



# ADOPTION OF IFÁ AS A COMPUTER-BASED INFORMATION SYSTEM

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## ABSTRACT

Ifá scholars have primarily focused on its sociological and linguistic aspects while the scientific and computer aspects have been variously neglected. This paper explored the mathematical and computer model of Ifá corpus, which will assist Ifá priests to use the oracular process to simulate Ikin (the sixteen sacred palm nuts) and Òpèlè (the divining bead chain) on the way to produce Odù (Ifá poetries) signatures. Each signature links the 256 Odùs in the database which invariably retrieved the corresponding verses with conforming sacrifices or advices. Microsoft Visual Studio.Net Express 2018 Community Edition on Window 10 Professional, 64-bit Operating System with Intel core duo CPU at 2.60 GHz, 12 GB memory was used to implement Ifá Application Tool (IAT). IAT interface supported Ikin and Òpèlè simulation, the manual inscription of Odù signature, display of verses, stories, advises and recommended sacrifices. Usability testers scored the tool high in the ease of finding information within the user interface while it was above average in the skill to capture essential features for Odù divination accomplishments. This model supported Ifá professionals to make informed decisions and assessment by eliminating the level of ambiguity to interpret Odù corpus with a clear demarcation of its meanings.

**Keywords:** Ifá; Odù-Ifá; Usability Testing; Bernoulli trial; Ifá Application Tool; Yoruba Traditional Religion

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## 1.0 Introduction

*Ifá* is a spiritual system based on the belief of *Olódùmarè* (the creator of heaven and earth), *Òrìṣà* (nature spirits) and the ancestors [1]. It is a primitive computer binary system that covers a total of 256 chapters called *Odù-Ifá*. These *Odùs* are into two major parts; the 16 major chapters called *Ojú-Odù* and the 240 minor chapters called *Qmọ-Odù* or *Àmúlù-Odù* (*Odù* combination). Each of the 256 *Odùs* has about 1,680 poems or verses in the parable format attached to it. Thus, the body of *Ifá* consists of 430,080 messages for humanity [6]. This accounts for why it is impossible for any one person to comprehend the whole of *Ifá*. However, the electronic computer system can help to store the soul wisdom into a database. This is possible by formulating a model in which the diviner consults *Ifá* through the computer system and the binary mathematics simulate *Ikin* and *Ọpẹlẹ* to assign *Odù* signatures. Each assigned signature matches the 256 *Odùs* in the database which invariably retrieves the corresponding verses with conforming sacrifices or advise. The discreet random variable modelled Bernoulli trial of random experiments for two possible outcomes of precisely one or two sacred palm-nuts persistent at the left-hand palm after the beating of the sixteen sacred palm-nuts in the right-hand palm against the left-hand palm. Having one sacred palm-nut in the left arm is a success reflected by two-line strokes while having two sacred palm nuts in the left arm is a failure represented by a one-line stroke in the beautifully decorated *Ifá* tray [4].

Microsoft Visual Studio.Net Express 2018 Community Edition on Window 10 Professional, 64-bit Operating System with Intel core duo CPU at 2.60 GHz, 12 GB memory implements *Ifá* Application Tool (IAT). However, Visual Basic.Net was used to carry out the core program. Parent Form host various child Forms for manual insertion of *Odùs*, *Ikin* and *Ọpẹlẹ* simulation. The parent Form also hosts the user

interface for *Ifá* verses, stories, advises and recommended sacrifice. The tool strip menu item supports the 256 *Odu Ifá*, the *Ikin* and *Ọpẹlẹ*, manual inscription of *Odu* signature and help items. Users rate various aspects about the application by giving a rating from '0' to '5', '0' indicates the most possible negative answer while 5 meant an extremely positive experience. However, users scored the tool high in the ease of finding information within the user interface while it was above average in the tool's ability to capture essential features for *Odu-Ifá* divination accomplishments. This paper explores the mathematical and computer aspect of *Ifá* corpus and clarifies the existing confusion which comes with its use and interpretation; it also supports the *Ifá* professionals to make informed judgments and assessment of *Ifá* by eliminating the level of misunderstanding in the interpretation of *Odù-Ifá* corpus with a clear demarcation of its meaning. The paper also supports the custodians of *Ifá* to document the dialectics *Odùs* according to what has been handed over to them for the benefits of humankind. This set of clarifications and distinctions will set up a clear identity for *Ifá* to make it more acceptable, accessible, practicable and applicable by all.

## 2.0 Literature Review

*Ifá* encompasses the Yoruba worldview, their cosmology and belief systems that touch on all aspects of life most especially, the good and the bad. If things are good, there is a spiritual explanation for it and if otherwise, it could also be explained from the lenses of belief [6]. *Ifá* according to [9] portrays a body of knowledge, a process of divination and its tools christened *Ikin* (the sixteen sacred palm nuts) and *Ọpẹlẹ* (the divining bead chain). It is an act done by *Ifá* professionals that have potential in computer science most especially, in the area of the expert system to create and make a set of communication rules with the gods to solve people's problems [7]. [14] likewise considered the *Ifá* literary corpus as a storehouse for Yoruba philosophy which encapsulates,

