movie posters	4	20	0	1	3	3.75	Accepted
7	I construct or draw symbols on the required letters to show Yoruba alphabets.	15	11	0	1	1	4.36	Accepted
8	It is difficult to design or encode captions of Yoruba alphabet on Yoruba movie posters through Corel Draw- Graphic design software.	10	15	0	2	1	4.11	Accepted
	Grand Total						**2.27**	**Unaccepted**

Key: SA: Strongly Agree (Score- Five), A: Agree (Score- Four), D: Disagree (Score-Three) SD: Strongly Disagreed (Score- Two), U: Undecided (Score- One).

Source: Field Work, 2017

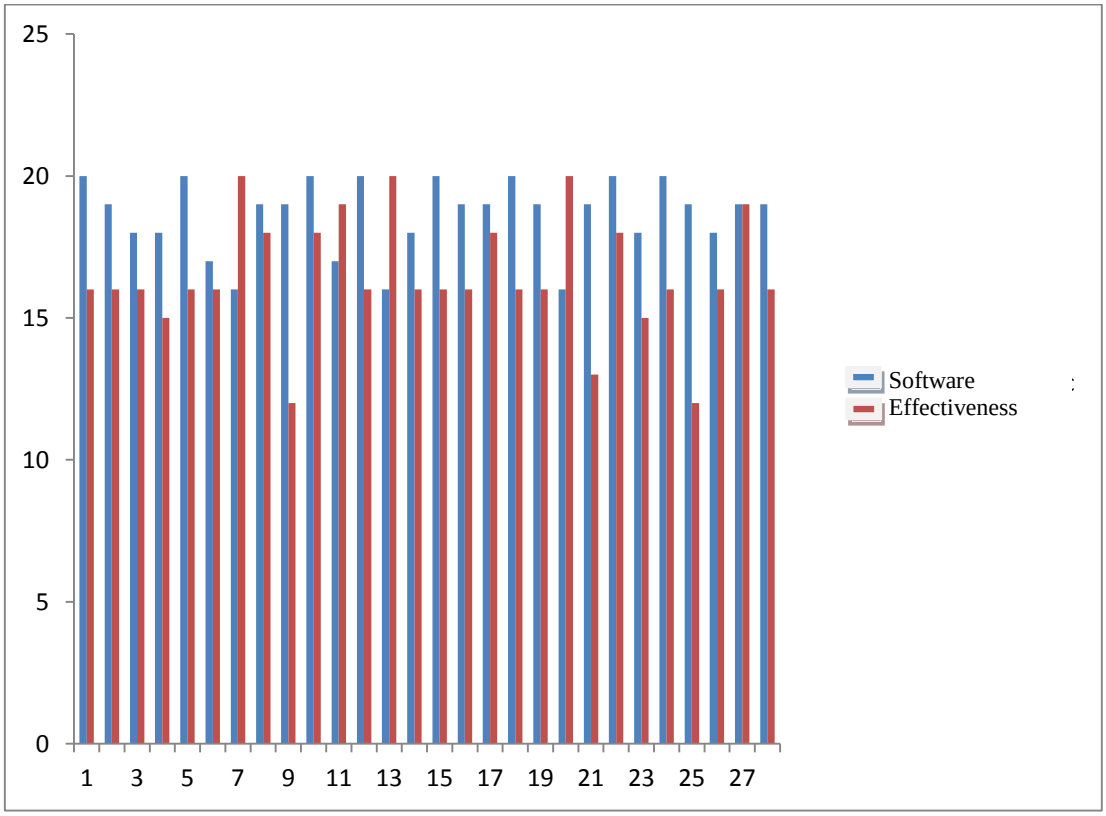
Table 4.8 shows the graphic designers' responses on the type of application (graphic design software) font software used in encoding captions of Yoruba movie posters and its effectiveness in usage. From the table, four items from the questionnaire were rejected while and four items were accepted. From the mean rating scores recorded on the items that were rejected, shows that: I find CorelDraw font style appropriate for encoding captions of Yoruba movie posters with a mean score of 1.96, I find Photoshop font style appropriate for encoding captions of Yoruba movie posters with a mean score of 1.93, There is Yoruba font style useable on graphic design software such as CorelDraw 2.21 and I like designing Yoruba movie poster that requires orthographic Yoruba alphabet for writing of text messages with a mean score of 2.07.

Another set of respondents accepted on the following items: I use computer visual symbols to serve as orthographic letters of Yoruba alphabet to encode captions of Yoruba movie posters with a mean score of 4.07, I adopt English alphabet in place of Yoruba alphabet to encode captions of Yoruba movie posters with a mean score of 3.75, I construct or draw symbols on the required letters to show Yoruba alphabets with a mean score of 4.36 and it is difficult to design or encode captions of Yoruba alphabet on Yoruba movie posters through Corel Draw-Graphic design software with a mean score of 4.11.

Table 4.9: The application (graphic design software) adopted in encoding captions of the Yoruba movie posters and its effectiveness in encoding captions of Yoruba movie posters

Variable	N	Mean	SD	Mean Diff
Software	28	18.64	1.28	
				2.18
Effectiveness	28	16.46	2.10	

Plate 4.2: Responses on software and effectiveness



Source: Field work, 2017

The red bar in Plate 4.2 shows the level of responses on the current use of software in encoding captions of Yoruba movie posters while the blue indicates the level of responses on effectiveness of the software in encoding captions of Yoruba movie posters.

4.3.3 Research question three:

What is the effect of the customized typographic font styles used in encoding captions of Yoruba movie posters in term of language interpretation in relation to literal meaning of orthographic Yoruba language?

This section sought to determine the effect of the customized typographic font styles used in encoding captions of Yoruba movie posters in term of language interpretation in relation to literal meaning of orthographic Yoruba language. In order to obtain information on the research question, a copy of an old Yoruba movie poster alongside with a set of statement contained in the questionnaire form were provided for the Yoruba movie producers to tick appropriately their level of acceptability. Table 4.10 presented the statements, data collected and the observed mean scores from respondents on research question.

Table 4.10: The Observed mean scores from respondents for Research question three (N=32)

S/N	ITEMS	SA	A	U	D	SD	MEAN	REMARK
1	The Yoruba movie posters' captions are written in orthographic Yoruba alphabet but if they are not, they will likely be misunderstood.	10	18	0	2	2	4.00	Accepted
2	The typographic font style used to encode captions of the Yoruba movie poster cannot be read as literal Yoruba language.	20	6	0	2	4	4.13	Accepted
3	Captions of the Yoruba movie posters depict English language caption.	15	11	0	4	2	4.03	Accepted
4	Messages or captions of Yoruba movie posters are often easily understood by Yoruba movie producers	5	4	0	13	10	2.41	Unaccepted
5	The use of English typographic font styles to encode captions of Yoruba movie posters should be encouraged by Yoruba Movie Producers	5	5	0	10	12	2.41	Unaccepted
6	The use of orthographic Yoruba alphabet on Yoruba movie posters is an effective way to communicate to Yoruba audience	12	16	0	2	2	4.06	Accepted
	Grand Total						**1.83**	

Key: SA: Strongly Agree (Score- Five), A: Agree (Score- Four), D: Disagree (Score-Three) SD: Strongly Disagree (Score- Two), U: Undecided (Score- One).

Source: Field work, 2017

Table 4.10 shows the Yoruba Movie Producers' response on the effect of the customized typographic font styles used in encoding captions of Yoruba movie posters in term of language interpretation in relation to literal meaning of orthographic Yoruba language.

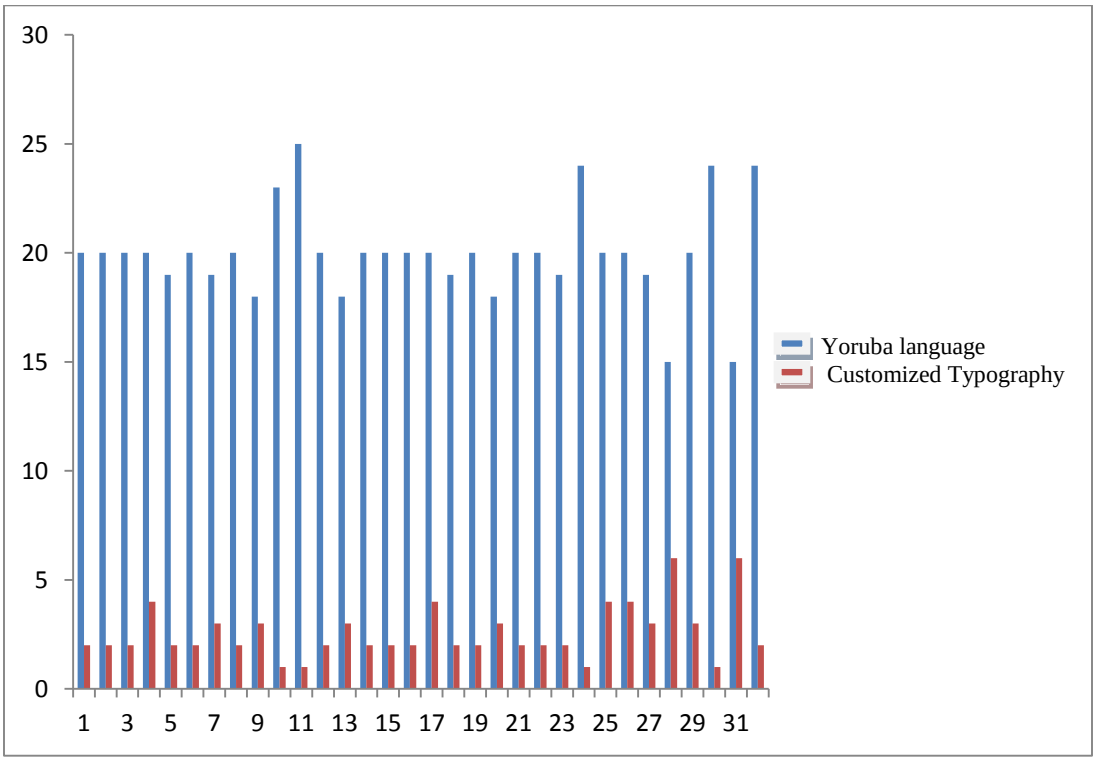
From the table, four items from questionnaire were accepted while the other two items were rejected. From the mean rating scores recorded on the items that were accepted shows that: the Yoruba movie posters' captions are written in orthographic Yoruba alphabet but if they are not, they will likely be misunderstood with a mean score of 4.00, the typographic font style used to encode captions of the Yoruba movie poster cannot be read as literal Yoruba language with a mean score of 4.13, captions of the Yoruba movie posters depict English language caption with a mean score of 4.03.

