AN INVESTIGATION OF COMPUTER APPLICATION TO PAINTING IN NIGERIA

BY

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DECLARATION

I declare that this dissertation entitled "An Investigation of Computer Application to Painting in Nigeria" has been carried out by me in the Department of Fine Arts, Ahmadu Bello University, Zaria. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma at this or any other institution.

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Name of Student **Signature** **Date**

CERTIFICATION

This dissertation entitled, AN INVESTIGATION OF COMPUTER APPLICATION TO PAINTING IN NIGERIA by Aondover Gabriel GYEGWE 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

In memory of Patrick Gyegwe.

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ABSTRACT

This study historically, overviewed the subject and development of painting from the primordial time, to the postmodern period, bringing into focus the computer as a new medium for artistic inquiry. The background similarly overviewed the influence of the machine on various artistic forms like textile and graphic design. The problem of the study was the seeming apathy by Nigerian painters to apply computer to painting. Objectives were set as follows; **i.** to record the historical developments of the computer in Nigeria. **ii.** Investigate the dimensions of computer application to painting in Nigeria. **iii**. Analyze computer paintings by Nigerian painters and state their biographies. **iv.** Make a comparative analysis of conventional and computer paintings by Nigerian artists. **v.** State the advantages and disadvantages of computer painting in Nigeria. The review of literature was structured on; **i.** Historical overview of persons, products and ideas that have influenced painting. **ii.** The computer and its influence and, **iii.** Computer influenced paintings. Some authors reviewed were McMorran (2007), Azi (2006) Ogene (2009) among others. Methodology was based on art historical paradigms of inquiry which were essentially qualitative. However, quantitative values in the objectives made it pertinent to combine quantitative statistical results. The population was 42 computer paintings by Nigerian painters and 13 Nigerian computer painters based on purposive/judgmental sampling. Data was variously collected through the following instruments; questionnaire, interview schedules, observation,, and the internet. Books, exhibition catalogues and social media like facebook, provided secondary sources of data gathering. Field work benefitted from a pilot study with validated questionnaires and interview schedules. A total of 139 questionnaires were turned in and 13 artists with computer paintings were interviewed and analyzed respectively based on prescriptions by Eyo (1977) and Stokstad (2005). Major findings

from available literatures were that the computer had made inroads into Nigeria since 1963 at the University of Ibadan and 1967 at the Ahmadu Bello University, Zaria with developments leading to the application of computer to painting around the early 1990s. It was also found that Nigerian painters had applied the computer to panting in various dimensions like image manipulation, enhancement, illustration, and painting with software like Photoshop, CorelDraw among other software and hardware. Another finding was that few Nigerian painters were actually interested and had created paintings with the computer. Furthermore, because the paintings shared certain commonalities, they could be grouped and analyzed like the conventional ones. However, differences, advantages and disadvantages existed. The major challenge was posed by the frequent disruption in electricity supply in Nigeria and lack of acceptance of the computer as a conventional tool. The research theoretically found support from Friedberg (2006), theoretical polemics that asserts the metaphor of the windows as a frame that encloses a painting. The researcher therefore, suggested that computer painting be included in the painting curriculum to give the desired clout and to enhance painting and complement the examples analyzed and discussed in this research.

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CHAPTER ONE

INTRODUCTION

Introduction

The philosophy of mimesis[1] as propounded by Plato made painting look like an aspect of human activity that did not demand any serious intellectual input, but mere copying or imitation of nature. From a historical search, one may see that most paintings in Egypt and the Renaissance period were usual representations of observed objects. Sayre (2005) states that "while the liberal arts were understood to involve inspiration and creative invention, painting was considered merely a mechanical skill, involving, at most, the ability to copy." It was the ability to copy and copy well, that made Picasso's father to hang his brushes for Picasso who painted a bird, with strong realism[2].

Historically, it was on the cave walls, that painting was first experimented. According to Kleiner and Mamiya (2005), "The first examples of cave paintings were found accidentally by an amateur archeologist in 1879 at Altamira, Spain." The authors further explain that "Don Marcelino Sanz de Sautuola was exploring his estate", a cave, where he had already found specimens of flint and carved bone. His little daughter, Maria, was with him. They reached a chamber, about 85^{ft} debris-filled cavern, which was only a few inches above the father's head, then Maria, was the first to discern, from her vantage point; the shadow forms of painted beasts on the cave roof, details of a much larger painting approximately 60 feet long. Sanz de Sautuola was certain that the bison painted on the Altamira ceiling dated back to prehistoric times.

Again, some of the earliest paintings later discovered were from Africa. The oldest African paintings were portable objects. Between 1969 and 1972, scientists working in the Apollo II cave in Namibia found seven fragments of stone plaques with paint on them, including four or five recognizable images of animals, (Kleiner and

Mamiya, 2005). The charcoal from the archeological layer in which the Namibian plaques were found has been dated to around 23,000 BCE. “The Bulls of Lascaux” – near Montignac, France (15,000-13,000 BCE), “Horses and Rhinoceros”, which is a wall painting in Chauvet cave, Vallinpont-d’Arc, Ardeche, France, (30,000-28,000) or (15,000-13,000 BCE), are few examples that attest to the historicity of painting. Also, Catall Hoyuk, in Turkey, Ca. 5750 BCE, records a rock painting of Deer hunt in a schematic manner, (Kleiner and Mamiya, 2005).

Furthermore, Kleiner and Mamiya (2005) observe that, Pre-dynastic or prehistoric Egypt also had records of wall paintings as well as works from other civilizations. These included paintings on tomb walls dating Ca. 35000-3200 BCE, of fowling scenes, from the tomb of Nebamun. In Thebes, Egypt, is a fresco painting – Ca. 1400-1350 BCE, and a painted limestone of Queen Nefertiti – 1353 – 1335 BCE. Similarly, the Minoan civilization presents palace frescoes. Mural paintings liberally adorn the palace at Knossos; an example is Bull-leaping, from the palace at Knossos (Crete, Greece) 1450-1400 BCE. Figure painting on vases (Krater) 740 BCE, are also seen. Further developments in painting across cultures as captured by Kleiner and Mamiya (ibid) are, ‘The Thirteen Emperors’, Tang dynasty, Ca. 650, which is a hand scroll, rendered in ink and colours on silk, from China; Diving and Fishing, mural in the Tomb of Hunting and Fishing, Tarquira, Italy Ca. 530-520 BCE. Around 60-5 BCE, in Pompeii, Italy, a number of Friezes depicting the human figures also abound. 70-79 CE, records a “portrait of a husband and wife”, on a wall from the house of Pompeii, Italy.

Christian Art also presents painting in history, depicting biblical experiences in the catacombs. Sayre (2005) affirms that, once Christians achieved imperial sponsorship under Constantine, an instant need suddenly arose to construct churches. The new

buildings had to meet the requirements of Christian liturgy. As a result, mosaics of Christian experiences were used to embellish the walls of worship such as the painting of 'Lot and Abraham,' mosaic in the nave of Santa Maria Maggiore, Rome Italy. The Christian painting influence, otherwise known as Byzantine art, was also expressed in Eastern Europe like Turkey. Stained glass was also a medium that was borne out of Christian art.

From the religious works emerged the Renaissance. According to Kleiner and Mamiya (2005), "…although religion continued to occupy a primary position in the lives of Europeans, a growing concern with the natural world, the individual, and humanity's worldly existence characterized the Renaissance period". In the Renaissance, individual and recognizable actors like Giotto di Bondone emerged, chronicling the lives of the Virgin and Christ in frescoes. Duccio Di Buoninsegne also produced similar themes in Italy like the 'Betrayal of Jesus' (1309-1311).

The experiences of the chronicle of paintings so far, had become consolidated in the Renaissance period. This could be seen in the light of the establishment of political power in Europe, and the attendant emergence of capitalism, that brought to fore the powerful Medici family, who patronized such artists like Michelangelo and Raphael. Political upheavals also helped to create an avenue for expression, for the engineering works of da Vinci, and Michelangelo. The approach to painting however remained the traditional application of pigment to a surface as can be seen, in Leonardo da Vinci's, 'Mona Lisa', and Michelangelo's 'Sistine Chapel'.

From the period of Picasso's Cubism through several artistic revolutions, the usual approach to painting had been the manual application of pigment on surface, paper for collages, beads or tiles for mosaic and such related approaches. Painting had however, evolved into a more serious intellectual pursuit, exposing the dynamism of the

painter. Painting or the painter particularly, possessed so much dynamism that there were no formulae to solving painterly problems. For example, Sporre (2000) presents installations of Judy Pfaff (b. 1946) which employs "a variety of materials, including those of painting, in order to change and shape architectural space.'' The art historian H.W Jenson, likens her work to an exotic landscape, and finds her spontaneous energy similar to that of Jackson Pollock's action painting. Again, the present writer in 2008, painted on discarded mechanical objects and wooden chairs. There are also no limitations to the choice of medium. Traditionally or conventionally, the canvas had been used, but the trend is evolving fast, bringing into focus new media prompted by technological advancement and digital relevance.

Artists over time had explored many unimaginable media to render paintings which were largely seen in the light of postmodernism, not as an art movement, but as an era of artistic practice. Paintings in this era included installations, transient art on water, sand or paintings on body, performances with paint and so on. More profoundly, the discovery of the computer had largely transformed the way many professionals and researchers sought for solutions to problems. For example, the medical practitioners, architects, engineers, visual artists and performing artists had all benefited immensely from the revolution of the computer. In that sense, painting as a profession had not been left out in the computer revolution.

Background to the Study

A computer is a machine that acts like a human brain, and Processes data or information fed into it to be displayed on a screen or monitor like a television. The result of the processed data is retrieved by printing out on paper or canvas, using a coloured or black and white printer. According to Snyder (2008), a computer is a "machine that performs tasks, such as calculations or electronic communication under

the control of a set of instructions called a programme. Programmes usually reside within the computer and are retrieved and processed by the computer electronic". He further states that, "the results are stored or routed to output devices, such as video display monitors or printers. Computers perform a wide variety of activities reliably, accurately and quickly." The digital creations of paintings by artists are among these many tasks that the computer performs.

Historically, computers began as analog machines. According to Snyder (2008), "in 1623 German scientist Wilhelm Schikard invented a machine that … could add with the aid of logarithm tables, multiply and divide." Blaise Pascal, in 1642 made additional development. Joseph-Marie Jacquard devised a specialized type of computer: a silk loom. "Jacquard's loom used punched cards to program patterns that helped the loom create woven fabrics."[3] Joseph-Marie was said to be "rewarded and admired by French Emperor Napoleon I for his work''. Several people have contributed immensely in bringing the computer to its present state. In the seventeenth century, German mathematician Gottfried Leibniz also made additional development on the computer. Furthermore, in the 19th century, Sporre (2000) records more developments by German engineer named Konrad Zuse in 1930, American mathematician, George R. Stibitz in 1939, and Iowa State University professor, John Atanasoff also in 1939. It is worthy of note that

> Graphical user interfaces were first designed by the Xerox Corporation, and then later used successfully by Apple Inc... Today the development of sophisticated operating systems such as Windows, the Mac OS, and Linux enables computer users to run programs and manipulate data in ways that were unimaginable in the mid-20th century[4].

The computer possesses a number of tools with which the artist could pick from, to create images or paintings. These tools are programmed to create tasks similar to the artist's real life or studio environment. These tools include cutting tools, drawing tools,

Bezier tools, brushes, palette and colours. The software which may be a CorelDraw or Adobe Photoshop has the possibility of allowing the artist to mix colours to such tints and shades as the artist may desire. As a result, graphic designs popularly referred to as 'Computer Aided Graphic Designs', 'animations' and 'paintings', have been produced. The computer has also been used by photographers to manipulate and enhance the visual qualities of a photograph which is also an important form of art. Importantly, the computer has been used by artists to recreate history. This is seen in the computer generated paintings of Ray Downing, in which the lifelike images of former American president, Abraham Lincoln and Jesus Christ were recreated. The ability to create paintings with the computer is largely dependent upon the appropriate software. Historically, the first theory about software was proposed by Alan Turing[5] in his 1935 essay; *Computable numbers with an application to the Entscheidungs problem (Decision problem)*. In print, the term "software" was first used by John W. Turkey in 1958[6]. Colloquially, the term is often used to mean application software. In the fields of computer science and that of software engineering, software is all information processed by computer science, programmes and data. Within the academic fields studying software, are computer science and software engineering.

The history of computer software is most often traced back to the first software bug in 1946, since then artistic software has continued to develop. In painting and drawing to be specific, Chastain (2011) outlines a number of art-oriented software programs which,

> are designed especially for painting, drawing, colouring, and creating original artwork. Although some of them also offer tools for working with pre-existing images, the emphasis is on art and the creation process. Most of them have tools to mimic traditional artistic media such as oils, watercolors, acrylics, pencils, markers, crayons, chalk,

> pastels, and felt pens. Many of them also offer a variety of unusual, non-traditional tools. Among the software is Corel Painter, Artrage, Alien Skin Snap Art, Sketchbook Pro, Gliftex Random Image Generator, Corel Painter essentials, Art Weaver, Drawing for Children, Studio Artist and Pixarra Twisted Brush.

Statement of Problem

The Department of Fine Arts, Ahmadu Bello University, Zaria, is the premier art Department in Nigerian universities. Every other university's art Department in the country was created by students who graduated from it. Despite being the biggest art department in the country, from which other art departments in the country developed, there is no formal entrenchment of computer painting in the school's curriculum, even though some students like Hilarion Faison,[7] explored this art form out of sheer interest, in practice. Computer paintings are also not common features at Painting exhibitions in Nigeria as observed in many exhibitions. Moreover, in a seminar at the faculty of Environmental Design, Ahmadu Bello University, Zaria, Professor Olorukooba B. K., an Art Education Professor in the faculty maintained that computer painting lacked creativity in view of the mechanical process as against the manual traditional approach. Therefore, the seeming apathy, in the application of computer to painting, by Nigerian painters is the thrust of this research. The traditional media of painting on walls, canvas, paper, and board have continued to engage the focus of many artists and painters, particularly in Nigeria. While it is common knowledge that artists in the developed countries are extending their practice of Painting beyond these traditional media, the trend seems to be slow in Nigeria.

The revolution of the computer is visible in many fields of academic and professional practice. Graphics has become very much enhanced by the computer. Architecture, Textile, Medicine, Journalism, Engineering, Nuclear Science and others,

too numerous to mention, have advanced with the aid of the computer around the world and even here in Nigeria.

With the apathy in the application of the computer in painting in Nigeria, it thus appears that a gap exists. More so, art historians seem not to have shown interest in this area, especially in Nigeria. According to Kleiner and Mamiya (2005), 'the range of objects art historians study is constantly expanding and now includes, for example, computer-generated images, whereas in the past almost anything produced using a machine would not have been regarded as art". While in Nigeria, the practice of painting seems to be restricted to the dictates of traditional media, the new media can be investigated, not as a superior or inferior media, but as an aspect that is capable of extending the borders of painting in Nigeria. Therefore, the problem of this study is the investigation of the influence, dimensions and documentation of paintings done by Nigerian artists using the computer.

Aim and Objectives of the Study

The aim of this study was to undertake a study of computer-generated paintings. The specific objectives were to:

i. record the historical development of the computer in Nigeria,
ii. investigate the dimensions of computer application, by Nigerian artists in painting.
iii. Describe, analyse and interpret the computer-generated paintings and also identify and state a brief biography of the artists.
iv. compare computer-generated paintings to some conventional paintings produced in Nigeria.
v. state the advantages and disadvantages of computer painting medium.

Research Questions

In an attempt to achieve the objectives of this research and proffer solution to the stated research problem, the following questions are asked?

i. is it possible to establish the beginning of computer painting in Nigeria?
ii. can computer application by Nigerian artists be investigated and their identities established?
iii. is an art historical description, analysis and interpretation of computer paintings possible?
iv. is there a basis for comparing computer-generated paintings to conventional ones produced in Nigeria?
v. what are the reasons encouraging or discouraging computer painting practiced in Nigeria?

Justification

The rest of the world has continued to advance within the concept of globalization with the aid of the computer. It is therefore, worth the while to investigate Nigeria's position and the dimensions, in the application of computer to painting and how this rubs off on general human development indices like the educational system, health delivery, social infrastructure, politics and industrialization. These constitute part of the reason for the failure to breakthrough technologically in this contemporary world. As a result, there is a need to confront the challenges of this age, with the tools of this age. Achebe (1958) states that "wisdom is like a goatskin bag, everyman carries his own". Artists may need to also apply the tools of the 21st century to solve the hydra headed problems of the present age. According to Turner and Edmond (2003), "the creative environment should allow the breaking of its own convention…" The computer-generated paintings provide this perspective, hence, the justification for this

study. The mouse of the computer has become a drawing tool, leading to the realization of a new medium fueled by softwares like Corel Draw, Instant Artist, Adobe Photoshop and more. The traditional or conventional approaches in painting have been greatly substituted by a mere electronic act, where colours, brushes and other painting tools are selected by mere pressing of buttons or keys.

In addition to the above, this research will expose the techniques; analyze the process as well as, create a database of digital paintings and painters in Nigeria. Godfrey (2010) states that, as far back as 1979, Jean Francois Lyotard wrote that; 'Data banks are the encyclopaedias of tomorrow. They transcend the capacity of each of their users.' This research is capable of providing such needed information in the future. This means that access to the history of computer paintings in Nigeria will be easy, as databanks or documented results will be readily available. Similarly, the work is justified by Benjamin's (nd) "The Work of Art in the Age of Mechanical Reproduction (or Reproducibility)". Benjamin's theory "argues that the art that was developed in the past differs from that of the present time and hence our understanding and treatment of it must develop in order to understand it in a modern context and develop new techniques". Computer paintings are characterized by a tendency to be reproduced considering their mechanical inclination, thereby questioning its authenticity. Benjamin (nd) further discusses the concept of authenticity, particularly in application to reproduction. He states that,

> Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence at the place where it happens to be. He argues that the 'sphere of authenticity is outside the technical' so that the original artwork is independent of the copy, yet through the act of reproduction something is taken from the original by changing its context. He thus introduces the idea of the "aura" of a work and its absence in a reproduction.

Benjamin's theory also considers the changing values of exhibition. While the traditional works of art are limited in viewership, the mechanically produced ones tend to enjoy wider audience and viewership, the internet in this case attests to this.

Significance of the Study

Felix Adakuno was a student in the Department of Fine Arts, Ahmadu Bello University, Zaria, he graduated in 2014. Obviously, he would have to draw, which is basic to all artists, in addition, the student will have to paint and carry out other practical assignments requiring the use of his hands. Unfortunately this student is physically challenged, as a result of an accident that snapped off his fingers, leaving him with about two stumps. Further investigation into what caused his predicament revealed that it was a fire incident while he was still crawling as a baby.

As the young man walked into the departmental library the researcher wondered how he would be able to practise art using his fingers. With his two burnt hands he carefully held his bag and manipulated his stumps and unzipped his bag and brought out his lap top computer. Again, with the same stumps, he opened up the computer and powered it on and began to punch keys. The fear of how this student would handle the brush and pencil were diminished considering the computer option. When the researcher interviewed and asked him how he fared in art, he painted a painful challenge in the manipulation of materials and tools. He also narrated how he avoided certain tasks that proved too challenging to his condition. At present, he still groans in pains, whenever he works with some conventional tools and materials.

The story recounted above significantly paints the picture of the fact that, the physically challenged also have an option to paint without difficulty. Similarly, automatic transmission cars have been driven by physically challenged people who may

not have had the opportunity to drive, if such cars were not made. Another development is the elevator on building walls, invented in 1853 by an American, Otis Elisha Graves (1811-1861). The ease of life which this has brought to many lives shows how significant technology can be, when appropriately applied for human development. This research significantly adds to the numerous subjects that art historians studied in Nigeria.

Scope of the Study

The scope of this study was on paintings which were computer aided. Artists had used different media to produce paintings, however, with the aid of technology, the computer added to the many media available to the painter to create paintings. The paintings in this group were produced primarily with the computer which may be a desktop or laptop computer. However, the artist is today inundated with a wide range of gadgets generally classified as Personal Digital Assistants (PDAs) which also have capacity to execute paintings. iphones, ipads and Android phones, all have inbuilt applications to create drawings and paintings. This study was however, delimited to paintings produced using the laptop and desktop computers and similar gadgets. This was so because, they were easily accessible in terms of cost, durability and capacity to store large memory data and the size of the monitor allowed for large viewing of images and data.

For the purpose of clarity, the paintings referred to in this study were those that could be situated within the Fine Art practice of Painting. It is known that graphic artists have been using similar software in the rendition of paintings to create graphic designs, but those were not within the scope of this study which was dedicated to paintings and dictated by the principles and elements of art. However, related literature was used. Furthermore, because the research is situated within Nigeria, and Nigeria is a vast area,

the primary study location was Lagos and Kaduna where questionnaires were used as an exploratory tool to locate the artists who used the computer to paint in Nigeria. Art galleries, art studios, painters, and art institutions were considered and sampled.

The research was art historical, as a result scientific details and conjectures as applied to computer science were not the concern of this research, rather the aesthetics and need of the painter in advancing his or her practice for national and human development were considered.

Limitations

The study was limited by the inability of the researcher to access a copy of the computer painting programme which Professor Rom Kalilu stated in a discussion that he was the first to develop and teach at the Ladoke Akintola University of Technology, Ogbomosho in Nigeria. The provision of such document would have made it possible to debunk the position of all respondents who believed that it was not taught in any Nigerian institution and help to establish part of the historical development of the medium. In addition, the erratic electricity supply in Nigeria made it difficult for some of the artists to demonstrate their methods. Observations could not be carried out in many instances even when the artists were willing to demonstrate. Another limitation was that most of the paintings could not be seen in hard copies. The artists simply created them and stored them up in the computers' virtual memory, so the final dimensions were not stated for some of the paintings.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The late 1970s birthed postmodernism. This refers to such artistic innovations that emanated after such movements or styles and trends that sought to question tradition in art, bringing into focus computer-generated paintings. Spalter (1999) and King (2002) trace computer-based art to the 'mid-fifties'. Early works were driven by exploration of the power and ability of the computer, often produced by computer scientists or mathematicians such as Franke[8], Laposky[9] and Noll[10]. The use of the computer by scientists, laid the very foundation upon which the artist would explore its ability to produce art, however, it took a developmental form as programmes were created to help the 'man' and machine or the computer to interact through task driven command-and-response. This type of interfacing with the machine or computer is similar to the real life communication between persons, which is capable of exerting influence. The command and response characteristic seen in the computer to create art and several other things is why Stone (1996) sees the relationship of the computer and man or woman as a mutual and spontaneous discourse between two conscious agents, which is capable of influence.

As the history of art still unfold, Stokstad (2008) states that "as modern art restlessly investigated the boundaries of art; the postmodern period has opened new possibilities for interaction with the audience. If we viewers are aware of the art of the past, we will be able to appreciate the many variations of creativity that await us in the future". The future however, has come and will continue to unfold, especially with the computer assuming an important tool in the hand of the painter and many other professionals.

This review of literature therefore, focuses on the following structures; a historical overview of persons, ideas and products that have influenced painting, historical development of the computer in Nigeria, the computer and its influence, computer influenced paintings and dimension of computer application in Nigeria.

A historical overview of persons, ideas and products that have influenced paintings explores how people have changed the course of painting in history. For instance, Pablo Picasso created Cubism owing to influences from African masks. Products like the microscope have also influenced the way painters developed paintings thereby helping to establish the place of influence on painting in a historical perspective. The computer and its influence, considers literature that had direct bearing with how the computer had influenced other fields, bringing to bear the positive milestones which were recorded in other areas of human endeavours like Architecture, Graphics, Textile Designs and medicine. This therefore, laid a background for the review of computer influenced paintings or computer generated paintings.

Historical Overview of Persons, Ideas and Products, that Influenced Painting

There was no doubting the power of influence on a particular element, or a people. The present modern Nigerian society was to a large extent, a result of the influence of Arab and Western culture via trade, missionary activities and colonialism. The media, like the television, internet, interactions, print media and art, all led to a form of acculturation. While the polemics of acculturation remain negative or positive, the fact remain that an influence was exerted.

The influence of a culture or artistic style has been a norm. Cultures borrow from other cultures; an example of this can be seen in the Tiv traditional black and white fabric-Angeer, which the Idoma ethnic group has also adopted with a shift from

black and white stripes to black and red stripe fabric. This is largely borne out of influence coming from their Tiv neighbours or brothers. Little wonder that Nicodemus (1993) affirms that, "all the dynamic cultures of the world have borrowed from other cultures in a process of mutual fertilization." In the bid to develop, there is the need to look at the positive aspects of other people's technology and adapt. Some of the countries that have become economic powers today like China had to borrow from the virile technologies of the Western nations who are being overtaken today. This can be seen in the manufacture of cars, electronics, textiles, energy technology and other numerous products that are being manufactured in China today.

Artistically, the influence of Africa on Western art remains forceful and demanding the respect of the world with regards to Cubism. The style did not only make Picasso famous, but became one of the most important and influential art movements. Today, many artists around the world and Nigeria inclusive practice this style consciously and unconsciously. This validates the silent power of influence coming from the cultural energy of Africa. Other painters who influenced how painting is rendered today include Claude Monet, Stokstad (2008) whose impressionistic rendition ushered in a different way of painting; Jackson Pollock's action paintings, Stokstad (ibid,) also developed painting as well as exerted influence on the painting scene as his method removed painting from the easel to the floor. Artists have been aided by machines as we see today. It was Leonardo da Vinci whose sketchy ideas of flying machines and war machines that have been precursors to some of the greatest inventions of today. The Ornithopter; an aircraft with flapping wings, was the brainchild of Leonardo da Vinci, according to Magurn (2008) "He invented a large number of ingenious machines, many potentially not practicable, embodied sound principles of aerodynamics." The developments that probably took place from his sketches led to the

production of the helicopter, airplane, space rockets, wind mills and wind energy. Although, his relationship and explorations of machines can be equated with science, Leonardo da Vinci, according to Kleiner and Mamiya (2005) "stated repeatedly that all his scientific investigations made him a better painter". In the light of the above, Leonardo's paintings marked him out as a genius. This is considering the groundbreaking achievements he recorded with such paintings like, Mona Lisa, the Last Supper, the Madonna, and his optical concepts about perspective and light.

Scientific aids indeed can, and have extended artistic explorations by painters. Gyegwe (2008) observes that scientific instruments are good aids to artistic developments considering the use of the microscope in the resolution of artistic problems. In light of the above, the microscope was used in the aesthetic contemplation and investigation of the watermelon fruit in painting. Slices of the fruit were subjected to microscopic probe, thereby extending the study of still lifes and revealing strange and aesthetic appealing images or forms that culminated into novel paintings.

In Nigeria, when the history of contemporary art was mentioned, Aina Onabolu came to mind as the father of modern Nigerian art. His paintings were products and objects of Western influence. Nicodemus (1993) recounts that "…Aina Onabolu started as a youngster in the late nineteenth century to explore certain new phenomena in his environment, the photographs and naturalistic pictures in British magazines and books." Similarly, Fosu (1986) also affirms that "Onabolu became an artist through self-training by copying portrait examples from textbook illustrations, foreign newspapers and magazines''. Contact with Western materials was no doubt a point of influence which characterized Onabolu's Western styled painting, and laid the foundation for today's contemporary art practice in Nigeria which is largely different from traditional African art philosophy, style, medium and content. The pervading influence Western ideals have

had on the Nigerian art scene, has permeated even the academic curriculum such that African art practice and philosophy remained influenced.

With the introduction of the computer to Nigerian business and academic environment, another product of influence has set in. Artists in Western worlds have used the computer to create paintings, and with the aid of the internet, Nigerian artists like Onabolu who came into contact with Western magazines are also coming into contact with computer-generated paintings and also experimenting with the computer. It is unknown how much this will influence the practice of painting in Nigeria when one considers the influence a painting in a magazine in the 19th century has had on a nation in the 21st century.

Professor Olorukooba's position captured in the statement of problem that computer Painting is lacking in creativity, supports the assumption that for some artists and art connoisseurs, the authenticity of a painting can be passionately considered within the ambit of the conventional oil on canvas and the likes, and not such as created with the aid and influence of the computer. This again must be realized with familiar tools like palette knife, brushes, palette, linseed oil and oil colours, it is only within the confines of such that a painting can be considered seriously. However, postmodernism has succeeded in blurring the lines between what constitute painting and what does not. Today, painters and sculptors have found new grounds for artistic expression in performances, actions and installations beyond the two dimensional surface and canvas. Stokstad (2008) also agrees that barriers between art have been broken by postmodern practices, as postmodernism seeks to question tradition in art.

In creating a painting, the painter works with the principles of art in mind. These principles, according to Ogumor (2007), among others are repetition, emphasis, variety and balance. Based on these principles or guide, the painter goes on to organize the

elements, which Owen (1970) considers as the language of painting. He states that "painting is a visual language". To actualize this visual language, according to the author, "an artist employs shape, line, texture, tone and colour as the basic elements of his painting. With these, he can create the pictorial qualities of form, space, movement and design". However, with the computer, an additional element is added to create the pictorial qualities of form space, movement and design, and this additional element is the software. Software, otherwise known as computer programme, is instructions that cause the hardware (the machines) to do work: they are divided into system software and application software. While the system software controls the workings of the computer, the application software addresses the multitude of tasks for which people use computers like word processing, database management, and the creation of designs and paintings. According to Sullivan (2010),

> Digital technology is not so much a new tool to aid inquiry, but a place for rethinking things in a way never before imagined. This is just the kind of space where artists, scientists, researchers, cultural theorists and community activists are speaking to each other in a fresh language.

This further supports the computer as a new tool for visual inquiry within the perspective of postmodernism. While many artists are searching for a peculiar style or technique with which to create paintings, the computer presents a unique approach to this, as the artist can only express his/her character or peculiar style through the computer.

In looking at a painting, one could get emotional. This is especially true when the unique brushstrokes, the mixtures of colours, the general control of elements and the skill with which the painter draws are all considered. As a matter of fact, unconscious

errors of the painter mix to create the uniqueness of the work. Importantly too is the tactile feel of the paintings. However, Sullivan (ibid) posits that,

> It is obvious that the way knowledge might be created and critiqued is now unable to be contained within the limits of rationalistic inquiry. The elusive scope of the digital landscape offers an intriguingly complex conceptual space that captures part of the metaphysical possibilities known to indigenous cultures and the new realities being opened up by new ideas in science and art.

These new realities may be considered in light of the computer, the software, printer, scanner, and the digital camera. Painting presents a platform for various techniques and media which could be seen in the computer that has the unique capacity for executing drawings. According to Sayre (2005), ‘‘the computer offers artists many new possibilities for making art,” as a result the Quantel’s paint programmes extend the many possibilities which the computer can explore. In art, drawing is an integral part; artists have rendered drawings and exhibited as complete artworks. It is also a foundational part of an artwork and painting. Sayre (ibid) records another development with the computer which is a programme developed by an artist. The programme, called “AARON”, has the capacity to generate possibilities for new paintings. Sayre (ibid) states that “AARON does not see. It relies on a repertoire of characteristics that allow it to “choose” among various aspects of plants, figures and colours and put them together in a composition”. The programme is developed in such a way that it renders complete paintings, be it figure, landscape, still life or abstract. This is because various elements of art like line, shape, texture, colours and more, are already embedded in ‘AARON’.