enthroned and entombed the mystery behind knowledge and wisdom. However, [2] demonstrated that gerontocracy in Africa does not stifle the youthful initiative to take part in the critical sphere, it rather evokes the ability to look at issues from several angles, encourages thinkers (both young and old) to explore different views and bring in new perspectives. [12] unravels the dynamics, the beauty, the uniqueness and multiple potentials of the Yoruba *Ẹ̀sẹ̀-Ifá* (verses) from mythological and spiritual perspectives. The paper posits that *Ẹ̀sẹ̀-Ifá* plays pivotal roles in the social, religious and political milieu of the Yoruba people and has remained a rallying point in [5] discussing the need for Computer Based Information System (CBIS) in an organization and the need to understand that information is a valuable and important resource to create, store and transfer within and outside the system. It however observed that the simple computerization of a manual information system does not guarantee improved system performance especially when the underlying information system is not right. [8] however, proposed an intelligent agent in CBIS with two distinct practical aspects from a functional and technical perspective. The functional perspective focused on the functionality of CBIS systems and specifically required experts with a business background to develop and improve the business processes while the technical perspective focused on the programming and improvements of CBIS as software which requires experts with IT background to aid in maintaining the proper running of CBIS in the long terms. [10] contended that there is African philosophy that recognizes history, culture, reality and myths that shows an array of rational and logical ingredients as revealed in *Ifá* divination technique. It also established a relationship between computer science and *Ifá* divination. It further argued that the logic and rationality that characterize computer operational technique is comparable to what was found in *Ifá* divination

technique. Also, [11] conceptualized and designed a mobile-based KM system for “*Ifá*” divination. The system, applied mobile based Knowledge Management to “*Ifá*” oracle consultation, the paper validated the system with illustrative experimental results and mobile knowledge visualization framework. [3] also examined the philosophical relevance of *Ifá* corpus from epistemological and metaphysical points of view. It employed an analytical method to expose various philosophical issues in *Ifá* corpus. It also claimed that the metaphysical and epistemological relevance of *Ifá* corpus are enormous and the effect is fundamental in showing that true knowledge acquired through the empirical and transcendental means is possible. Though the great work of *Ifá* has been recycled to look like a mere myth because of the confusion and lack of clarification among its users [13], this paper then intends to clarify the existing confusion which comes with the use and interpretation of *Ifá* corpus.

### 3.0 Methodology

The client consults the oracular deity, *Òrúnmìlà* through a diviner called Babalawo or *Ifá* Professional as shown in Figure 1. The apparatus used by the diviner is the sixteen sacred palm nuts. The diviner shakes the sixteen palm nuts in his two palms; this act is called “beating the palm nuts” He thereafter beats the sacred nuts against his left palm, and attempts to pick up as many as probable with his right palm. If one palm nut remains in the left palm, he traces two vertical line symbol on the powdered *Ifá* tray; if two sacred palm nuts stays, he traces one vertical line symbol on the *Ifá* tray. A record is made only when one or two sacred nuts stays in the left palm. The whole procedure is repeated until “eight singles” or “double strokes” have been recorded in two column matrices as shown in a typical arrangement in *Ifá* tray of Figure 1. The power of four are central to the art of divination, each column has a distinctive name and significance, and since there are either one or two strokes in

each place, there are  $2^4$ , or 16 different arrangements in each column. The right column matrix (male) is more powerful than the left column matrix (female). Each of these double-

column matrix arrangements is called “road of *Ifá*” or *Odù-Ifá* which is read from the top down and then from right to left. Altogether there are  $2^4 \times 2^4$ , or 256 different *Odù-Ifá* or *Odùs*.