Another set of respondents accepted the following items: messages or captions of the Yoruba movie posters are often easily understood by Yoruba movie producers with a mean score of 2.41, the use of English typographic font styles to encode captions of Yoruba movie posters should be encouraged by Yoruba Movie Producers with a mean score of 2.41 and the last item on the use of orthographic Yoruba alphabet on Yoruba movie posters is an effective way to communicate to Yoruba audience was accepted with a mean score of 4.06.

Table 4.11: The customized typographic font styles used in encoding captions of Yoruba movie posters and literal meaning of orthographic Yoruba language

Variable	N	Mean	SD	Mean Diff
Yoruba language	32	19.97	2.19	17.41
Customized Typography	32	2.56	1.24	

Plate 4.3: Responses on Yoruba language and customized typography



Source: Field work, 2017

The red bar in Plate 4.3 shows the level of responses on the customized typographic font style used in encoding captions of Yoruba movie posters while the blue indicates the level of responses on orthographic Yoruba language.

4.3.4 Research question four:

What procedures can guide the process of developing the letters of orthographic Yoruba alphabet into typographic font style software for adoption on graphic design software (such as CorelDraw suite) for encoding captions of Yoruba movie poster?

The forth research question was raised to find out the process of developing the letters of orthographic Yoruba alphabet into typographic font style for adoption on graphic design software (such as CorelDraw suite) for encoding captions of Yoruba movie posters.

In order to answer this research question, there was the need to first describe how the letters of Yoruba alphabet are, as suggested in "TRIZ" Models of Product Development and understanding typography structure, (Ellen 2016 and Jake 2015).

4.3.5 Description of the letters of Yoruba alphabet

Research question four:

What procedures can guide the process of developing the letters of orthographic Yoruba alphabet into typographic font style software for adoption on graphic design software (such as CorelDraw suite) for encoding captions of Yoruba movie poster?

In order to answer this research question, there was the need to first describe how the letters of Yoruba alphabet are, as suggested in the "TRIZ" Models of Product Development and understanding typography structure, (Ellen 2016 and Jake 2015).

4.3.5.1 Description of the letters of Yoruba alphabet

1. The researcher identified the Yoruba alphabet to be of the same appearance with the letters of Latin alphabet as presented in Figure 3.1,page 84
2. The letters of Yoruba alphabets are in lower and upper case as presented in figure 3.2, page84
3. The Latin letter **C, Q, V**, and **X** are not included in Yoruba alphabet as explained in page 84
4. The number eight letter in the arrangement of the Yoruba alphabet is a combination of two Latin letters as shown in Figure 3.1, page 84
5. The fifth, seventeenth and twenty-first in the arrangement of letter of Yoruba alphabet are characterized by a diacritic sign underneath as presented in Figure 3.1, page 84
6. The letters of the vowels of the Yoruba alphabet have diacritic above them as show in Figure 3.3 and 3.4, page 85

Having studied the letters of Yoruba alphabet as described, the researcher therefore explored the available pertinent literature on the guiding principle of font creation to redesign the letters of Yoruba alphabet into typographic font styles extension for adoption on graphic design software (such as CorelDraw suite) (Berry, 2008; Chris, 2009; David, 2009; Tova 2006)

4.3.5.2 Design procedures of letters of the Yoruba alphabet into typographic font styles

1. Embedment of the upper and lower diacritics on the letters and the vowels of the Yoruba alphabet with preference to appropriate leading i.e. (space between words), spacing i.e. (gap between letters), overshoot and Side bearing of the design to enhance legibility and readability as shown in plate 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9 and figure 3.5 and 3.6, page 86-92
2. The newly designed Yoruba typographic font styles were given names for the purpose of identification and selection for usage as presented in Figure 3.7, 3.8, 3.9, 3.10 and3.11, page 93-95
3. The designed letters of Yoruba alphabet were converted into key code in the computer electronics as shown in Figure 3.12, page 96
4. Standard keyboard (QWERTY) layout was adopted into Yoruba keyboard layout as shown in Figure 3.13, page 97
5. The newly designed letters of Yoruba alphabets shows up on computer monitor when a key is pressed on the standard (QWERTY) keyboard;
6. The function of the key responsible for the Latin letter **(Q)** was changed into the function key for Yoruba letter **(GB)** as presented in Figure 3.12, page 96
7. The function of the key for any Latin letter was able to be changed into function of any Yoruba letter as presented in Figure 3.12, page 96

8. The Yoruba keyboard layout was printed on paper as instructional-guide for the users of the newly designed Yoruba fonts as shown in Figure 3.13 page, 97
9. The designed Yoruba typographic font styles were converted into secured font style extension for third party usage through copy devices like, flash drive, Bluetooth, compact disc, etcetera
10. The Yoruba font style extension was successfully installed on (CorelDraw suit 13) i.e. Graphic design software by selecting the created font filename; sent it to Window font folder, double-clicked on it and selected install command.
11. The Yoruba font style extension was used to encode captions of some Yoruba movie posters on (CorelDraw suit 13) as presented in plate 4.2, 4.4, 4.6, 4.8 and 4.10, page, 125-129
12. The standard keyboard used to encode Yoruba alphabetic font style was also programmed to be used to encode English alphabetic font style.

4.3.5 Research question five:

What manifestation would lend credence to the efficacy (success) of the newly created orthographic Yoruba typographic font style?

The research question five section sought out the behavioral manifestation on the efficacy (success) of the newly created orthographic Yoruba typographic font style.

Research question required comparison, therefore, a copy of an old and a redesigned (new) Yoruba movie poster alongside with ten statements contained in the questionnaire were provided for the redesigned (new) Yoruba movie posters to indicate appropriately their level of acceptability. Table 4.12 presented the statements and the observed mean scores.

Table 4.12: The efficacy (success) of the newly created orthographic Yoruba typographic font style (N=32)

S/N	ITEMS	SA	A	U	D	SD	MEAN	REMAK
1	The typographic font style used to encode captions of the new Yoruba movie poster are letters of orthographic Yoruba alphabet, while the encoded captions of the old Yoruba movie poster are not.	11	19	0	1	1	4.19	Accepted
2	The typographic font style used to encode captions of the new Yoruba movie poster can be read as literal Yoruba language.	9	20	0	0	3	4.00	Accepted
3	The typographic font style used to encode captions of the new Yoruba movie poster do not interpret English alphabet.	21	7	0	2	2	4.56	Accepted
4	The typographic font style used to encode captions of the new Yoruba movie poster is more readable than the typographic font style used on the old Yoruba movie posters	25	5	0	2	0	4.66	Accepted
5	I can easily understand the Messages or captions of the new Yoruba movie posters as literal Yoruba language than in the old Yoruba movie poster.	27	3	0	2	0	4.03	Accepted
6	The typographic font style used to encode captions of the new Yoruba movie poster is the effective way to communicate to Yoruba audience than the font style used on the old Yoruba movie poster.	10	19	0	2	1	4.09	Accepted
7	The typographic font style used to encode captions of the new Yoruba movie poster showcases the orthographic letters of Yoruba alphabet	21	9	0	1	1	4.78	Accepted

8	The typographic font style used to encode captions of the new Yoruba movie poster will preserve the indigenous Yoruba language	19	10	0	1	2	4.38	Accepted
9	The typographic font style used to encode captions of the new Yoruba movie poster will encourage other Yoruba media producers to encode messages in Yoruba typographic font style.	20	8	0	2	2	4.31	Accepted
10	The typographic font style soft ware used to encode captions of the new Yoruba movie poster will generate employment for people who want to teach the techniques of using the font extension for encoding visual messages in orthographic Yoruba language	19	11	0	2	0	4.47	Accepted
	Grand Total						**4.35**	

Key: SA: Strongly Agree (Score- Five), A: Agree (Score- Four), D: Disagree (Score-Three) SD: Strongly Disagree (Score- Two), U: Undecided (Score- One).

Source: Field work, 2017

Table 4.12 shows the responses of the Yoruba movie producers on the efficacy (success) of the newly created orthographic Yoruba typographic font styles. From the table, all the items on questionnaire were accepted as follows: the typographic font style used to encode captions of the new Yoruba movie poster were orthographic Yoruba alphabet, while the encoded captions of the old Yoruba movie poster were not encoded in orthographic Yoruba alphabet with a mean score of 4.19, the typographic font style used to encode captions of the new Yoruba movie poster can be read as literal Yoruba language with a mean score of 4.00, the typographic font style used to encode captions of the new Yoruba movie poster do not interpret English alphabet with a mean score of 4.56, the typographic font style used to

encode captions of the new Yoruba movie poster is more readable than the typographic font style used on the old Yoruba movie posters with a mean score of 4.66, and the item: I can easily understand the Messages or captions of the new Yoruba movie posters as literal Yoruba language than in the old Yoruba movie poster with a mean score of 4.03.