In some cases, the artist would manipulate elements based on the principles of art. This could be as a result of the variety of ways artists want to express themselves. It may also be due to the changing times and the dissatisfaction with one medium. Whatever the reasons may be, solutions must be proffered for painterly challenges.

Jackson Pollock preferred the spontaneity of the enamel, Jerry Buhari's choice of acrylic could be considered on health grounds, and Sullivan (2010) thinks that "artists-theorists working at the interface of art and science within digital environments are finding that past notions no longer serve as adequate systems around which to define plans and actions." This could be a reason why some painters are beginning to extend their practice with the use of the computer due to limitations that some traditional media pose. In Japan, artists have taken advantage of the highly advanced technology, economy and social infrastructure to develop and practice computer painting. One of such artists is Hiroki. According to Hiroki (1999), "two processes are necessary" in generating painting with the computer. "The first is deciding the brush position according to the composition and sketch. The second is generating the brush stroke by using a paint brush, a canvas and oil colours," From the foregoing, the environment is not different from a conventional studio where the painter makes use of the same tools, the only difference is that the tools are technologically generated or developed as softwares; and the results of the final output is printed out from a printer which in most cases is a digital printer. There are different types of printers in this direction which include; laser printer, deskjet printer and other high end printers

Similarly, Ruby-Baird (1997) states that "…the computer is a powerful tool… there is practically no limit to what the computer can achieve if the artist has the proper knowledge and skills." This supports the research by Turner and Edmonds (2003) which focused on developing a friendlier environment for the artist considering the difficulty faced by the artists in understanding programs and manipulating them. Ruby-Baird (ibid) further states that the computer is "a complex tool capable of many techniques yet to make significant imagery the artist needs to guide the computer much like he would a

fine paintbrush." This places a demand on the artist to understand his tools and feed the computer with the appropriate commands.

In view of the foregoing, one could see that the computer has presented painters with a unique product with which to create computer paintings which also possesses the same language of painting which includes the elements of art as seen in the traditional media. These elements are organized by the painter who, a lot of the time, obeys his emotions and feelings as to how to organize and achieve desired results. The computer painting is printed out and the output which is a two dimensional print may be framed or installed in formats other than the two dimensional framing. This can qualify the computer-generated painting also as art and painting. It is in light of this that Kleiner and Mamiya (2008) posit that the objects that art historians now study have transcended conventionally known media to computer-generated art.

Another product that also influenced painting is the camera or photograph. The relationship of the computer and photography may not be too far. While they are related as machines and behave in electronic ways, as well as yield their output by means of printing and screening, Reed (1969) finds photography more significant and more permanent in its influence on the development of art. He further argues that the public is provided with a cheap substitute for the plastic arts. This is largely due to the effect of mass production that photography presents. Today, photography is seen and widely accepted as a relevant art form with which artists use, to express their personalities. From the onset, one would never have thought photography to be art, owing to its technological affiliation. This is even heightened by the sentiment attached to the traditional arts like oil on canvas. Yet, some would find it difficult taking other media such as water colour, pastel, gouache and others seriously as they may lack the kind of

emotion that oil on canvas presents. The computer can be seen in light of a camera that produced photographic art.

The influence of the camera has extended to contemporary artists. Many artists had to rely on photographic references to complete projects or paintings. This is seen in the rendition of figure paintings, landscapes, abstracts and personalized portraits. In light of the above, photography and the camera made a profound influence on the painter. The same way, artists had to use computer to manipulate images for desired results.

Historical Development of the computer in Nigeria

The advent of the computer in Nigeria may be traced to the 1960s. According to the Faculty of Science, University of Ibadan official website[11],

> The Department of Computer Science, University of Ibadan was conceived and had its gestation at the Ibadan University Computing Centre. The IBM African Education Centre, established in 1963 was transformed into the Ibadan University Computing Centre in 1966. Professor R.L. Wilson of Ohio Wesleyan University was the first Director. Professor Olu Longe took over the Directorship of the Computing Centre in March 1968 and designed the curriculum for the department in 1973 but the department was established in October 1974 with 29 foundation students of which 21 graduated successfully. The department was conceived as a means of training manpower to meet the demand for increasing computerization.

Similarly, the ‘‘Iya Abubakar Computer Centre was established in 1973 by detachment from the Department of Mathematics under which a unit which provided computer services was organized since 1967’’[12] although the above cited references were instrumental to the foundation of computer appreciation and application in Nigeria, Art, particularly Painting, was not the focus.

Jegede and Owolabi (2003) state that: In 1987, during the 32nd ministerial council meeting of the National Council on Education, the Federal Government decided to introduce computer education into the nation’s secondary school system. This was

followed by the inauguration of the national committee on computer education the same year. The committee was among others saddled with the responsibility of "planning for a dynamic policy on computer education and literacy in Nigeria as well as devising clear strategies and terminologies to be used by the federal and state governments in introducing computer education". The general objectives of the policy included to,

1. Bring about a computer literate society in Nigeria by the mid-1990s.
2. Enable present school children to appreciate and use the computer in various aspects of life and in future employment. (Report on National Committee on computer Education, 1988).

It is noteworthy that government's effort helped to establish computer knowledge in Nigeria's work environment, but documents on computer Painting could not be found.

The Computer and its influence

The application of cutting-edge technology in different spheres of human endeavour has made a strong influence on such endeavours. This is visible in Academics, Medicine, Graphic Design, Architecture or Planning, and several others.

In the classroom, there seems to be evidence of low application of the computer in Nigerian schools. Most schools do not have an ICT specialist to teach computer skills to students even though Akukwe (2003) states that the President Ibrahim Badamosi Babangida administration introduced what looked like a computer education programme in 1990. The drive by the government to promote computer studies in schools have continued to suffer as the country is even struggling to meet up with the Millennium Development Goals (MDGs) by 2015. According to Timmons (1966), "the intention was to show a range of media, techniques, styles and approaches to painting found in art classrooms and in the painting of artists of the 20th century." The book

explores several techniques common to the painter and artist in general; from oil on canvas, acrylic, water colour, gouache, mosaic, to many others. None mention of the computer as a medium, could however mean that computer paintings were not popular even in the West as at that period when the book was published and as such, it is a medium peculiar to the 21st century painter. In the Canadian school curriculum[13], computer as a medium has been developed to the point that kindergarten pupils are taught to create paintings with this essential 21st century tool. Some of the paintings produced by these children have been exhibited and published too; although these are developments in the recent years. While children in the primary schools in Canada are already making art with the computer, the Slade[14] Art School has already entrenched computer painting into its curriculum. In Nigeria, there is no denying the fact that certain highbrow schools are already teaching the subject to their students, and as a result, there is a level of computer appreciation.

Medically, the computer has been a veritable tool in the medical profession. Medical experts have developed a medical diagnostic technique that combines "strong magnetic, radio waves, and computer technology to create images of the body using the principles of Nuclear magnetic resonance", Partain (2008). In other words, it is called the Magnetic Resonance Imaging (MRI). This technique is performed with the aid of the computer to generate the detailed images of the most delicate part of the human body including, the heart, arteries and veins-from any angle and direction, thereby helping the patients get accurate diagnosis and better treatment from medical experts. Partain (ibid) reiterates that, "in current medical practice, MRI is preferred for diagnosing most diseases of the brain and central nervous systems."

Similarly, Harris (2008) also sees the importance of the computer in radiology. The computer is used to make detailed computer processed views of soft tissues like,

arteries, nerves, tendons and some tumours. It is worthy of note that such application with the computer has led to the easy and early diagnosis of ailments like cancer. Medical illustrations are important aspects of the medical profession. This provides the necessary aid with which students are taught, books are published and ultimately for the understanding of a particular organ of the body. Corl et al (2000) explored the role of computer teaching in medical illustration. The work objectively looks at the way medical illustrations were traditionally drawn with pen and ink, and then considers the state of the art use of the computer to illustrate medically. The work further considers the advantages and disadvantages of both the traditional approach and the use of the computer which are considered in the light of time, quantity and cost.

The use of the computer for medical illustration is imperative. It brings to fore the importance of art to every profession in trying to understand a problem. The use of illustrations in medical practice helps in resolving medical problems, which can be better analysed and understood from a drawing aided by the computer technology. In the Renaissance period, Leonardo da Vinci, in his quest for anatomical understanding, dissected dead human bodies. As a result, the womb and fetus were understood by medical experts, and artists as well have a better understanding of the human anatomy which has been variously applied to drawing, Painting, sculpture and all fields of art.

In Architecture, before the introduction of the computer in the design and planning of buildings, architects and planners relied on pens and rulers. The qualities of architectural designs, living spaces, and our cities, have become enhanced with the aid of computer designs. According to Zelter (2008) “Architects could take clients on a virtual tour of a new house before it was built” or rather than the sole dependence on hand built models to predict technical problems as well as get an impression of the design or project. However, the computer has become an important tool in achieving 3D

(three dimensional) images of models, saving time and energy as well as presenting a state of the art approach to making models.

Graphic arts are works created for reproduction by a printing process. Computer graphics are used in a variety of fields, including entertainment, science, education, medicine, business and industry. Gooch (2008) states three stages involved in the creation of computer graphics which are (i) Modeling stage, (ii) Rendering stage and (iii) display stage. Modeling stage involves the gathering of data, like scanning an image to convert it into a digital data, transferring camera images both still and motion and related data. The rendering stage is where the artist processes the data into desired images or results. At the end Gooch (2008) says that the "result of the rendering stage is an image that consists of a large number of colour picture elements known as pixels arranged in a grid like the squares on a sheet of graph paper." These pixels come together to form the image. The final stage, which is the display stage, is where the results realized at the rendering stage are shown on the computer monitor or printed out. The importance of the computer in graphics cannot be overemphasized. Gooche (2008) posits that as

> Recently as the 1980s, all the things that people built and used were originally designed with the use of rulers and other mechanical tools of the graphic artist. Today, things are designed and built electronically with computers. The cars that people drive are designed on a computer screen and tested in computer graphics simulations. Before doctors perform surgery, they use computer graphics in looking at x-ray images of the patient.

There is therefore, not much limit to what the computer can achieve or when applied as an aid in different fields.

Apart from 2 dimensional computer graphics which is common, 3 dimensional computer graphics is also another important aspect which the computer has helped to

evolve. This is seen in the light of computer animation. According to Furniss (2008), the "significance of new technologies in the animation industry, is exemplified in the work of American animator John Lasseter". Lasseta began working for Pixara, a leading animation studio in 1986. His computer animated work Luxo, Jr, depicts a character with a very human-like personality, which led to Tin Toy, a computer directed cartoon that won an Academy Award in 1989. It is imperative to note that computer animations are more or less like motion paintings, involving the creative ingenuity of the artist. Furniss (2008) further states that computer-generated animation has made a significant impact on the animation industry which means that before the application of the computer to this industry, manual effort was relied upon to relay stories. However, in recent years, Furniss (ibid) has seen computer-generated animations focusing a great deal of attention on "creating realistic-looking human figures, as well as fire, water, fur, natural environments and other challenges." These elements are not distant from the painting environment which the computer animates on a screen.

In Nigeria, a number of graphic artists have explored with the computer to create two dimensional works. However, 3 dimensional animations are also gaining ground as Azi (2006) explores the need to use the computer as an instrument for development in Nigeria among children in primary schools, owing to the ineffectiveness of the nation's education policies leading to poor performances. In view of the challenge, he embarked on the "Interactive Child Learning Aid Project (i-CLAP)," with a view to developing an indigenous multimedia model for enhancing basic education in Nigeria towards advancing the "education for all" and "MDG (Millennium Development Goals) agenda in Nigeria." According to him, multimedia-based educational intervention programmes have been found to "enhance assimilation, motivation and engagement among learners, most of them reflect foreign concepts with little or nothing relating directly to the

African audience; like its folkloric games, stories, rhymes and musical heritage." From the foregoing, Azi sought to create an indigenous computer based programme that would help to enhance the learning capacity of the Nigerian child. The key factor here is the use of the computer to teach children through moving or motion images or pictures to "enhance assimilation, retention and recall among pre-primary school children in Nigeria." It could be noticed that the focus on children is at the foundational levels without addressing the needs of those in the secondary, tertiary, and professional levels.

I-CLAP focused on the use of animation as a teaching medium. In this work, images like axe, alphabets and common or indigenous objects were created by means of drawing or the elements of design using the computer and an appropriate programme or software like CorelDraw, Photoshop, Poser and the likes. Coincidentally, such elements are also applicable to painting, and the tools used too are also common to the painter. However, the work, as a graphic exploration, did not address computer generated paintings but focused on the animation of images for interactive learning purposes. The computer-generated animation according to Azi (ibid) is the production of moving images by the use of computer techniques involving the creation of the illusion of motion by viewing a succession of computer-generated still images. This aspect presents a graphic approach to the use of the computer by a Nigerian graphic artist. Aesthetically, graphics and computer animation is not different from paintings, except in the motion and text feature. The same elements of colour, shape, space, texture, line and form are found in both. Tints and shades help to create roundness or three dimensions. While Azi succeeded in carrying out the iCLAP research, its success in application in schools and advancing the Nigerian child's understanding is yet to be seen.

Another aspect of graphic art which has strong influence on society is advertising. Adams (2007) sees movies and television as objects that affect our tastes and aesthetic judgments. He states that "advertising images influence our decisions- what we buy and which candidates we vote for", especially when the computer is considered as the medium with which product packages and electioneering posters are designed. This foregrounds the computer as a medium for influencing people's actions.

The importance of computer to graphics is underscored by Ngene (2009) as "…the greatest of all contrivances that man invented in this millennium. Its introduction in graphics production in Nigeria has advanced the art by transforming the techniques of making images into digital formats". It therefore means that computer application to graphics in Nigeria has only made the production of products better and rendition of designs even easier. He further lists a number of products which the computer aids their production like; book illustration, photographs, newspapers, magazines, posters, television production and drawings, which are integral to painting.

In textile design, Ngene (ibid) states that "today, Nigerian textile designers involved in textile production are constantly developing innovative designs for expression. They are evolving stimulating new approaches to textile designs, which are different from what they used to do", this again brings to fore the benefit which the application of the computer has afforded the Nigerian textile designer.

Computer influenced paintings

In as much as Timmons (1966) was unable to capture computer-generated painting as a style or technique in her book, today, painting has evolved. Walker (2006) takes a view of art by making comparisons with digital and classic art. While he raises many points that give value to both art forms, he does not discard any as less legitimate

than the other. He appreciates the confusion beclouding many artists as to what qualifies one to be an artist and expert at what he does. He emphasizes the need for artists to know the history of painting in its entire ramification including its past and present and possessing some knowledge of the digital form.

While Walker (ibid) makes an elaborate discussion on the way the classical style of drawing and painting is taught and learned, he also makes an exposition of the digital tool available for artists today. The availability of canvas, oil, brush, easel and the familiar studio environment presents a variety of qualities just as the digital arena also presents the artists with a variety of software and hardware to enhance quality finishes of paintings. Some of these software are Photoshop and CorelDraw while the hardware include, the computer system itself, the digital camera, the printer, scanner, flash drives, paper, canvas, inks and many more. Walker also makes a description of activities that help to illustrate the different forms of digital art and attempts to provide answers to some of the questions confronting artists, connoisseurs, museums and galleries that display the new art forms. Making his opinion on some of the works, he described them as a "waste of time and others breathtaking."

Walker, in his book was able to reconcile the different forms of art in the mind of the artists from which the work or creativity flows. According to him, whether it is oil on canvas or printmaking using computer graphics, the quality of the work largely depends on the talent of the artists. He insists "that for all its faults, digital art has a life of its own." This goes to buttress the fact that the art form has its beauty and can be appreciated in that light.

One recurring principle in Walker's (ibid) "Painting the Digital River" is the metaphor of the river. Walker himself a painter, works overlooking the Thames River. Painting is compared to the course of a river that presents quirks and unexpected turn of

events, as seen in the way the process of a painting takes. The artist sometimes would not expect the way certain paintings turn out, as they may end in ways never envisaged by the painter. Similarly, the evolution and development of painting into a digital form presents the unexpected turn of events in painting, as a result, questions have been raised that probe the legitimacy of this art form. Walker tries to answer through a careful art historical review and appropriate comparison to such art forms like ink and pen.

Another work in the application of the computer to painting is the integration of oil painting with three dimensional computer generated environments. Derrick (2010) explores "the integration of two dimensional oil paintings with three dimensional computer generated environments, within the context of examining a semi-immersive multimedia installation called cave painting." The two dimensional paintings are achieved by the conventional life figural studies with oil on canvas in a studio. The finished paintings are further manipulated by digital means using the computer to create an installation. Derrick (ibid) explains that,

> Installation is made up of two dimensional oil paintings done from the live model, and on four large visual screens arranged in a room-sized cube into which the viewer enters. The oil paintings and the three dimensional computer animations are seamlessly integrated to produce a unified integrated pictorial space.

The research which is computer and conventional painting oriented, discusses the integration of two dimensional oil painting and three dimensional computer environment in three ways: Derrick (ibid) further

> Examines the history of two dimensional and three dimensional pictorial space to clarify how two dimensional oil painting has directly led to development of three dimensional computer generated spaces (ii) how may we observe these theories concerning pictorial space in the techniques of figurative painters like Frank Anerbach and

> Lucian Freud, and Multimedia artist Char Davies (iii) applying these theories of two and three dimensional pictorial space, and the techniques of Anerbach, Freud and Davies to the multimedia installation CAVE painting.

Furthermore, Derrick (ibid) recommends the "need for artists to apply an intuitive, organic and painterly approach to image making in three dimensional computer generated space."

From the foregoing, it could be seen that the application of computer to painting has developed to a point of integration which is quite experimental. This integration must have employed the use of a digital camera and copied to the computer environment and further manipulated with computer programmes to realize a manipulated integration. This research also points out the fact that computer-generated painting had developed from the traditional two dimensional painting on canvas to the point where it is being incorporated into the computer environment to create three dimensional spaces therefore, pointing out a possibility that is achievable with the computer medium. In the conventional painting practiced here in Nigeria, it could be seen that artists at various times create a style by a merger of different media. For example, painters have combined watercolour and pastel, watercolor and pen and ink, watercolor and crayon, oil and acrylic, acrylic and burnt wood etching. The extent to which such integrations have been experimented are quite numerous and successful too. This has helped to create a unique style that is peculiar to some painters. However, the extension of this approach to the computer by Derrick shows the limitless possibilities with painting and the computer.

Integration as a concept in painting tends to promote and establish unity. Derrick's integration, achieved a unique marriage of the computer generated paintings with the conventional, and establishes a unique style in painting beyond the studio two

dimensional renditions. This ultimately succeeds in creating a common compromised ground between the conventional and the digital environments.

Another relevant reference is Mcmorran (2007). According to her,

> practice based study investigates the application of an individual studio practice, grounded in painting, to notions of interactive art and seeks to establish how the interactivity might impact upon the meaning and the effective power of the work. It investigates the current state of interactive art, its ancestry, development and contextualization, leading up to its presumed current location within new media. The thesis examines a range of both theoretical and practical artistic research outputs. It investigates interactive disciplines, in order to inform the development of successful paradigms for interactivity as a parameter of an emotionally engaging and communicative art.

The author explores extensively the capacity of the computer as tool for a new painting medium. Comparison with related practices, peer discussion and viewer feedback, development of a language of "small gestures, textures, layers, sounds and behaviours" are the hallmark of Mcmorran's work. What is significant in Mcmorran's work is the fact that she uses the computer as a medium to produce paintings. The major thrust of Mcmorran's research is the interactivity or the involvement of the computer in the exchange of information, leading to the production of paintings as seen below. This work also establishes that the use of computer to create painting is not strange and has been established as a medium for artistic expression. Among some of Macmoran's paintings are: "Collidersсope", "Collidersсope Viewer Drawing", "Trees", "Passion", "Passion-Pop-Up" and "Heart-Two Paths". All the paintings are colourful representations in abstract or decipherable forms. "Collidersсope" in Figure 1, is a representation of human forms like; hands, eyes, fish, plants, spider web and an interplay of lines to create triangular geometric shapes that criss-cross the painting

which is rendered within a hexagon shape. Circles are also used on the left hand side of the hexagon.

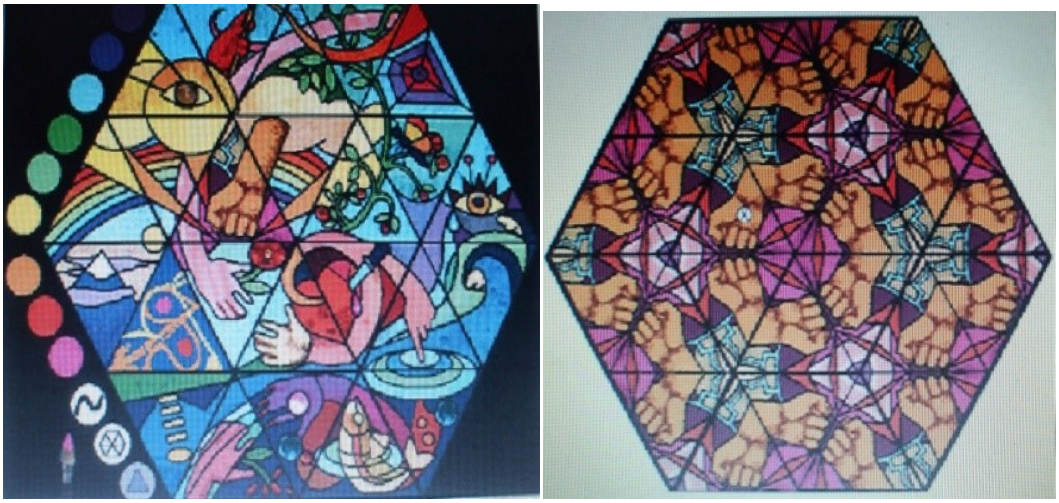


Figure 1
Title: Colliderscope
Medium: Computer-Generated painting
Year: 2007
Source: Susan Mcmorran PhD thesis 2007

Colour usage here is dominantly of blue, complemented by red and yellow colours. Colliderscope: viewer drawing; in Figure 2 is patterned like the above, only that it is devoid of natural representations as in human forms, fish or plant as seen in the previous. Black and yellow lines are used to create repetitive patterns on a blue dominant hexagon



Figure 2
Title: Collidерscope: Viewer Drawing
Artist: Susan Mcmorran
Medium: Computer-Generated painting
Year: 2007
Source: Susan Mcmorran PhD thesis 2007

'Trees' shown in Figure 3 is characterized by Vertical lines that give the impression of trees. Both paintings have the representation of a human eye in the woods. Bright blue, yellow, purple and green are exciting features of the trees. The works seem to be representations of a landscape at night and the day time.

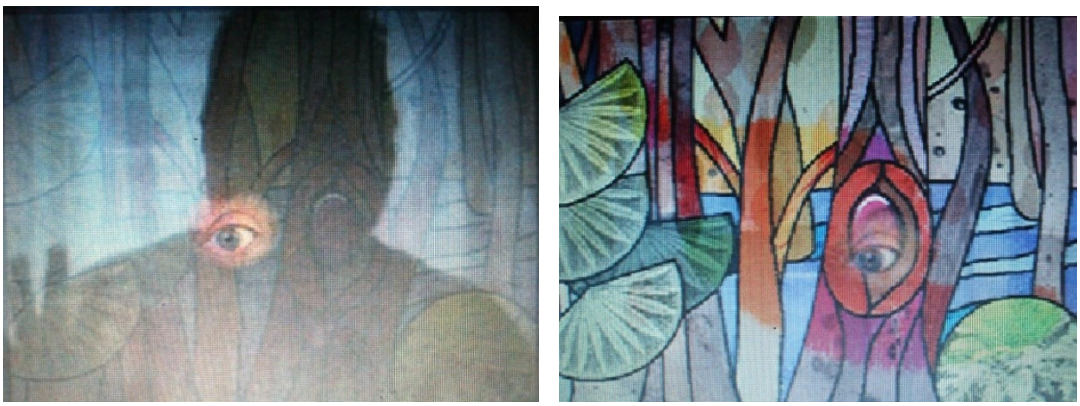


Figure 3
Title: Trees
Artist: Susan Mcmorran
Medium: Computer-Generated painting
Year: 2007
Source: Susan Mcmorran PhD thesis 2007

‘Passion’ portrayed in Figure 4 also, presents a unique computer rendition of flowing forms and geometric shapes in a dominant red colour with patches of blue and yellow.

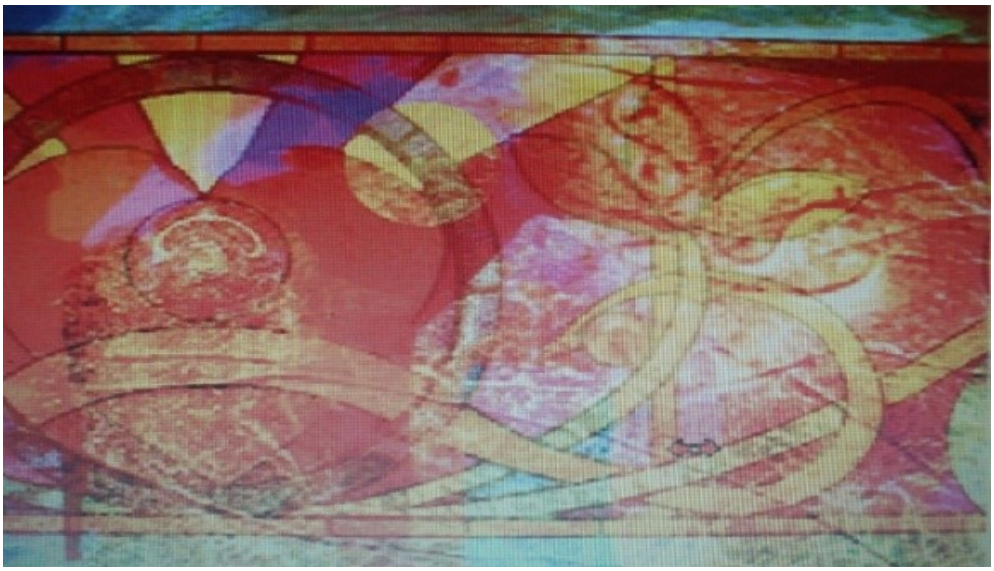


Figure 4
Title: Passion
Artist: Susan Mcmorran
Medium: Computer-Generated painting
Year: 2007
Source: Susan Mcmorran PhD thesis 2007

‘Passion-pop-up’ depicted in Figure 5 captures a floral representation beside a scale. The work is dominated by warm colours interplaying amidst painterly effects. One could see the representation of an outline of a hand between the scales which are outlined in black.



Figure 5
Title: Passion-Pop-Up
Artist: Susan Mcmorran
Medium: Computer-Generated painting
Year: 2007
Source: Susan Mcmorran PhD thesis 2007

Daniel Mafe is another painter whose painting with the computer has helped to add to the variety in the approach to paintings using the computer. According to Mafe (2009) he made collaborations with "Brown who was the programmer for the software, and he explored and tested its potential". This collaboration yielded paintings like 'Installation View, from World', 'Installation View, and Screenplay' and 'Installation View Journey'. The point here is that collaborative efforts between painters and scientists can result into novel ideas.

Godfrey (2009) presents a unique computer-generated painting that depicts a three dimensional space showing two paintings on the walls and the dominant figure which is a man wielding a gun and posing as a painter before an easel and canvas. 'Installation at Kevin Bruk' shown in Plate 6 presents the possibilities with which the

computer can be used to achieve painting, especially when the manipulations that created this human figure, are closely analysed and appreciated. The painting is reminiscent of a blend of chocolate and colour which forms the impression of the human figure.



Figure 6
Title: Installation at Kevin Bruk
Artist: Fabian Marcacci
Medium: Computer-Generated painting
Year: 2009
Source: Painting Today by Godfrey, Tony.

'Confine Paintant' in Figure 7, is another work by Fabian Marcaccio. It is an installation of paintings on a beach. Godfrey (ibid) analyses that "paintings such as Fabian Macaccio's can also become enormous, filling whole rooms, heavy with paint, silicon and other materials different from traditional paintings…". The 334-metre (1,000 feet) painting installed on a beach in Belgium was digitally printed out on a vinyl and then over-painted with oil, silicon and polymers. This approach can be likened to the conventional mixed media; it also shows that the possibility of mixed media with computer-generated media exists.



Figure 7
Title: Confine Paintant
Artist: Fabian Marcaccio
Medium: Computer-Generated painting
Year: 2003
Source: Painting Today by Godfrey, Tony.

Other computer-generated paintings by painters include Joseph Nechvatal's 'Orgiastic Abattoir' shown in Figure 8. The painting depicts organic forms and red colours that are reminiscent of an abattoir and a slaughtered animal. The painting shows the possibilities that the computer can achieve.



Figure 8
Title: *Orgiastic Abattoir*
Artist: Joseph Nechvatal
Medium: Computer-robotic assisted acrylic on canvas (digital painting)
Year: 2004.
Source: http://shawn_Brixey



Figure 9
Title: *Chimera Obscura*
Artist: Shawn Brixey
Medium: Digital Installation
Year: 2004?
Source:http://shawn_Brixey

'Chimera Obscura' in Figure 9 by Shawn Brixey, is a digital installation using the computer. The painting presents yet another dimension to the application of the computer which proves that the conventional space can be simulated. Artists have been able to make installations in real life, and this painting therefore is a computer simulation.



Figure 10
Title: *Mona Leo*
Artist: Lillian Schwartz
Medium: Digital Painting
Year: 1987
Source: http://www.studiolo.org/Mona/MONA15.htm

The use of the computer to manipulate and merge Mona Lisa and its creator Leonardo da Vinci produced Mona Leo shown in Figure 10. This again shows the possibilities that the computer has, and what painters like Schwartz have benefited using it.

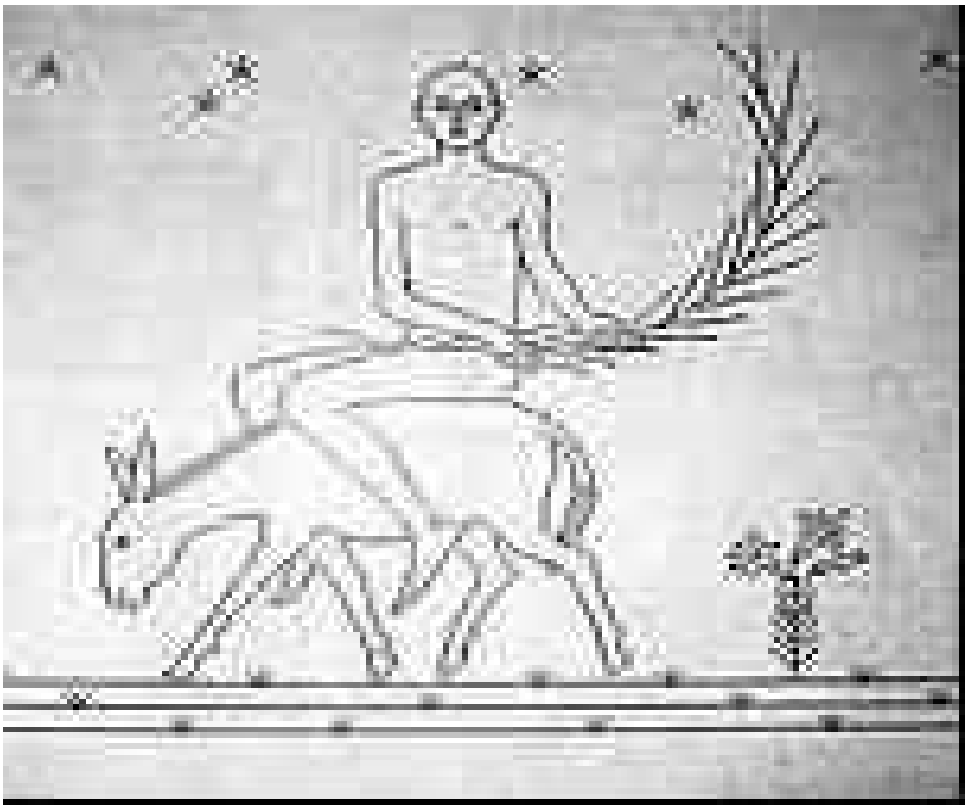


Figure 11
Title: *Digital Drawing*
Artist: Manfred Stumpf
Medium: Digital Painting
Year: 2004?
Source: http://shawn_ Brixey

Drawing is integral in painting and art in general. Painters have also demonstrated the capacity of the computer to generate drawings as can be seen in Manfred Stumpf's Digital Drawing in Figure 11. The digital drawing depicts a human figure on an animal. The figure appears to be holding a plant while the animal continues in motion. The drawing is rendered in simple line drawing that captures only the shapes of the subject.