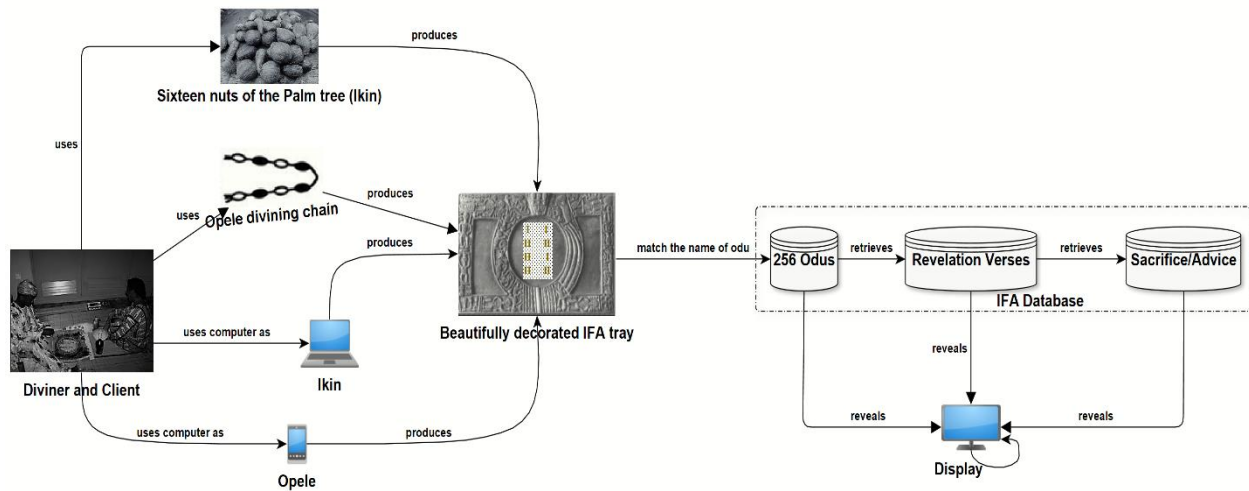


Figure 1: *Ifá* Interaction Model

Table 1: The sixteen major *Odù*

The Sixteen Major Odu															
Odu-Ifa Nomeclature	Signature	Binary Equivalent	Decimal Equivalent	Odu-Ifa Nomeclature	Signature	Binary Equivalent	Decimal Equivalent	Odu-Ifa Nomeclature	Signature	Binary Equivalent	Decimal Equivalent	Odu-Ifa Nomeclature	Signature	Binary Equivalent	Decimal Equivalent
Ogbe	I I I I I I I I	0000	0	Otura	I I I I I I I I	0100	4	Osa	I I I I I I I I	1000	8	Owonrin	I I I I I I I I	1100	12
Ogunda	I I I I I I I I	0001	1	Ose	I I I I I I I I	0101	5	Iwori	I I I I I I I I	1001	9	Oturupon	I I I I I I I I	1101	13
Irete	I I I I I I I I	0010	2	Odi	I I I I I I I I	0110	6	Ofun	I I I I I I I I	1010	10	Okanran	I I I I I I I I	1110	14
Irosun	I I I I I I I I	0011	3	Obara	I I I I I I I I	0111	7	Ika	I I I I I I I I	1011	11	Oyeku	I I I I I I I I	1111	15

Table 2: Extract of the 256 combined minor and major *Odùs*

Extract of 256 combined minor and major Odus															
Odu-Ifa Nomeclature	Signature	Binary Equivalent	Decimal Equivalent	Odu-Ifa Nomeclature	Signature	Binary Equivalent	Decimal Equivalent	Odu-Ifa Nomeclature	Signature	Binary Equivalent	Decimal Equivalent	Odu-Ifa Nomeclature	Signature	Binary Equivalent	Decimal Equivalent
Ogbe-Meji (Ejioyebi)	I I I I I I I I	00000000	0	Otura-Osa (Oturaosa)	I I I I I I I I	01001000	72	Iwori-Osa (Iworiosa)	I I I I I I I I	10011000	152	Oturupon-Otura (Oturuponotura)	I I I I I I I I	11010100	212
Ogunda- Owonrin (Ogundaowonr in)	I I I I I I I I	00011100	28	Ose-Iwori (Oseiworin)	I I I I I I I I	01011001	89	Okanran-Ofun (Okanranofun)	I I I I I I I I	11101010	234	Ofun-Irete (Ofunrete)	I I I I I I I I	10100010	162
Ireteokanran (Ireteokanran)	I I I I I I I I	00101110	46	Odi-Ofun (Odiiofun)	I I I I I I I I	01101010	106	Oyeku-Ika (Oyekuka)	I I I I I I I I	11111011	251	Obara-Ogbe (Obaraogbe)	I I I I I I I I	01110000	112
Irosun- Oturupon (Irosunturupon )	I I I I I I I I	00111101	61	Obara-Ika (Obaraika)	I I I I I I I I	01111011	123	Ika-Obara (Ikaobara)	I I I I I I I I	10110111	183	Oyeku-Meji (Ejioyeku)	I I I I I I I I	11111111	255

Scientifically, a bit is merely 0 or 1, it is a unit of information that communicates with anything less than two states that are embodied in fiscal machinery. Most computers like *Ifá* counts in

binary. A byte was traditionally the number of bits needed to store a character of text. A de-facto standard of 8 bits has 256 values or 0 to 255. The modern digital computer system

mimics the operations of *Ifá* as a primitive human functional ancient machine. The sets of major *Odùs* are sets of binary operations in which one major *Odù* (Table 1) is concatenated with itself or another major *Odù* to produce a set of minor *Odùs* (Table 2). These are ranked from 1 to 256 in the order of importance.

There are 1,680 sacred verses for each *Odù* but couched in the parable format so characteristic of Yoruba language. Thus, the body of *Ifá* consists of 430,080 messages for humanity. Each verse relates to a problem in life. As the diviner recites the verses associated with the *Odù*, the client listens to the words for his own situation. The priests are also renowned as skilled physicians who can give advice and prescribe sacrifice to mitigate against the verses shown by *Odù*.

*Òpèlè* divine chain is a simpler system of divination, used for minor decisions, it is considered a lesser deity. It consists of eight half-peapods strung with chain or twine at equal distances, with grethe ater interval between the fourth and fifth symbol. The diviner picks the diving chain at the middle, raise it above a smooth surface and let it fall in a two-column matrix arrangement. The sequence of convex and concave surfaces of the half-pods or "heads and tails" are the *Odùs*. The interpretation is the same as the sacred palm-nuts.

The model in Figure 1 also allows the diviner to consult *Ifá* through the computer system, The *Ikin* and *Òpèlè* uses Binary mathematics to simulate *Odù* signatures. Each assigned signature is matched with the 256 *Odùs* in the database which invariably retrieves the corresponding verses with conforming sacrifices or advice. The discreet random variable modelled Bernoulli trial of random experiments for two possible outcomes of precisely one or two sacred palm-nuts persistent in the left-hand palm after the beating of the sixteen sacred palm-nuts in the right-hand palm against the left-hand palm. Having one sacred palm-nut in the left arm is a success reflected by two-line strokes while having two sacred palm nuts in the

left arm is also a failure represented by a one-line stroke in the beautifully decorated *Ifá* tray.

A Bernoulli random variable  $X$  takes the values 0 and 1 and

$$P(X = 1) = p$$

$$P(X = 0) = q = 1 - p.$$

$p$  = probability of success,

$q$  = probability of failure =  $1 - p$ .

the probability of a specific sequence of outcomes where there are  $k$  successes and  $n-k$  failures is  $p^k q^{n-k}$

The random variable  $X$  that counts the number of successes,  $k$ , in the  $n$  trials is said to have a binomial distribution with parameters  $n$  and  $p$ , written  $\text{bin}(k; n, p)$ .