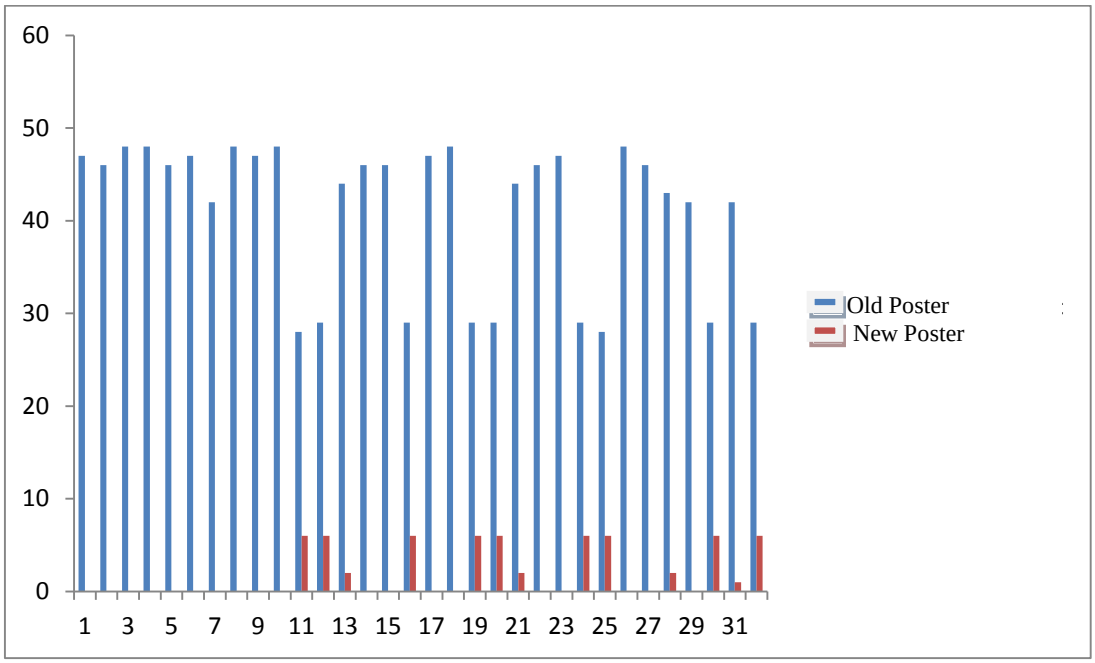
The other items were as followed: the typographic font style used to encode captions of the new Yoruba movie poster is the effective way to communicate to Yoruba audience than the font style used on the old Yoruba movie poster with a mean score of 4.09, the typographic font style used to encode captions of the new Yoruba movie poster showcases the orthographic letters of Yoruba alphabet with a mean score of 4.78, the typographic font style used to encode captions of the new Yoruba movie poster will preserve the indigenous Yoruba language with a mean score of 4.38.

The remaining statements were: the typographic font style used to encode captions of the new Yoruba movie poster will encourage other Yoruba media producers to encode messages in Yoruba typographic font style with a mean score of 4.31and the typographic font style soft ware used to encode captions of the new Yoruba movie poster will generate employment for people who want to teach the techniques of using the font extension for encoding visual messages in orthographic Yoruba language with a mean score of 4.47.

Table 4.13: The efficacies (successes) of the newly created orthographic Yoruba typographic font style and the old typographic font styles.

Variable	N	Mean	SD	Mean Diff
New Poster	32	41.09	8.02	
				39.19
Old Poster	32	1.91	2.67	

Plate 4.4: Responses on the old poster and the new poster



Source: Field work, 2017

The red bar in Plate 4.4 indicates the level of responses on the old Yoruba posters while the blue indicates the level of responses on the new Yoruba posters in term of readability of the captions in relation to literal Yoruba language.

4.4 Inferential Statistical Analysis

Five null hypotheses were formulated and tested in the study. The hypotheses met the assumptions of student's *t*-test, on two independent variables concerned; test the significant difference between two independent variables and comparison of the actual difference between two means in relation to the variation in the data (expressed as the standard deviation of the difference between the means). All the hypotheses formulated were tested using α (0.05) level of significance. Umar (2014) had the view that Behavioral Sciences research that involves human being like this one, 0.05 level of significance was generally acceptable.

4.4.1 Hypothesis one:

Ho_1: There is no significant difference between the current trend of typography usage as typographic font styles and the usage of letters of orthographic Yoruba alphabet as typographic font styles to encode captions Yoruba movie poster

Table 4.14: Summary of t-test of the Typography usage as typographic font styles in encoding captions Yoruba movie posters and the usage of letters of orthographic Yoruba alphabet as typographic font styles.

Yoruba	N	Mean	S.D	Df	t_{cal}	t_{cric}	P_{value}	Remark
Typographic Usage	32	22.88	3.01					
				62	35.58	1.98	0.0001	Sign
YorubaAlphabet	32	2.00	1.39					

Significant at $P \leq 0.05$

Table 3: shows the mean and standard deviation of the current trend of Typography usage as typographic font styles and the usage of letters of orthographic Yoruba alphabet as typographic font styles to encode captions Yoruba movie posters are 22.88, 3.01 and 2.00, 1.39 respectively with mean difference 20.88 in favor of the current trend of Typography usage as typographic font styles in encoding captions Yoruba movie posters. The t_{cal}=35.58> t_{ctrit} = 1.98 and P_{value} = 0.0001 < 0.05. Therefore, there is significant difference between the current trend of Typography usage as typographic font styles and the usage of letters of orthographic Yoruba alphabet as typographic font styles to encode captions Yoruba movie posters. The result indicates that letters of orthographic Yoruba alphabet are not currently been used on Yoruba movie posters. Therefore, the null one hypothesis is rejected.

4.4.2 Hypothesis two:

Ho_2: There is no significant difference in the usage of application (graphic design software) adopted in encoding captions of Yoruba movie posters and effectiveness in its usage for encoding captions of Yoruba movie posters.

Table 4.15: Summary of t-test of the usage of the application (graphic design software) adopted in encoding captions of Yoruba movie posters and effectiveness in its usage for encoding captions of Yoruba movie posters

Variable	N	Mean	S.D	Df	t_{cal}	t_{cric}	P_{value}	Remark
Software	28	18.64	1.28					
				54	4.69	1.98	0.0001	Sign
Effectiveness	28	16.46	2.10					

* Significant at $P \leq 0.05$

Table6: shows the mean and standard deviation of the application (graphic design software) font software used in encoding captions of Yoruba movie posters with the view to ascertaining its effectiveness in usage as 18.64, 1.28 and 16.46, 2.10 respectively with mean difference 2.18 in favor the application (graphic design software) font software used in encoding captions of Yoruba movie posters. The $t_{cal}=4.69 > t_{ctrit} = 1.98$ and the $P_{value} = 0.0001 < 0.05$. Therefore, there is significant difference in the usage of application (graphic design software) used in encoding captions of Yoruba movie posters and effectiveness in its usage for encoding captions of Yoruba movie posters. Consequently, the null hypothesis is two rejected.

4.4.3 Hypothesis three:

Ho_3:: There is no significant difference between the language interpretations of the customized typographic font styles used in encoding captions of Yoruba movie posters and the literal meaning of orthographic Yoruba language.

Table 4.16: Summary of t-test on language interpretation of the customized typographic font styles used in encoding captions of Yoruba movie posters and the literal meaning of orthographic Yoruba language.

Variable	N	Mean	S.D	Df	t_{cal}	t_{cric}	P_{value}	Remark
Customized Typography	32	19.97	2.19					
				62	17.41	1.98	0.0001	Sign
Yoruba language	32	2.56	1.24					

* Significant at $P \leq 0.05$

Table 9: shows the mean and standard deviation of the language interpretations of the customized typographic font styles used in encoding captions of Yoruba movie posters and the literal meaning of orthographic Yoruba language as 19.97, 2.19 and 2.56, 1.24 respectively with mean difference 17.41 in favor of language interpretations of the customized typographic font styles used in encoding captions of Yoruba movie posters. The t_{cal}=17.69 > t_{ctrit} = 1.98 and the P_{value} = 0.0001 < 0.05. Therefore, there is significant difference between the language interpretations of the customized typographic font styles used in encoding captions of Yoruba movie posters and the literal meaning of orthographic Yoruba language. Therefore, English alphabetic font styles are not appropriate for encoding captions of Yoruba movie posters and the null hypothesis three is rejected

4.4.4 Hypothesis four:

$HO_{4:}$ There is no significant difference in the efficacies (successes) of the newly created orthographic Yoruba typographic font style applied on the new Yoruba movie poster and the typographic font styles used to encode captions of the old Yoruba movie posters in term of readability in literal Yoruba language.

Table 4.17: Summary of t-test of the efficacies (successes) of the newly created orthographic Yoruba typographic font style and the typographic font style software used to encode captions of the old Yoruba movie posters.

Variable	N	Mean	S.D	Df	t_{cal}	t_{cric}	P_{value}	Remark
New Poster	32	41.09	8.02					
				62s	26.22	1.98	0.0001	Sign
Old Poster	32	1.91	2.67					

* Significant at $P \leq 0.05$

Table15: shows the mean and standard deviation of the efficacies (successes) of the newly created orthographic Yoruba typographic font style applied on the new Yoruba movie poster and the typographic font styles used to encode captions of the old Yoruba movie posters as 41.09, 8.02 and 1.91, 2.67 respectively with mean difference 39.19 in favor the typographic font styles software used to encode captions of the new Yoruba movie posters, the t_{cal}=26.22 > t_{ctrit} = 1.98 and the P_{value} = 0.0001 < 0.05. Therefore, there is significant difference between the newly created orthographic Yoruba typographic font style used to encode captions of the new Yoruba movie posters and the typographic font styles used to encode captions of the old Yoruba movie posters in term of readability in literal Yoruba language. Therefore, null hypothesis five is rejected.