The pervading influence of the computer on humanity has indeed permeated every aspect of humanity including the spiritual. Many artists have tried to represent the personality of Jesus Christ in painting and sculpture. Notable among such artists were; Leonardo da Vinci, Michelangelo Bounarotti among others. However, such paintings of Christ's image were based on their imaginations and perceptions. With the computer, in

the hand of Ray Downing, the efforts to realize the face of Christ remains a shock to many who have a fixed opinion about what the face of Christ looks like. This is largely due to the common image from popular paintings of great masters.



Figure 12
Title: Head of Christ (Last Supper)
Artist: Leonardo da Vinci
Medium: Oil, tempera, fresco painting
Year: 1495-98
Source: http://www.jesus-story.net/painting_jesus_christ.htm

The genesis of the recreation of the face of Jesus by Ray Downing goes back to an important event, which is the crucifixion of Christ. According to biblical records, he was whipped, pierced in the side with a spear and worn a crown of thorns which also

pierced his head. All these led to so much bleeding and death. At the time of burial, he was supposed to have been wrapped with linens and even a shroud. As a result, the impression of his face was registered on the shroud in mysterious circumstances. This shroud is today venerated by many Catholics and is located in Turin, Italy.

According to the Sidone website, the Turin shroud is a 4-m (14ft) length of linen housed in the chapel adjacent to the cathedral in Turin, Italy, since 1578. While scientists have tried to argue and debunk claims that the face is actually that of Jesus, they are yet to reach conclusions as to how the image was produced. Based on the image on the shroud, Ray Downing embarked on recreating a 3D image of Christ using the computer.



Figure 13
The Shroud of Turin
Source: http://www.sindone.org.

According to a television broadcast produced by Lindahl (2010) “the shroud of Turin is an ancient 14 foot linen cloth believed by millions to be the burial shroud of Jesus Christ. Imprinted on the torn, blood and water stained fabric is a faint image of a crucified man. The History channel of Digital Satellite Television (DSTV) further authenticated the presence of 3D information encoded in a 2D image in an unexpected manner. The 3D information provided Downing and his team at the Mcbeth Studio, the lead into making sculptural molds which culminated into computer graphics and painting manipulations which produced a rather shocking revelation of an unexpected image of Jesus Christ in 3D. It has been acclaimed to be the closest to what Jesus Christ really looked like.

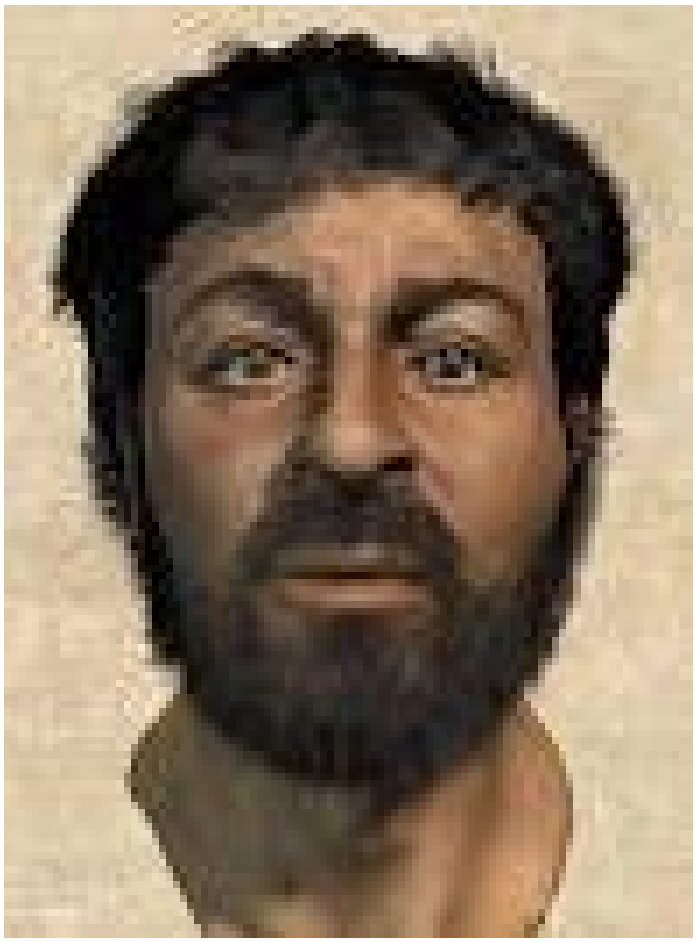
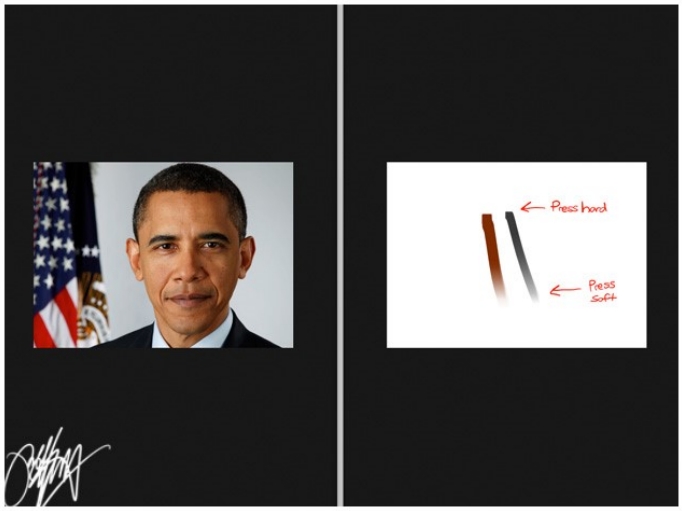


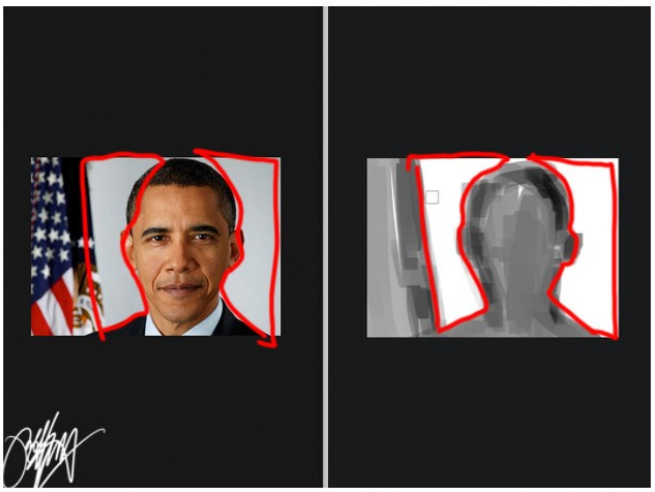
Figure 14
Title: Face of Christ
Artist: Ray Downing
Medium: Computer-Generated painting
Year: 2011
Source: History Channel (DSTV)

This review brings to light the power of the artist to employ the use of the computer to reecho history and bring to light the invisible only made possible by the computer. The benefits of such a feat are profound as they will help to reconnect believers of the Christian faith with the saviour, reinvigorate the faith of believers in the saviour, Jesus Christ, as well as authenticate history and mystery. Similarly, Paulove2 (2009) presents a step by step approach by Kyle Lambert a digital artist who painted the portrait of President Obama using the computer. He presents his process and technique thus;

STEP 1 - TOOLS AND LAYOUT
Firstly I place my reference and blank canvas side by side. To the right of that I have any tools that I need. Because I use Adobe Photoshop, the panels that I use are Layers, Brushes, Swatches and the Color mixer. In terms of hardware, I use a Wacom Graphics tablet which I consider to be a vital part of my work flow. Most graphics tablets allow you to adjust your paintbrush based upon how hard or soft you press. This allows you to paint much more realistic strokes and build up color gradually.

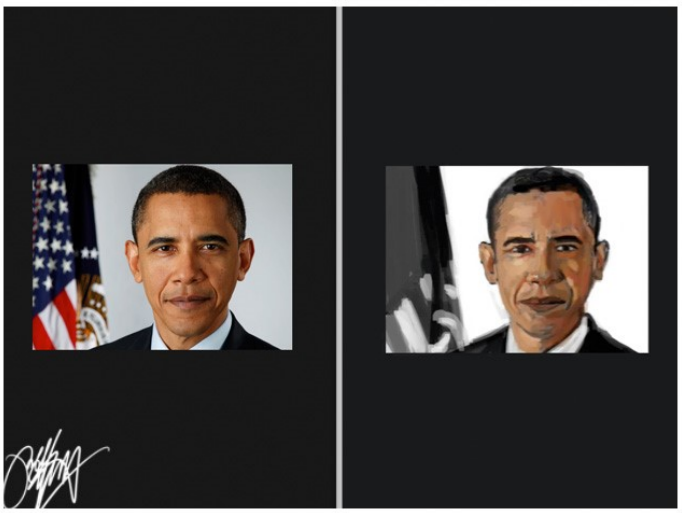


STEP 2 - PAINT IN BASIC SHAPES
One of the biggest mistakes people make when drawing people is how they begin. I have found the best method for achieving accurate proportions is to block in the basic shapes of the image. I usually identify the gaps surround objects to help position them in relation to the edges of the canvas. I usually paint with a mid-tone grey at this point to help with color accuracy later on.



STEP 3 - IMPORTANT FEATURES

At this point I will begin to pick out the important features of the subject, in this case the eyes, nose and mouth and place emphasis on getting a reasonable likeness. I am not saying here that you have to paint in every hair and detail, just enough for you to see that everything is in the correct place. I use a slightly rounded square brush for the early stages of painting but this isn't vital.



STEP 4 - BASIC COLOR

Now that it looks correct in grayscale I begin adding the basic colors over the top. Initially I work with a very transparent brush until I am confident about the accuracy of the colors that I am using. You may have noticed that so far I have been working quite small. I find that this helps simplify the shapes and colors. Sometimes when you are working close you fail to see how everything looks together. Painters who work with real paint often step back from their paintings to see them as a whole, this is no different.



STEP 5 - BLENDING TONES

Once I have the basic colors correct, I will then zoom in and start working on smoothing the tones together. I do this by using a large soft edged brush to wash over the top. Again transparency at this point helps the process be gradual. It is impotant to keep looking at the original as you work and zoom in and out to identify what needs doing to your painting.



STEP 6 - DETAILS

Once I am happy with the painting as a whole, I zoom into certain areas with a thin paint brush and pick out details such as highlights, hairs and wrinkles. This process can take hours and hours if you are going for a very photo-realistic image. I find that it is usually more effective just to pick out the important defining features such as reflections in eyes and noticable individual hairs.



STEP 7 - COMPLETE

Once you have finished adding detail, zoom out and check everything looks as you desired, sign it and save it. I must point out that I would not leave it until this point to save your work. You know what computers are like! I lost a painting once, having not saved 6 hours of work! So my advice would be, every time you step back to have a look at what you have done, hit save.



FINAL RESULT

Figure 15
Title: Barack Obama
Artist: Kyle Lambert
Medium: Computer
Year: 2009
Source: http://abduzeedo.com/suberb-tutorial-digital-painting-president-obama

The influence of technology and machine in particular on the Nigerian painting landscape was predictable. Gani Odukokun's painting; man and machine is only a way of announcing the age and influence of the machine on the Nigerian artist. Man appears to be engrossed in the punching of buttons on a machine. Buttons are synonymous with the computer. The gouache painting tends to bring to fore the thought pattern of the Nigerian painter who seems slow in embracing the computer. According to Danjuma (2010), "Man and machine", seems to imply that man/woman is working hard to industrialize himself/herself." In the same vein, the painter has become influenced by the computer in the new computer age. However, Danjuma (ibid) further analyses that; "impending danger seems to be illustrated by the menacing looking and gapping jaws of a Pinches-like (sic) object to devour the right upper body of the seated figure." From the analysis, could it be deciphered that the computer or machine portends danger for the artist? Notwithstanding, every invention of man has its pros and cons.

Dimension of computer application to painting in Nigeria.

The dimensions that painters have applied computer to painting in Nigeria can be rarely found in documented materials, nevertheless, there are examples.

Ogene (2009) states that

> Nigeria is currently in the fore of computer appreciation and utilsation. Daily, the numbers of users are increasing as industries, educational and governmental sectors are all going digital in order to be compliant with global developments in the electronic technology. The e factor has thus given rise to terminologies such as e government, e learning, e publishing, e trading, e economy, e banking and e everything.

Which of course would include e-art or e-painting, while the paper addresses the problem of appropriated image proliferation; there is the fear of Nigeria not being prepared for the litigations that may arise with such appropriation that borders on

copyright. He generally bemoans the lack of legislation as it concerns the practice and consumption of art in Nigeria. The paper reviews Leonardo da Vinci's Mona Lisa and how its availability on the internet has led to a proliferation of several other appropriated copies by other painters who have forthrightly claimed ownership of such works, therefore creating the issue of originality.

The appropriation or reuse of the Mona Lisa has been made easy with the aid of the computer, and its proliferation has also become easier through the internet using the computer. Although, in the past, Marcel Duchamp, a Dada movement painter appropriated the 'Mona Lisa' with beards, it was painted by hand and brush. The appropriated ones in focus are the computer-generated ones. This review projects the ease with which the computer can be used to reuse and repaint paintings and give them new meanings. It also exposes the influence of the computer on the painting profession.

In addition, Ogene, a Nigerian artist, reused the 'Mona Lisa'. 'Elmina Lisa' is a digital print on canvas. Ogene used the Adobe Photoshop, painting software to recreate the 'Mona Lisa' garbed in a traditional Ghanaian Kente fabric, with a heavily beaded neck, crown and wrist bangle. The painting appropriates the status of a Ghanaian queen or princess to 'Mona Lisa'. While this painting becomes an original of Ogene, one still cannot divorce it from memory that it was a Leonardo da Vinci's Mona Lisa.



Figure 16
Title: Elmina Lisa
Artist: John Ogene
Medium: Computer
Year: 2009
Source: John Ogene

Nwanze (2011) records ‘Circles of Life’, portrayed in Figure17. It is another Nigerian painting generated with the computer. The painting is rendered green, black and white. It has features of concentric lines and connected circles in various sizes that create interest. Some circles are flat white. The use of green can be seen in two tones with overlapping forms in the background of the painting. Patches of white jagged shapes appear to dot over the space of the painting. ‘Circles of life’ is dominantly green and white, which is suggestive of the colours on Nigerian flag and appears to be like a clarion call for Nigerian painters to also look the direction of computer-generated paintings.

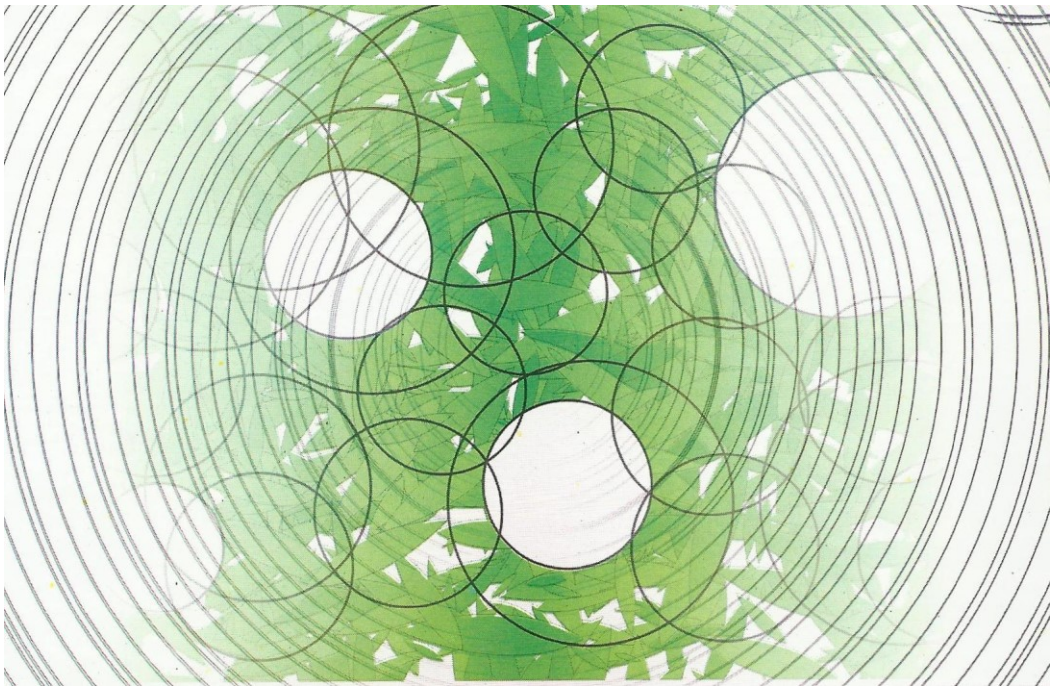


Figure 17
Title: Circles of Life
Artist: Vera and B. Nwanze
Medium: Computer
Year: 2011
Source: Nigerian Female Artists: A decade of realistic textures.

In concluding, the review has so far considered the concept of influence. It sees influence as an important factor capable of creating change among people in a society. Importantly, for the artist, influence has come from peers or professional colleagues, senior and junior, environmental, sociological, economic and political. Style and trend prevalent at the time have also engineered change among artists. Duniya (2010: 27) opines that;

> Styles and trends in art are generally determined by the realities of a particular environment. Therefore, the evolution of styles in art and the trends they have taken all over the world have been influenced and largely determined by the ideological thoughts of such a society and the socio-cultural, political and economic circumstances of the particular time.

Computer as a tool has also exerted a form of influence on some professionals, like architects, painters, medical practitioners graphic artists, and textile designers, to

list a few, therefore, prompting a trend and style that art historians in Nigeria may not have reported. It has by extension, affected the way we live, thereby projecting the state of the art, and setting the pace for an investigation into the extent of influence of the computer on the Nigerian Painter.

Finally, although the review appears to have more of literature that projects the computer in positive light, there are misgivings. Gani Odutokun's painting captured in Danjuma (2010) may be warning on the danger of the digital time. Similarly, Professor Basir K. Olorukooba had dismissed the computer painting as lacking in creativity, which may add to the reasons why it is unpopular among Nigerian Painters.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

The focus of this research was to investigate the application of computer among painters in Nigeria. Saliu (1994:78) states how the religious and cultural life of the Ebira have been affected, as a result of the coming of Christianity and Islam, and how the influence of Western education changed the socio-political life of the Ebira. In the same vein, Western influence has continued unabated even with the computer. Change in the way artists work is also evident as well as its attendant influence on the painter. This research therefore, embarked on an investigative approach to arrive at the stated objectives. Data was collected from field trips using questionnaires, interviews, observation of painters at work with the computer, art galleries, books, magazines, newspapers, internet, and interviews via email with artists. Research equipment such as digital camera; video camera/recorder were used. In an attempt to study the paintings, a grouping of the works was made and critically analyzed, by considering the formalistic elements, programmes used and characteristics of the programmes.

Research design, according to Olaofe (2010:90) is a "blue print for the measurement of variables, collection and analysis of data". The author goes further to list types of research designs like experimental, action-research, survey, longitudinal, analytical, correlation, descriptive and qualitative. The methodology employed for this investigation is based on art history paradigms which are essentially qualitative. This includes the survey method, descriptive method, and comparative analysis. These methods were adopted by previous researchers including Jari (2007), Wrong (2009), Adogbo and Ojo (2003), Trowel (1994), Babalola (1981), Saliu (1994), Evans (1965)

and Lewis (2014). Quantitative values in the objectives necessitated the use of questionnaire as an exploratory tool which was statistically analysed.

Survey Method

Wrong (2009) states that *survey research* means the collection and analysis of responses of large samples of people to polls and questionnaires designed to elicit their opinions, attitudes, and sentiments about a specific topic. Through structured questionnaires, artists, academics in the field, and art connoisseurs' opinions, prejudices and biases about computer-generated paintings were ascertained. This method also helped the researcher to reach the computer painters as well as locate sources of needed data.

Descriptive Method

Adogbo and Ojo (2003) state that, "descriptive approach attempts to create a vivid picture of the object or events in the mind of the reader". As a result, figurative speech, use of similes and metaphors are encouraged. This approach helped to bring out the elements and salient characters of computer-generated paintings through a detailed descriptive exercise. This further enhanced the understanding of these paintings and the medium through their characteristics. In the past, researchers like Trowel (1974), Babalola (1981) in Saliu (1994), Jari (2007) and Danjuma (2010) resorted to its application for effective results.

Comparative Method

Evans (1965) is of the opinion that the emphasis on comparison should be placed on differences, rather than on similarities. Lewis (2014) is of the opinion that one should "find the similarities and differences" therefore; a comparative analysis of

computer paintings and the traditional media paintings like oil on canvas, murals, watercolours, pastel, enamel, and drawings was carried out, by considering the similarities and differences. Their unique features were brought to fore, and the reasons for their patronage and lack of it was established through a comparative study.

Population

Sambo (2008) sees population as "the set of all elements, objects, or events that are of interest for a particular study". Population for the study was primarily 42 computer paintings, and 12 artists. Gallery workers, foreign cultural personnel, visual artists in general and art collectors also were sources of data collection. Adetoro (1997) deems it necessary to collect information required from a group, which is the population.

Sampling

Sampling was purposive or judgmental in view of the difficulty in finding respondents. This was informed by the unpopular nature of computer paintings in contemporary practice. This method of sampling is supported by Sambo (2008) who observed that the researcher can subjectively choose subjects to include and not include, in a research. He further explains that judgmental sampling accords the researcher the freedom to use his or her experience in choosing which elements or subjects that are "included in a sample based on some subjective criteria". The author further defends this position by stating that; "the value of any research activity depends on the integrity of the researcher". Questionnaires were subjectively administered which made it possible for the respondents to indicate names of artists who paint with the computer.

Research Instruments

Research Instruments that were used to collect empirical data for this research are questionnaire, interview schedules, direct observation, photography and the internet. Secondary sources of data were books and exhibition catalogues.

Validation of Instruments

Questionnaires and interview questions were validated by members of the supervisory committee. Samples of the questionnaire and interview questions have been appended.

Questionnaire: This was used as an exploratory tool to identify artists that used the computer to paint and also, obtain objective responses arising from carefully structured questions that were tailored along the objectives of the study. A total of one hundred and thirty nine respondents turned in their responses. The researcher had to fill for two respondents (Abiodun Olaku shown in Figure 17, and Kunle Ogunfuyi) in Lagos who were not quite disposed. In that sense they answered the questions asked in the questionnaire which was equally recorded.



Figure: 18 Abiodun Olaku poses after the response to questionnaire
Source: Researcher

Interview: Based on the questionnaire responses, out of forty one (41) artists that were named to use computer to paint, only twelve (12) were sampled because they actually had the paintings and so the face-to-face interview was conducted. However, some respondents could not avail themselves because they felt they could respond through the email (internet) while two persons who were not in the country at the time also opted for the email. In order to avoid the challenge of memory loss or failure, the responses were recorded with a 16.1 mega pixels DSC100 digital Sony camera which was equally used to shoot still images of some paintings, artists as well as video tape the work environment and moments of interview with respondents. Notes were also taken. Mobile phone served as equipment for reaching out to some respondents, especially to schedule interviews. Sambo (2008) lists telephone as one of the devices for collecting data in a survey research through interview.

Observation: The process of creating computer paintings was carefully observed as the artist worked. The researcher then took notes of the process and instruments used like Wacom tablet, computer, printers, digital camera, stylus and printing paper. Questions were also asked for the purposes of clarification. Timing and dates of events were noted for proper sequencing; this particularly helped in the documentation of the process.

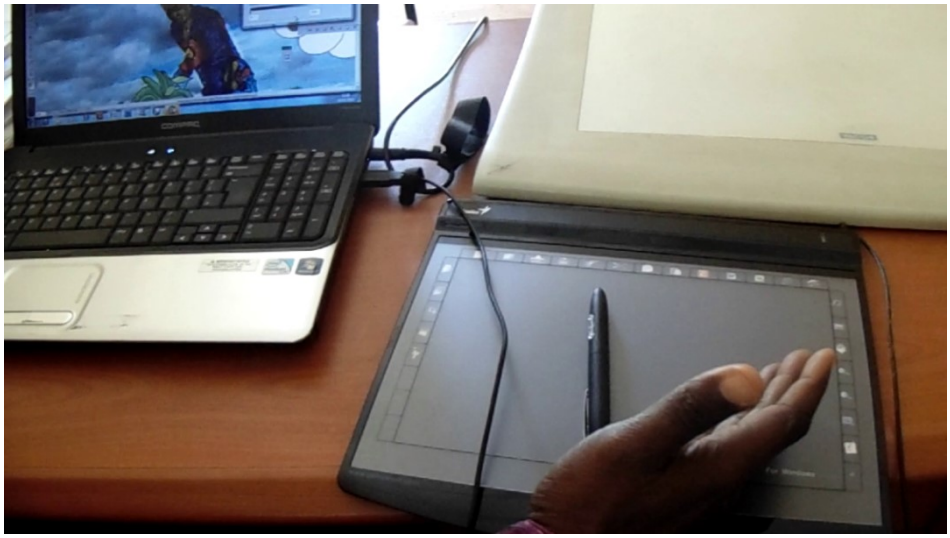


Figure 19: Demonstration session with laptop, Wacom tablet and stylus
Source: Researcher

Digital Camera: The camera was used to record voice interview, capture images of some paintings, and capture interview sessions. The data was later transferred to the laptop computer for editing, transcription and analysis.

Internet: Through the internet some of the paintings were accessed from the artists. For example; Victor Ekpuk, Ibe Ananaba, David Osagie and Victor Ehikhamenor emailed their paintings. Similarly, some questionnaires and interviews were filled and conducted by email.

Validation of Instruments: Questionnaires and interview questions were validated by members of the supervisory committee. Samples of the questionnaire and interview questions have been appended. The pilot study also contributed in further validation.

Pilot Study

Pilot study was conducted in Maiduguri. The validated questionnaires were tested on ten (10) respondents comprising of artists and academics. The initial questionnaire did not require respondents to indicate the contact addresses, email and mobile phone number of the computer painting artist. As a result only their names were given which made it impossible to them and interview them, therefore, the item was re-constructed to include such details which made it possible to reach the computer painting artists and interview them. Similarly, the interview question was drafted in line with the objectives but did not seek information that will establish the history of computer painting in Nigeria, so the gap was filled by including a question that sought for the history and another question on whether or not it is taught in any art department in Nigerian schools. Questions were tested on one of the artists indicated by a respondent in the questionnaire, Habib Mohammed, whose works qualified him for the interview. The questions were without ambiguities as they were well understood by the interviewee. The result of the pilot study deductively revealed the feasibility of the investigation and the reliability of the instruments as shown in the painting in Figure 20 where the colour of the photographed image was changed. The pilot study also revealed that Habib used smart phones which were enabled by software to paint or manipulate images. They possessed the advantage of ease of usage, clean or dry work space, virtual work environment as opposed to the real or tangible environment of the conventional painting studio among others. The interview is reported below:

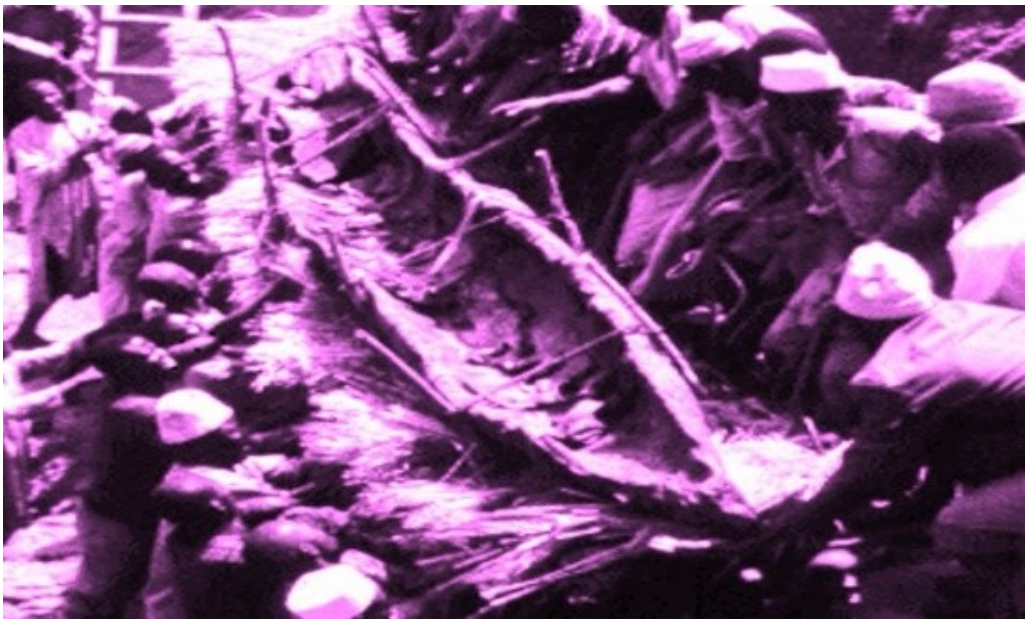


Figure: 20
Title: 'Dafuna Canoe II'
Artist: Habib Mohammed
Medium: Phone
Size: unspecified
Date: 2013

Ali Mohammed Habib was from the Kanuri ethnic extraction and was of Borno State Origin. He had a B.A. Creative Arts (Painting) degree of the University of Maiduguri, Borno state, Nigeria. He graduated in 2006. Habib was a graduate assistant in the painting section, department of Fine Arts, at University of Maiduguri. Habib defined a computer painting as software based design using tools and media available to the computer, and could be printed as artworks. He was introduced to computer painting through the Nokia 300 express music. This category of phone had few features available in the tool media and it was keypad oriented. He also had the L.G Ex500, which was a 'touchscreen' phone and Nokia C2-o6 which had a slide with keypad 'touchscreen' phone. According to Habib, all the phones were Java phones. Java is a computer language or script with platform for operating.

The process of painting for him begins with accepting a photograph or an image using Bluetooth, or down loading from sites like facebook. The image is displayed in

photo album or galleries, from where features like, text, brightening, darkening elements that help to control and manipulate light and dark are effected on the image.