In sampling from a stationary Bernoulli process, with the probability of success equal to  $p$ , the probability of observing exactly  $k$  successes in  $n$  independent trials is

$$f(k) = P(X = k) = \binom{n}{k} p^k (1 - p)^{n-k}$$

for  $k = 0, 1, 2, 3, \dots, n$ .

$$\binom{n}{k} = \frac{n!}{(n-k)!k!}$$

$\binom{n}{k}$  counts the number of outcomes that include exactly  $k$  successes and  $n-k$  failures.

Suppose that a series of  $n$  trials were carried out and that on each trial any of  $k$  events might occur. Then the following rule holds:

If anyone of  $k$  mutually exclusive and exhaustive events can occur on each of  $n$  trials, then there are  $k^n$  different sequences that may result from a set of such trials.

For example, if the diviner performs the process of *Ikin* once, any of 2 numbers can be achieved ( $k = 2$ ). But if the process is performed eight times, any of the  $2^8 = 256$  sequences are possible.

Sometimes the number of possible events in the first trial of a series is different from the number of possible events in the second, the second different from the third, etc. That is,  $k_1 \neq k_2 \neq k_3$ , etc. Under such conditions,

If  $k_1, \dots, k_n$  are the numbers of distinct events that can occur on trials 1..., n in a series, then the number of different sequences of n events that can occur is  $(k_1) (k_2) \dots (k_n)$ .

Algorithm 1: The manual inscription of *Odù-Ifá* signature into the computer interface system

**Start**

```

Dim i, j As Integer: Dim x(8) As Integer: Dim k(8) As String
  For i = 1 To 8
    Dim IFARandom As New Random
    x(i) = IFARandom.Next(1, 3)
    If x(i) = 1 Then
      k(i) = "I"
    Else
      k(i) = "II"
    End If
  For j = 1 To 10000000
    j = j + 1
  Next j
Next i
Opele1.Text = k(1): Opele2.Text = k(2): Opele3.Text = k(3): Opele4.Text = k(4)
Opele5.Text = k(5): Opele6.Text = k(6): Opele7.Text = k(7): Opele8.Text = k(8)
BtnRevelation.Enabled = True
Odu_Ifa_Revelation()
  Odu_Ifa_Verses()
  Odu_Ifa_Story_Advise_Sacrifice()

```

**End**

#### 4.0 Implementation

The traditional style of consulting *Ifá* oracle to develop an application case study tool was employed. This is because the case study characterizes all the steps in *Ifá* divination exploit.

Microsoft Visual Studio.Net Express 2018 Community Edition on Window 10 Professional, 64-bit Operating System with Intel core duo CPU at 2.60 GHz, 12 GB memory captured the *Ifá* divination information development tool. However, Visual Basic.Net was used to implement the core program.

Parent Form was created to host various child forms for the simulation of Ikin, *Ọpẹlẹ* and manual insertion of *Odùs*. The parent form also hosts other forms for *Ifá* verses, stories, advises and recommended sacrifice.

The tool strip menu item supports the creation of the 256 *Odù-Ifá*, the imitation of Ikin and *Ọpẹlẹ*, manual inscription of Odu signature and helps items.

The 256 *Odùs* are characterized into sixteen (16) segments. Each sector has sixteen (16) *Odùs*. The first sixteen sections are the major *Odùs* while the remaining fifteen sections contain the minor *Odùs*.

When the 256 *Odù-Ifá* menus are clicked, a drop-down menu descended to categorize the *Odu-Ifá* into different segments. Once the segment is clicked, the *Odu-Ifá* in context is revealed which can be clicked further to activate the simulated *Ọpẹlẹ* equivalent as depicted in Figure 2 for Odu: 96 *Ọwọnrín-ìrosùn*.