From the result obtained on the effectiveness of the newly created orthographic Yoruba typographic font style, Yoruba movie posters should be encoded in orthographic Yoruba typographic font style, and if not the meaning of the encoded messages would not be effectively deciphered by the Yoruba audience as shown in the posters below in the next page.

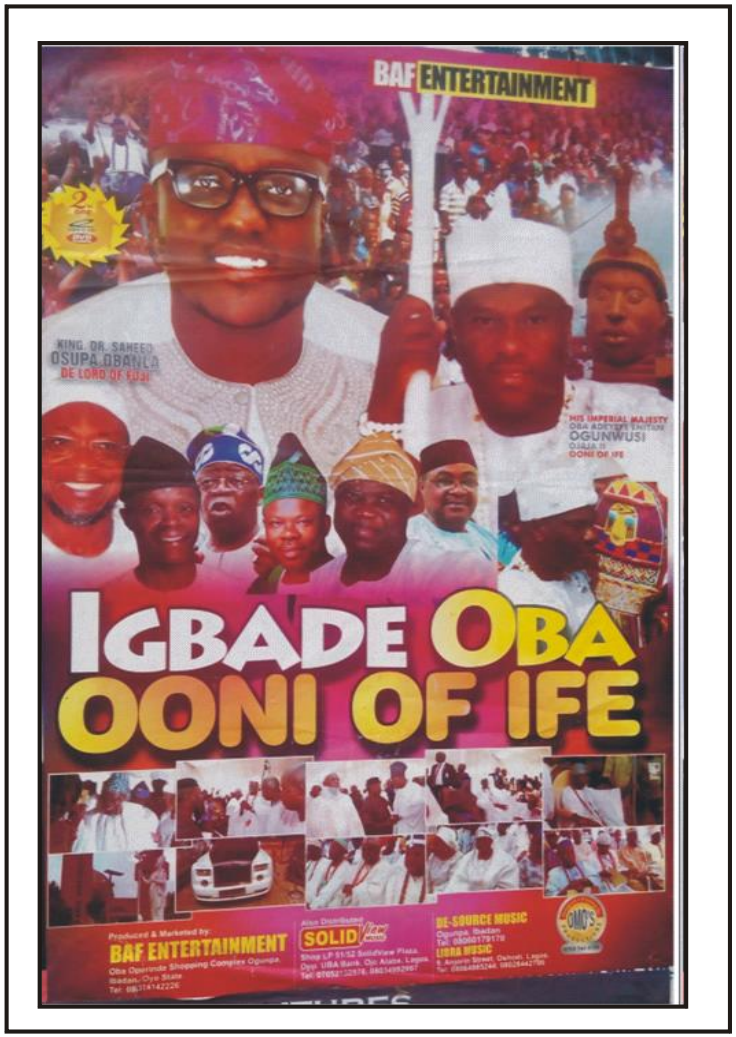


Plate 4.1: Yoruba movie poster with adopted English alphabet: Studio work 2017

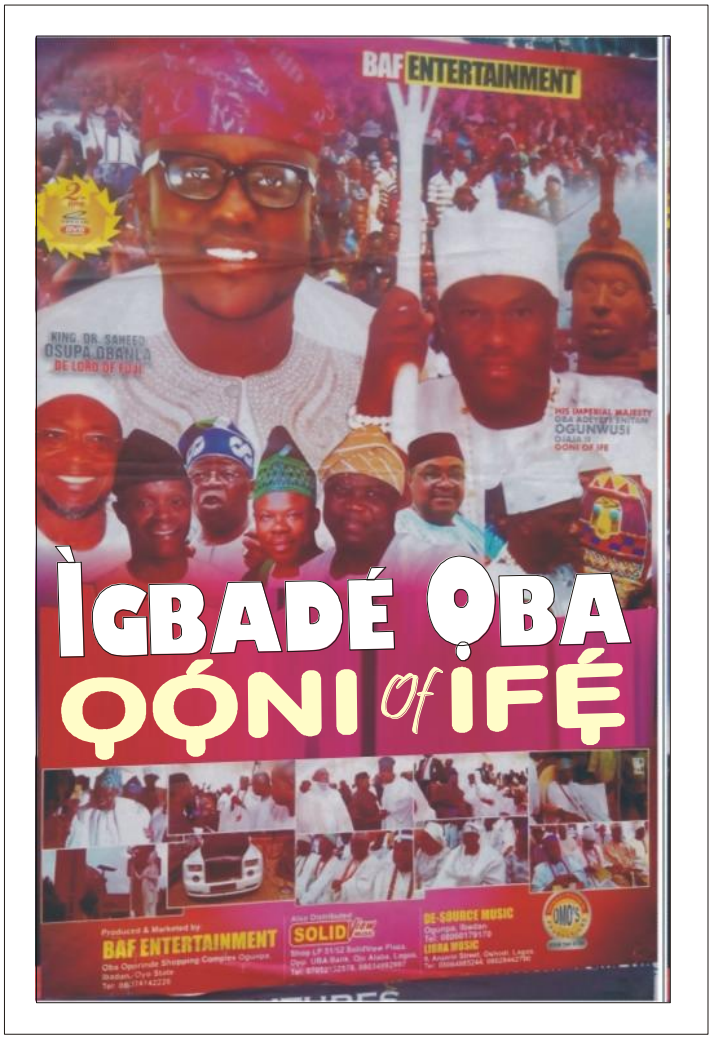


Plate 4.2: Yoruba movie poster encoded with the newly created Yoruba font style: Studio work 2017

3



Plate 4.3: Yoruba movie poster with adopted English alphabet: Studio work 2017



Plate 4.4: Yoruba movie poster encoded with the newly created Yoruba font style: Studio work 2017



Plate 4.5: Yoruba movie poster with adopted English alphabet: Studio work 2017



Plate 4.6: Yoruba movie poster encoded with the newly created Yoruba font style: Studio work 2017

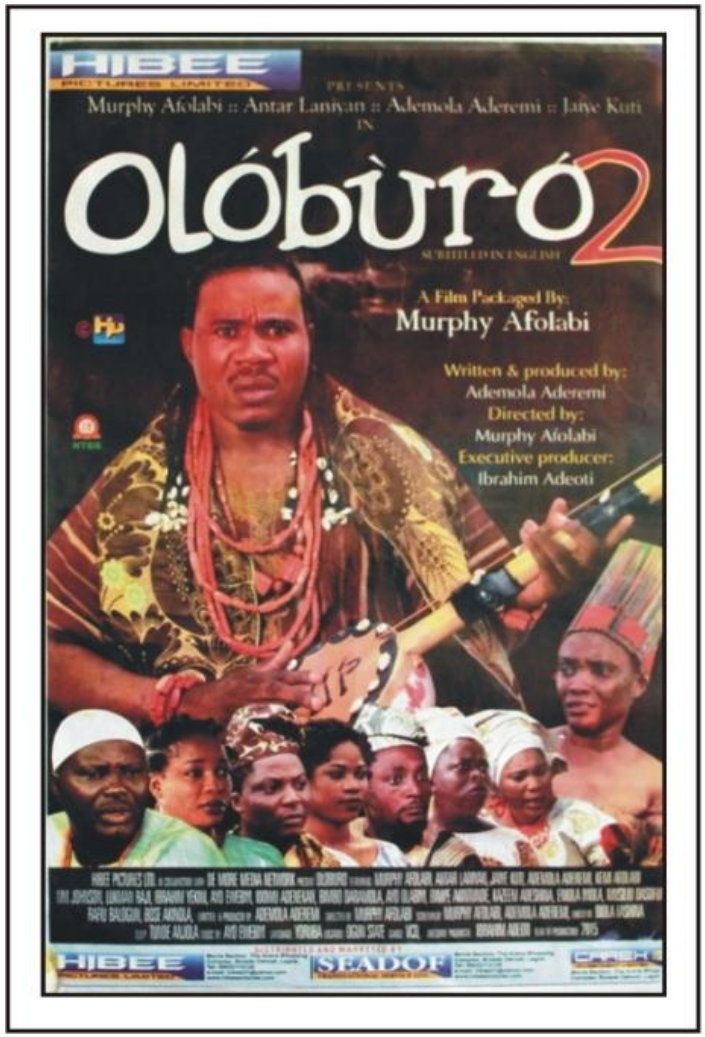


Plate 4.7: Yoruba movie poster with adopted English alphabet: Studio work 2017

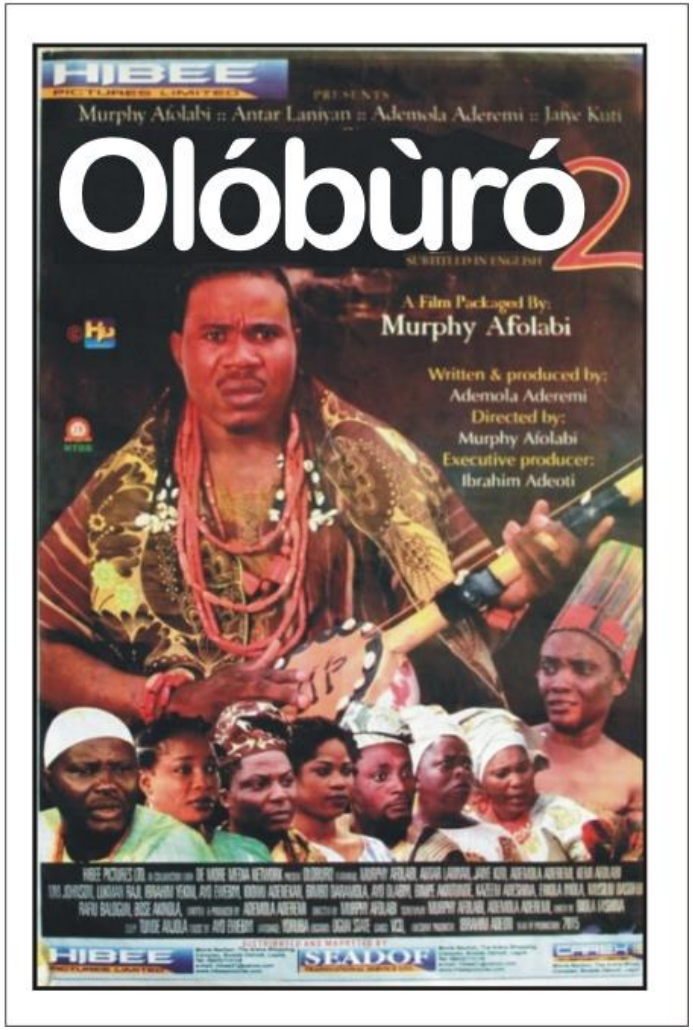


Plate 4.8: Yoruba movie poster encoded with the newly created Yoruba font style: Studio work 2017