Basically, Habib uses the smart phone to enhance an image or recreate it. This presents a dimension in which paintings are made using computer software. The phone also provides features for creating whole new paintings or art, using a drawing panel and an array of mixed colours on a palette, as the one found on LG Gx500. He started using the Nokia 300 phone to create art in 2007. It was with this phone that he learnt to create software based art through general exploration or fiddling with the phone features. Habib does not know who is into this Art in Nigeria, but has seen some online images. He has also not sold any as they are mere experimentations.

The characteristics of this approach are artistically universal. These include distortions, subtractions, additions, emboldening, internet based printability, reproduction and portability. He applies the principles of art as well as demonstrates consciousness towards the application of the various elements of art. However, the use of the software remains a self-discovery approach. For him, an advantage of the computer based painting is the possibility of working anywhere. Although the cost of production is high in producing the conventional media paintings, nevertheless, he preferred the traditional media paintings.

Field Work

Field work was embarked on after testing and approving the reliability of the instruments. The field work was divided into two parts. The first part was the purposive administration of the questionnaires to one hundred respondents (100) in Lagos because of its cosmopolitan nature, commercial artistic disposition. Another one hundred respondents (100) in Kaduna State were sampled representing Northern Nigeria, and for the reason that it is home to the premier art school in Nigeria at Ahmadu Bello

University, Zaria. Places visited in Lagos were the art and printing department Yaba College of Technology, Creative Arts Department of University of Lagos, Universal Studios, and National Art Theatre Iganmu, Lagos. In Kaduna state, respondents were drawn from Department of Fine arts Ahmadu Bello University, Zaria, Department of Fine and Applied arts, College of Education, Zaria, Alliance Francaise Kaduna, Benco art Gallery Kaduna, National Art Gallery, Kaduna, Department of Industrial design, Ahmadu Bello University Zaria. The questionnaire as seen in appendix A, helped to sample the opinions of the population in line with the objectives, and provided information on those painters who are using the computer to paint which facilitated the interview. The statistical analyses of the questionnaire are tabulated in appendix B. The analyses also helped to produce a comprehensive list of all artists using the computer to paint. The artists were contacted through mobile phone numbers provided, email addresses, website, and facebook social media.

The second phase of the field work was the in-depth interview with thirteen (13) artists who showed evidence of the computer paintings. The interviewees were; Nwachukwu Ifeanyichukwu, Tosin Okusi, Professor Razak Rom Kalilu, Ibe Ananaba, Victor Ehikhamenor, Ben Atanu, Edward Lapang, Dr. John Ogene, Dr. Iyabo Tijani, Felix Adakuno, Victor Ekpuk and David Osagie. When contact was established with the interviewees and appointment scheduled, some were visited in their various studios or offices which were scattered across the country as seen in the geographical distribution and interview schedule, (see Table 3.1).

Table 3.1: A Geographical Distribution and Interview Schedule with Artists

No/Name	Location	Interview Date	Time	Remarks
1. Habib Mohammed	Maiduguri	13th may, 2013	1:10 pm	Interview granted
2. Nwachukwu Ifeanyi	Lagos	20th July, 2013	9.00 am	Interview granted
3. Tosin Okusi	Lagos	21st July, 2013	3:30 pm	Interview granted
4. Ibe Ananaba	Lagos	9th September, 2013	9.45 pm	Interview granted by email
5. Victor Ehikhamenor	Lagos	19th September, 2013	9:30 pm	Interview granted by email
6. Ben Atanu	Lokoja	27th September, 2013	10:30 am	Interview granted
7. Edward Lapang	Jos	8th November, 2013	8:20 pm	Interview granted by email
8. Dr. Iyabo Tijani	Zaria	12th December, 2013	11:00 am	Interview granted
9. Dr. John Ogene	Benin	8th January, 2014	10:50 pm	Interview granted by email
10. Felix Adakuno	Zaria	11th January,2014	9:00am	Interview granted
11. Victor Ekpuk	Lagos	29 January, 2014	5:30 pm	Interview granted
12. David Osagie	Abuja	20th April, 2014	8:16 pm	Interview granted

The interviews sought information to establish paintings made with the computer, the dimensions of application of computer to painting in Nigeria, comparison with conventional media, history of computer painting in Nigeria among others. Some of the interview sessions are shown in Figures 21, 22, 23, 24, 25 and 26.



Figure 21: Victor Ekpuk
Source: Victor Ekpuk



Figure 22: Ultra Mobile PC (UMPC)
Source: Research Assistant, 22nd July, 2013

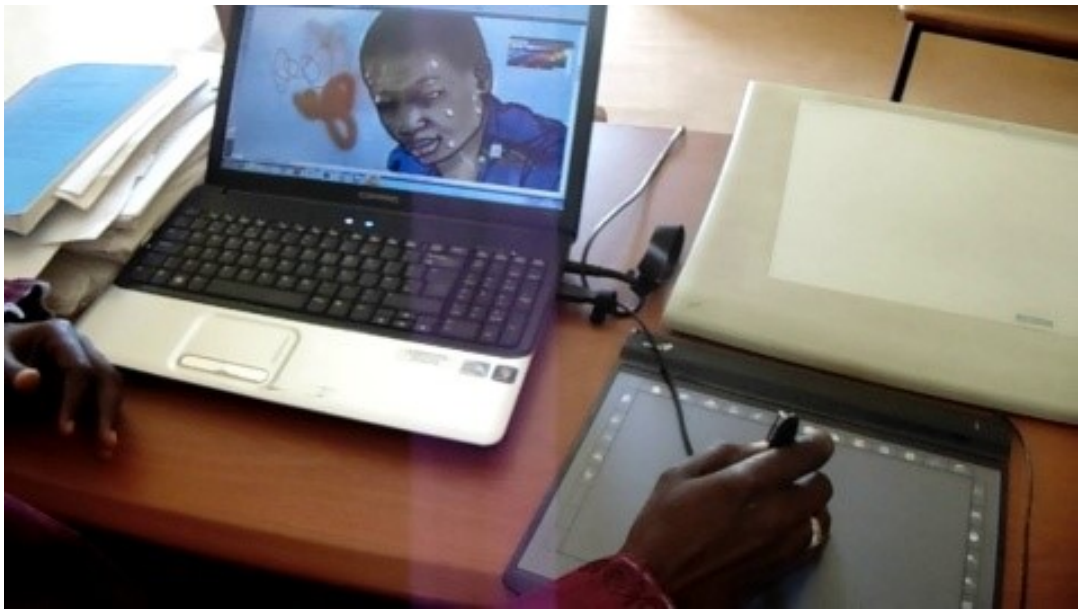


Figure 23: Demonstration with Wacom tablet and computer
Source: Abu Okhai, 20th April, 2014.

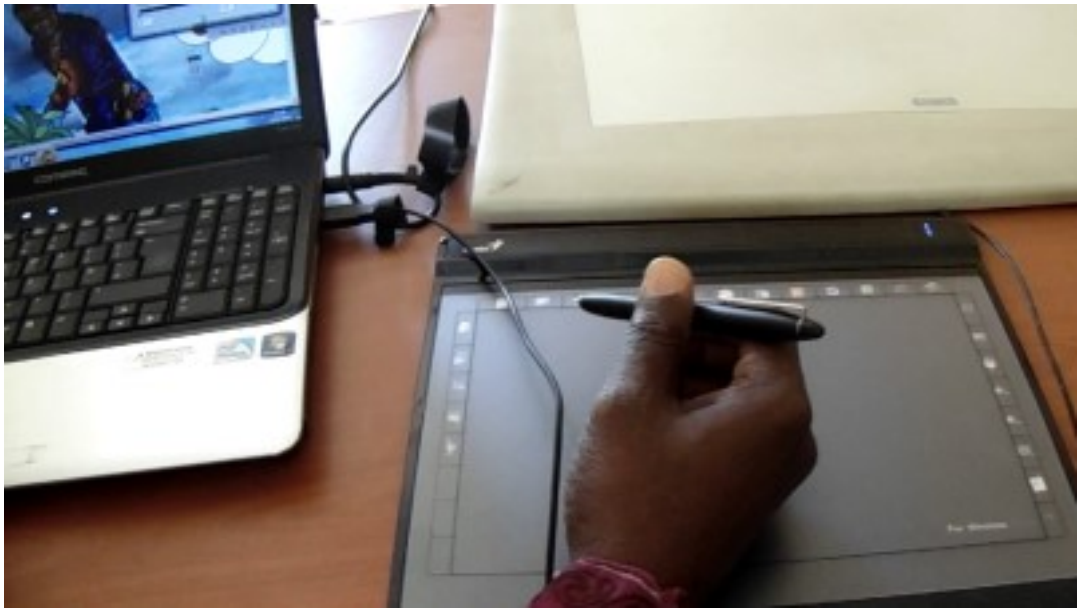


Figure 24: Digital Tablet and Stylus
Source: Abu Okhai, 20th April, 2014.



Figure 25: Respondent Filling out a questionnaire
Source: Research Assistant, 16th May, 2013.

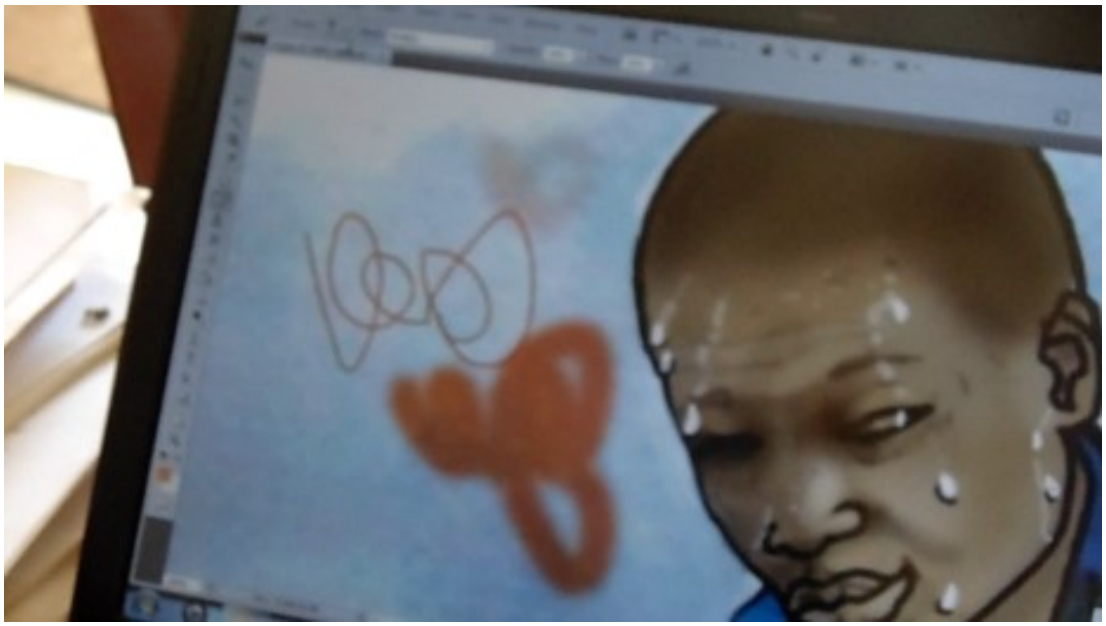


Figure 26: details of figure 23
Source: Abu Okhai, 20th April, 2013.

Data Analysis

The questionnaires were analysed using the Statistical Package for Social Sciences (SPSS), and results are in percentages and frequencies. Interviews were transcribed and reported. It took between one to two hours to play and replay the interview video and transcribe each interview session. Paintings were categorized (classified) based on their commonalities, Eyo (1977) views classification as an important tool for analyzing artworks. In that sense paintings were analysed based on a prescribed format by Stokstad (2008) which was; basic facts, subject matter, formal qualities, style, patronage, historical context, critical judgment and interpretation.

CHAPTER FOUR

ANALYSES AND DISCUSSIONS

Introduction

The study titled "An Investigation of Computer Application to Painting in Nigeria" sampled the opinion of 139 respondents across Nigeria with Kaduna and Lagos as the case study. Its main objective was to investigate the dimensions of computer application to painting and to compare computer-generated paintings to conventional ones. The statistical package for the social sciences (SPSS) was used to analyze the data obtained which presents the bio data variables using frequencies and percentages in tables which are interpreted below. A total of 200 questionnaires were administered to respondents in Lagos and Kaduna purposively, but only 139 (69.5%) were turned in. Sequel to the analysis an in-depth interview with computer painters was conducted which led to a realisation of paintings for qualitative analysis.

Analysis of Quantitative Data

Table 4.1: Location of Respondent

Variations	Frequency	Percent
KADUNA	98	70.5
LAGOS	41	29.5
Total	**139**	**100.0**

Table 4.1 is a frequency table showing that 98 respondents representing 70.5% responses were recorded from Kaduna while 41 respondents representing 29.5% responses were recorded from Lagos. The total number of respondents was 139 as seen in the table. It could be observed that Kaduna had more respondents; however, the reason remains unknown as equal number of questionnaires were administered, but only

41 respondents from Lagos which appeared to have a large population of artists turned in their questionnaires.

Table 4.2: Designation/Category

Variations	Frequency	Percent
ART COLLECTOR	1	.7
ARTIST	121	87.1
GALLERY WORKER	8	5.8
FOREIGN CULTURAL PERSONNEL	1	.7
OTHERS	8	5.8
Total	**139**	**100.0**

The designation of respondents as shown in table 4.2 shows the various response levels by those sampled. There was only one art collector who responded which represented .7 percent. 121 artists responded, and the figure represented 87.1%, 8 gallery workers represented 5.8% while only 1 foreign cultural personnel which represented 1.7% of the total number of 139 equaling 100%. Others who did not specify their designation but responded were 8 in number which represented 5.8%. From the table therefore, it could be observed that artists, constituted the highest number of respondents in the population.

Table 4.3: Years of Experience as an Artist (not Computer Painter)

Variations	Frequency	Percent
0-5YRS	40	28.8
6-10YRS	42	30.2
11-15YRS	13	9.4
ABOVE 15YRS	44	31.7
Total	139	**100.0**

Table 4.3 displays results of years of experience of respondents as practicing artists or in the art industry. 40 respondents representing (28.8%) had between 0-5 years

of experience; while 42 respondents representing (30.2%) represented those with 6-10 years of experience. 13 respondents with (9.4%) are persons who had between 11-15 years of experience. Lastly, were 44 respondents which translated into (31.7%), who had over 15 years of experience, in the field of art. The distribution helps to gather shades of opinion which draw from their years of experience in art.

Table 4.4: Response to Question Seeking to Establish Whether or not Respondents Had Heard of Computer Generated Painting.

Variations	Frequency	Percent
DID NOT ANSWER	2	1.4
YES	119	85.6
NO	18	12.9
Total	**139**	**100.0**

The results shown in table 4.4 sought to establish who had heard of computer-generated painting. Out of the 139 respondents, 119 respondents (85.6%) answered yes while 18 (12.9%) had not heard of computer-generated- painting. This revealed that, the use of the computer to paint is not strange after all.

Table 4.5: Response to Question Seeking to Establish which Medium Respondents heard of Computer Paintings.

Variations	Frequency	Percent
DID NOT ANSWER	16	11.5
INTERNET	75	54.0
TV/RADIO	8	5.8
IN SCHOOL	17	12.2
OTHER MEDIUM	23	16.5
Total	**139**	**100.0**

Table 4.5 indicates that, out of the total respondents of 139 (100%), 75 respondents who represented (54.0%) knew about computer painting from the internet. 17 respondents representing (12.2%) were informed about computer painting at school.

Furthermore, 8 respondents who represented (5.8%) were informed through television and radio, and 23 respondents with (16.5%), heard of it through unspecified medium, while 16 respondents with (11.5%) did not indicate their source of information about computer in painting. The analysis therefore, makes the internet the commonest source to discover this form of painting. As a consequence, this may have a relationship with the group of artists to be associated with this art as they are mostly internet minded artists.

Table 4.6: Response to Whether or not Respondents Knew Artists who Practiced Computer Painting

Variations	Frequency	Percent
DID NOT ANSWER	7	5.0
YES	54	38.8
NO	78	56.1
Total	139	100.0

In Table 4.6, the question sought to discover artists who were particularly engaging the computer to paint. 54 respondents with (38.8%) knew some artists and provided names and contact information, while 78 respondents with (56.1%), of respondents did not know any. A total of 7 respondents who represented (5.0%) did not answer this particular question. This revelation revealed the unpopularity of the medium.

Table 4.7: Names of Computer Paintings Provided by Respondents.

Variation	Frequency	Percentage
0	86	61.9
ABIOLA	4	2.9
AHTA	1	.7
ANAYO	1	.7
AYO ADEWUMI	2	1.4
BEN UKUBILE ATANU	2	1.4
DAVID OSAGIE	1	.7
BOLAGI A.	1	.7
EDWARD LAPANG	1	.7
EKENG	1	.7
FELIX	1	.7
IBE ANANABA	1	.7
IDAHOSA	1	.7
IFANYICHUKWU	1	.7
IYABO TIJANI	5	3.6
KAZEEM	1	.7
KENETH ONYEA	1	.7
KENNETH	1	.7
KUNLE OGUNFUYI	1	.7
NWACHUKWU IFEANYI	1	.7
OGENE JOHN	3	2.2
OJEIKERE	1	.7
OKUSI TOSIN	1	.7
OMELOLA	1	.7
SUNDAY OGUNWOLE	1	.7
OYEODE	1	.7
PATRICK	1	.7
ROM KALILU	1	.7
ROTIMI	1	.7
SADIQUE	1	.7
SHEDRACH	1	.7
SHOLA	1	.7
SOANDU	1	.7
SODEINDE	1	.7
OLADAPO	1	.7
STANLEY ANETO	1	.7
TIJANI IYABO	1	.7
TONY	3	2.2
TOYE	1	.7
UDEME	1	.7
VICTOR EKPUK	1	.7
WEYINMI ATIGBI	1	.7
Total	**139**	**100.0**

Table 4.7 is a list of artists whom respondents knew and indicated their names and contact information for the purpose of interview and analysis of their paintings and further comparison with the traditional or conventional medium.

Table 4.8: Response to Question Seeking to Establish Whether or not Respondents Knew of other Dimensions of Computer Applications used by Artists in Nigeria.

Variations	Frequency	Percentage
DID NOT ANSWER	13	9.4
YES	41	29.5
NO	85	61.2
Total	**139**	**100.0**

Table 4.8 partly addresses research objective ii, which is to investigate the dimensions of computer application by Nigerian artists in Painting. The table shows that 41 representing (29.5%) were aware of some ways Nigerian artists are using the computer. 85 respondents who represented (61.2%) did not know, while 13 respondents declined response.

Table 4.9: Other Applications Employed by Artists Listed by Respondents.

Variations	Frequency	Percent
3D	1	.7
ADOBE PAINTING	1	.7
CORELDRAW	1	.7
DIGITAL IMAGES	1	.7
ENHANCED IMAGES	2	1.4
GRAHPHIC PAINTING	9	6.5
NO COMMENT	77	55.4
NOT SURE	25	18.0
PHOTOPRINT	1	.7
PHOTOSHOP	21	15.1
Total	**139**	**100.0**

Table 4.9 addresses objective ii of the research, and answers the question: what are the dimensions of computer painting in Nigeria? It shows the various applications or ways the computer is used by Nigerian artists which include; 3D, Adobe painting or Photoshop, CorelDraw, Digital images, enhanced images, Graphic painting and photo paint. 21 representing (15.1%) of respondents indicated the use of Photoshop. It

therefore means that the use of Photoshop software, to generate paintings with the computer by artists was common. 77 respondents with (55.4%) did not comment, while 25 (18.0%) were not sure.

Table 4.10: Respondents Preference between Computer and Conventional Paintings.

Variations	Frequency	Percent
CONVENTIONAL/TRADITIONAL PAINTING	86	61.9
COMPUTER GRAPHIC PAINTING	24	17.3
BOTH	29	20.9
Total	**139**	**100.0**

In order to set the tone for objective to compare computer-generated painting and conventional traditional media painting, objective IV of the research is partly satisfied. Table 4.10 reveals that 86 respondents with (61.9%) would prefer the conventional traditional approach to painting while 24 (17.3%) chose computer-generated painting. However, 29 (20.9%) would like to work with both. The preference rate reveals the weak acceptance of the computer painting.

Table 4.11: Response on Implications of Computer-Generated Paintings.

Variations	Frequency	Percent
ADDITIONAL MEDIUM	1	.7
EASIER	6	4.3
FASTER	4	2.9
INNOVATION	43	30.9
LOW PATRONAGE	1	.7
NEW APPROACH	1	.7
NO COMMENT	33	23.7
REDUCE CREATIVITY	50	36.0
Total	**139**	**100.0**

Table 4.11 further addresses objective IV on comparison between conventional and computer painting. It sought for the implication of computer-generated paintings in Nigeria and the following factors came to fore; 50 respondents with (36.0%) think it will reduce creativity, but 43 respondents, representing (30.9%) visualize an innovation. Other implications are; additional medium, easier, and faster and new approach which are seen in varying percentages on the table even as 33 respondents, representing (23.7%) declined comments.

Table 4.12: Comments on Computer Technology to Paintings in Nigerian Art

Variations	Frequency	Percent
FASTER	8	5.8
GOOD	6	4.3
INNOVATION	55	39.6
NO COMMENT	38	27.3
NO COMPARISON	6	4.3
NOT GOOD	2	1.4
REDUCE CREATIVITY	24	17.3
Total	**139**	**100.0**

Some of the advantages and disadvantages of the computer and conventional painting which partly addresses objective V are revealed in Table 4.12. It shows the general opinion of respondents on this new medium. 2 respondents who represented (1.4%) opined that computer paintings are not good, and 24 respondents who

represented (17.3%) were of the opinion that it reduced creativity. 6 respondents representing (4.3%) stated that, there is no ground for comparison, as they felt that, computer paintings were inferior to the traditional ones. Nevertheless, 55 respondents representing (39.6%) saw an innovation with the computer medium. in addition, 8 respondents representing (5.8%) stated that the computer approach was faster, and 6 respondents who represented (4.3%) indicated that the computer painting medium was good. Although, 38 respondents who represented (27.3%) declined comment, it could be due to indecision or they simply did not know.

In conclusion, Table 4.1 established the number of respondents and their geographical location which is Lagos and Kaduna and the total number of respondents which was 139 representing 100%. Table 4.2 showed the designation of each respondent. It could be observed that all respondents were related to the field of art, therefore, giving them the needed experience to respond to questions. Table 4.3 captured the various years of experience of the respondents. The respondents' knowledge of the computer painting was probed and presented in Table 4.4; it showed a high level of awareness by the respondents. In Table 4.5, the means through which the respondents gained awareness of the computer painting are shown. Knowledge of artists using the computer to paint is the subject addressed in Table 4.6, and most respondents did not know artists in Nigeria who painted with the computer. Artists indicated by 54% of the respondents are listed in Table 4.7. Again, fewer respondents knew some dimensions which artists are using paint with the computer, and the figures are shown in Table 4.8. Sequel to that, the various dimensions or applications are shown in Table 4.9 which included 3D, Adobe Painting, CorelDraw among others.

Furthermore, a comparison between conventional and computer painting is probed in Table 4.10. The Table revealed the low acceptance of computer painting and

high preference for the conventional or traditional media. This is interpreted through the figures in the frequency column with 86 respondents preferring the conventional while 24 respondents opted for the computer medium. Still, 29 respondents were undecided as they chose both, therefore giving a total of 139 respondents. Their positions on the implication of using the computer medium are shown in Table 4.11 where half of the respondents opined that the computer medium would reduce creativity. This corroborated with Professor B. K. Olorukooba position as reflected in the statement of the problem that it lacks creativity. In Table 4.12 however, 55 respondents commented that the computer medium is an innovation. Still 24 respondents decried it for being weak in creativity.

Finally, the statistical analysis revealed the low acceptance of the computer as a painting alternative, which may be the reason for the apathy by Nigerian painters in using it as revealed in Tables 4.10, 4.11 and 4.12. It also revealed that, a good percentage of artists would accommodate it as an innovative, easy and fast approach while working with the traditional tools. While a large percentage would not state which painting type they would prefer, it exposes their indecision which may be a reason to develop this medium by Nigerian artists and art institutions.

Discussion

The literature review of this study revealed that a gap exist in the use of the computer to paint by Nigerian painters. It indicated that computer painting had failed to catch the fancy of art historians to devote their attention in its study. The implication of such gap supports the statement of problem which stated the apathy by Nigerian painters in applying computer in Painting, hence the need to study and document computer paintings in Nigeria. The computer, as a new medium, has exerted its

influence on various professions including Painting, but its acceptance is weak in Nigeria among painters, and art purists. The objectives of the study were;

vi. record the historical development of the computer in Nigeria,

vii. investigate the dimensions of computer application, by Nigerian artists in painting.

viii. Describe, analyse and interpret the computer-generated paintings and also identify and state a brief biography of the artists.

ix. compare computer-generated paintings to some conventional paintings produced in Nigeria.

x. state the advantages and disadvantages of computer painting medium.

It is in the light of the foregoing that the discussion threads and attempts to capture the roots of the use of the computer in painting, in Nigeria.

Historical Development of the computer in Nigeria

Literature on computer painting history in Nigeria could not be found in documented materials, but the advent of the computer in Nigeria may be traced to the 1960s at the Department of Computer Science, University of Ibadan and Iya Abubakar Computer Center, in Ahmadu Bello University, Zaria, in 1973. The President Ibrahim Babangida administration further laid the foundation for a computer literate Nigeria in 1988.

Consequently, the computer has been applied in various aspects of life including the visual arts. The areas of Textile Design and Graphics have enjoyed enhancement as a result of their embracement of the computer. Due to the access artists had to the computer, paintings were also beginning to be produced by Nigerian artists at an experimental level, but not as a course learnt in the school. This is noticed in the presence of the computer usage by many of the art departments in the universities,

colleges of education, polytechnics and secondary schools. It is against such background that the application of computer to painting has become an experimental medium among some Nigerian artists even though not formally taught in schools. For many painters, the idea of using computer to paint cannot be compared to the conventional mode of painting which is more established, consequently, it was difficult to pinpoint exactly who is into such a practice, hence the need to use questionnaires and purposively elicit information from artists and related practitioners which produced a snowball[15] sampling effect that was judgmentally applied, and leading to interview of computer painting artists.

From the 13 artists who were interviewed, their experience with the computer to paint was traced to various years. Beginning with Iyabo Tijanni whose first contact with the computer was in the United Kingdom in 1990, and after trying her hands on accounting packages like lotus, she began to paint with the computer in 1996. Felix Adakuno stated that he began to paint with the computer as recent as in 2012. Other artists and their year of starting to paint with the computer included Professor Rom Kalilu, 1992, Ben Atanu, 2011, Ifeanyichukwu Nwachukwu, 2009, Tosin Okusi, 2009, Edward Lapang, 2003, Ibe Ananaba, 1997, Victor Ehikhamenor, 2005, David Osagie, 2002 and Victor Ekpuk who had painted with the computer for 10 years. The dates so far stated, therefore establishes that the history of computer Painting in Nigeria can be traced to the early 1990s.

Dimension of computer application to painting in Nigeria.

While all artists interviewed agreed that a computer-generated painting is one created with the aid of a computer, software and printer, Victor Ehikhamenor was of the opinion that a computer-generated painting is within the consideration of the digital medium. According to Prof. Kalilu, it is any painting that is produced using computer

software and hardware. From a broad spectrum of definitions, one could submit that a computer-generated painting is one which has been rendered using electronic means with the use of dedicated software and appropriate hardware.

The various ways Nigerian painters use the computer to paint were; photographic enhancement, illustrations, painting, image distortion, photoshoping, 3D works, animations, interior designs, graphic painting and digital image manipulation. While artists made use of softwares and various techniques, only the ones discussed here were seen. For example, the use of codes to generate paintings was mentioned but it was not seen used by any artist interviewed.

Photography: Photography itself is an art form that has come to stay as a fine art. In the statistical analysis on Table 4.9, twenty-one (21) respondents representing 15.1% were of the view that Nigerian artists are using the computer in that dimension. Similarly, in an interview with Felix Mauyon Adakonu, he stated that he used the digital camera or phone camera to capture interesting images that are transferred to the computer for painting purposes. Photographs in themselves had also become enhanced by the computer. It was not surprising that photographs of people got better enhanced by removing blemishes, pimples, wrinkles on subject's faces to make them better looking. This is seen in Ben Atanu's portraits where his portraits were manipulated using CorelDraw to become Art.

Enhanced images: Image enhancement was yet another dimension that Nigerian artists were using to generate paintings with the computer. In the frequency Table 4.9, 2 respondents who represented (1.4%) of the total respondents of 139 (100%), indicated enhanced images. Enhanced images simply refer to additions made to an already existing image or photograph. This percentage is low, although it shows another

dimension in which painters are applying the computer to painting, but lacking in serious creativity as any person can simply scan a painting and print.

Illustrations: There is also evidence of artists who are creating illustrations with the computer. Artists like Nwachukwu who are both painters and graphic artists create illustrations that are vector and brush based. Such works are seen in Plates xix and xx, and the frequency Table 4.9, also shows that 9 respondents, representing 6.5% indicated the dimension of illustration by computer artists. Illustration is sometimes rendered as painting. The style involves a delineation of colours that creates linear tonal gradation from dark to light known as vector based. The approach is sometimes mixed with brush effect which does not show delineations. Access to the computer by the graphic artists, has made it easier for it to be applied to painting as in the case of Nwachukwu's illustrative paintings.

Photoshop: Many of the paintings analyzed in this research are realized with the Photoshop. Photoshop enables an artist to manipulate images and possibly create scenarios that may exist only in the artist's imagination; the implication is that cultural, political and social ideas or positions can be reenacted. For instance, in the 2011 presidential election campaigns, political opponents from the various opposition parties were seen on a race track. The image showed President Goodluck Jonathan, General Mohammed Buhari, Atiku Abubakar and Nuhu Ribadu all running towards the finish line with President Goodluck in the lead. In reality, their heads were fitted on the athletes' bodies to create a real life scenario. It was all political propaganda with the use of Photoshop.

The frequency Table 4.9 showed that 21 respondents representing 15.1% indicated the use of Photoshop by Nigerian artists. It is worthy of note that most paintings were influenced by Photoshop which some referred to as Adobe painting, as

both are the same. During interview too, all the artists interviewed except Habib, who used the phone, agreed to have used Photoshop as basic software to generate paintings. This trend was also reflective and consistent with the analyzed paintings.

Drawing: The computer had amazing capacity for drawing using software like CorelDraw Photoshop and others. This is evident in the drawing of Ibe Ananaba who produced portraits using the Photoshop on the ipad. Ben Atanu's landscape and gourd were also drawn using the computer. According to Noake (1987), "the ability to draw quickly and accurately is essential in the full animation technique", this establishes a link between the painters who are able to draw with the computer to the animation or film industry which is highly computerized. Nwachukwu had mentioned during an interview that the painter who is able to use the computer to draw will have much relevance in the Nigerian film industry which needs improvement in the areas of artistic input. These areas could be in animation which draws from Nigeria's cultural, political and social environment. The Nollywood film industry too, can benefit from the painters knowledge of colours, drawing skill, among others, especially in intelligent make-up and costume design.

Analysis of Paintings

For the purpose of the analysis of paintings from the field trip, the paintings have been categorized under the following: portraits, figures, abstractions, computer and conventional interface, still life, landscape and symbolism.