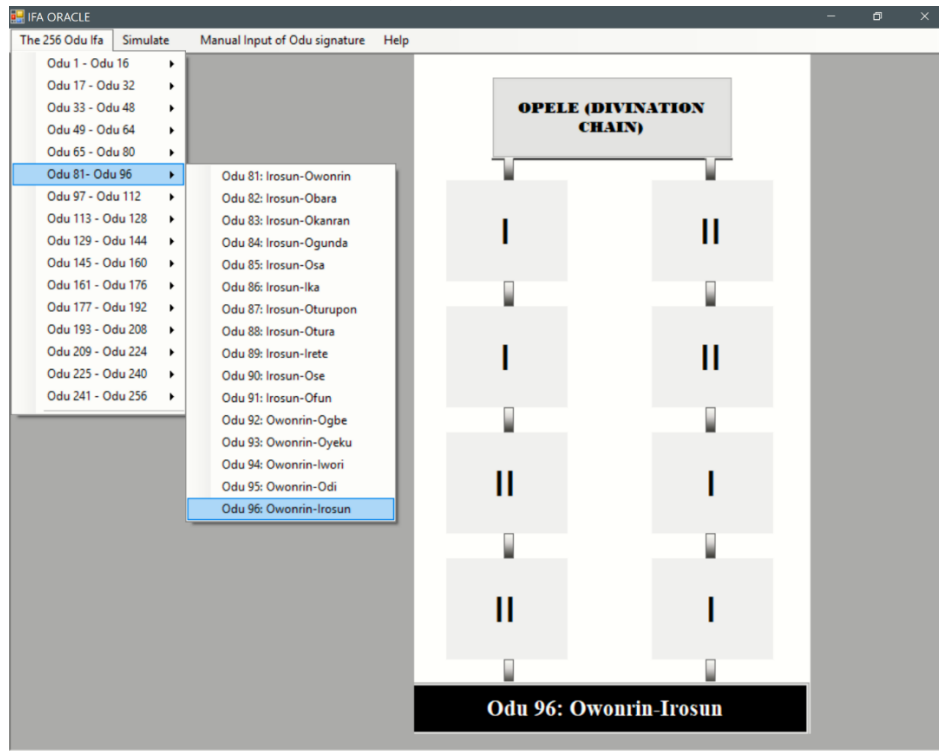


Figure 2: The 256 *Odù-Ifá* Interface

The same procedure is used to simulate Ikin (the sixteen sacred palm nuts) and *Ọ̀pẹ̀lẹ̀* (the divination chain). For instance, when the Ikin submenu is clicked under the simulate menu, the Ikin palm nut button with eight (8) text boxes is revealed. As the Ikin button is clicked,

each text box is filled with either “I” or “II” symbol from right to left and then from the top downward as traditionally practiced during *Ifá* divination process. The *Odù-Ifá* is then revealed after the eighth click as shown for *Odù 27: Ogbè-òtúrúpọ̀n* in Figure 3

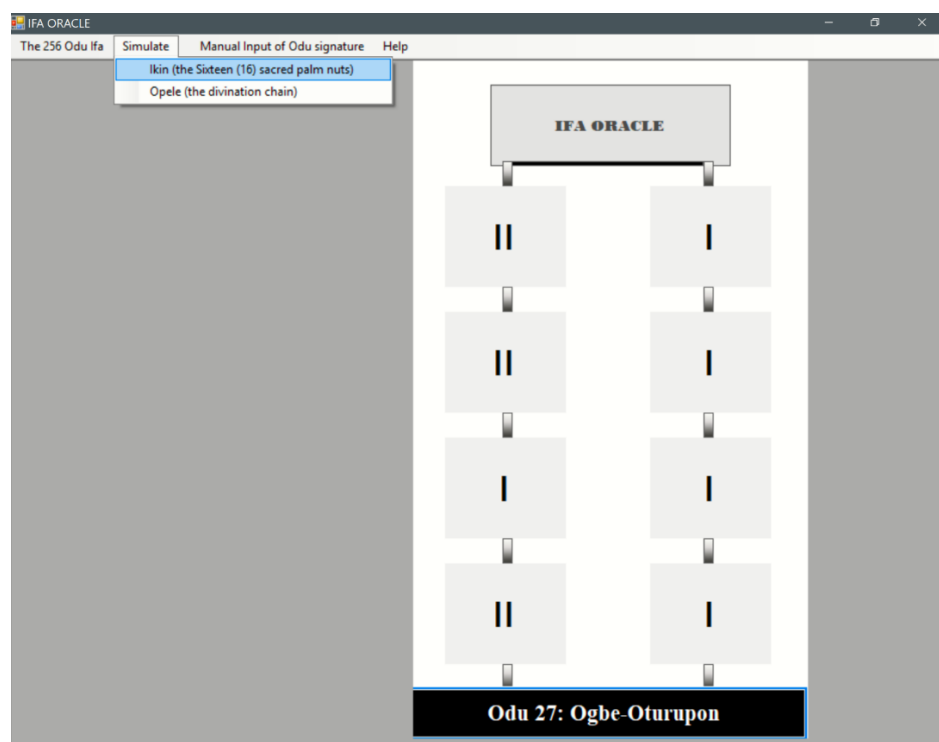
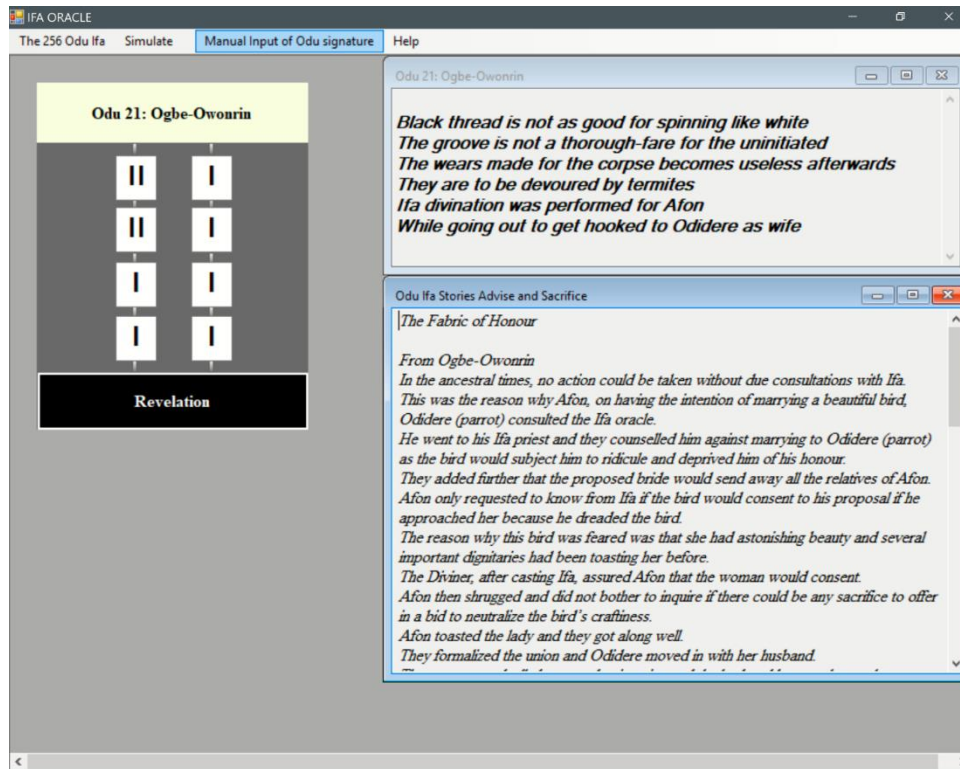