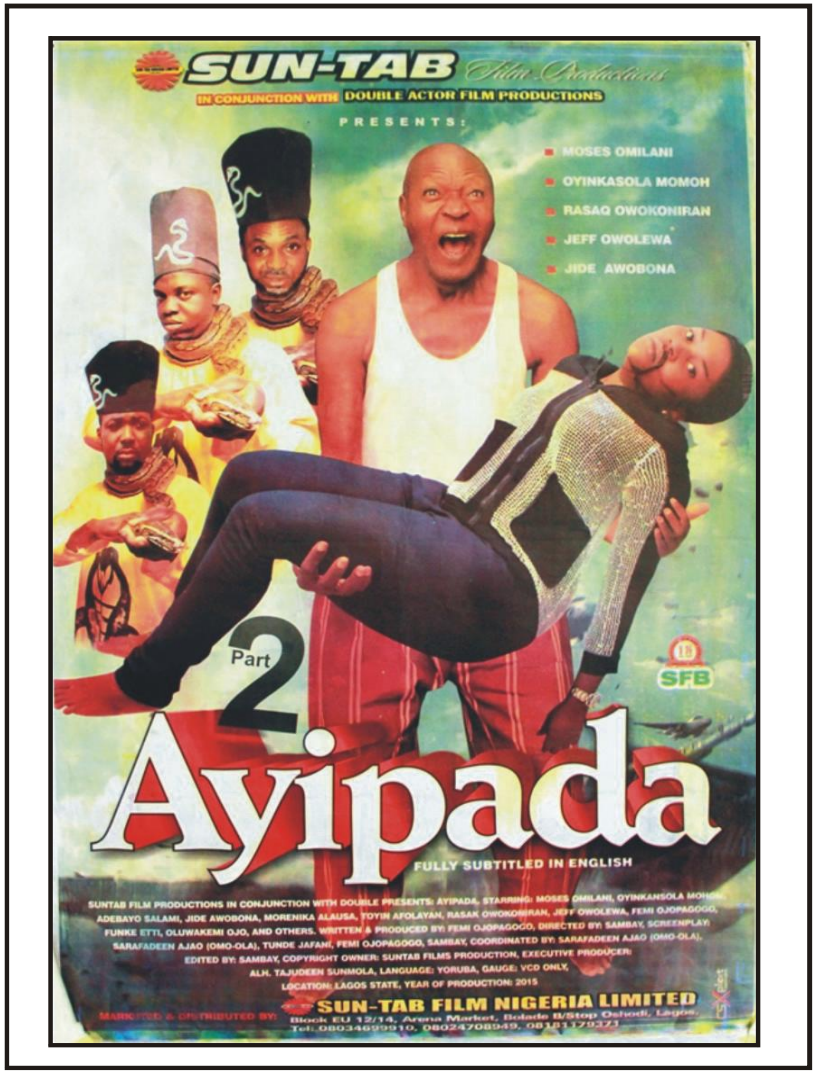


Plate 4.9: Yoruba movie poster with adopted English alphabet: Studio work 2017

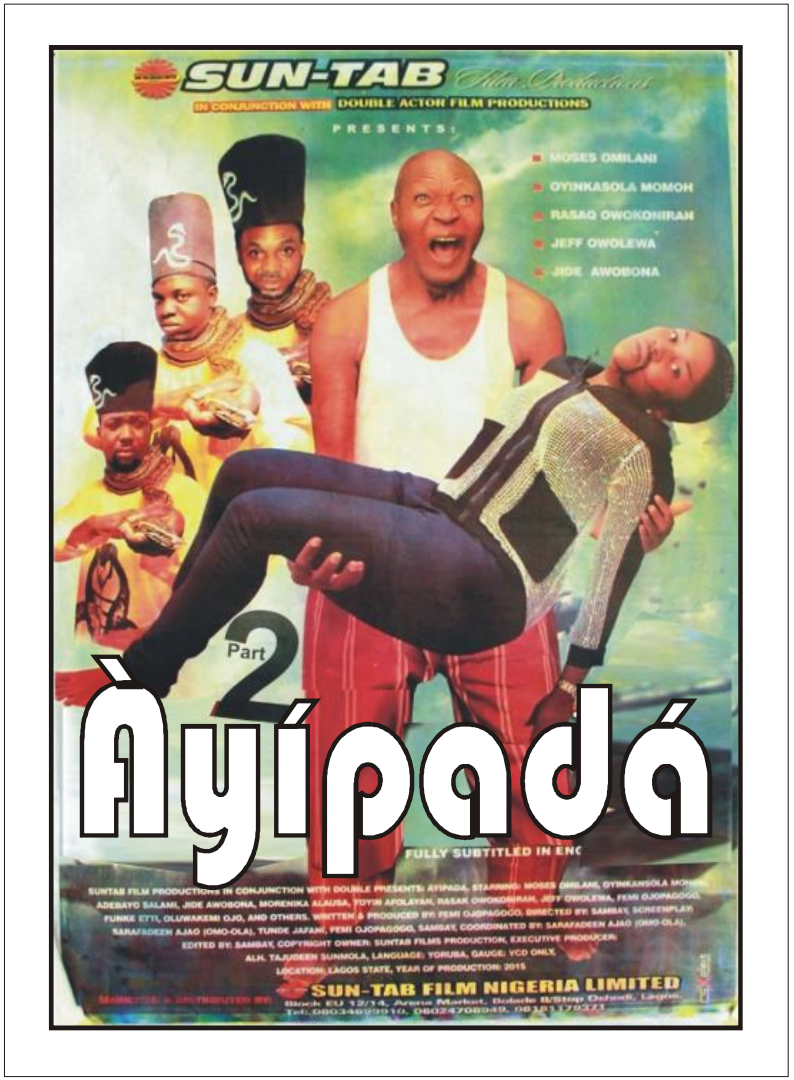


Plate 4.10: Yoruba movie poster encoded with the newly created Yoruba font style: Studio work 2017

CHAPTER FIVE

FINDINGS, SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter discussed the findings, summary, conclusion and recommendations based on the research findings. It also advanced suggestion for further researches.

5.1 Major Findings

5.2 Discussion of Major Findings

5.3 Summary of the Study

5.4 Conclusion

5.5 Recommendations

5.6 General Recommendations

5.7 Contribution to Knowledge

5.8 Suggestion for Further Research

5.1 Major Findings

The following were the findings of the study based on the data collected and analyzed:

1. Based on the figure shown on Table 4.7 on the mean and standard deviation of the current trend of typographic usage in Yoruba movie posters and letters of orthographic Yoruba alphabet as 22.88, 3.01 and 2.00, 1.39 respectively with mean difference 20.88; and the value of the weighted mean average of 4.15 (83%) (that is, the overall means response of the respondents divided by the number of questionnaire items) and the result of the mean and standard deviation which was in favor of non use of Yoruba Alphabet in encoding captions of Yoruba movie posters, it can be affirmed that letters of orthographic Yoruba alphabet are not trendy as typographic font styles in encoding captions of Yoruba movie posters.

2. From this result on the value of the weighted mean average of 2.27(45%) recorded on Table 4.8, page 105 (that is, the overall means response of the respondents divided by the number of questionnaire items), the population mean and standard deviation of the application (graphic design software) adopted in encoding captions of Yoruba movie posters and its effectiveness in usage as 18.64, 1.28 and 16.46, 2.10 respectively with mean difference 2.18 in Table 4.9, depicted against the effective use of the application (graphic design software) adopted in encoding captions of Yoruba movie posters; it can be affirmatively inferred that the types of application (graphic design software) font style used in encoding captions of Yoruba movie posters are not appropriate and effective when used in encoding captions of Yoruba movie posters through graphic design software such as CorelDraw.

3. This result on the value of the weighted mean average of 1.83 (36%) recorded in the table 4.10, page, 109 (that is, the overall means response of the respondents divided by the number of questionnaire items), the mean and standard deviation of the effect of the customized typographic font styles used in encoding captions of Yoruba movie posters in term of language interpretation in relation to literal meaning of orthographic Yoruba language as 19.97, 2.19 and 2.56, 1.24 respectively with mean difference 17.41 that favored the effect of customized typographic font styles in Table 4.11, page 110. It can be conclusively inferred that the customized typographic font styles used in encoding captions of Yoruba movie posters cannot adequacy interpret literal meaning of orthographic Yoruba language.