Portraits: A portrait is the representation of a person or animal, especially of the face, made by drawing, painting, photography and other means. Most of the times, portraits attempt to capture resemblances of the subject. Historically, portraits were used by great painters to express idealism which tends to make the subjects younger and well groomed. Importantly, portraits were used by painters in Italy to capture the aristocracy,

royalty and the rich. Examples can be seen in Leonardo da Vinci's Mona Lisa and Raphael's portrait of the Medici family in Italy. Another great portraitist is Rembrandt Van Rijn. In Nigeria, Aina Onabolu blazed the trail in the painting of portraits. In contemporary Nigerian art arena, portraiture is taught in almost every art institution in Nigeria. As a result, many artists draw and paint portraits for commercial gains. The average Nigerian may not own a painting in the house, but may own a portrait of him/her hanging on a wall. While artists have explored various media and techniques to render portraits ranging from, oil on canvas, water colours, pastel, acrylic, pencil, charcoal collage and many others within the conventional mode or media, computer-generated portraits have also added to the list. It is in that context that computer – generated portraits by Nigerian artists are being analyzed below.



Plate: I
Title: Anita
Artist: Ibe Ananaba
Medium: Wacom Cintiq
Dimension: A4
Date: 2013
Source: Ibe Ananaba

The work portrayed in Plate i, is titled ‘Anita’. It is a portrait drawing of a young woman who is actually the artist’s sister. The portrait was a gift to her. ‘Anita’ is positioned about three quarter view. It captures a smile by the young woman with bunny hair style, which is reminiscent of a Nigerian female from the Igbo extraction. Ibe used Photoshop to create a tonal gradation around the hair which is impressionistic as three shades of black tone can be appreciated. An overlay of a darker tone creates depth

heightened by darker spiraling lines in a variety of sizes. There is evidence of continuous line which is encouraged by the use of the software, this can be seen on the hair. The face is drawn with a strong knowledge of facial proportion and effect of light and shade which achieves perspective and solidity or roundness on the face. The carefree use of lines in varying tones and sizes creates the effect of cross–hatched surface on her shoulders. It appears as though Ibe worked from light to dark tones after sketching. With the use of the stylus or pen tool that comes with the cintiq, Ibe's innate drawing skills and artistic input are expressed through the Photoshop software.

The smile on the lady's face and the focus of her eyes on the onlooker tends to say "welcome" to an intruder. The position of her face suggests as if she suddenly turns to face the onlooker and then offers an inviting smile. The history of smiling ladies in painting can be traced back to Leonardo da Vinci's Mona Lisa which in comparison is an oil painting on canvas while Ibe's 'Anita' is a new medium aided by the computer software.



Plate: II
Title: Digital me
Artist: Ibe Ananaba
Medium: iPad
Size A4
Date 2013
Source: Ibe Ananaba

"Digital Me" in Plate ii, is yet another experimental drawing of Ibe Ananaba. In this self-portrait, Ibe looks straight to the viewer without definite facial expressions. The portrait is almost at an eye view, which one could see under his chin.

The drawing demonstrates the artist's carefree, yet deliberate use of tones to achieve depth. Ibe combined different tones to realize the drawing, and darker ones to project the strong features around the hair, eye brows, nostrils, moustache and beards as well as part of the shirt's collar. The carefree use of lines can be seen in his use of white lines over the face and the shirt. In addition, there is the element of continuous use of

lines, which is supportive of the Photoshop software. If one has met Ibe personally, it would not be difficult to agree that there is a strong resemblance of him in “Digital Me”.



Plate: III
Title: Untitled
Artist: Tosin Okusi
Medium: Computer
Size: A4
Date: 2013
Source: Tosin Okusi

The portrait of a young woman in Plate iii is a computer painting by Tosin Okusi, a young Higher National Diploma graduate of the Yaba College of technology, Lagos. The painting presents the impression of a work done on paper that has been cut and pasted or mounted on a black background. The lady’s face is given prominence as it

is devoid of the neck and shoulders. Background colours include pink of varying tones, grayish blue, yellow and dark grays. The face is painted with brown that tend to represent her real complexion, black is used to define the eyebrows and eye lashes. The lips are coated with red, which is part of women's make-up. The hair is not represented. The face of the lady in the painting appears to be emerging from a background of colourful interplay of lines in different sizes and directions which tend to criss-cross at some point. Light and shade on the face is achieved by a careful modeling of colour tones.

According to Tosin, he had employed the use of both vector and brush elements of the computer software to achieve this portrait of his sister. The vector element helps him to break colour in tonal gradation as can be seen on the cheek, while the brush element creates a fine blend of colours which is comparable to the real smooth brush effect or photograph.

The handling of paint is a combination of characteristics. While there is a careful application of the paint on the face, the rest part of the painting shows a carefree application of colours, which flow in different directions. In the final analysis, the painting could pass for a naturalistic portrait of a young female rendered with the aid of the computer.



Plate: IV
Title: Unmentioned
Artist: Ibe Ananaba
Medium: ipad
Size: A4
Date: 2013
Source: Ibe Ananaba

The painting Plate iv is a striking one. It tends to reconstruct and reenact the character of the conventional approach to painting using oil or acrylic on canvas with Photoshop. The portrait depicts yet another female. The eyes gaze at the viewer with an unassuming effect. It is unlikely to construct any story behind this painting, but it is set in a quiet atmosphere and devoid of symbols or motifs. The face is expressionless.

The artist's use of formalistic elements such as lines, colour, brush work, modeling, proportion, perspective and composition is instructive. At first contact, one is likely to think the painting is oil on canvas that has been downloaded on the computer for viewing, but is actually a computer painted portrait that has the feel of a conventional painting. The painting brings to fore the possibilities that the Photoshop software can achieve through the effect of brushstrokes, colour application, variations in

colour and lines. The suggestive use of lines to define the shoulders is also reminiscent of the use of brush in the studio by a painter. Again, the suggestive modeling of the facial features is also a character that is applied in the conventional studio painting. Interestingly, is the warm use of grey and purple colours, to realize somberness. The portrait has touches of blue, green, lemon and unsuspecting colours which interplay to model out the face.

Style in this portrait is impressionistic. This is made possible by the suggestive colour impressions, brush strokes and manipulation of light and shade in a variety of colours, against a lighter background. The painting may not have been a commissioned one. This is so because the artist has indicated that most of his computer paintings are often experiments with the software at his leisure time, and this particular one was one of such using the Ipad.

In historical context, this painting was rendered in an age of technological advancement using the computer. The presence of gadgets like the ipad and smart phones are a common sight with which the artists used to create the painting. The painting therefore, is successful, in that it exhibits the qualities of a conventional painting with notable proportion, balance and compositional qualities. In the final analysis, the portrait may be interpreted as the gloomy moment of a Nigerian girl bearing in mind the socio-economic and cultural challenges, as captured by a painter.



Plate: V
Title: Girl
Artist: Edward
Medium: Computer
Size: A4
Date: 2013
Source: Edward Lapang

The painting above is a portrait of a 'Girl' with probing eyes. The eyes tend to probe the onlookers' consciousness to awaken him or her. Edward Lapang resides in Jos and practises art there. He graduated from Ahmadu Bello University in 2004 specializing in painting.

The painting of the girl is worked on blue background. The orientation of the space is a rectangle, with the girl's face having a considerable dominance of the space. The eyes of the girl are wide open and contrasting a closed lip. While the lips remain closed, the wide eyes appear to communicate silently to the onlooker's spirit. The hair is not fully represented as the head is not completely shown. Lapang's modeling skills on canvas can be felt in the realism achieved on the eyes, nose and lips of the girl using the

computer. Beneath the head is an unfinished shoulder painted in white grey colour, on both sides of the shoulder.

The style is simple naturalism; the facial features are unmistakably represented in their natural appearances, which is almost real. The artist also demonstrates artistic license by using a rectangular format and taking off a part of the head from the forehead. His use of colour, is an expression of controlled freedom as one finds a blend of brown and blue on the face. The appearance black sketchy lines around the face are also indicative of his freedom or experimental effort to paint the portrait using the computer. The painting has been successful in that it is a representation of a portrait which can be easily recognized by the viewer. It is also noteworthy that the computer can be manipulated to create works in peculiar styles.



Plate: VI
Title: Self-portrait I
Artists: Ben Atanu
Medium: Computer (Photoshop)
Date: 2013.
Source: Ben Atanu

The portrait of Ben Atanu in Plate VI is an expression of fantasy-cum-realism. It is a photograph of the artist which depicts him wearing a striped shirt and a blue coat.

The hair on his head and the eye brows have been manipulated using Photoshop to make them spiky. The eyes look straight on without any manipulations, so also are the other parts of the portrait. Above the portrait is the original photograph from which manipulations have been made. The portrait presents another dimension in which Nigerian artists are using the computer. The artist simply engaged in an experimental exercise to explore with the computer, as a result he was not paid for it rather he gained self-fulfillment. This work establishes a relationship between photography, visual arts and the computer in an age of technology.

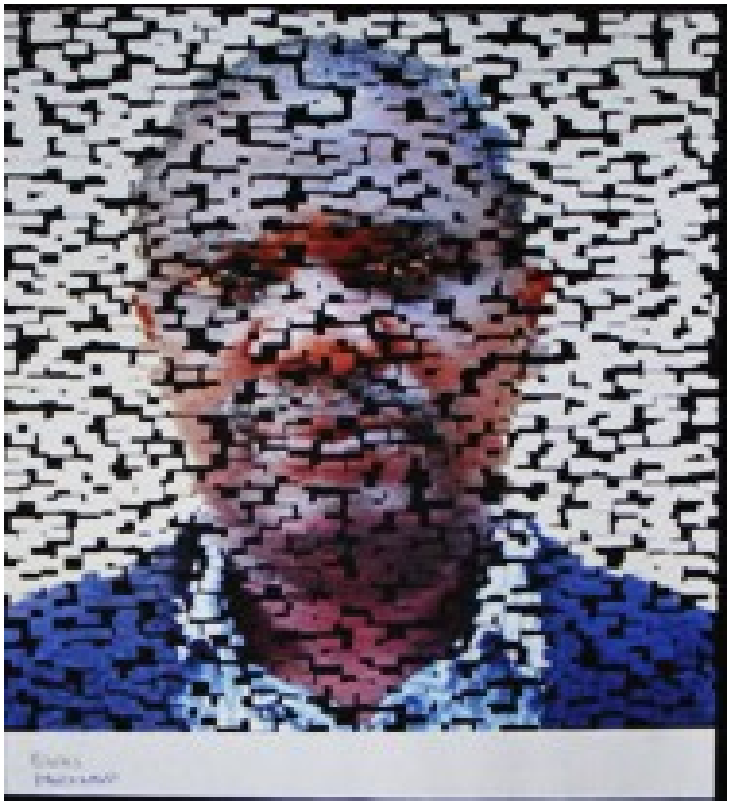


Plate: VII
Title: Self-portrait 2
Artists: Ben Atanu
Medium: Computer (Photoshop)
Size: A4
Date: 2013
Source: Ben Atanu

Self Portrait II, in Plate vii above is another manipulated version of Ben Atanu's Self Portrait I in Plate VI. The portrait appears to be placed behind the screen of a Jigsaw puzzle impression that retains his resemblance.

"Self Portrait II", is an extension of Ben's experiment with Photoshop using the computer. While the former was a manipulation of the hair on the head and the eye brows, this particular one further creates a mild distortion on the photograph, showing a kind of aesthetic possibility with the computer.



Plate: VIII
Title: Dr. Adeniyi
Artist: Felix Adukuno
Medium: Computer (Picasa and CorelDraw)
Year: 2013
Source: Felix Adakuno

The painting shown in Plate viii is the portrait of Dr. Adeniyi. According to Felix, he copied the original photograph which he used the Picassa software to edit. It was then transferred to the CorelDraw environment for further painting. Colours were selected from the swatch and painted on the face as desired. The result is a sort of collage or camouflaged impression that achieves a resemblance of the original photograph.

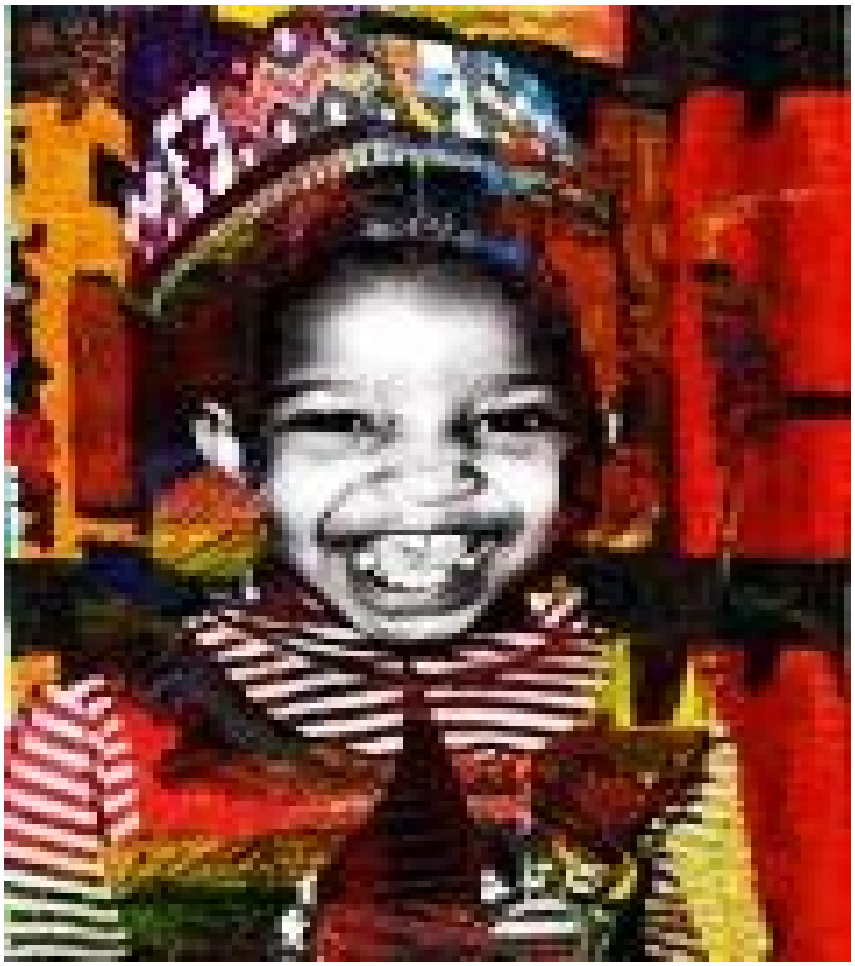


Plate: IX
Title: My Father's Hat
Artist: Victor Ehikhamenor
Medium: Computer (Mixed media)
Size: A4
Date: 2013
Source: Victor Ehikhamenor

"My Father's Hat" portrayed in Plate IX, is a computer-generated painting depicting a young boy with an oversized hat with motifs reminiscent of the northern Nigeria embroidered caps. The motifs are seen in triangular shapes, zig-zag lines, rectangular shapes and bright colours of blue, red, green, purple and yellow. The bust is also shown wearing a red stripped shirt. The high point of the painting is the face which wears a delightful grin.

The artist did not make a conscious effort to use lines in this painting as the lines seen here appear to have come into play by chance even though the horizontal red strips create an interesting balance with the vertical shapes in this background. The shapes in

the background appear as patches of orange, yellow and blue against a dark coloured background. Colour usage is warm, creating a harmony of red, yellow, orange and brown while the artist plays with blue to complement the warm colours. Victor is able to create an interesting balance of the subject in the midst of texture and good proportion.

The style in this painting is peculiar to Victor. He combines photographs and painted surfaces. Both are usually his original creations. They are downloaded into the computer and manipulated to create a collage. In the end, the result is a combination of conventional media like acrylic on paper, photography and the computer. The painting under analysis is a result of digital mixed media. The boy is photographed with a delightful grin which is then downloaded into the computer and a painting of acrylic on canvas is made with a manipulation that creates a harmonious interface. Victor did not state if the painting was paid for or commissioned. However, most of his paintings are borne out of experiments which are still in his personal collection.

The reality of the computer has come to influence several professions. However, the painting profession seems to be waking up to this reality as many people are yet to accept the computer painting as serious art as portrayed in Tables 10, 11 and 12. This painting therefore, is a marriage between tradition, modernism and technology. It is therefore successful in merging the three in a unique form of visual expression. “My father’s hat” is therefore a child’s ambition to become like the father, hence, this boy wearing an oversized hat.



Plate: X
Title: Wailing Woman
Artist: Victor Ekpuk
Medium: Computer
Year: 2009

Symbolism: "Wailing Woman" shown in Plate X by Victor Ekpuk was painted in 2009, using adobe Photoshop. The artist's rendition of this painting according to him was a response to the killing of Ken Saro Wiwa by the military regime of General Sani Abacha, and the general violence in the country including the Boko Haram insurgency, that has overwhelmed Nigeria, especially in the north eastern part. It was in 2009 that the terrorist activities of Boko Haram became noticeable leading to the extra judicial execution of Mohammed Yusuf by the Nigerian police. As a result many places of

worship were bombed, public places were also targeted, including the United Nations building in Abuja. It is 2014 now, and the sinister and clandestine activities of the sect have not slowed down. The painting therefore, reechoes a historical milieu in Nigeria's annals.

'Wailing woman' explores and exploits traditional graphical symbols to depict a kneeling woman with raised hands to the sun, before a corpse and a pool of blood that flows. Shades and tints of blue are explored to define the human figures. The black graphical symbols of Nsibidi from Ekpuk's ethnic background create textures on the shape of the Nigerian map with the manipulation that shows armed men. The artist probably used the pen tool in the Photoshop environment to achieve the intricate graphical symbols.



Plate: XI
Title: All fingers are not equal
Artist: Victor Ekpuk
Medium: Computer
Year: 2009

'All Fingers Are Not Equal' in Plate XI is a representation of what can be described as a grotesque human hand with fingers that seem to be equal but slightly vary in height, proportion and size. The entire surface of black is embellished with Nsibidi graphical symbols. In the middle is a circular composition of red, orange and white dots against the black background of the hand or palm. The forefinger is particularly embellished with a spiral motif that dominates the tip of the finger.

"All Fingers Are Not Equal" is a sad but true reminder of the inequality that exists in the society. Due to inequality that is sometimes a direct consequence of injustice, society revolts. The use of red dots in the middle may be an indication of violence or revolt as a result of inequality.



Plate XII
Title: Christopher Okigbo –Labyrinths of an Arrival
Artist: Victor Ehkhamenor
Medium: Computer
Size: A4
Date: 2013
Source: Victor Ehikhamenor

Although "Christopher Okigbo-Labyrinths of an Arrival" depicted in Plate XII is a profile, it does artificially describe Christopher Okigbo, a foremost Nigerian poet. The painting captures the side view of the poet against a black background. The subject occupies almost the entire space. Victor creates rectangles, squares, triangles and irregular shapes with the profile to express colourful linear motifs, which fill the entire profile.

The motifs are a product of linear rendition within the shapes, comprising of curves, spirals, wavy, diagonal and circular lines which are rendered in various tints and shades of colours like, blue, orange, pink, white, and green. Black spaces can also be

seen which are suggestive of the background. Style, again, is peculiar to Victor; notwithstanding, the use of motifs like this is a common feature of some contemporary Nigerian artists who have explored them with oil on canvas, acrylic and even water colour. Its use with the computer, historically, points to the possibility of bringing motifs to painting via technology of the time. It again, presents technology as a powerful medium for cultural propaganda. “Labyrinths of an arrival”, therefore, succeeds in presenting a maze or complicated visuals where the eye attempts to find its way out.

Figure Paintings: The drawing and painting of the human being or figure in painting, is referred to as figure painting. Figure painting has evolved over time, beginning from the cave, where silhouettes were represented. Also, in ancient Egyptian art, where they were represented in partly profile and frontal forms, ancient Greek, where figures were drawn on vases, through the figural expression of renaissance painters, to cubist Pablo Picasso, and modern and postmodern times. Nigerian artists have equally explored the figure in similar media. The computer has become another medium with which such figural studies or representations are being painted as analyzed in the following plates.



Plate: XIII
Title: Boxer
Artists: Edward Lapang
Medium: Computer
Size: A4
Date: 2012
Source: Edward Lapang

The figure of 'The Boxer' in Plate XIII by Edward Lapang is an action pose. The figure is placed in almost the middle of the landscape space. His right leg is posed forward while the other is backward with the same orientation seen in the hands. He wears a blue short while he is bare-chested. Around his waist is a red coloured object which creates beautiful complement to the grey blue trousers he wears. The action of the legs and hands tend to be complemented by the facial expression especially with the direction and look in the eyes. Lapang succeeds in carefully modeling out the facial features of the nose, eyes, and lips and impressionistically treats the fingers.

The background is a dominant shade of green, suggestive of foliage. The foreground is equally painted in shades of green with light colours that help to delineate the background. His use of lines tends to strongly define the figure. This can be seen in the thick black outlines around the figure's shoulders, legs, and pants. The effect of the

brushwork is reminiscent of the oil on canvas or general brush strokes effect on a ground. Interestingly, proportion, perspective, tactile quality and composition are effectively controlled, to present a painting that could be mistaken for a conventional media type.

Lapang was not paid or commissioned for this work. This work was produced out of his desire to experiment with the computer in his area of specialization as a painter. The painting therefore, succeeds to establish the possibility of rendering a figure painting using the computer as a new medium for painterly expressions. In the final analysis, the painting could be interpreted as a local boxer who is in practice. This is common among the ethnic groups in Nigeria where traditional boxing or wrestling is used as a form of entertainment.



Plate: XIV
Title: Murder
Artists: David Osagie
Medium: Computer
Size: A4
Date: 2012
Source: David Osagie

David Osagie's 'murder' shown in Plate XIV is a painting generated with the computer using Adobe Photoshop. 'Murder' is an interaction of the basic elements and principles of art to create a realistic portrait of a murder victim. The subject is positioned on the left half of the rectangular space occupying almost half of the space. On the right half is a grey coloured gun that opens fire as the bullet tears through the

victim's ear and explodes on the opposite side of the head. Yet the victim looks on in seemingly calm oblivion.

The painting is characterized by warm colours. The portrait of the figure is overwhelmed by red colour. The shades and tints of red define the facial features. The red colour flows into an orange colour that connects yellow and green colours. The visual tactile quality of the painting is revealed by the vigorous brush effects that create rough marks. The treatment of light and shade especially on the face of the figure reveals good modeling and sense of draftsmanship.

David demonstrates knowledge of balance, in 'murder'. This is seen in the distribution of the key elements of the portrait and the gun in a manner that gives each, almost equal weight and attention. The distribution of colour too, is a psychological expression of balance.

David's style is unique to him. This approach is different from all the other paintings analysed in this work. His paintings are strikingly colourful, textured with energetic use of brush, and his ability to express human realism. His human figure representations appear to be manipulated scanned photographs that harmonise with the overall painting. He uses; "mostly Adobe Photoshop, a Wacom Tablet and a Graphic Improvised Computer System" as he stated in the appended interview transcribed.

In this work, paint drips from the eyes to create the impression of tears streaming from the eyes. David was not commissioned to create this painting; rather it was an exercise to satisfy his desire to experiment with the computer. In context, the painting was created in Abuja, Nigeria, at a period when the government was grappling with insurgency and terrorism.

Critically, the painting conveys the massage of murder, but the facial expression of the victim tends to betray his experience as he is almost expressionless, or is he

shocked beyond reasoning? In concluding, according to the artist, the painting is a response to the incessant killings carried out by 'gun men' in recent times.



Plate: XV
Title: Aso Ebi
Artists: David Osagie
Medium: Computer
Size: A4
Date: 2013
Source: David Osagie

"Aso Ebi" by David Osagie is a figural composition of gaily dressed Yoruba women in a group. The composition of the women stretch from one end of the rectangular space to the other, displaying brightly coloured head gears of blue, pink, orange, purple, red and yellow. Their dark faces and skin stands out of their white uniformed dresses, as they hold similar hand bags to complement their dresses. David appears to have worked from a scanned photograph, using Photoshop to create the painting. Again, his style of rendition is evident in this painting with energetic use of brush to apply his colours, create textures that set his work apart from others.

'Aso Ebi' is a Yoruba term that describes uniformed dressing for occasions like weddings. Usually, people who dress like this to occasions, tend to communicate the message of support, friendship, or even to assert their peculiarity. The use of 'Aso Ebi'

or uniform or ‘Anco’ [And co] is a common sight at weddings or occasions not only among the Yoruba from where the slang originates, but all over Nigeria, among the various ethnic groups. The painting therefore is a record of the social and cultural expressions of the present Nigeria society.

The painting again, was not a commissioned one. David painted it to satisfy his artistic craving, and to record the social life of the Nigerian people.

The painting succeeds in that, it communicates in the same way a conventional painting would, using the same artistic elements, principles and methods.



Plate: XVI
Title: Untitled
Artist: Ibe Ananaba
Medium: Computer
Size: A4
Year: 2013
Source: Ibe Ananaba

Plate xvi is a painting of a man in a suit and red tie. The figure wears a grey suit on a white shirt and sits against a red background and looks side wards. The painting generally has the feeling of an unfinished work, though it is signed by the artist. As typical of Ibe, he plays with lines to realize the paintings. This is seen in the use of lines

all over the painting and more prominent around the bottom of the space. The lines tend to create textures, which vary from rough to smooth. The dressing of the figure in the painting captures the influence of the West on the Nigerian. The suit and tie is a dress code that has come to define Nigeria's corporate worker, in an age of acculturation.



Plate: XVII
Title: Battle Axe
Artists: Edward Lapang
Medium: Computer
Siz Unknown
Date: 2012
Source: Edward Lapang

The painting "Battle Axe" in Plate XVII represents a man kneeling down in a landscape who wields an object that looks like a weapon with stains of blood. Stains of blood are also visible on the left side of the ground. The figure looks down as if, he is surrendering. The foreground is dominated by yellow colour and brush stroke effects, which are reminiscent of a conventional painting with brush. Light strikes the figure on the left, casting a shadow on the right side of the painting. The figure is bare-chested exposing a muscular body, and behind him is an impression of a rail track and overhead, an impression of a flyover or bridge, which is indicative of an urban centre. Just above the flyover is a green sky with the sun shining through on the top left of the space. The dark, gloomy background contrasts sharply with the warm foreground.

The painting combines an effect of transparency and brush strokes. Transparency as observed on the rail track is reminiscent of water colour paintings, while the brush strokes are like oil on canvas. Edward Lapang resides in Jos, which may give a clue into the bloody representation. Jos in Plateau State has been a tourism destination in Nigeria and home to many foreigners, until the political upheavals and religious violence that gripped the State in recent years. This painting is a response to the violence witnessed by the artist in Jos. The painting therefore, succeeds in reechoing history. The possibility that absolute or relative peace will return to the State and a generation that did not witness this violence, might only hear, so this painting can serve as a visual record to reecho and authenticate history. So, this painting can serve as a painful reminder of the travails of that city, in an age when the computer could be used to transmit such information.



Plate: XVIII
Title: I Am What I Say I Am
Artist: Victor Ehikhamenor
Medium: Computer
Size: A4
Date: 2013
Source: Victor Ehikhamenor

Victor's painting titled 'I am what I am' in Plate XVIII, represents a young woman who poses with arms akimbo. She looks on as if she is engaged in a dialogue. A bluish wrapper wraps her from the chest, concealing the breasts. The painting retains a kind of naturalism mixed with abstracted forms. From the style of dressing, it is obvious that she is an African, this is more so, as her complexion complements her origin. The general background of the painting is composed of geometric forms or shapes, with interplay of colour that weaves the background and figure together.

Formal qualities of lines, colours, tactile value, proportion and composition are explored in the painting. Lines are used to delineate the shapes which form the background. They are also employed to create decorative lines or motifs as seen on the arm, wrapper and background of geometric shapes. The colour scheme in this painting is warm, with brilliant yellow, ochre, red, green, blue and brown all forming part of the colours used in the work. Proportion is an aspect that is almost unchallenged. This is so because; the artist combined a photograph of the lady in that pose and an original painting of the background with computer manipulation, to create a form of collage. The figure dominates the entire space, yet creates a balance, and aesthetic appeal.

The style employed in this painting seems peculiar to the artist. It is innovative in the sense that a montage of two distinct works of photography and acrylic on canvas is achieved. Historically, artist like Picasso had made collages in the known traditional or conventional approach, building paintings from cut pieces of Magazines and newspapers and sticking with adhesive. The computer has however, presented another version of that.

The painting succeeds, in that; it presents an innovative montage-cum-collage in a digital format, to produce "I am what I am". The title, from a critical point, should

sound philosophical. It could therefore, mean a woman who believes in herself and exudes an air of self-esteem. Her hands posed akimbo suggest the kind of confidence she holds. It is also a message for anyone to believe in himself or herself as the society may judge one by whom he or she is. In the researchers' opinion, the painting on the other hand, condemns mediocrity, self-defeat and cowardice, which are supported by a warm colour scheme with brilliant tones.

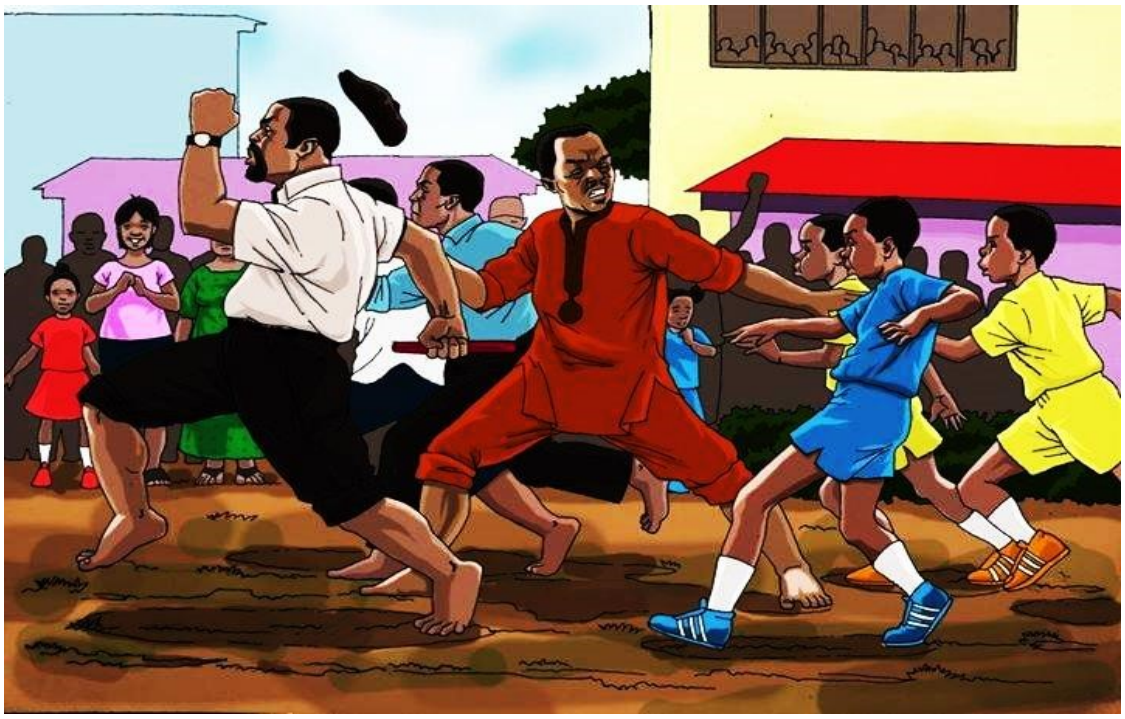


Plate: XIX
Title: Inter-House Sport Day
Artist: Ifeanyi Nwachukwu
Medium: Computer
Year: 2012
Source: Ifeanyi Nwachukwu

The painting titled; "Inter-House Sports Day" is a figural composition by Nwachukwu. He combines painterly and illustrative skills to create painterly drama. The work shows men and boys who are probably representing the teachers and students in a race of fun. Spectators can be seen in the background as they watch with delight.