Figure 3: Ikin Simulation for *Ogbè-òtúrúpọ̀n*

The 'Manual Input of *Odù* signature' menu was designed to aid *Ifá* priest to retrieve *Odù-Ifá* nomenclature, verses, stories, advises and sacrifices when the need to do so arises. This is how it works: the *Ifá* priest uses the Ikin or *Ọpẹlẹ* to inquire about the client's problem. The revealed *Odù-Ifá* is marked on *Ọpẹn-Ifá*. The *Ifá* priest clicks the 'manual Input of *Odù* signature' menu, a form

pop-up to instruct the *Ifá* priest to either click or double click each of the eight white boxes to replicate the signature on the *Ọpẹn-Ifá*. For example, let us assume *Ogbè-òwónrín* is replicated on the Form, on completion of the process, click the Revelation button to show the *Odù* verses and *Odù-Ifá* stories, thereafter advice and sacrifice are exposed as in Figure 4



**Figure 4: Manual Inscription of *Odù* signature with *Odù-Ifá* verses, stories, advise and sacrifice**

## 5.0 Usability Testing

Usability is a term used to denote the ease of using an object to reach the goal of the person performing the task. It leads to various methodologies to measure how well the users can cope with the tools. To create the *Ifá* application tool that will attract and be acceptable to its users, every aspect of the user's interaction interface like, layout, visual design, text, brand, sounds are pondered upon. Also, the characteristics of the designed system such as, complexity, purpose, usability, functionality, environment, organizational/social, meaningfulness of the activities are taken into

consideration as well. Users are given tasks in a test environment and are encouraged to think aloud while trying to carry out the tasks. This enables us to decipher the information we need on how the user interface matches the natural human way of thinking, acting and highlighting the features and processes to improve upon.

### 5.1 Author's Experience

Trying to comprehend and systematize *Ifá* started with a professional *Ifá* priest. The priest was pleased and willing to become my teacher after convincing him on the need to computerize and



modernize the *Ifá* divination process. The first constraint was visiting *Ifá* priest because of the negative stigma the society attaches to it. You are either a Christian or Muslim (the two foreign religions that were forced on us through slavery) else, you are considered a devil advocate especially with the Yoruba Traditional Religion (YTR). The fear soon faded away after the second visit. I explained why I had come to see him. I told him that I wanted to learn enough about *Ifá* to aid me in the development of an application tool for *Ifá* practitioners on the computer system.

He enlightened me about the life of *Ifá* priest and what it involves to become an *Ifá* priest, the services they render and the roles expected of them in the society. He introduced his apprentices that are fifteen in number. Their age ranges between Ten to Thirty-five years. Four are still undergoing primary school education, six are in secondary school, three are in tertiary institutions meaning that thirteen students are learning the trade on a part-time basis usually after the school hours, weekends and other holidays while the remaining two elderly students are learning *Ifá* on a full-time basis. This obviously watered my appetite and made me more curious. I summarily realized that many people, irrespective of their religious affinity do visit my teacher on a regular basis. Based on this, I later felt free and relaxed. I began my regular bi-weekly classes on 17<sup>th</sup> January 2018. I started learning the 16 major *Odù* and afterward, the combinations of the different 16 major *Odù* called minor *Odù*. I also learned *Ikin* and *Ọpẹlẹ* and how to interpret the signs that emanated from the *Odù*. Having been convinced that I could follow the processes and make an inference from whatever I see an *Ifá* priest does, I started laying the architectural foundation for the *Ifá* application tool on 12<sup>th</sup> June 2018.

## 5.2 User Experience

Designing the *Ifá* Application Tool (IAT) is nevertheless easy to carry out but almost impossible to please all the IAT audience. They

have different immediate needs. They also have different rules and identities based on where, when, how and why they want to use the tool. For example, a user may want to use the tool for a learning process while another may engage the tool for a consultation after the manual imprint of *Odù* on the divine tray (*Ọpọn-Ifá*). The aim is to encourage every apprentice of *Ifá* divination above the age of ten to use IAT effectively. The key issues for IAT are to emphasize the use of 'The 256 *Odù-Ifá*' menus to get access to all the 256 *Odùs* and their corresponding verses. However, users have to learn and master the challenging set of skills in the *Ifá* divination process to use the 'manual input of *Odù* signature' menu which assists one to enter a valid set of inputs in order to produce content that delivers right messages to the client.

### 5.2.1 Test Driver

As the IAT will be a relatively new and growing phenomenon in the software market which is yet to mature. The emphasis of this research is to make the usage of the tool more appealing to *Ifá* priests and their apprentices. People who may not have undergone training in *Ifá* practice but still enjoy IAT user interface without delving themselves too deep into the details of how *Ifá* divination works also can be accommodated to play with the tool. The preferred age group would be from the young adults to those in their late seventies and beyond, this was the observed age range of practitioners. The gender of the practitioners was also observed, they were majorly men but that does not dismiss the fact that women do practice the profession. One of the basic assumptions behind this study is to make IAT seem simple. Emphasis is specially placed on the skill and reliability usage of the tool by using fewer key presses, fewer buttons, less navigation, and direct option menus. The ease of use is specifically considered with a help menu.