4. The orthographic letters of Yoruba alphabet was developed into Yoruba typographic font style through the fundamental guiding procedures of font creation

5. The result on the value of the weighted mean average of 4.35 (87%) recorded on the table 4.12, page 115; (that is, the overall means response of the respondents divided by the number of questionnaire items), the population mean and standard deviation of the efficacies (successes) of the newly created orthographic Yoruba typographic font style and the typographic font styles extension as 41.09, 8.02 and 1.91, 2.67 respectively with mean difference 39.19 in favor the newly created orthographic on Table13, page 117. It can be deduced that the efficacies (success) of the newly created Yoruba typographic font style used to encode the captions of the new Yoruba movie poster were accepted in term of all the statements of questionnaire items in the table 4.13 than the typographic font style used to encode the captions of the old Yoruba movie poster.

Other findings of this study include the preservation of indigenous Yoruba language through the use of Yoruba typographic font style to encode text elements of graphic designs for Yoruba audience. The typographic font style used to encode captions of the new Yoruba movie poster will encourage other Yoruba media producers to encode messages in Yoruba typographic font style. The created typographic font style extension used to encode captions of the new Yoruba movie poster will generate employment for people who want to teach and learn the techniques of using the font extension for encoding visual messages in orthographic Yoruba language

5.2 Discussion of Major Findings

The study revealed that the available graphic design application software, such as CorelDraw, Photoshop, Adobe illustrator, etc, are not suitable to encode captions of Yoruba movie poster; but due to the necessity for diacritics usage in encoding Yoruba messages in orthographic Yoruba language, graphic designers used computer visual symbols, letters of English alphabet

and construction of lines as diacritic symbols on the required letters to depict Yoruba typographic font styles as shown in plate 5.1.1, 5.1.2, 5.1.3 and 5.1.4 on page 132 – 135

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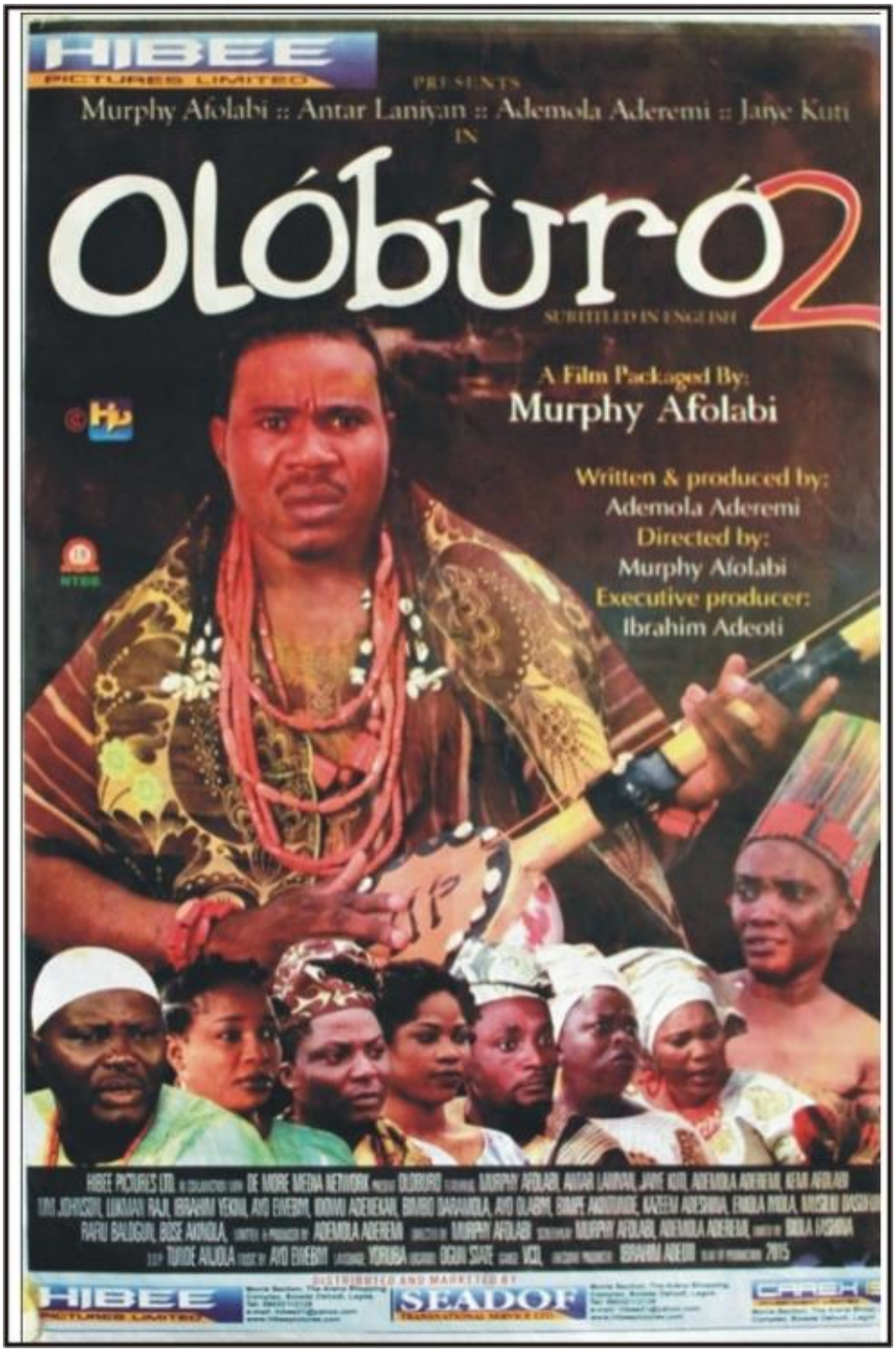
Plate 5.1.1: Improper placement of diacritic marks in Yoruba movie poster



Source: Field work, 2017

Plate 5.1.2: Improper placement of diacritic marks in Yoruba poster



Source: Field work, 2017

Plate 5.1.3 &4: Improper placement of diacritic marks in Yoruba movie poster



Source: Field work, 2017

Plate 5.1.1 showed the complete Yoruba movie poster, Plate 5.1.2 shows text of the caption with constructed diacritics and Plate 5.1.3 and Plate 5.1.4 shows the proximity of the constructed diacritic symbols (grave ascent) positioned on the two letter O. The pointing arrow in plate 5.1.3

shows that the constructed diacritic did not touch the letter O and plate 5.1.4 shows the constructed diacritic touching the letter O.

Plate 5.2.1: Non aligned placement of diacritics in Yoruba visual



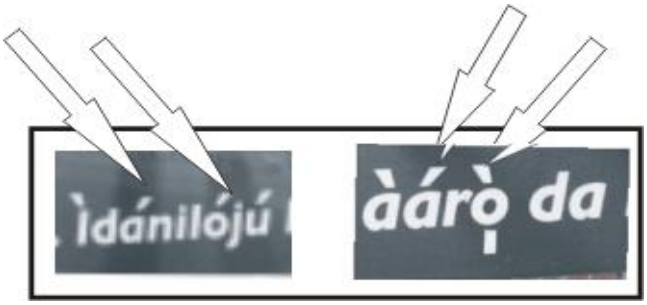
Source: Field work, 2017

Plate 5.2.2: Non aligned placement of diacritics in Yoruba visual



Source: Field work, 2017

Plate 5.2.2: Non aligned placement of diacritics in yoruba visual



Source: Field work, 2017

Plate 5.2.1 shows the complete Yoruba visual while plate 5.2.2 shows the text of the caption with constructed diacritics, plate 5.2.3 shows the proximity of the constructed diacritic symbols (grave and acute ascent) positioned on letter (a) and (o) respectively. The pointing arrow in plate 5.2.4 shows that constructed diacritics on letter (a) and (o) are not of the same proximity with latter (a) and (o) in Plate 5.2.2. The design and placement of asymmetrical diacritics have proven difficult to graphic designers working on computer electronic; such accents work well mostly in typefaces based on broad (David, 2009).

Proper positioning and proximity of the diacritic accents is crucial in encoding captions of Yoruba movie posters, David (2009) advised that diacritics should not collide and produce illegible shapes, for that reason, careful fitting and kerning is required. Figure 5.1 and 5.2 indicated the proper positioning and proximity of diacritics. The horizontal bar placed on the diacritic shows the appropriate positioning and proximity of diacritics to the letters or vowels of the captions.

Figure 5.1: The proper positioning and proximity of diacritics



Source: Studio work, 2017

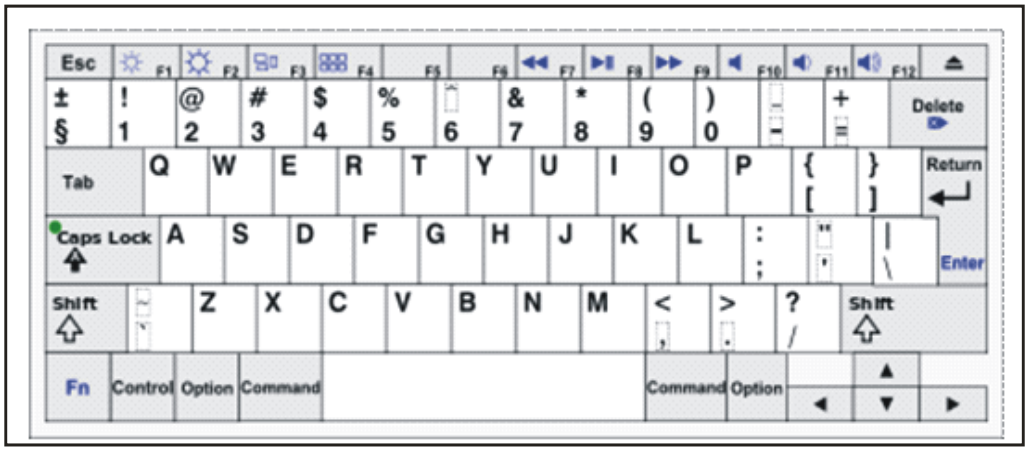
Figure 5.2: The proper positioning and proximity of diacritics