Colours are used in a balanced form. The brown worn by the man in the middle tends to denote activity; it is balanced by the red roof on the right hand side of the painting and the vermillion red worn by the little girl on the left. Other primary colours

like yellow and blue play a complementary role. The distant blue sky helps to create a light surface that projects and emphasizes the figural elements in the landscape. The work appears to lack in colour perspective as can be seen on the complexion of the figures. The colour tone on the legs, hands and face seems not to be obedient to the effect of perspective as the skins appear to be the same in tone in all the figures. However, other aspects of the work like the foreground, exhibits elements of depth.

Speed is another element that the painting captures. This is illustrated in the cap that drops at the lead man's head as a result of the speed. However the absence of interplay of colours on the figures and other elements in the painting makes it lean more to illustration even though the line between illustration and painting remains thin.



Plate XX
Title: Melissa and the Wicked Tree Man
Artist: Ifeanyichukwu Nwachukwu
Medium: Adobe Photoshop
Year: 2012
Source: Ifeanyi Nwachukwu

"Melisa and the naked tree man" shown in Plate XX, is another figural composition by Nwachukwu. The painting represents a weird transparent looking creature that reveals his skeleton. The young girl Melissa is also seen in a green dress at the stem of a big tree that accommodates some children that peep through. Brown is the dominant colour used with minimal use of green for their costumes. The software used here is Photoshop, the commonest software used by artists to paint. The characters of the various figures are captured with their peculiarities. The scary look of the tree man's face is indicative of a dreadful scene or creature that is only possible in the artist's imagination. The grin on the face of the hiding children in the tree's stem reveals their mischief; while Melissa's facial expression is best imagined.

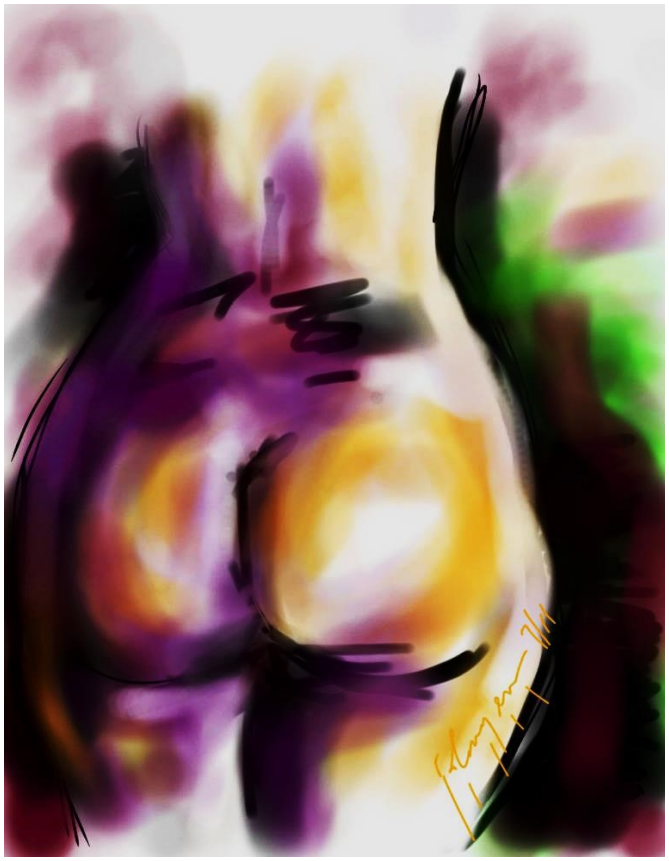


Plate: XXI
Title: Tree Trunk
Artist: John Ogene
Medium: iPad
Year: 2009
Source: John Ogene

Dr. John Ogene is an Associate Professor at the Department of Fine and Applied Arts, University of Benin. He has used computer painting software to create dynamic paintings that reflect the traditional styles. In some cases he combines different platforms like the tablet, fablet, laptop and the desktop to realize his paintings. His tree trunk in Plate xxi is a study of a nude in which he directly draws and paints on his Ipad using the studio software. The artist's use of coloured virtual brush is akin to the approach by conventional painters with water colour or oil on canvas. There is interplay of purple, orange, green and dark tones that produce depth and details.

The study of the nude is an integral part of drawing and painting. It is the basis for understanding human anatomy as explored by great artists like Leonardo da Vinci, who used the knowledge in human anatomy to the benefit of medicine too. This study helps to show the possibility of the computer to advance nude painting and enhance the understanding of human anatomy.



Plate: XXII
Title: Chibuogu.
Artist: John Ogene
Medium: computer
Size: Not stated
Date: 2014
Source: No Longer Anonymous-2014

The painting in plate xxii titled ‘Chibuogu’ shows a veiled female face that is reminiscent of the Muslim woman. It is a colourful software based rendition that obscurely represents the female facial features. Samuel Onwuakpa in Ogene (2014) interprets ‘Chibuogu’ as ‘God will do the fighting’, which he literally seems to mean ‘Chibok’. In May 2014, over 200 school girls from Chibok a predominantly Christian, and north eastern Nigerian village in Borno; the hot bed of Boko Haram insurgency, were abducted. The painting could be seen to be responding to that incident even as it colourfully calls on the government of Nigeria to wake up to its responsibility. In another dimension of interpretation, the painting could be a record of a moment in

Nigeria's insurgency history when veiled female suicide bombers were used by book haram to terrorize innocent and hapless Nigerians.

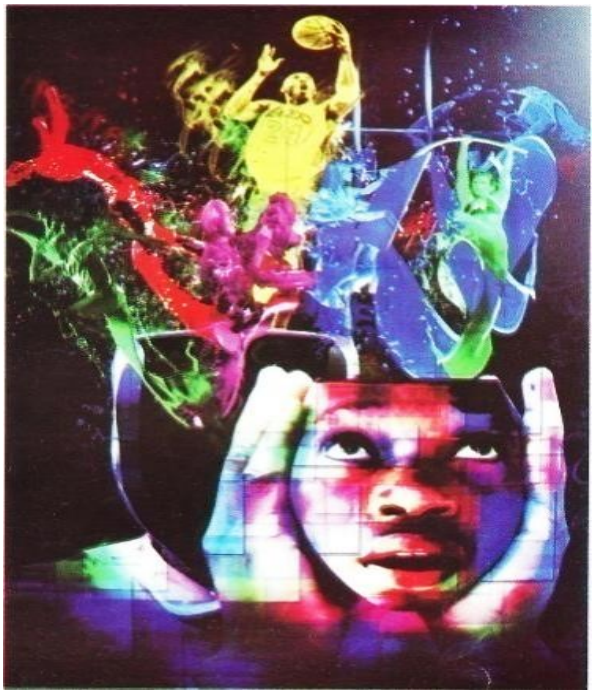


Plate XXIII
Title: Unleashing the best in you.
Artist: Amowie Festus
Medium: computer
Size: 26 x 36inches
Date: 2013
Source: Life in my city exhibition catalogue- Enugu, 2013

Festus Amowie is an art teacher at Army Day Secondary School, Efurun, Delta State. He studied at Federal Polytechnic Auchi, Edo State. 'Unleashing the best in you', seen in Plate XXIII is computer-generated and was exhibited at the Life in my City Art Competition and Exhibition in the 2013 edition at Enugu, Nigeria. The painting is an array of colourful forms set against a dark background. At the bottom of the space is a human head cupped by two hands. The eyes gaze upwards and the mouth is open evoking the feeling of someone in thought. Above this face are seemingly abstracted or manipulated human figures seen in different actions which include a painter before a canvas on an easel seen in blue colour, directly over the human head below. On the right is another impression of a figure which looks like someone in an academic gown and

with a mortar board. Just between the academic and the painter is another impression of a pole vault athlete. On the top right hand side of the space is a red figure of an impressionistic acrobat. Other figures are also impressionistically represented in purple below a yellow basketball player who holds the ball in a dunking action. The background appears like the impression of the galaxy with stars in it. All these figures appear to be in a competitive mood as they all aspire for a goal or success.

Philosophically, everyone seems to be in a desire to achieve something. This appears to be what drives people in general as they all set and pursue goals in life thereby making people to remain in perpetual activity or thought, of how to achieve. The painting therefore, captures the human essence of life which is activity, driven by the intent to produce good results.

The use of formalistic elements like colours, tones and lines are seen in this painting. The computer software of Photoshop has been used to create a similarity to conventional media painting like acrylic or oil on canvas.

Still Life: Still life came into limelight around the seventeenth century in the Netherlands when attention shifted from the primary focus on the human figure in painting to the objects that were depicted alongside the human figure. Michaelangelo de Merisi, V. Jan Vermeer, among other painters painted still life Objects. The conventional approaches of oil on canvas, acrylic, water colour, charcoal, pastel and others have been the common media used by artists all over the world to represent still life including Nigeria. The trend appears to be evolving with the attempt by Nigerian artists to join their counterparts in other parts of the world to explore still life using the computer.



Plate XXIV
Title: Gourd
Artist: Ben Atanu
Medium: Computer (CorelDraw)
Size: A4
Date: 2012
Source: Ben Atanu

The gourd seen in Plate XXIV is a still life drawing in red and black. The gourd is positioned in the middle of the space creating almost a symmetric balance. The "gourd" has been rendered using CorelDraw computer software. The use of scribbled lines to create light and shade and eventual roundness or volume in this work, is dominant. The right side of the gourd is left untouched creating a strong light effect while the base is shaded with stronger black tones to portray a shadow. Atanu did not create this drawing for sale. It was borne out of the desire to experiment as is the case with many of the computer generated-paintings. The attempt could be seen as successful, even though it is the only example found for analysis and it represents what

can be understood to be a gourd. While other artists are looking to the human figure, and portraiture, the attempt to represent the gourd presents a different way of using the computer, and the possibilities therein.

The artist was unable to provide an interpretation for this work. However, considering the geographical location of Idah, in Kogi State where he hails from, and the presence of palm trees in that region, the production of palm wine and the use of gourds to store and transport wine could be a subliminal connection.

Landscapes: Landscapes are works of art that feature scenes of nature: mountains, lakes, gardens, rivers. They can be oil paintings, water colours, gouache, pastels or prints of any kind. The common media used to create them have been the traditional ones, nonetheless, computer-generated ones or computer as a medium in landscape painting is possible by modern technological application.



Plate XXV
Title: Untitled
Artist: Ben Atanu
Medium: Computer
Size: A4
Date: 2012
Source: Ben Atanu

The untitled drawing above is another Photoshop drawing by Ben Atanu. The work is a landscape representation of two huts, depicting the sky, foreground and trees. The huts are reminiscent of the village architecture as seen in most Nigerian villages.

Ben's style of using the computer is consistent with the use of scribbles to render his forms. Here, he has employed a variety of scribbles to express a naturalistic landscape of a Nigerian village scene. Although the work is devoid of human figures, it goes to show that the artist could be experimenting, for "self-fulfillment" as he stated in an interview which suggests that he was his patron. The two huts, portray one closer and bigger, while the distant one is smaller, could be interpreted as nostalgia. The artist has maintained that the works he does with the computer are mainly experiments. However,

a lot of the times, when the researcher called him to schedule an interview, he was always on a journey home and would ask for a rescheduling. Although he lives and works in Lokoja as a lecturer, his desire to always want to be in Idah could suggest where his heart is, and which informs the interpretation of this piece of nostalgia.



Plate: XXVI
Title: Landscape
Artist: Ben Atanu
Medium: Photography
Size: A4
Date: 2012
Source: Ben Atanu

The photograph in Plate XXVI is a representation of a landscape depicting a stream beside a hilly formation that appears gullied. The sky is captured with a dominant part of the sky seen on the left side of the picture. Tree shrubs are also seen on the landform. The picture itself is not a computer work, but the product of a digital camera which has been downloaded into the computer to produce a series of works that will be viewed in Plate XXVII and XXVIII.



Plate: XXVII
Title: Untitled
Artists: Ben Atanu
Medium: Computer
Size: A4
Date: 2013
Source: Ben Atanu

The photograph in Plate XXVI has been manipulated using the Corel draw software to produce the visual in plate XXVII. The work is the representation of the same elements seen in Plate XXVI which had been manipulated with the CorelDraw to create the impression of oil on canvas using palette knife technique. The effect of the palette knife can be seen as the earth surface of the seemingly gullied land formation, beside the stream, appears to have palette knife scrubbing effects or impression.

The computer has a number of applications that can allow a painting or image to be interpreted or expressed in a particular or desired style or medium. For example an image can be changed to look like a mosaic, collage, water colour, pastel, charcoal and even the palette knife technique of painting as expressed by Ben in this painting. Another manipulation to mimic a painting from the original photograph in plate XXVI is seen below in Plate XXVIII.



Plate XXVIII
Title: Untitled
Artist: Ben Atanu
Medium: Computer
Size: A4
Date: 2013
Source: Ben Atanu

The photograph has simply been manipulated using the CorelDraw software to express a painting. The effect or impression here appears to be that of a brush. The same elements seen in the original photographs are manipulated in this painting. These include the grey sky, green foliages on the land formation, red colours also on the land formation, water body and the peculiar shape of the landform and stream.

Stylisation: The possibility of creating stylised painting, using the computer by Nigerian artists, has created yet another category of paintings in this genre.



Plate XXIX
Title: Summer – Summer Time
Artist: Victor Ehikhamenor
Medium: Computer
Size: A4
Date: 2013
Source: Victor Ehikhamenor

"Summer–Summer Time" in Plate XXIX is a stylised composition of three female figures facing the viewer. The painting explores formal qualities of lines, colour, texture, space and composition. Lines are used for delineation of the female figures in a variety of sizes which create interest. The artist uses few colours of blue, red, orange, green and grey to realize the painting. The use of texture in the painting is powerful. Victor combines both smooth and rough texture to create a bas relief on a painting. The relief of images or female figures is impressionistically raised from a background of brilliant colours of red, blue, green and orange. In another perspective one could view the painting as an etching or engraving in the digital approach.

Historically, Victor captures a summer time. Summer times around the beaches are characterized by women in bikinis and men in Bahamas. It is such memories and experiences in America that Victor relieves in this painting. This however, contradicts sharply with the Nigerian background or orientation where, nudity of such may be

frowned at, but with Western influence, they are gradually gaining acceptance on Nigerian beaches, and hotels where they are no more uncommon. 'Summer–Summer time' is a computer – generated painting which is reminiscent of Pablo Picasso's Les Demoiselles d'avignon.



Plate XXX
Title: For God so Loved the World
Artist: John Ogene
Medium: computer
Size: A4
Year: 2009
Source: John Ogene

'For God so loved the world' shown in Plate XXX is an abstract painting by John Ogene. He dissolves two human figures into the background of forms. The figures are represented with lines and sombre colours in a brief, yet powerful manner that supports the title. One figure appears to be standing with hands laid over a kneeling figure. It is

reminiscent of a moment of one blessing the other. “For God so loved the world that he gave his only begotten son…” is a scripture in the Holy Bible that Ogene appears to have been inspired by to render this stylized painting.



Plate: XXXI
Title: Untitled
Artist: Felix Adakuno
Medium: Computer
Size: A4
Year: 2013
Source: Felix Adakuno

The untitled painting in Plate XXXI is another stylised representation that looks like a woman’s bust which faces left. The computer painting is reminiscent of the spillage technique used by painters to create abstract paintings. Felix used the CorelDraw software to achieve this. Again, the painting suggests that, traditional spillage technique employed by painters like Professor Jerry Buhari and Gani Odutokun can be mimicked with the computer.



Plate: XXXII
Title: Totem
Artist: John Ogene
Size: A4
Medium: Computer
Year: 2009
Source: John ogene

Ogene's Totem in Plate XXXII is a stylised reptile which may be a lizard or gecko. The painting is rendered using green, blue, and black on a white surface. The head and neck are simple squares that are positioned to look like a diamond shape. Lines are continuously drawn to create the form. Circular shapes like dots are used to embellish the surface around the form which creates a visual texture. In a nutshell, the entire painting is rendered with definitive coloured lines.

It is yet another dynamic possibility with the computer as rendered by Ogene. This use of basic and limited elements like lines, colour, texture and space with a tint and shade of balance and repetition is suggestive of areas the painter can explore.

Abstraction: The possibility of creating abstracted painting characterized by geometric shapes, using the computer by Nigerian artists, has further created another category of paintings using the computer.

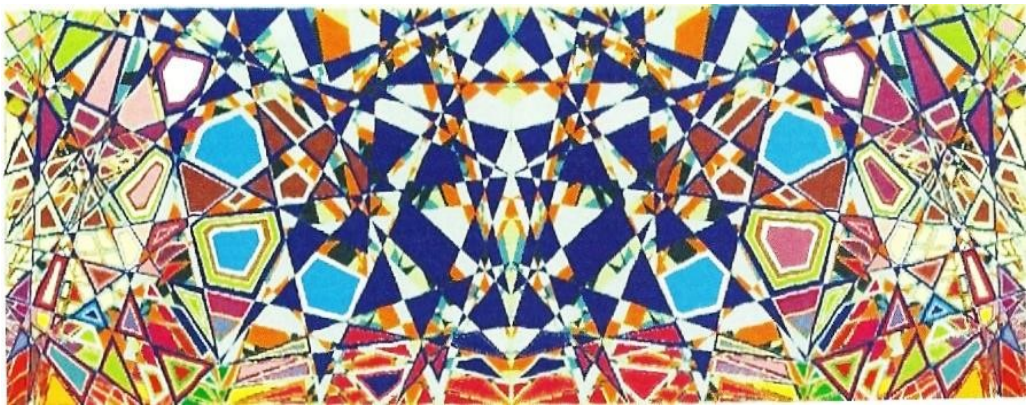


Plate XXXIII
Title: Cornucopia II
Artist: Iyabo Tijani
Medium: Computer
Size: 12ft x 4ft
Date: 2013
Source: Iyabo Tijani

'Cornucopia II' shown in Plate XXXIII, by Iyabo Tijani is another computer-generated painting. "Cornucopia", is characterized by a use of geometric shapes of triangles, polygons, trapeziums and other irregular geometric shapes, which have been composed and repeated to create a colourful piece of art. The painting demonstrates a symmetric balance. A visual line drawn vertically in the middle of the work will reveal that the same elements seen on the right are simply repeated on the left hand side too. This repetition creates a central focal point with the geometric shapes and colours dominating the painting. At the middle of the painting is what may be seen as a face mask in a triangular shape. Blue colour dominates the painting as it is largely centralized in the painting. Cobalt blue usage tends to create harmony as it is only a tint

of the dominant deep blue colour. Other colours in the painting are; yellow, red, purple, brown, orange and green.

Tijani's 'Cornucopia II' expresses the presence of women in an age of technological art. While all the works analysed have been produced by the male gender, this creates a balance as it comes from the female. Tijani (2012) has 'used the computer to carry out a few designs', which are showcased in a recent exhibition, where she uses her expressions to 'seek for beauty'. Cornucopia which otherwise interpreted as a container of good things, tend to express beauty in the composition of art elements like beautiful colours and shapes. The work also generates active interest through a variety of such elements and a striking of symmetric balance by deliberate repetition. Natural beauty itself is also defined by repetition in symmetrical balance as seen on the human anatomical definitions like nose, lips, eyes, breasts and many others. 'Cornucopia II' further extends our knowledge of using basic shapes to create abstract paintings as is common practice in basic design and surface design, courses which are taught in painting. It is in the light of this knowledge extension that the success of this painting is underscored.

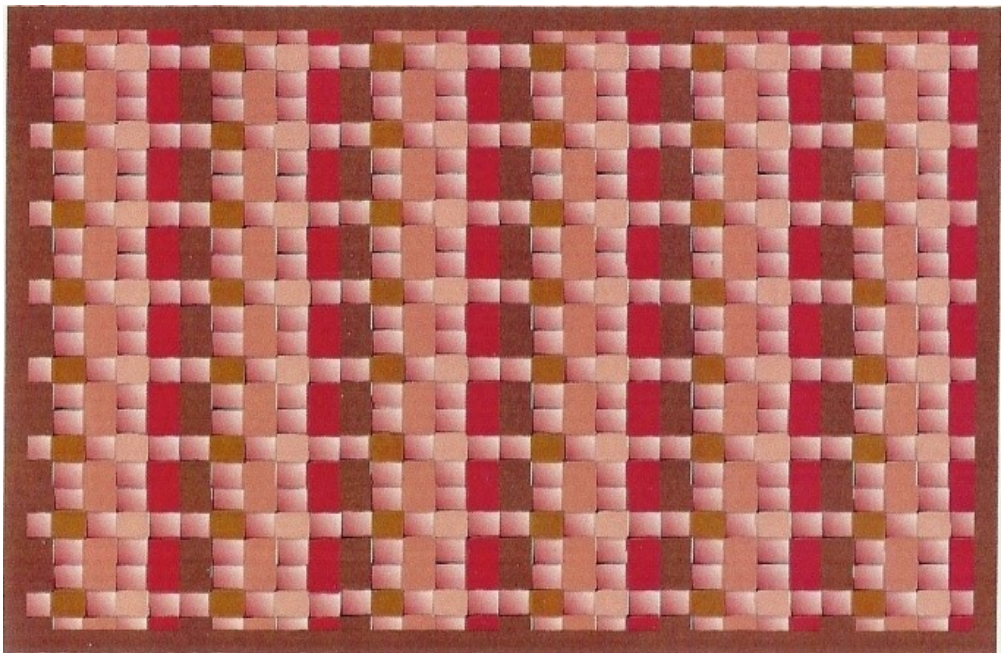


Plate XXXIV
Title: Safe and sound
Artist: Iyabo Tijani
Medium: Computer
Size: 3ft x 2ft
Date: 2013
Source: Iyabo Tijani

'Safe and Sound' depicted in Plate XXXIV, can be seen as an abstract expression. The work appears as a simulation of a woven paper mat. Strips of paper are interlaced as tints and shades of red colour. Vertical brown coloured strips create a pillar formation as well as frame the work. This work again is a portrayal of what the painter can achieve using the computer to create intricate artworks, which may be visually illusionistic. According to Tijani (2013), the paintings of Bridget Riley, have had a profound effect on her artistic development, therefore, works like this may not be surprise. Bridget Riley's paintings are an expression of 'Op Art' or optical art, which create visual illusions as seen in 'Drift 2' (appendix IV), where she explores the impression of heat, using the elements of line and direction. While Bridget Riley used conventional media of acrylic on canvas, Tijani used the computer to create her 'safe and sound'. In the final analysis, the compactness of the interlaced strips could be synonymous to safety.

Enhanced Images: the use of the software in mobile phones to enhance images was another dimension noted.



Plate: XXXV
Title: 'Dafuna Canoe I'
Artist: Habib Mohammed
Medium: Phone
Size: unspecified
Date: 2013
Source: Habib Mohammed

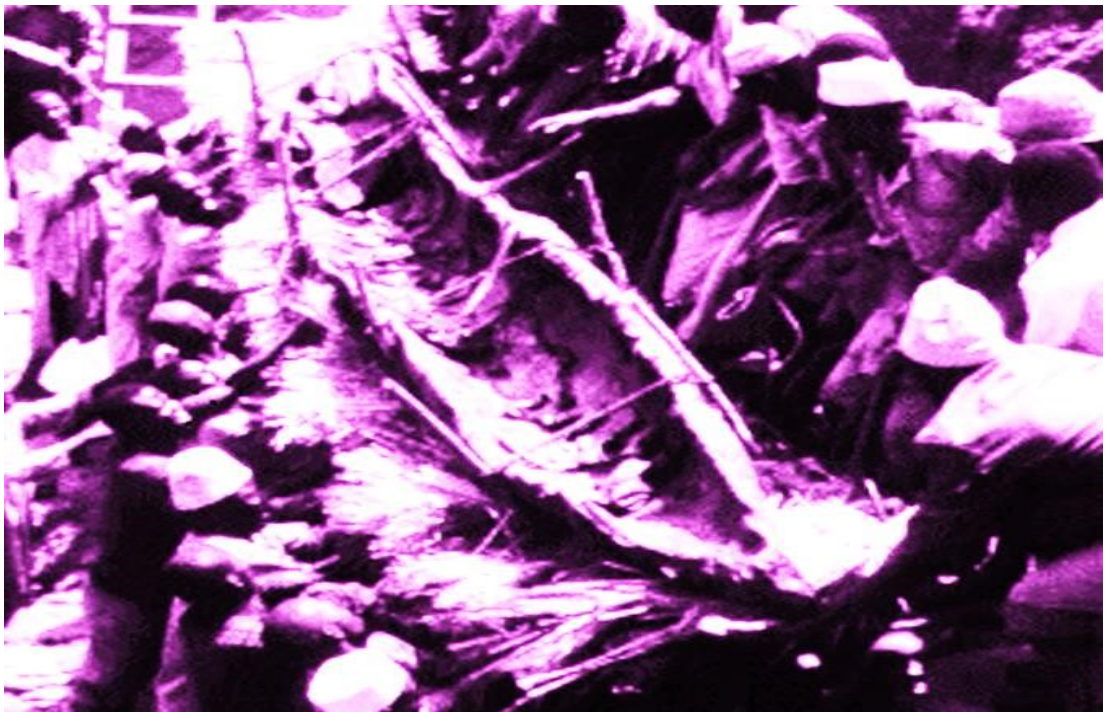


Plate: XXXVI
Title: 'Dafuna Canoe II'
Artist: Habib Mohammed
Medium: Phone
Size: unspecified
Date: 2013

Plate xxxv and XXXVI portray a scene of the discovery and excavation of the historic 'Dafuna canoe' in Yobe state, Nigeria. Tha 'Dafuna Canoe' is the property of the National Commission for Museums and Monuments. The artist simply photographed the scene from another photograph and enhanced the colour by changing the colour to purple. Apart from the colour switch, no other distortion is noticed on the picture as it remains intact. While the artist has used a computer software installed in the phone, this dimension of computer software brings to the realization that phones also are an extension of the computer which have installed features to generate paintings and aesthetically manipulate images.



Plate XXXVII
Title: 'Female figure I'
Artist: Habib Mohammed
Medium: Phone
Size: unspecified
Date: 2013
Source: Habib Mohammed

The 'Female figure I and II' in Plate XXXVII and XXXVIII demonstrate another figural colour manipulation by Habib Mohammed. The image is one that has been influenced by the computer previously and made available online. Habib in his usual manner of picking images from the web, downloaded this one into his phone and reworked it. The image is a female figure with hands crossed over the head as she looks straight on to the viewer. Her dress has the symbol of the heart which is mostly seen as the symbol of love, which is highlighted by yellow colour. The pants and part of the

fingers are also highlighted by yellow while the entire image is highly textured. The texture on the background is rougher than the texture quality on the figure thereby helping to project the figure. Habib's manipulation reveals some result shown in Plate xxxvii.

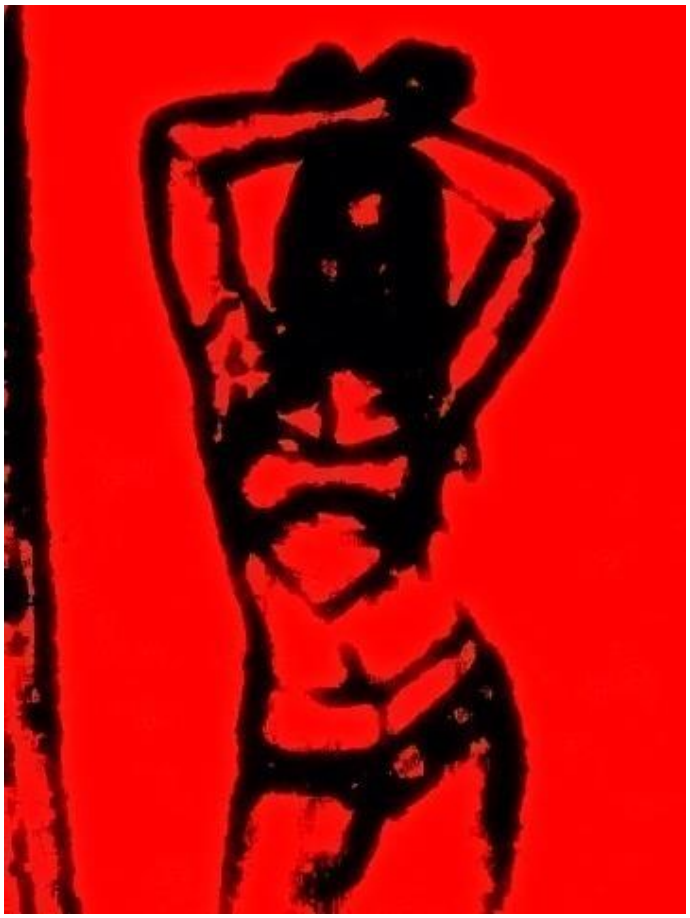


Plate XXXVIII
Title: 'Female figure II'
Artist: Habib Mohammed
Medium: Phone (computer software)
Size: unspecified
Date: 2013
Source: Habib Mohammed

The visual quality of texture has completely vanished. The background is almost plain and in red colour, while the female figure has dissolved into thick black lines, however, the original pose is retained. The facial features are now lost, leaving impressions that are not easily decipherable. Of interest, is the loss of the heart symbol on her dress which now has the impression of a male's face with moustache, and a pointed chin. The painting has now assumed a simplified version of the original

photograph. This has been realized by the use of lines which are jagged in some areas of the figure, therefore extinguishing details of the figure. Habib may not sell this artwork, but with the phone he shares it with friends he chooses.

In conclusion, this analysis grouped paintings under the following: portraits, figures, symbolism, abstracts, landscapes, stylization, computer and conventional interface, drawings, still life and enhanced images. A total of 12 artists were considered with a total of 42 paintings analyzed based on the following; basic facts, subject matter, formal qualities, style, patronage, historical context, critical judgment and interpretation. The analysis exposed some of the dimensions of computer application to painting in Nigeria. These dimensions became the order along which the paintings were grouped. They therefore show that the computer can be an additional medium as seen in the statistical tables, to create portraits, landscapes, figural paintings, drawings, abstracts and collages.

The analysis also reveals the type of software and hardware that artists used. This software is; adobe Photoshop, adobe illustrator, Picasa, CorelDraw, Isketch, Asketch, Artrage, Zen brush among others. Hardwares include; Imac, Ipad, Iphone, Wacom Intuos and desktop. Furthermore, the analysis also finds that artists have the liberty to explore different themes. As a result, political, social, cultural and economic themes are seen. While Victor Ekpuk leans on the political, Victor Ehikhamenor navigates between cultural and social themes.

Style, is another aspect that the analysis brought to fore. It could be seen that every painting is peculiar to the artist. It is easy to differentiate Edward Lapang's paintings from Dr. John Ogene's paintings as a result of the use of the computer to paint even though they used Photoshop. Victor Ekpuk's symbolic use of Nsibidi is consistent with his acrylic on canvas, so also is Ibe Ananaba's spontaneous brushstrokes evident.