### 5.2.2 Test Process

The test carried out was non-laboratory in nature. The IAT was pre-installed in Four

computer laptop devices for the use of the *Ifá* priests and their apprentices at three different locations. The number of *Ifá* priest interviewed were three while twenty-two apprentices were also interviewed. The test interview took place in their abode in order to make them feel comfortable and see the need for computer technology for their profession. Each of the interviews took a one-hour time slot. The author led the events. The tests were held in private with each participant during weekends only. The author was responsible for explaining the user interface and ran the users thought through the events.

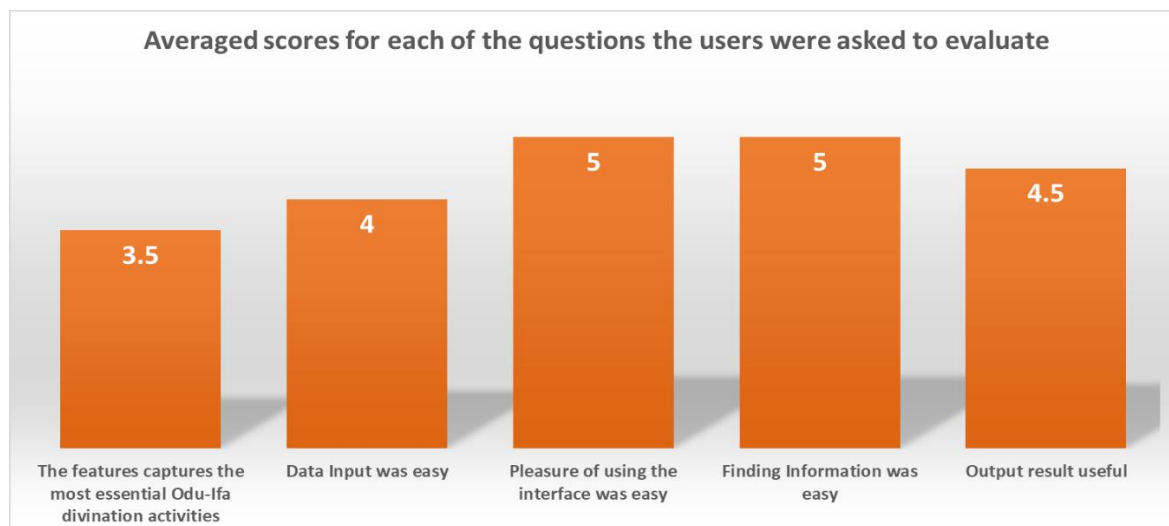
The author engaged the services of two usability experts whose roles was to take notes of the responses and reactions of the test person as well as to get first-hand experiences of how the users felt about the tool. The fifteen responsibilities that the users were asked to perform on the application are:

- a. **Set up the IAT environment and load the tool**
- b. **Find the menu for 'the 256 Odù-Ifá' with its submenus;**
- c. *Click each sub-menu Odù.*
- d. *Does each Odù correspond to the display on the form?*
- e. **Find Simulate menu;**
- f. *simulate Ikin*
- g. *simulate Òpèlè*

- h. *Where and how do you think the simulate menu can best be used?*
- i. **Carryout Ifá divination for a supposed client**
- j. *Print Odù-Ifá in the traditional Ọpọ̀n-Ifá (Ifá tray)*
- k. *What are the corresponding verses for the Odù-Ifá print?*
- l. *What is the corresponding story and sacrifice?*
- m. *Transfer the Odù to the electronic Ọpọ̀n-Ifá by clicking the 'manual input of Odù signature' menu*
- n. *Click the revelation button to confirm that the verses, story, and sacrifice are the same or closely related.*
- o. **What can you deduce from the above process?**

### 5.2.3 Test Result

*Ifá* priests and their apprentices are the target group. The duration of the test was one hour which forced the participants to focus on the essential usability and the experience the interface got to offer. Users were requested to evaluate various aspects about the application by giving a rating from 0 to 5, 0 indicates the most negative answer possible while 5 meant an extremely positive experience. The average of the scores is displayed in Figure 5.



**Figure 5: Average Scores for each of the questions the participants were asked to evaluate**

User interview was also performed by carrying out further surveys for testers. The surveys are Net Promoter Score (NPS) and System Usability Scale (SUS) as parameters. In NPS, testers were asked how likely to recommend the application to a friend or colleague. Respondent give rating between 0 (not at all likely) and 10 (extremely likely) as shown in Table 3. Testers were categorized and rated into Promoters (9-10), Passives (7-8) and Detractors (0-6) to establish an NPS score. In SUS, questionnaires were issued to testers to measure usability

perception. Ten (10) questions on the scale of 1-5 were asked each participant according to how they agree with every statement regarding the application. 1 indicates strongly disagree while 5 means strongly agree with the statement. The Ten questions asked can be found in the extreme top left-hand side in Table 3. The NPS score for this application was 92% while the SUS score was found to be 93.3%. The tool was found to be above excellent according to the Grading SUS Key at the extreme left-hand side in Table 3.