Source: Studio work, 2017

Another observation was that the letters of Yoruba alphabet cannot be found on the (QWERTY) standard key board to be used in encoding captions of Yoruba movie posters as shown in Figure 5.3

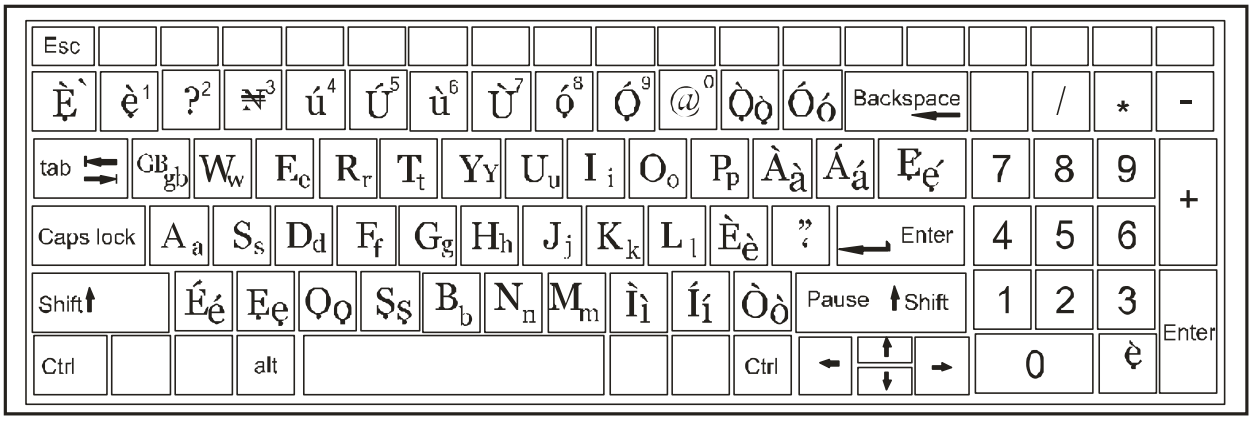
Figure 5.3: (QWERTY) Standard keyboards indicating English alphabet



Source: Field work, 2017

In order for the created Yoruba typographic font style to be usable on the standard QWERTY keyboard, the researcher created the keyboard layout to indicate the key responsible for each particular letter of Yoruba typographic font style as shown in Figure 5.4.

Figure 5.4 (QWERTY) Standard keyboards indicating Yoruba alphabet



Studio work, 2017

The study also revealed that the customized or adopted typographic font styles used in encoding captions of Yoruba movie posters cannot effectively interpret literal meaning of orthographic Yoruba language; some examples are as displayed in plate 4.1, 4.3, 4.5, 4.7, and 4.9

The finding of this research also revealed that the newly created Yoruba typographic font style used to encode the captions of the new Yoruba movie poster were accepted by Yoruba movie producers because the result shown that the respondents were able to read the captions as literal Yoruba language as indicated in plate 4.2, 4.4, 4.6, 4.8 and 4.10.

5.3 Summary of the Study

This study explored the development of Yoruba alphabet into typographic font styles (containing Yoruba-related signifiers) to be deployed on graphic design software, such as CorelDraw for electronic graphic design application. The general objectives of the study were to investigate the current trend of typographic usage in Yoruba movie posters with reference to letters of orthographic Yoruba alphabet as typographic font styles, examined the type of application (graphic design software) adopted to ascertain its effectiveness in usage; the effect of the customized typographic font styles used. It also aimed at developing orthographic Yoruba typographic font style for application on digital graphic design for Yoruba audience and evaluated the efficacy of the created orthographic Yoruba font style on Yoruba movie posters in term of letter readability and language interpretation in relation to literal meaning of orthographic Yoruba language.

The information on the research questionnaire form was divided into two sections for the purpose of archiving the objective of the study. The first section was on bio data and socio-economic components of the respondents. The second section sought information required on the

research questions as follows: Information on the current trend of typographic font styles usage in encoding captions of Yoruba movie posters; type of application (graphic design software) adopted; the effect of the customized typographic font styles in terms of language interpretation; the process of developing the letters of orthographic Yoruba alphabet as a font style for application on computer graphic design for Yoruba audience and on the efficacy (success) of the newly created orthographic Yoruba typographic font style.

The study also formulated four null hypotheses to test the significant differences between the variables as follows: the typography used as font styles and letters of orthographic Yoruba alphabet; the application (graphic design software) adopted in encoding captions of Yoruba movie posters and its effectiveness; the language interpretations of the customized typographic font styles and the literal meaning of orthographic Yoruba language; the newly created orthographic Yoruba typographic font style and the typographic font styles used to encode captions of the old Yoruba movie posters in term of readability in literal Yoruba language.

The researcher employed survey and experimental methods. Questionnaire was designed for both Yoruba movie producers and Graphic designers' with close-ended statements. The selection of population sample was done by purposive sampling and census population of 28 graphic designer and 34 Yoruba movie producer was used to from the population of the study.

The studio works carried out in the study comprised the experimental drawings on creation of Yoruba typographic font styles; conversion of the created Yoruba typographic font styles onto the computer key board**;** installation of the created Yoruba typographic font style onto computer electronic; re- encoding captions of some collected samples of Yoruba movie posters using the newly installed Yoruba typographic font extension; and the description, organization and

analysis of data collected using Mean and Standard deviation for the computation. The five null hypotheses were tested using student's *t*- test.

The study as well investigated the demographic aspect of the respondents to avail facts concerning characteristic of the respondents.

5.4 Conclusion

Indigenous language of a community is the best suited for the purpose of conveying any message, whatsoever, to the said community (Salawu, 2015). However, Encoding text messages of graphic design visuals through symbols of Yoruba alphabet can not be over emphazied. This research provided evidence that incessant adoption of non Yoruba alphabetic symbols as typographic font styles in encoding captions of Yoruba communication visuals through graphic design software such as CorelDraw was due to unavailability of appropriate Yoruba alphabetic font styles on computer electronics and key board that could be used for electronic graphic design application; the study also revealed significant effect of the customized typographic font styles in term of the literal meaning of orthographic Yoruba language.

This study therefore developed Yoruba alphabet as a typographic font extension (containing Yoruba-related signifiers) deployable on graphic design software, such as CorelDraw for computer graphic design application for production of effective Yoruba communication visual for various developmental purposes.

5.5 Recommendations

In line with the findings of this study, the following recommendations were made:

1. Graphic designs for Yoruba audience's text elements to be encoded in letters of orthographic Yoruba alphabet through an enlightenment campaign.
2. Yoruba media producers should adopt the use of appropriate font styles to encode captions and other text elements of graphic designs for Yoruba audience.
3. The governments of Nigeria's Yoruba speaking states, Teachers of Yoruba language and Yoruba media producers should promote the adoption of orthographic Yoruba alphabet to encode captions and other text elements of graphic designs for Yoruba audience through public service campaigns, workshops, and seminars.

5.6 General Recommendations

The Federal Ministry of Education (FME) and all institutes of higher learning in Nigeria should encourage establishment of the department of graphic design and the managements of such established departments should encourage researches in the area of typography designs and usages to provide sufficient literature in the field.

5.7 Contribution to Knowledge

Efforts have been made to ease the use of Yoruba alphabet on standard keyboards; these efforts have been limited to "Arial Unicode" font style and applicable only to Microsoft word with multiple key combinations to obtain a letter without preference to the profession of graphic design, therefore:

1. The study uncovered the challenges of inability to electronically use the orthographic letters of Yoruba alphabet to encode text elements of graphic designs for Yoruba audience.

2. The study revealed the means of encoding text elements of graphic designs for Yoruba audience through graphic design application (such as CorelDraw).

3. The study also expanded knowledge on the possible ways of font creation in other languages.

5.8 Suggestion for Further Research

In the course of this study, the researcher adopted existing installed typographic font styles for design and modifications. Therefore, further study could be conducted on the Creation of Yoruba Typographic Font Styles free of adoption of the existing installed typographic font styles for modification.

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APPENDIX I

DEVELOPING THE YORUBA ALPHABET AS A TYPOGRAPHIC FONT STYLE FOR APPLICATION ON DIGITAL/COMPUTER GRAPHIC DESIGN FOR YORUBA AUDIENCE

PRODUCERS' QUESTIONNAIRE ON OLD YORUBA MOVIE POSTERS

I am a doctoral student in Graphic Design in the Department of Industrial Design at Ahmadu Bello University, Zaria. I am conducting a research on orthographic Yoruba alphabet as font style usage on Yoruba movie posters. This questionnaire is an instrument for data collection on the research. You have been selected among others to assist in answering questions relevant to the objectives of the study.

All information given will be treated confidentially and will not be divulged to anybody. Please, kindly respond appropriately as contained in the instrument.

SECTION A: Personal Data

1. Name: (Optional) _____

2. Dialect Area _____

3 Profession / Discipline/ Occupation _____

4. Course Studied:_____

5. Number of years in practice: Tick the one that is most appropriate to you

   Below 5 years [ ] 6 – 10 years [ ] 11 – 15years [ ] 16 – 20years [ ] Above 20years [ ]

6. Age: Tick the one that is most appropriate to you

   Below 30 years [ ] 30 - 40years [ ] 41 – 50years [ ] 51 – 70years [ ] Above 70years [ ]

7. Highest Level of education: Tick the one that is most appropriate to you

   Primary School: [ ] Secondary School [ ] College of Education NCE [ ]

   Polytechnic: OND, [ ] HND [ ]

   University Graduate or Equivalent: [ ]

   Post Graduate: [ ]

SECTION B: Rating Scale: Please study the typographic font style used to encode the caption (s) the posters titled **(OLD YORUBA MOVIE POSTER)** and respond to all the statement below, by ticking one out of the following 5 options which best relates to your practice

Strongly agreed

Agreed

Uncertain

Disagreed

Strongly Disagreed

The current trend of typographic usage in Yoruba movie posters with reference to letters of orthographic Yoruba alphabet

1. What is the current trend of typographic usage in Yoruba movie posters with reference to letters of orthographic Yoruba alphabet?