In addition, the quality of paintings, to the researcher, seems to be considered with the artist's years of experience with the computer in painting. For example Ibe Ananaba, Victor Ehikhamenor, Edward Lapang and Ekpuk are able to reflect their styles as they work with the traditional painting media. The strength of their skill with the computer is also consistent with the interview response as seen in the appendix. Finally, with the ability to maintain one's style in the traditional or conventional media and extending it to the computer, it therefore means that 'weak creativity' as opined by respondents in the statistical Tables 4.11 and 4.12 is defeated.

Comparative analysis of computer and conventional Painting

Computer paintings are those produced electronically using software like CorelDraw, Photoshop, Adobe illustrator and hardware like: ipad, iphone, laptop, desktop, tablet, printer and camera. Conventional paintings on the other hand are paintings created by manual application of brush on a tangible surface like: canvas, wall, body, ceiling board, paper and others. Some contemporary painters in Nigeria include: Jacob Jari, Jerry Buhari, Gani Odutokun, Muazu Mohammed Sani, Uche Okeke, Obiora Udechukwu, Twin seven seven, Kefas Danjuma among several others who sometime use conventional materials.



Plate: XXXIX
Title: Expl. 2,
Artist: Oladesu Johnson
Year: 2009,
Medium: Acrylic on Canvas,
Size: 122cm x 122cm,
Source: Oladesu Johnson



Repeated Plate: XVII

Expl.2 shown in plate xxxix is a painting that fits into the category of a conventional painting by a Nigerian artist. Oladesu (2015) explains that;

> the study focused on how to paint and get familiar with the components of road, trees, shrubs and space. The eye level in this painting is brought down when compared with Expl.1. Trees are more visible while the road path is narrow down. The foreground takes about three quarter of the painting while the potholes are less visible. The composition of this piece is simple except the meandering road, which unites the background, foreground and trees.

While Oladesu Johnson used acrylic to paint on canvas, the computer painting by Edward Lapang in repeated plate xvii is realized with the computer. The artistic elements that define the painting are not different from the ones in the conventional painting of Oladesu Johnson; colours, brush strokes, forms, shapes textural qualities are all seen in both application and techniques. It is almost difficult to differentiate the two techniques in as pictures, however, in real life view; their qualities could differ as the creative mannerisms of the acrylic on canvas manifests. The rendition of foliage and the foreground in both paintings show some similarity even as the triangular format is shared between the paintings. Another profound similarity in both techniques is the possibility to represent forms without ambiguity as seen in the human figure in the computer landscape as well as the representation of nature in the acrylic on canvas.

The use of the computer affords the artist to emphatically play with the principle of variety in a way not so possible with the traditional modes of application. Variability of concepts is another element that the computer presents. For instance the artist can choose to vary the colours of a particular painting, or certain elements yet the varied painting projects its own life and uniqueness. An example is John Ogene's 'Reptilia' shown in plate – Reptilia could be considered as a variation of Totem shown in plate xxxii, the painting remains distinct in its own right as different painting from 'Totem'.



Plate XL
Title: Reptilia
Artist: John Ogene
Medium: computer
Size: unspecified
Date: 2014
Source: No Longer Anonymous-2014



Repeated plate XXXII

Although both computer paintings and conventional paintings are paintings which share similarities in elements, principles, visual presentation, style, conceptualization and the use of the hand to create, however, there are differences. These differences are; virtual, speed working environment, portability, and abundance of tools, material, tactile quality, feeling, context and output.

Similarities can be seen in the elements of painting. These are colours, space, lines, two dimensionality and textures; even though textural effects in the computer paintings are simulations. Other elements are; forms, and the use of tint and shade in colours to achieve light and dark tones.

The use of principles of art is also another point of similarity. Principles of art like; balance, proportion, repetition, emphasis or dominance, variety in the application of the elements of art, is consciously and sometimes unconsciously applied by painters to produce a successful painting. Both share this in common. For example, John

Ogene's "for God so loved the world" captures balance while his totem is a good example of symmetric balance.

Another area of similarity is in visual presentation. Both painting forms are presented the same way in terms of what is perceived aesthetically and even in the finishing where they are framed and hung on the wall, in most cases, for exhibition or appreciation. In such a case, it may be a bit tricky for one to differentiate the computer painting from a conventional painting owing to strong similarity based on perception.

Furthermore, the style of both paintings can be the same. Some of those interviewed agreed that using the appropriate software, the computer can simulate any style, technique, medium and textural quality. A point in case is Atanu's landscapes that are seen in palette knife and brush effect. Ogene's "tree trunk" also has the impression of a water colour painting. Other techniques like pointillism, cubism can also be simulated just like Professor Kalilu stated. In the same vein, a painter can equally express his or her individual style using the computer. Examples of this individual style can be seen in Ibe Ananaba's portraits, and Victor Ekpuk's manipulations of "Nsibidi" graphical symbols which are not different from his conventional painting as he stated in the interview. Nevertheless, every work analysed, tended to manifest the individual artist's style which is distinct. This flow of innate creativity is an attestation of the similarity between the computer paintings and conventional paintings.

Moreover, the concept of any painting flows from the artist's imagination. It is almost impossible for any artist to paint without first using his or her imagination. This power to imagine and conceptualize on a digital camera or conventional canvas, wall, paper, body and others, is common to both painting approaches. In addition, imagination flows through the hands to realize a painting concept. It is obvious that without the artist's effort to manipulate the computer through hands or fingers, the

mouse, the digital pen or stylus on the tablet and otherwise, the computer on its own cannot create, so also the conventional painting.

In further consideration of the similarities, the issue of creativity is a point of consideration. In the buildup on the statement of problem, the lack of creativity was an issue; however, the computer painting is a creative process in that, the computer paintings of two different artists are never the same as each is an expression of the artist's innate creative skills, mannerisms and style. Therefore they would differ. The similarity in this dimension can be experienced in the conventional paintings as well the works of two different artists are never the same even when the subject is the same, the style would be distinct. Victor Ekpuk's 'All hands are not equal' in repeated plate xi creatively differs from Victor Ehikhamenor's 'Labyrinth of an arrival', repeated plate xii.



Repeated Plate XII



Repeated Plate XI

In the two paintings, both artists explored with symbols yet their unique styles are exhibited which shows that individual style which is borne out of creativity is seen. Style in an artist or painting itself is a product of consistency which can also be found in both conventional and computer paintings as exemplified in Victor Ekpuk's 'Wailing Woman' in repeated plate X, and the paintings of Emmanuel Irokanulo shown in plate

XLI and plate XLII. The paintings are conventionally realized using the 'Shadow' as a philosophical idea. Both paintings show Emmanuel Irokanulo's vigourous and aggressive manipulation of the brush with oil on canvas thus showing a consistency in his mannerism. The consistency in Victor Ekpuk's computer painting is equally seen in 'All figers are not equal' depicted in plate XI. The two artist's works show a consistency in their peculiar styles with which they can be identified with. It therefore portrays a similarity as well as the principle of repetition and the character of creativity in the use of the computer as found in the conventional paintings.



Repeated Plate X



Plate: XLI
Title: The Return
Artist: Emmanuel Irokanulo
Size: 120x120 cm
Medium: oil on canvas
Year: 2010
Source: Emmanuel Irokanulo



Plate: XLII
Title: Corridor of Power
Artist: Emmanuel Irokanulo
Size: 120 x 120 cm
Medium: Oil on canvas
Year: 2010
Source: Emmanuel Irokanulo

The differences can be seen in the speed. Most respondents to the interview said that it takes between a minute to months to create a painting with the computer, which will save time. However, the conventional painting may require longer than a minute to produce. Speed therefore, becomes a major difference between both approaches. Even though acrylic paint dries quicker, than oil paint, it is yet to meet the speed of the computer.

Another difference is the environment or work space. The computer paintings are domiciled in the computer system and dependent on a particular configuration or memory of hard disk and random access memory (RAM) to function effectively, whereas, the traditional painting is largely worked in the studio or on a site, depending on the nature of technique. For instance, mural painting or mosaic will require the artist to go to the site while oil on canvas would be in a studio, with painting easels, palette, paints, rags, stretchers, nails, hammers and other needs which are physical. The work environment of the computer painting is virtual while the conventional painting is real.

Portability of the computer painting makes it different from the conventional painting. Most of the artists interviewed agreed that the computer paintings are easily transported through disks, email or internet, making it capable of being easily and speedily propagated. It is not so with the traditional. The computer painting can reach any part of the world in seconds, in the same vein, hundreds of computer paintings can be saved on a disk depending on the size of the disk's memory. This feature is not practically possible with the conventional.

Furthermore, the computer has an abundance of variety of every material. Lapang Edward said that the abundance of various pastels, oils, tools and colours makes it exciting to work with. The materials for the conventional painter may be limited. For example, a painter could paint with just the primary colours of red, yellow, blue and white and because he has to keep replenishing his or her supplies, the cost could limit the purchasing power. The computer painter on the other hand needs not buy any colour as his materials are virtual.

Output of both paintings presents another major difference between the two types of painting media. This refers to how the final product is seen or made available to the viewer. A finished painting with oil, acrylic, water colour, enamel, pastel or crayon,

done in the conventional approach will show its tactile qualities or textures that reflect the technique used like brush, fingers, or knife. The Painting by Professor Jerry Buhari in plate XLIII is oil on canvas which is in his conventional approach, although his recent works have been in the conceptual perspective. The computer paintings are usually printed which fails to exhibit the textures in reality; rather, the textures may be seen as a simulation as in the landscape paintings by Ben Atanu with palette knife simulation on repeated plate XXVII. Again, textures are also achievable as shown in the printed paintings of Dr. John Ogene in plate XLII and XLIII where the images were printed on solidly textured canvas.



Plate: XLIII
Title: The Fall in Fall
Artist: Jerry Buhari
Size: 70 x 100cm
Medium: Acrylic on canvas
Year: 2008?
Source: Jerry Buhari



Repeated plate XXVII

A feeling of imbalance sometimes greets the computer paintings. While the conventional painting is accorded more respect, more value and a sense of authenticity, the computer painting differs, as some people think it is not durable and because it is not a conventional painting it lacks the necessary quality that would attract a feeling of value and originality.

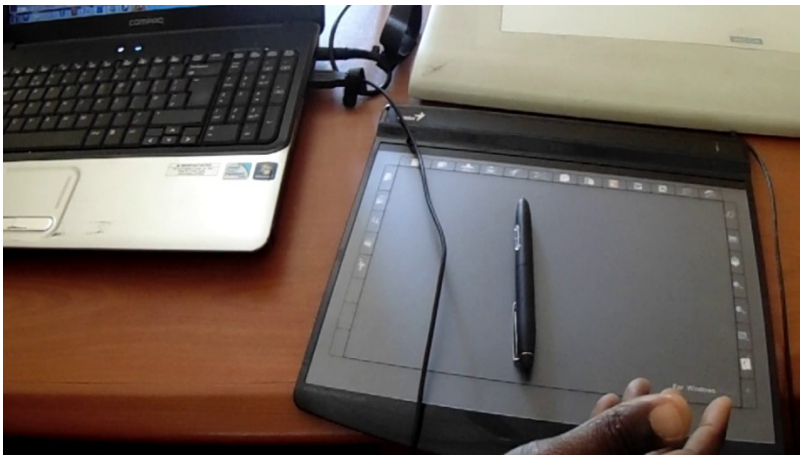
Moreover, the context surrounding both media is different. The history of the conventional painting dates back to the cave, through centuries and movements to the present while computer generated paintings date back to the 20th century, and fueled by technological advancement.

Process, Software and Outputting

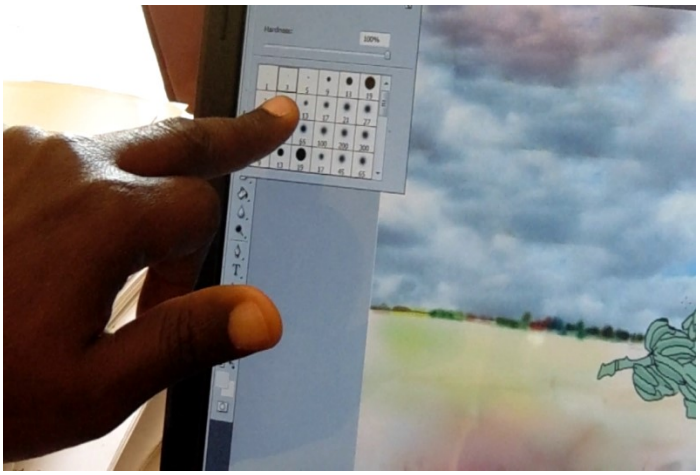
There appears to be a similar process with the use of software found among Nigerian artists like; adobe Photoshop, adobe illustrator, Picasa, CorelDraw, Isketch, Asketch, Artrage, Zen brush, Paint Studio, Microsoft word 2010 picture tools, among others. Hardwares included; Imac, Ipad, Iphone, Wacom cintiq, Intuos, laptop, Fablet,

Ultra Mobile Personal Computer (UMPC), stylus,s desktop and outputting methods used by artists painting with the computer in some cases like printing softwares. A technique of rendering portrait by Kyle Lambert has already been reviewed in the literature review section with a step by step approach. Similarly, Edward Lapang's process is narrated as follows;

> The first step is to organize my work environment by setting up the computer and the Wacom tablet and stylus. The Wacom tablet shown below has icons on the top, left and right side which contain a set of tools from which to choose from. These tools could be brushes, colours, among several others. The tablet is connected to the computer through an installed programme just as a printer is installed in the computer and accessible through the window. I used the Photoshop software to choose a background image. In this case I chose a dark green as my base, which finally influenced the overall colour palette of the final piece.
> The stylus is like a pen seen on the tablet below. I use it to pick tools with which the painting is made.



1. I also chose desired brush sizes for varying strengths as seen below



The next stage is the sketch. This is done on a separate layer to maintain flexibility, in case I might want to make erasures or adjustments later.



Think of layers as separate sheets of transparent paper you paint on, as this allows you to move elements of the piece of art or apply effects to certain aspects of the painting as necessary without affecting the other parts; for example if I wanted to change the line colour from black to brown, I could easily do so without affecting the background or colour layer.

After the sketch is done, I move on to the colour layer, this layer is placed below the line layer so it doesn’t completely obstruct the line layer as I want the line layer to show. I could hide the line layer after I'm done filling in the colours so the line work doesn't show, or even reduce its opacity

strength so it's not too obvious, but contributes to the final look in a very subtle manner.

The colour layer contains the colours for the background and the main subject also, but I could have easily separated the two if needed for even more flexibility. This would allow me to alter the composition in many ways: I could easily resize or move the background after the face to accommodate several composition options or completely remove the colour to leave the line, work another colour such as red or blue and the colour layer black and white. Of course the option lies with the artist. The final result is shown below.



This is the basic procedure to create a piece of digital artwork. You can see it’s not very different from a traditional approach, the key differences being the flexibility and the option of layers, which in itself is not an entirely new idea.

Another technique of creating digital paintings was the simple enhancement and manipulation of the image or the finished computer painting to simulate different or familiar impressions. For instance, this involves the use of clicking on the image in the Microsoft word environment, the highlighted image pops up the picture tool format on the top of the screen. On clicking on the picture format tools, the left side of the computer would display tools like colour, corrections and artistic effects. In the artistic effects environment are several effects which when clicked on automatically changes

the effect or visual impression of the selected painting. The effects found here include; chalk sketch, marker, light screen, cement, cutout, paint strokes, water colour sponge, texturizer, photocopy, glow edges, pencil sketch, pencil gray scale, and others. The painting by Professor Jerry Buhari in plate xliii, has been subjected to such a digital experiment as depicted in plate xliv. The painting, though an original of Jerry Buhari has assumed a new life, independent of the previous one in plate xliii, and independent of its previous ownership.



Plate: XLIV
Title: The Fall in Fall II
Artist: Gabriel Gyegwe
Size: 2.52 x 3.46 inches
Medium: computer (Microsoft word 2010)
Year: 2015

The outputting of the paintings however, has been mostly through digital printing. In many instances, printing softwares are installed to aid the printing of paintings. Most respondents who were interviewed stated that they printed their final works on canvas. The canvas is the tough textile fabric produced from cotton with which Paintings have been traditionally made on. The technology has made it possible to print on fabric such that paintings are been printed. The beauty of this output is the

fact that textual quality of the canvas is not lost as one could see the raw warp and weft formations of the canvas. An example of this is John Ogene's 'Arbitration' and 'Clay' shown in plates XLV and XLVI the tactile nature of the canvas itself evokes the feeling of a traditional painting output on canvas, the only difference here being that the colours are flat. In spite of the flat nature of the canvas, a water colour painting on canvas is not any different as it would present a similar impression.

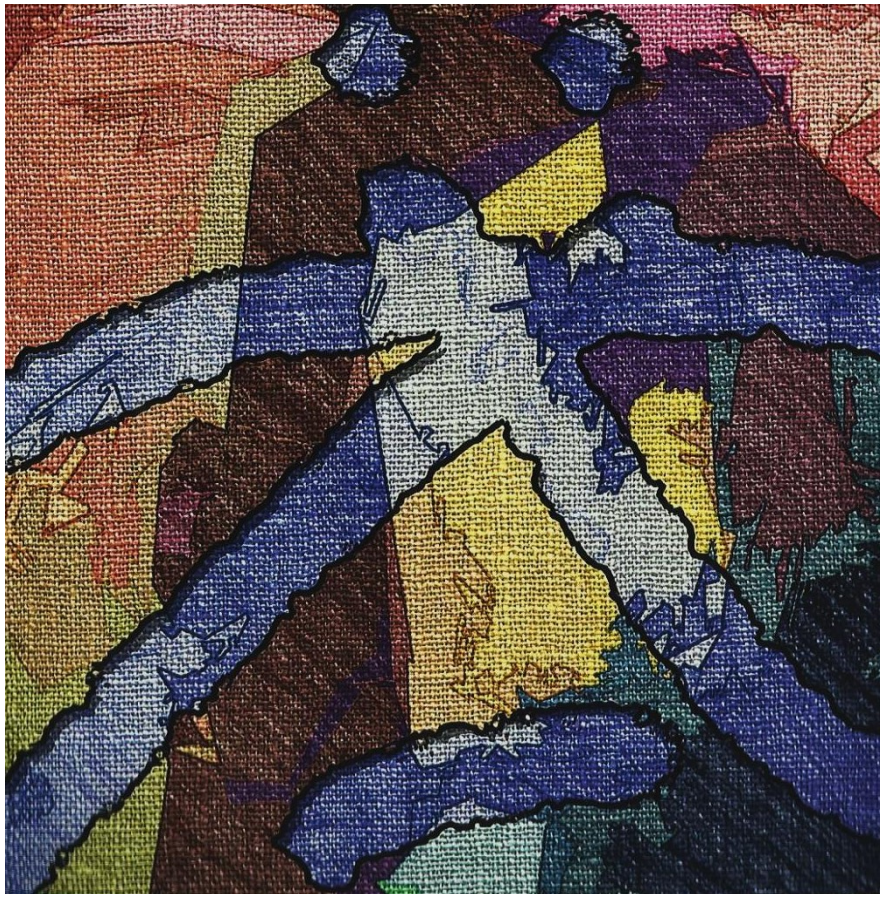


Plate XLV
Title: Arbitration
Artist: John Ogene
Medium: computer
Size: unspecified
Date: 2014
Source: No Longer Anonymous-2014

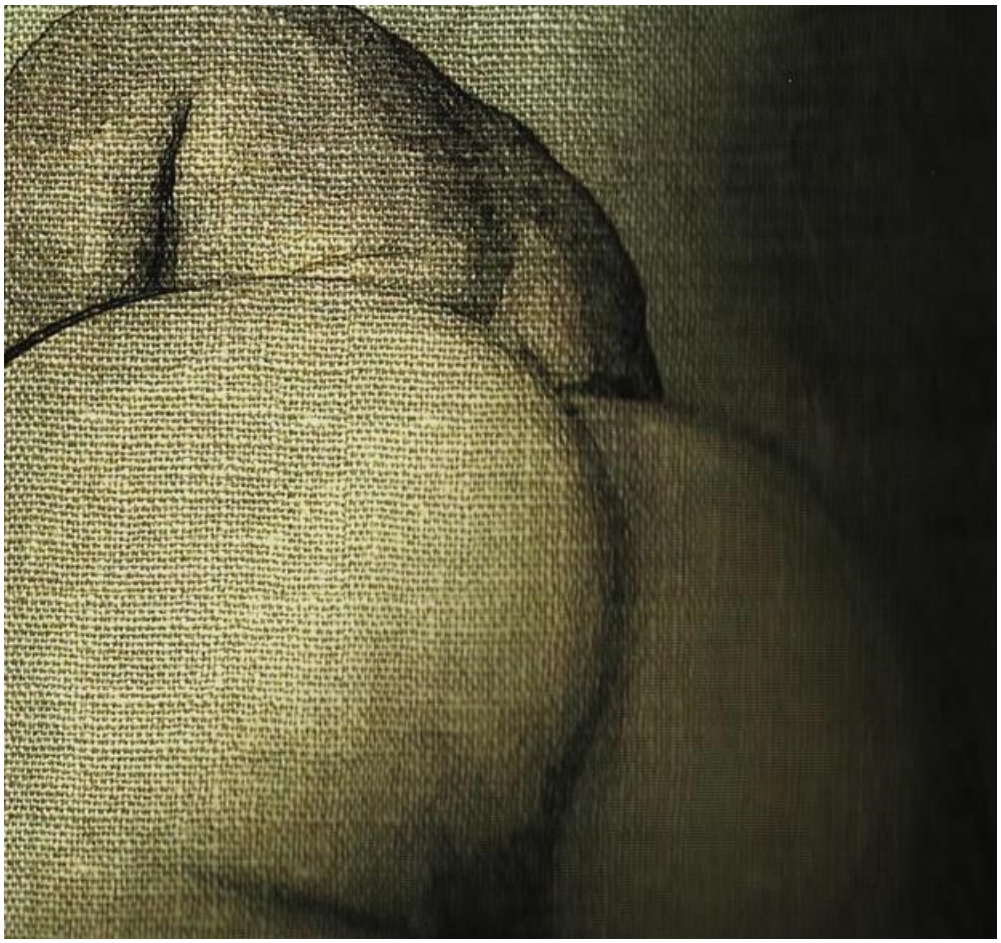


Plate XLVI
Title: Clay
Artist: John Ogene
Medium: computer
Size: unspecified
Date: 2014
Source: No Longer Anonymous-2014

Another output method is the print on paper. This remains the commonest output method used by artists. Victor Ehikhamenor, Edward Lapang, and several others who were interviewed, admitted to printing their paintings on high quality paper. Some use the laser printer or deskjet printer to output their paintings. Such papers used are water colour paper as Victor Ehikhamenor stated in the interview, cardboard, and bond paper. In general, because the printing technology makes it possible to print on many surfaces, the output platforms are extended. This is why Ibe Ananaba, Tosin Okusi, and Ifeanyi Nwachukwu extend their surfaces to T-Shirts, and other souvenir surfaces like books

and household utilities. Edward Lapang in an interview on 8th November, 2013 in Jos, opines that;

> Computer arts applications are designed for flexibility, in a lot of cases these applications come with preset surfaces or canvases that are designed to give the digital artist variety, in most cases to simulate the real thing, like; canvases, textured papers, scratch boards, panels, etc. With the flexibility of computer design, the art piece can be placed almost anywhere; a wall, on the floor, in the sky. The options are almost limitless.

Similarlry, David Osagie also in an interview on 20th April, 2014 in Abuja, states that; "Final work could be rendered on Canvas, Wall, Paper, mugs, shoes, bags, clothes, curtains or whatever surface medium the artist requires. There are a dozen specialized process for rendering final Digital Artworks".

The printing on a synthetic material like canvas commonly called 'flex' was also used for outputting. The paintings of Iyabo Khadijat Tijani were mostly printed on 'flex'. The flex material is been used by printers of large format advertisement visuals which are used as billboards. After printing, the paintings are stretchered over a wooden frame and framed just like a traditional or conventional painting.

Further outputting method is the computer screen itself. Some of the artist s indicated that they sometimes choose to have their paintings viewed on the screen of the computer. While this may present the painting in its original state, its viewing time could be limited to the availability of electricity to continue powering the computer or gadget like phone, tablet, or other similar ones.

Projecting the paintings electronically is yet another form of outputting. The paintings could be projected on a wall or other surfaces with an unusual dimension for viewership. Aside the use of a conventional projector that depends on connectivity to electricity, there are mini or pocket projectors which may be used to project the

paintings without connectivity to power as they equally have inbuilt batteries for supplying power for hours.

Advantages and Disadvantages

The advantages and disadvantages of both media are briefly highlighted below. Cleanliness of work process: most respondents interviewed were of the opinion that the computer offers a clean work environment that is not messy. For instance, the studio where oil on canvas or a site where a mural painting takes place, may be messy. The mixing of colours, use of diluents, cleaning, washing of brushes, priming and sizing of surfaces all could create a messy process as the painter most times get stained by paints that require cleaning with diluents. For the computer painting, every process is virtual. The computer approach saves time. This may not be so with the traditional medium as much time is taken to buy the canvas, oil paints preparing of surfaces for sketches and the painting proper. Most respondents agreed that speed is a plus for the computer while those interviewed also affirmed that they could create a painting within a minute, to a day or months.

Ability to test and get immediate feedback of trials: The computer has the undo feature which allows the painter to try a colour or brush stroke and undo it if not satisfactory. In the Photoshop, for example, the history feature, records every step in the process of painting, such that the artist can retrace his or her steps and get desired results. Unfortunately, it is not possible with the conventional painting.

The disadvantages can be in the aspect of durability. The computer print can be easily destroyed if not carefully preserved, on the other hand, the conventional media like, water colour, acrylic, mural, canvas are more durable.

The major challenge to painting with the computer in Nigeria is electricity which is another disadvantage. Constant power cuts in Nigeria are sad news for the painter wishing to paint with the computer. The computer depends entirely on power supply and the situation in Nigeria where power is scarce, makes it difficult for development in that genre to take place. Alternatively, the painter could resort to the use of a generating set. Generating power privately is not without its attendant cost as the generator after procurement will need fueling and routine maintenance which adds to the cost. Moreover, for larger canvas surfaces, the cost will be higher in terms of higher capacity generators to power the bigger printing machines. However, the scenario is different from the conventional painter who is not so reliant on electricity.

Again, value is attached more on the conventional painting than on the computer painting. This is due to the difficulty in copying an original painting in the conventional medium, unlike a computer painting that may be easily duplicated and shared on the internet, or mass produced, although mass production is an advantage as it makes economic sense for the computer painter.

Another disadvantage of the computer painting is risk of loss: although either of the paintings can suffer loss, the risk is higher with the computer as it is virtual. Lapang Edward, for instance recounted an experience where he lost an entire canvas in the computer, due to giving the wrong command.

In conclusion the comparative analysis has so far considered areas of similarities and differences between computer and conventional paintings with the major difference being “virtual” for the computer and “real” for the conventional. Political, economic, social and cultural implications have also been considered in terms of computer’s speed and ease of use. Advantages and disadvantages of both media are considered, with

electricity posing a challenge to the use of the computer as well as lack of access to the computer by many who would like to work with it, among other factors.

Interviews and Responses

From the responses to questionnaires, it was gathered that some respondents actually indicated some artists who are using the computer to paint. In addition, their email addresses, phone numbers and contact addresses were indicated as required in question number six (6). Sequel to that information, the artists were reached through the phone and internet to discuss with them, and eventually, interview appointments were scheduled. Those who could not be available opted for response by email. A total of Thirteen (12) artists were interviewed. However, evidence of the painting itself was the qualifying criterion for the interview.

The interviews sought paintings made with the computer, the dimensions of application of computer to painting in Nigeria, comparison with conventional media, history of computer painting in Nigeria among others. The proceedings are presented as follows.

Ifeanyichukwu Nwachukwu

Ifeanyichukwu Nwachukwu at the time of this interview was a final year Higher National Diploma student specializing in Graphics and painting at Yaba College of Technology, Lagos. He is of Abia State origin. His graphics background has contributed to his usage of the computer to paint. According to him, it was through comics and animations that his desire to paint with the computer was borne.

Nwachukwu has experimented with the computer for about five years now with the use of tools or software like Photoshop, painter x, Z brush (for three dimensional renditions), He creates vector and brush based textured paintings. Vector based

paintings are those which are characterized by a tonal gradation, while brush paintings are smooth and imitating the effect of the brush application in traditional painting. While the computer remains the basic tool for the application, he uses the Wacom or synthic tablet to ease his painting. The tablet is an electronic surface or board on which the artist draws on, and is electronically transmitted on to the computer monitor as manipulations are made to achieve desired effects. According to him, the wacom tablet which he uses is connected to the monitor and replaces the keyboard. It comes with a pen-like tool with which he draws directly on the tablet. The laptop, a mouse or desktop computer are also other vital tools which he uses; however, their usage with the keyboard is rather rigid compared to the tablet which is easier to manipulate.

Nwachukwu states that he is not alone in the use of computer to create paintings. Other artists he knows who are using computer to paint are; Maya, Abiola Adejare who do character design in three dimensional approaches, which also involve the use of vector and brush. Another dimension other than painting or applying paint or colour to created or drawn forms is explored by Alex Oliver who creates sculptures with the computer. Other areas painters are using the computer are, interior design and decoration, animations and film production.

While the computer can be a tool to start and finish a painting, Nwachukwu sometimes attempts to create a merger. This, he does by first drawing conventionally with pen and paper and afterwards scans into the computer for onward application of colours. This, in a way is a combination of conventional and digital. He attributes this development to the need to kill the boredom that has engulfed him as a result of using either the conventional or the digital. So, the combination is borne out of experiment.

Patronage by people is what drives the artist to produce. Nwachukwu's works are usually used in illustrations, by publishers or advertisement agencies, where his

patronage comes from. Although he has never sold a painting generated with the computer like conventional paintings are sold, he still makes sales through advertisement commissions in which he uses the painting technique to produce.

From a comparative point, Nwachukwu finds similarities between computer-generated paintings and conventional paintings to be more on colour and composition. Colour is the most dominant element in a painting which is common to both approaches. Composition too is another aspect of painting that is dominant to both. However, differences do exist. These differences, according to Nwachukwu, are clearly visible in the use of the computer which ends in a print on paper or canvas but could have the tactile feel of the conventional paintings. On the other hand, the conventional paintings are hand painted and have their uniqueness.

The advantages of the computer–generated paintings present themselves in their ease of application or production using the computer. In addition, the computer generated-painting creates links to the other aspect of the market like print media, motion pictures and advertisement. Its disadvantage could be seen in its need to be carefully preserved, due to its being less durable to the conventional paintings especially oil, acrylic or even gouache.

Production cost is yet another aspect of comparison. Nwachukwu thinks that computer–generated paintings are more expensive to produce. This is seen in the need to procure a computer system, tablet, printer and other gadgets which appear to be more expensive when compared to the conventional paintings where access to paints, easel, canvas, brushes, palette knives and other materials may be more affordable. The cost of printing on canvas too, he insists is expensive.