**Table 3: Net Promoter Score (NPS) and System Usability Scale (SUS) for Ifá Application tool**

Question ID	Questions	Grading Net Promoter Score (NPS) surveys		Grading SUS Key												
Q1	I think that I would like to use this application frequently.	On a scale of zero to ten, how likely are you to recommend this application to a friend or colleague?		92	Best imaginable											
Q2	I found the application unnecessarily complex.			85	Excellent											
Q3	I think the application is easy to use.			72	Good											
Q4	I think that I would need the support of a technical person to be able to use this application.			52	OK/Fair											
Q5	I found the various functions in this application were well integrated.			38	Poor											
Q6	I thought there was too much inconsistency in this feature.			25	Worst imaginable											
Q7	I would imagine that most people would learn to use this application very quickly.			Category	Scores	>81	A									
Q8	I found the application very cumbersome to use.	68-81	B													
Q9	I felt very confident using the application.	Promoters	9-10	68	C											
Q10	I needed to learn a lot of things before I could get going with this application.	Passives	7-8	51-67	D											
		Detractors	0-6	<51	F											
Participant ID	Participant Name	Question ID										NPS Scores	Scales			
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		Odd Items	Even Items	SUS Score (/100)	Grades
1	Dele famuyiwa	5	1	4	2	5	1	3	3	5	1	10	17	17	85	A
2	Goke Odugbemi	5	1	4	1	5	1	4	2	5	1	10	18	19	92.5	A
3	Olufemi Ijaduade	5	2	5	1	5	1	5	2	5	1	9	20	18	95	A
4	Sule Ilesanmi	5	1	5	1	4	2	5	1	5	1	10	19	19	95	A
5	Akeem Salako	5	1	5	1	5	1	5	1	4	1	9	19	20	97.5	A
6	Ifayemi Ijaduade	5	1	5	1	4	1	5	1	5	1	10	19	20	97.5	A
7	Peter Okesola	5	1	4	1	3	3	3	1	3	2	10	13	17	75	B
8	Idiris Ajoke	5	1	4	1	5	1	5	1	5	1	9	19	20	97.5	A
9	Fagbemi Ogunnaike	5	1	5	1	5	1	5	1	5	1	10	20	20	100	A
10	Oke Olusola	4	1	4	2	5	2	3	2	5	2	10	16	16	80	B
11	Omodele Omoniye	5	1	5	1	3	1	5	1	5	1	8	18	20	95	A
12	Jimoh Fatokun	5	1	5	2	5	1	5	1	5	1	10	20	19	97.5	A
13	Eniola Osungbemi	5	1	5	1	5	1	5	1	5	1	10	20	20	100	A
14	Teleola Joseph	5	1	5	1	5	1	5	2	5	1	10	20	19	97.5	A
15	Adeoye Odukale	5	1	4	3	5	2	4	1	4	1	9	17	17	85	A
16	Obafemi Odu	5	1	5	3	5	1	5	1	4	1	10	19	18	92.5	A
17	Philip Obasa	5	1	5	1	5	1	5	1	5	1	10	20	20	100	A
18	Jacob Israel	5	1	5	1	3	1	5	2	5	1	10	18	19	92.5	A
19	Taofeek Enilolobo	5	1	5	1	5	1	5	1	5	1	10	20	20	100	A
20	Muraina Egunjobi	5	1	5	2	4	1	5	1	5	1	10	19	19	95	A
21	Tella Odunsi	5	1	5	1	5	1	5	1	5	1	9	20	20	100	A
22	Omoleye Yakubu	4	1	5	1	5	1	4	2	5	1	10	18	19	92.5	A
23	Taiwo Idowu	5	1	5	1	5	1	5	1	5	1	10	20	20	100	A
24	Yusuf Issa	5	2	5	1	4	1	5	1	5	2	8	19	18	92.5	A
25	Adenuga Akanni	4	2	3	1	4	2	5	3	4	1	10	15	16	77.5	B
Number of Promoters: 23		Number of Passives: 2		Number of Detractors: 0		Net Promoter Score: 92.00%		Average SUS Score: 93.3		Grades: A						

## 6.0 Conclusion

This paper explored the mathematical and computer aspect of Ifá corpus that assists Ifá priest to use Ifá Oracle process

through the simulation of Ikin and Ọpẹ̀lẹ̀ to produce Odu signatures. The assigned signature matched the 256 Odùs in the database which invariably retrieves the

corresponding verses with conforming sacrifices or advice. The model supports the *Ifá* professionals to make informed decisions and assessment of *Ifá* by eliminating the level of ambiguity in the interpretation of *Odù Ifá* corpus with a clear demarcation of its meaning, it also serves as a learning tool for *Ifá* apprentices and enthusiasts. The prototype also supports the custodians of *Ifá* to document the *Odùs* according to what has been handed over to them for the benefits of humankind. This is to show a clear identity for *Ifá* and to make it more acceptable, accessible, practicable and applicable by all. Usability testers scored the tool high in the ease of finding information within the user interface while it was above average in the tool's ability to capture essential features for *Odù-Ifá* divination accomplishments. While many scientists may want to reject *Ifá* knowledge claim on the ground of lack of objectivity, suffice to say that objectivity does not rest on the strings of empirical science. There are many things that the scientific mode of knowing cannot measure due to its limitation. *Ifá* corpus has successfully shown that true knowledge is acquired through the empirical and transcendental means, thereby, providing a solution to the problems that reality and human existence may pose to human beings. *Ifá* has received attention from scholars and westerners who want to follow the dictates and prescriptions of *Ifá* as a form of religion and source of knowledge for different spheres of life and culture. *Ifá* priests are beginning to imbibe western education, especially for their children. This however means that *Ifá* Oracle could serve the purposes of cultural tourism invariably leading to the economic development of the country. It is therefore anticipated that the priests and advocates of traditional religion should jealously guard and fight to keep their exalted citadels in the face of difficulties and challenges. Above all, *Ifá* like the computer may not be perfect. In the future, further studies will be done on how to incorporate the tool into handheld devices with pens and touch screens

rather than the mouse and keyboards that necessarily had to be employed in the reported studies.

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