S/N	Current Trend of Typographic Font Style Usage on Yoruba Movie Poster	Strongly Agreed	Agreed	Undecided	Disagreed	Strongly Disagreed
1.	Typographic font style are being used to encode advertizing captions on Yoruba movies posters					
2	Letters of Yoruba alphabet are not being used for encoding captions Yoruba movies posters					
3	Letters of Yoruba alphabet are flourishing as typographic font style on Yoruba movies posters					
4.	Yoruba movie posters rendered in Yoruba alphabetic font styles are accepted by Yoruba movie producers					

		Strongly Agreed	Agreed	Undecided	Disagreed	Strongly Disagreed
5	Yoruba movie posters' captions are encoded or written in English typographic font style					
6	Any letter of alphabetic font style are being used to encode captions of Yoruba movie posters					

The effect of the customized typographic font styles used in encoding captions of Yoruba movie posters in term of language interpretation in relation to literal meaning of orthographic Yoruba language?

2. What is the effect of the customized typographic font styles used in encoding captions of Yoruba movie posters in term of language interpretation in relation to literal meaning of orthographic Yoruba language?

S/N	The Effect of the Customized Typographic Font Styles Used in Encoding Captions of Yoruba Movie Posters in Term of Yoruba Language Interpretation	Strongly Agreed	Agreed	Undecided	Disagreed	Strongly Disagreed
1.	Yoruba movie posters' captions are written in orthographic Yoruba alphabet but if they are not, they will likely be misunderstood.					
2.	The typographic font style used to encode captions of the Yoruba movie poster cannot be read as literal Yoruba language.					

3.	The captions on the Yoruba movie posters depict English language caption					
4	Messages or captions of Yoruba movie posters are often easily understood by Yoruba movie producers					
5	The use of English typographic font styles to encode captions of Yoruba movie posters should be encouraged by Yoruba Movie Producers					
6	The use of orthographic Yoruba alphabet on Yoruba movie posters is an effective way to communicate to Yoruba audience					

In orthographic Yoruba alphabet, re-write the captions of the Yoruba movie poster labeled**…**
(OLD YORUBA MOVIE POSTERS)_____

APPENDIX II

DEVELOPING THE YORUBA ALPHABET AS A TYPOGRAPHIC FONT STYLE FOR APPLICATION ON DIGITAL/COMPUTER GRAPHIC DESIGN FOR YORUBA AUDIENCE

DESINGERS' QUESTIONNAIRE ON OLD YORUBA MOVIE POSTERS

08033738912

I am a doctoral student in Graphic Design in the Department of Industrial Design at Ahmadu Bello University, Zaria. I am conducting a research on orthographic Yoruba alphabet as font style usage on Yoruba movie posters. This questionnaire is an instrument for data collection on the research. You have been selected among others to assist in answering questions relevant to the objectives of the study.

All information given will be treated confidentially and will not be divulged to anybody. Please, kindly respond appropriately as contained in the instrument.

SECTION A: Personal Data

1. Name: (Optional)_____

2. Dialect Area _____

3 Profession / Discipline/ Occupation _____

4. Course Studied:_____

5. Number of years in practice: Tick the one that is most appropriate to you

   Below 5 years [ ] 6 – 10 years [ ] 11 – 15years [ ] 16 – 20years [ ] Above 20years [ ]

6. Age: Tick the one that is most appropriate to you

   Below 30 years [ ] 30 - 40years [ ] 41 – 50years [ ] 51 – 70years [ ] Above 70years [ ]

7. Highest Level of education: Tick the one that is most appropriate to you

   Primary School: [ ] Secondary School [ ] College of Education NCE [ ]

   Polytechnic: OND, [ ] HND [ ]

   University Graduate or Equivalent: [ ]

   Post Graduate: [ ]

SECTION B:

Rating Scale: Please study the typographic font style used to encode the captions of the posters titled **(OLD YORUBA MOVIE POSTER)** and respond to all the statement below, by ticking one out of the following 5 options which best relates to your practice.

Strongly agreed

Agreed

Uncertain

Disagreed

Strongly Disagreed

The Font Software Used in Encoding Captions of Yoruba Movie Posters with the View to Ascertain its Effectiveness.

1. What type of application (graphic design software) font style software do you find most appropriate and to what effect or easy has it been when used in encoding captions of Yoruba movie posters?

S/N	The Font Style Software I find most appropriate in Encoding Captions of Yoruba Movie Posters	Strongly Agreed	Agreed	Undecided	Disagreed	Strongly Disagreed
1.	I find CorelDraw font style appropriate for encoding captions of Yoruba movie posters					
2	I find Photoshop font style appropriate for encoding captions of Yoruba movie posters					
3	There is Yoruba font style useable on graphic design software such as CorelDraw					

		Strongly Agreed	**Agreed**	**Undecided**	**Disagreed**	**Strongly Disagreed**
4	I like designing Yoruba movie poster that requires orthographic Yoruba alphabet for writing of text messages					
How do you go about encoding captions of Yoruba movie poster?						
5	I use computer visual symbols to serve as orthographic letters of Yoruba alphabet to encode captions of Yoruba movie posters.	**Strongly Agreed**	**Agreed**	**Undecided**	**Disagreed**	**Strongly Disagreed**
6.	I adopt English alphabet in place of Yoruba alphabet to encode captions of Yoruba movie posters					
7	I construct or draw symbols on the required letters to show Yoruba alphabets.					
	It is difficult to design or encode captions of Yoruba alphabet on Yoruba movie posters through Corel Draw-Graphic design software.					

APPENDIX III

DEVELOPING THE YORUBA ALPHABET AS A TYPOGRAPHICFONT STYLE FOR APPLICATION ON DIGITAL/COMPUTER GRAPHIC DESIGN FOR YORUBA AUDIENCE

PRODUCERS' QUESTIONNAIRE ON NEW YORUBA MOVIE POSTERS

08033738912

I am a doctoral student in Graphic Design in the Department of Industrial Design at Ahmadu Bello University, Zaria. I am conducting a research on orthographic Yoruba alphabet as font style usage on Yoruba movie posters. This questionnaire is an instrument for data collection on the research. You have been selected among others to assist in answering questions relevant to the objectives of the study.

All information given will be treated confidentially and will not be divulged to anybody. Please, kindly respond appropriately as contained in the instrument.

SECTION A: Personal Data

1. Name: (Optional) _____

2. Dialect Area _____

3 Profession / Discipline/ Occupation _____

4. Course Studied:_____

5. Number of years in practice: Tick the one that is most appropriate to you

   Below 5 years [ ] 6 – 10 years [ ] 11 – 15years [ ] 16 – 20years [ ] Above 20years [ ]

6. Age: Tick the one that is most appropriate to you

   Below 30 years [ ] 30 - 40years [ ] 41 – 50years [ ] 51 – 70years [ ] Above 70years [ ]

7. Highest Level of education: Tick the one that is most appropriate to you

   Primary School: [ ] Secondary School [ ] College of Education NCE [ ]

   Polytechnic: OND, [ ] HND [ ]

   University Graduate or Equivalent: [ ]

   Post Graduate: [ ]

SECTION B:

Rating Scale: Please compare the typographic font style used to encode the captions of the posters titled **(OLD YORUBA MOVIE POSTER)** and **(NEW YORUBA MOVIE POSTER)** respectively and respond to all the statement below, by ticking one out of the following 5 options which best relates to your practice.

Strongly agreed

Agreed

Uncertain

Disagreed

Strongly Disagreed

The Efficacy of the Newly Created Orthographic Yoruba Font Style on Yoruba Movie Posters

3. What behavioral manifestation would lend credence to the efficacy (success) of the newly created orthographic Yoruba typographic font style?

S/N	**The Efficacy of the Newly Created Orthographic Yoruba Font Style on Yoruba Movie Posters**	**Strongly Agreed**	**Agreed**	**Undecided**	**Disagreed**	**Strongly Disagreed**
1.	The typographic font styles used to encode captions of the new Yoruba movie poster are orthographic Yoruba alphabet, while the encoded captions of the old Yoruba movie poster are not.					
2.	The typographic font style used to encode captions of the new Yoruba movie poster can be read as literal Yoruba language.					

3.	The typographic font style used to encode captions of the new Yoruba movie poster do not interpret English alphabet.					
4	The typographic font style used to encode captions of the new Yoruba movie poster is recognized as Yoruba alphabet than the typographic font style used on the old Yoruba movie posters					
5	I can easily understand the Messages or captions of the new Yoruba movie posters as literal Yoruba language than in the old Yoruba movie poster.					
6	The typographic font style used to encode captions of the new Yoruba movie poster is the effective way to communicate to Yoruba audience than the font style used on the old Yoruba movie poster.					
7	The typographic font style used to encode captions of the new Yoruba movie poster showcases the orthographic letters of Yoruba alphabet					
8	The typographic font style used to encode captions of the new Yoruba movie poster will preserve the indigenous Yoruba language					

		Strongly Agreed	**Agreed**	**Undecided**	**Disagreed**	**Strongly Disagreed**
9	The typographic font style used to encode captions of the new Yoruba movie poster will encourage other Yoruba media producers to encode messages in Yoruba typographic font style.					
10	The typographic font style extension used to encode captions of the new Yoruba movie poster will generate employment for people who want to teach the techniques of using the software for encoding visual messages in orthographic Yoruba language					