Ibe Ananaba

Ibe was born in 1976. He is an indigene of Abia State in Nigeria. His early childhood days were mostly spent in the commercial city of Aba where he had his primary and secondary education. He graduated from the Fine and Applied Arts Department of the Institute of Management and Technology, Enugu, in 1999, where he excelled with a distinction, majoring in painting.

With a philosophical disposition to reshape minds through his creativity, Ibe has been led to express himself as a graphic artist, giving him the exposure and access to explore with the computer and different software. He is also a cartoonist and a fashion illustrator. As an artist, he officially works as a group head (Art) at Insight Communications Limited, Lagos. In addition, he maintains a home studio where he practises his Painting. From the foregoing background, Ibe's romance with computer-generated painting sprung out of his interest to fiddle and explore fashion design with much leaning towards the human figure, graphics and cartoons, which are equally produced using the computer.

On the origin of computer application to painting in Nigeria, Ibe does not know. He also "would not know if there is any art school officially teaching this art form now, but we live in a digital age and with the help of technology/social media, one can actually be self-taught". He is also of the opinion that "computer-generated painting is the same as digital painting. The difference is just in the use of words, but in essence, they are the same.

In the quest to know how he uses the computer to paint, Ibe responded that it is "by using photo-editing software". According to him, learning this art form was as a result of "an adventure". In his words; "I was privileged to have a computer with Photoshop and CorelDraw installed, to play with. Basically, it was a try-your-luck kind of situation, where I failed countless times and kept learning from my failures. I still do

till date… let me say till tomorrow. It never ends. You know by using a graphic/photo editing software, in it, there is a colour swatch/palette where you can pick colour from, so for me it offers me the platform to 'play' ''. He added that all his computer generated paintings, were borne out of this quest to figure out how it works, "by being inquisitive, I prepare my mind to play and by playing and trying things out you stumble upon things you never knew existed. It's like an adventure really… the feeling when you discover stuff on your own and it leads you to more". It is this kind of self-discovery spirit that has sustained Ibe's application of computer to painting since 1997 when he started. In the same vein, he sees several other artists creating "amazing paintings with the computer which can be realized on "canvas, wallpaper, paper, T. shirts" and more.

From a descriptive and analytic view point, Ibe sees his computer–generated paintings as an "extended version of his drawings. I set out playing with elements, with the use of tools available on the software, and the effect gotten would determine what the final result will be before starting". He reiterates that he "enjoys the adventurous process" with the use of such basic elements like line and colour, without emphasis on the use of art principles, which to him, are determined by his mood. To achieve lines, he simply clicks on the brush tool, adjust to size that he needs at the moment and strikes his line. For colour, he moves to the colour palette and chooses from the swatch. It is by this process and similar accidental applications that Ibe produces a painting which could take seconds, hours, days, week or months as there is really no set time, but as the "inspiration flows".

Pertaining exhibiting his paintings, Ibe has never had an exhibition of his computer-generated paintings, even though he has lots of them, and has had several exhibition of his conventional paintings with oil, pen and ink, water colour and others.

Ibe is of the opinion that there is a similarity between computer–generated paintings and the conventional ones in the use of art elements. This is seen in the use of lines, colours, and other elements of art. He however states that, 'the feeling in them is different'. He further explains that,

> with digital work, you can do and undo at will but you do not have that privilege in the conventional painting. The basic difference is the virtual element of one while the other is 'real'. In the virtual version (digital/computer–based) you can only see it on the screen or monitor during production. With the conventional, one can feel it. One's hands can't get stained with paints while creating the computer–based painting. The smell of physical oil paint does not exist for the computer – based painting. Even the sound of the brush or canvas when applying paint does not exist until the new inventions that will have all these come.

In a nutshell, the absence of friction, sounds, smell, stains and general studio presence that come with the rendition of the conventional paintings are major differences between it and the computer–based painting.

The advantages of computer–generated paintings are enumerated by Ibe as follows;

> its portability is enjoyable. By this I mean you can save it out in different devices, you can mail out, you can share on social media, and you can make copies and variations at ease. You can undo and retrace your steps backwards just in case you make mistakes.

Compared to the traditional paintings, "it's not as portable or electronically transferable as the digital". However, the advantage of the conventional painting lies in its singular originality. In his words; "there is only one original" and its exact reproduction is not practically feasible.

On preference, Ibe is of the opinion that preference is dependent upon the end usage or function which the painting is intended to serve. However he would prefer conventional painting because it "still has more 'sound' than the computer based," this

he said is because he started with the conventional style when technology had not advanced to the level it is today, moreover he still needs more time to fully give preference to the computer based if he ever gets to, although he sells in prints on paper, or canvas and wearable fashion surfaces like T-shirts.

Tosin Okusi

Tosin Okusi is an indigene of Ogun state in Nigeria and a graduate of Yaba College of Technology, Lagos. He has been using the computer to paint for about five years now. He sees painting with the computer as the use of brushes in the computer to apply paints. This he says is equally done in graphic designs for commercial purposes. Although this form of art is not learnt in school, he uses, Adobe Photoshop, Adobe illustrator and After Effects to create such works, which are not yet popular at public exhibitions. Tosin had sold a painting generated with the computer through customized shirts. Tosin indicated some dimensions which Nigerian artists are using the computer to paint. They include; comic illustration, web publishing, textile and designs, cover design, story boards for movies and illustration.

In comparison, Tosin is of the opinion that computer–generated paintings could threaten the practice of conventional painting. This may be due to the ease that comes with creating computer–generated painting without much stress; as a consequence, more computer generated-paintings will be seen. As a disadvantage, this might lessen exhibition of conventional paintings. In addition, he is also of the opinion that due to the electronic base of computer–generated paintings, it can be widely consumed, as the web or internet provides a platform for its wider spread and acquisition which may be an advantage as well as a disadvantage. He did not state if he would prefer the

conventional paintings or the computer–generated paintings, and would not comment on the cost of production.

Ben Atanu

Atanu was born on the 5th of May, 1959, in Idah, Kogi State of Nigeria. He attended Murtala College of Arts Science and Technology, now Benue State Polytechnic Ugbokolo, and graduated in 1982 with a Higher National Diploma, and taught for many years at his alma mater. Presently, he is lecturing at the Kogi State Polytechnic, Lokoja. This is largely due to the creation of Kogi State from Benue and Kwara State which led to his transferring his services to the Kogi State Polytechnic by reasons of ethnic inclination and indigeneship.

Atanu defines a computer-generated painting as an electronically generated painting. He learnt computer painting through self-discovery, and has been practising with it for three years. He is also a postgraduate student at Ladoke Akintola University of Technology, Ogbomoso, where he has come under the tutelage of Professor Rom Kalilu. Although he is specializing in photography, he has equally explored with computer to paint and draw which he learnt by experimentation and sheer interest.

He explores almost all elements of art used in conventional painting; however, the works are produced for self-fulfillment and are rather experimental. He employs the use of software like Adobe Photoshop and CorelDraw in the course of his painting He describes his painting with the computer as one that is still evolving, as he is yet to reach perfection.

Atanu works with a conscious knowledge of the principles of art which he learnt from conventional painting. He also sees the similarities between the conventional and computer generated-painting in colour and general elements. He however finds more

liberty in the conventional media painting than the electronic based ones; although, the electronic ones present more colour variations or liberty of colours it presents challenges to the artist. Again, this can be seen in the space limitation on the computer monitor. He further sees power or electricity to be a major disadvantage of the electronic medium.

The cost of production according to Atanu, is cheaper with the conventional medium than the electronic medium. Nevertheless, he thinks that the electronic media should be encouraged in painting since technology is fast encroaching. Atanu added that the extinction of drawing board in graphic designs and textile designs, which he thinks in a matter of time, painting will also be affected by technology and as such the need to work with both. He would not say which he would prefer, as both present peculiar advantages to the artist.

Victor Ehikhamenor

Victor Ehikhamenor is a studio artist and self-employed. He holds a postgraduate certificate and studied English and Literature, Technology Management and Creative Writing. He attended Ambrose Alli University, Ekpoma, Nigeria from which he graduated in 1991, and University of Maryland, College Park United States of America in 2008.

Victor does not know the history of this painting medium in Nigeria, and is not sure if it is taught in any of the Nigerian institutions of learning. He learnt to paint with the computer through a friend in America, Professor Michael Platt, who is also an artist and a printmaker. Victor is of the view that computer painting differs slightly from a digital painting. He states that his "own computer–generated paintings are a montage of my original works, which I digitize and mix together through the help of a software".

He achieves this by merging two or more original works, usually a photograph and oil or acrylic painting. Both materials, he insists, are always his 'in the first place'. Victor has been practicing painting with the computer for eight (8) years, and says he is not the only one painting with the computer as there are several other artists doing same, which vary from realism to abstract. In the end, these paintings are printed on high quality paper or canvas, or even viewed on the computer monitor or screen.

Victor sees computer–generated painting as a painting by an artist using computer hardware and software instead of the conventional old fine art tools like brushes, paint and pencils. The software which he used is Photoshop and Microsoft paint brush, with which he also applied the principles of art, "otherwise the painting would not make sense and it will fall flat".

For Victor, achieving the elements of art comes with ease. This is so because some of the software provide the opportunity to achieve this, nevertheless one still needs to apply his artistic sensibilities and knowledge to achieve the painting. Some of his paintings, which he exhibited in the past, could actually be painted in about eight (8) minutes while some took as much as three (3) weeks.

In comparison, Victor observes that, "some artists use computer to paint realism, sometimes you cannot tell the difference:" but because Victor mixes photography and painting, it is easily discernable that only computer can achieve the kind of result seen in the work. He further observed that, the feel and texture between conventional and computer generated painting is different. Physical paints are not mixed in computer painting, and it is usually too smooth to be real in the hands of some artists.

While Victor finds advantages in both the conventional and computer-generated medium, there are also disadvantages. For him, once software is bought, it can be used for a long time to make lots of paintings as opposed to buying cans and gallons of paints

and other consumables. He further states that a lot of collectors and other art purists haven't quite warmed up to the whole idea of painting with the computer, therefore the collection rate is slow. Again, as an advantage, there is the possibility of scaling up and down during painting, as opposed to canvas or paper limitation. In addition, the artist remarked: "you don't get your hands dirty with any paints however; you will still need to print out the work for people to see". On the other hand, he observed that the conventional mode of painting for him remains the oldest way of making artworks where the painter's creativity is not really questioned, and a lot of people still warm up to the traditional painting than computer–generated ones. He added that it is more expensive and has more secondary market value than computer generated art.

In comparing the cost of production of traditional and computer–generated paintings, Victor is of the opinion that the conventional painting approach is more costly to produce, in terms of material and studio space. He would therefore prefer both, with more leaning towards the conventional painting. He also added that he sells his computer generated paintings by printing them on acid free and good quality paper, and then touches them up before framing.

Edward Lapang

Edward Lapang was born in Plateau state, Nigeria. He graduated from Ahmadu Bello University, Zaria, in 2005 with a B.A. Fine Arts degree in Painting. Lapang is currently self-employed as an artist in Jos, Plateau State. He does not know how computer painting practise started in Nigeria; however, he reasons that, "probably with the advent of computer, as small art programmes like, Ms paints, are bundled with computers by default, so naturally, people try their hand at computer arts using those small programmes. Lapang is also not aware of any school in Nigeria where computer painting is taught as part of the curriculum. He is of the opinion that,

> a computer painting is one generated with the computer which also make use of an input device such as a tablet, not an Ipad or an android device as such, even though they are also used to some extent, but specialized professional tablets have been developed for artists to paint with digital media. Personally I use the Wacom brand, a 6x4 inches tablet attached to my laptop via USB.

He learnt this from online tutorials which he has been practising for ten years. He is also not aware of painters who are painting with the computer in Nigeria even though the practise is evolving in the developed countries, with links to motion pictures and realistic renditions of forms.

Lapang's computer paintings are an extension of his conventional personality. His brushstrokes are mimicked on the computer paintings, so also his drawing style, colour choice and usage. He works consciously with the principles of art as the medium is a mere extension of the conventional. For Lapang, the amount of time it takes to create a computer painting is almost what he takes in rendering his conventional paintings. He has also not exhibited any except on social media where he shares.

On similarities, he is of the opinion that both conventional and computer painting alike. This is because the computer paintings are rooted in the conventional painting approach. They differ in textural quality, and "overabundance`" of tools and media, that can be overwhelming, for the artist to master each. The advantage of the computer painting is its flexibility. "You can increase saturation of only a specific area of the canvas in isolation without affecting the whole work, thereby, producing variants very quickly or even resize". The ability to undo any action is yet another advantage that is peculiar only to the computer painting.

The messy environment of the conventional painting may be a disadvantage as the computer's environment is virtual or electronic. An advantage of the conventional is its value, originality and durability, which may not be the case with the computer

paintings. Lapang is divided as to preference, as he would love to continue exploring with both media.

Tijani Iyabo Khadijah

Tijani Iyabo Khadijah was born in Kaduna and hails from Kwara State. In addition, she holds a British citizenship. She studied graphics at the Ahmadu Bello University Zaria, and earned a B.A in 1985, Master of Arts. (M.A) Art Education in 1993 and crowned it with a Doctorate degree (PhD) in Art Education in 2007, all at the Ahmadu Bello University, Zaria. She has taught art at the Kaduna Polytechnic, between 1991 and 1994, Yaba College of Technology, Lagos between 1996 and 2012, and presently, a Senior Lecturer at the Department of Fine Arts, Ahmadu Bello University, Zaria.

Tijanni does not know how this form of painting medium made inroads into Nigeria, and she also thinks no school in Nigeria teaches this medium of painting. However, she uses a cut and paste technique to create her computer paintings. She achieves this by using the elements and principles of art through a repetitive approach and mixing of colours. She defines a computer generated painting as one which is generated with the computer.

This artist's first contact with the computer was in 1990 in the United Kingdom. The second experience with the computer was as a staff at Yaba Collage of Technology, Lagos, where she was sent to learn it in a special course. In addition, she benefitted from her husband's duties as an accountant who frequently used the computer for auditing, therefore bringing to her experience and exposure to software like lotus. This helped to build her computer experience as she also assisted him in auditing of accounts. As a result, she started creating paintings with the computer since 1996. She is

also aware of other artists using the computer in the area of advertising, Photoshop, photographic enhancement, basic designs and illustrations, which are sometimes printed out on paper, canvas and flex.

Tijani's paintings with the computer are mostly influenced by the use of basic shapes and cutting and pasting. She also borrows elements from graphics and basic design. Her basic software is the CorelDraw while hardware tools include laptop, desktop and ipad. Her experience as a Basic Design Lecturer at the Yaba College made her obedient to the principles of design which she consciously applied into her works in manipulating shapes, colours and other elements. Her works are created within minutes or months. She has also exhibited her computer paintings in a formal art exhibition.

On the similarity between both media, Tijani insists that they do the same thing. Basically, they use colours or paints to create forms, but they also differ. Computer generated-paintings are dry painted, while conventional paintings are wet painted as in the mixture of paint in the studio.

The artist does not see many disadvantages with the computer-generated paintings, because it is relevant in the contemporary age. However, she fears that there may be changes in resolution quality during printing. On the other hand, she finds advantages in the areas of cleanliness, and ease of use or creation. Furthermore, she thinks that the time it takes to wait for oil on canvas to dry or set before laying colours, is a disadvantage on the conventional media painting. Tijani is of the opinion that the cost of production of either is relative. While she has sold a good number of her computer-generated paintings, she would prefer both the computer and the conventional ones.

Felix Mauyon Adukuno

Felix Mauyon Adukonu was born in 1977 at Badagry, Lagos. He is in his final year of Art History Programme at Ahmadu Bello University, Zaria. He also holds a National Certificate of Education (NCE) of the Federal Collage of Education (Special) Oyo, Oyo state, Nigeria. Felix practices commercial art in his studio which he established in 2009.

He defines a computer-generated painting as one in which a technological device is used to apply effects, just like in the case of the conventional idea. Although he does not know how it started in Nigeria, his first contact with the computer through a National Directorate of Employment (NDE) Programme laid the foundation for later self-discovery of software to paint with, like CorelDraw, Photoshop and Picasa. The NDE programme attached him to the Femonic Computer Institute where he got a certificate in desktop publishing in 2007.

Felix's approach is both digital and computer. In this case, he uses the digital camera to capture interesting images which when downloaded into the computer are manipulated with tools in the computer to achieve desired effects. On the other hand, he uses the computer to solely start and end a painting. He sees the difference between digital and computer-generated paintings as the use of camera for the digital and the use of computer for computer-generated ones. However, the computer remains central, as a thin line divides both.

Felix has explored this medium in painting for about a year now. According to him, although he learnt to use the computer since 2007, he only started using it to paint in 2013, and he is not aware of other artists who are painting with the computer. His paintings which are created with Photoshop and sometimes highly abstracted are printed out on flex, improvised canvas or paper.

The use of elements of arts and the principles are the same as applicable to the traditional paintings. These include colours, forms, lines shapes, balance, and proportion among others. Elements like lines, colours and others are already part of the computer programme which he simply picks and uses to finish a painting within a short or extended duration.

On similarities between the computer and conventional paintings, Felix is of the opinion that the use of elements and the application of the principles are their basic similarities, while the short time it takes to render a computer-generated painting is the difference between the computer-generated and the conventional paintings. Again, the solid materials used in conventional painting as against the electronic and virtual nature of the computer is yet another area of difference.

The advantages of the computer-generated painting are not farfetched. Felix opined that speed, precision, enhancement; time saving and the capacity for mass production are the advantages. For the fact that it can be duplicated, makes it to lose value which is a major disadvantage.

The conventional medium, on the other hand, presents its advantages too. The use of extraneous objects and the fact that it cannot be easily copied is the value of the conventional painting. However, the time consuming nature of the traditional, is its disadvantage. Economically, Felix thinks that the cost of producing the computer-generated paintings is greater while it costs less to render a conventional painting.

In conclusion, Felix finds it easier to paint with the computer than with conventional tools, and as such would prefer the computer-generated painting medium.

Victor Ekpuk

Victor Ekpuk hails from Akwa Ibom State, Nigeria. He graduated from Obafemi Awolowo University Ile Ife, in 1989. He is self-employed and worked in Lagos for some years before relocating to the United States where he lives in Washington DC. He has continued to work in his studio exploring "nsibidi", ancient African writing and graphic system. Ekpuk does not know the origin of this medium in Nigeria, and would not know if any art school teaches it now since he has left the country.

He uses the wacom tablet which is easily recognized by Adobe Photoshop. He then creates a blank canvas and uses the available tools like brush, pen and colour which are within the applications to draw and paint. Sometimes, he uses a scanner to scan a photo into the art making software and thereafter, continues to manipulate to a desired result. Ekpuk learnt to use this medium by "developing a curiosity for the possibilities using technology as a tool for making art". He also bought and read relevant books on software and hardware applications, with lots of experimentation. This has led him to paint with the computer for about ten years now. He also uses the computer to make sketches for his conventional paintings, generate collages and other exotic ideas. These are printed on canvas, paper and also transferred to walls. They could also be viewed on the monitor or screen. Some of them have been exhibited but not in Nigeria.

Economically, Ekpuk is of the opinion that the conventional paintings are still cheaper to produce, because the tools for realizing digital or computer art are expensive especially from high end computer to a good quality inkjet printer. He also added that smart phones could also be expensive for some people. He has sold computer paintings through his gallery, and would not dismiss either the conventional or computer paintings.

David Osagie

David Osagie was born in Kaduna, Nigeria. He hails from Edo State and works as a freelance artist in his private studio. He studied at Ambrose Ali University, Ekpoma, Edo State and graduated with a B.Sc in 2009. David could only guess that this painting type started in Nigeria "towards the new millennium, though not too well practiced until very recently". He is only aware that "a couple of new age institutions and privately owned setups teach this form of art" but not in any of the formal established schools. David sees computer paintings as being the same as digital paintings, though nothing is automatically generated, and that true digital or computer paintings are the product of talent and skillful use of appropriate software.

David uses the computer to paint by moving around, the virtual brushes, paints and the mouse or a stylus on a tablet, which is almost like the conventional paintings except that the computer presents an electronic environment. He learnt computer painting through personal practice, which he began in 2009.

David is aware of other artists like James Abinibi, Niyi Okeowo and Daniel Emeka who are also painting with the computer, with "the final output printed out on canvas, wall, paper, mugs, shoes, bags, fabrics or any desired surface"

David describes his painting as "a fusion of contemporary lifestyle expressed within pure African scenery". He tries to reflect his conventional style in his computer painting which makes his works an extension of his conventional paintings with rigorous brush strokes and textures. He plays with "line, shape, form, space, texture, value and colour with which he achieves rhythm and balance to emphasize his works" to make it pleasurable to the viewer. David uses adobe Photoshop, Wacom tablet, and graphic improvised computer systems to generate his paintings. In creating the paintings, he would usually sketch and afterwards scan into the computer to create one.

A painting may span between 5 hours to 32 hours depending on the complexity of the project. David has not exhibited his computer paintings yet, but has quite a number in his portfolio.

David does not find much difference between computer paintings and the conventional ones. He stated that, “software provides you with all the tools, in and out of the box… so there are much more possibilities in developing computer images than conventional”. In further comparison, he sees the computer paintings as “being more futuristic as most traditional things are going digital”. Again, he reiterates that computer paintings “open the artists to a range of options almost impossible in conventional media and appealing to more recent market such as advertising than the conventional media. Furthermore, David articulates noticeable differences between the two media as follows; “computer paintings are rather printed on canvas or whatever media is required, but conventional paintings are more or less ‘locked’ within the media it is produced”. He added that, “digital art gives more options to the artists, but conventional is purely based on raw skill”, also, “conventional artists may be more skilled at their work, but digital artists may find shortcuts to creating their art”.

The computer painting medium as an advantage gives the opportunity to edit a stored painting without losing the original. The disadvantages are seen in the high cost needed in computer painting, its low appreciation or acceptance and its dependence upon the software skills. David would prefer computer paintings in spite of the disadvantage of high cost of production and the originality, respect, value and uniqueness that the conventional paintings have over the computer paintings. He also sees a positive future for the market as collectors are beginning to scout for originals.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Introduction

The main purpose of this study is to investigate the application of computer to the practice of painting by Nigerian painters in view of the seeming absence of computer paintings on the contemporary Nigerian art environment. The study led to an exposition of the paintings made by Nigerian artists and adds to the conventional paintings that art historians have studied. The investigation was realized through the following objectives:

i. record the historical development of the computer in Nigeria,

ii. investigate the dimensions of computer application, by Nigerian artists in painting.

iii. Describe, analyse and interpret the computer-generated paintings and also identify and state a brief biography of the artists.

iv. compare computer-generated paintings to some conventional paintings produced in Nigeria.

v. state the advantages and disadvantages of computer painting medium.

The population of the study comprised of one hundred and thirty nine (139) purposively sampled respondents to questionnaires, fourteen interviewees and a total of forty two (42) computer paintings and four conventional paintings. The methodology relied on art history research paradigm which is essentially qualitative through, survey, descriptive and comparative analysis. In addition, quantitative values in the objectives allowed the use of statistical analysis of the questionnaires reporting results in simple percentages. Instruments used, to collect data from the field trip for this research is

questionnaires, interview schedules, direct observation, photography and the internet. Secondary sources of data were books and exhibition catalogues. The sampling method used was the purposive/judgmental. Data gathered through the questionnaires were analysed using the Statistical Package for the Social Sciences (SPSS), a computer programme used for statistical analysis of quantitative data. Interviews and paintings were qualitatively analysed. The researcher established that computer paintings had low acceptance by Nigerian painters, although there were few artists who had been practising with the computer to create paintings.

The main thrust of the study was to investigate the application of the computer to painting in Nigeria, in view of the perceived apathy by Nigeria painters in using the computer to paint. Specifically, the study answered questions on the historical development of the computer in Nigeria, the dimensions of computer application by Nigerian painters, the possibility of finding computer paintings in Nigeria and analyzing them, a comparative analysis of computer and conventional paintings and the exposition of the computer painting in Nigeria through exhibition.

Findings

The main purpose of this study was to investigate the application of computer to practice of painting by Nigerian painters in view of the seeming absence of computer paintings on the contemporary Nigerian art environment. Major findings are presented as follows;

Historical developments of computer painting in Nigeria

Majority, (85.6 percent) of the respondents, through the questionnaire were aware of computer paintings and (54.0 percent) of respondents, learnt of it through television,

radio, school and other media. This finding partly satisfies objective one (1), and research question one (1) which sought the history of computer painting in Nigeria. In the same vein, the study found that the computer presence in Nigeria's academic milieu is traceable to 1963 at the University of Ibadan and 1973 when the Iya Abubakar computer centre was detached from the department of Mathematics, Ahmadu Bello University Zaria. Consequently, it was introduced into the Department of Industrial Design (ABU, Zaria) in 1995. Prior to its introduction to the Industrial Design department, Ahmadu Bello University Zaria, its application was mostly mathematical or scientific and not in art.

Although Professor Rom Kalilu had stated that he developed the first module of computer art in Nigeria in 1992, however, his refusal to provide the copy of the document limits this study's finding in stating when computer application to art started in Nigeria. At the University of Benin also, Dr. John Ogene orally states that the computer component has been in the fine and applied arts department. Other artists who stated when they started painting with the computer are; Ibe Ananaba in 1997, Ifeanyichukwu Nwachukwu in 2009, Victor Ehikhamemor, 2006, Dr. Iyabo Tijjanni, 1996, Victor Ekpuk, 2004. With the above earliest years of computer application to painting, it could be tentatively established that computer painting in Nigeria dates back to the early 1990's after the efforts of the Ibrahim Babangida regime to include the computer in the Nigeria's educational system.

Dimensions of computer Application

An important finding of this study is the dimensions of computer application to painting in Nigeria by painters. One of the dimensions is the use of photography where images taken with a digital camera are manipulated, distorted, enhanced to create paintings, like the works of Felix Adakuno, and Ben Atanu. Yet another dimension is

the use of the computer and appropriate software like Corel draw, painter x, Photoshop, to create painterly illustrations as seen in 'inter house sports' day by Nwachukwu Ifeanyichukwu. The use of Photoshop in creating most of the paintings provides yet another dimension in the use of software.

Analysis of paintings

The study further found that few Nigerian painters have created paintings with the computer. These paintings were equally analyzable using the formal analysis. This is because the same principles that guide the creation of the conventional paintings are also employed in creating the computer paintings. Similarly, the elements of art are not different, in both painting types. Importantly, the analysis found that the paintings address a number of genres and themes. This made the classification under genres like portraits, figure, painting, abstraction, symbolism, enhanced images, landscape, still life, conventional and computer interface possible. Themes found in the analysis are political, social, cultural, economic, and religious. For example Victor Ekpuk's symbolic "Wailing Woman" is political, while Dr. John Ogene's "For God so loved the world" is religious. David Osagie's paintings address social-economic issues in the Nigerian society while Ibe Ananaba expresses draftsmanship in his rendition of both paintings and drawings.

Comparative Analysis of Conventional and Computer Painting

The study further established that both painting types have similarities, differences, advantages and disadvantages. Similarities are in the use of elements and principles of art, two dimensionality and thematic exploration. Advantages are seen in the speed of creation of computer paintings as a painting could be rendered between minutes to months. A conventional painting could take a longer time to create. It enjoys

originality and durability among other advantages which is why more people exhibit preference for the conventional type. Another advantage of the computer type is the abundance of materials in the software like colours, and tools. This advantage is also a disadvantage, as it may take a long time to understand them even as the issue of electricity poses a major challenge in painting with the computer.

The underlying difference between the two is that, computer paintings are virtual, while the conventional paintings are tangible. The virtual condition of the computer painting configures it to electronic and makes it dependent on specified memory or configuration in terms of size of Random Access Memory (RAM) and size of hard disk. In the light of the above, the computer paintings are dependent on electricity (which is a challenge in Nigeria) to be created and viewed. This electronic feature is in tandem with Sayre's (2005) analysis of David Hockney's landscape where the palettes are electronic. Similarly, the virtual background of computer paintings as observed is supported by Friedberg (2006) theoretical polemics that assert the metaphor of the window to the "computer as a frame that encloses painting"; Windows™ itself being the software trademarked by Microsoft through which these computer paintings have been created.

Exhibition Possibility

The paintings having been analysed as sharing the same aesthetic qualities, with the conventional ones except in tactile traits have been found to be exhibitable like the conventional paintings.

In addition, the virtual condition of the paintings makes it possible for a virtual exhibition as well. This possibility of a virtual exhibition creates room for wider and faster viewership, appreciation, and acquisition, therefore, leading to a faster

transmission of cultural, political, social and governmental policies, to distant nations and within Nigeria.

Conclusion

The researcher concluded in this investigation that computer paintings in Nigeria which started in the early 1990s have a low acceptance by many artists and art purists. This is supported by results revealed by respondents' preferences and comments in appendix 1. Consequently, it has not been entrenched into the Nigerian painting education, as an aspect that needs academic exploration, rather all those who learnt it, did out of sheer interest by fiddling with the computer, taking online lessons and accidental discoveries. Based on the foregoing, the wider implications of the study have been identified to be an additional medium to already existing painting media. The computer painting presents speed, innovation and ease for the computer painter, therefore, capable of enhancing contemporary Nigerian painting or reducing the creativity of the painter as shown in Table 4.11 and 4.12. Notwithstanding the fear that it would lead to a reduction, in the artist's creativity and low patronage was expressed by majority of respondents. This fear and position was allayed and debunked by the interviewees as they have to be grounded in the conventional media first, before excelling in the computer medium. This is true, especially as revealed in the analysis of paintings. It could be observed that, the individual personalities of the artists are uniquely reflected in the paintings; therefore, the computer paintings are only an extension of their individual mannerisms and style.

In the light of the foregoing, the researcher has made the following original contributions to knowledge:

Historical documentation: the discovery of some Nigerian computer paintings and the artists is one contribution. The goal of art history is to study societal artistic trends and

ultimately document them. This is important, because through documented artifacts, history is reechoed and reconstructed and the cultures, politics and general events in a particular period are better understood. This research has attempted to situate the computer painting in Nigeria to a period within Nigerian contemporary art, and adds to the many conventional arts studied by art historians. It has as well, given computer paintings and the artists a voice in Nigeria by broaching this investigation and documenting it.

Professional contribution: This research exposes the Nigerian conventional painter to the use of technology. One advantage of the computer, found during the interview is printability. This can lead the professional Nigerian painter to consider print production of original paintings rather than selling an entire painting that is painstakingly created. This helps the artist to gain more economically.

Curriculum enhancement: Inclusion of this medium of painting into the many approaches to painting by Nigerian art educators will contribute in enhancing the present curriculum which may not have a space for computer painting in Nigeria, as revealed in the investigation.

Literature level: The review of literature for this study was challenged by a paucity of literature from Nigeria on the subject of computer painting. This research has attempted to close that void of dearth in literature as the medium may not have caught the fancy of Nigerian art historians especially as observed within the reviewed literature.

Recommendations

The statistical analysis and interview with 13 artists revealed the low acceptance of the computer as a painting alternative. The interviewees also could not provide evidence of computer painting being taught in any Nigerian higher institution. The

analysis also revealed that some artists would accommodate it as an innovative, easy and fast approach while working with the traditional tools, while some would not state which painting type they would prefer, it exposes their indecision which may be a reason to develop this medium by Nigerian artists and art institutions. In that vein, it is suggested that the computer painting component be included in the Painting curriculum

Art historians can also extend this study by studying new trends in computer painting.

Notes

1. Edwards, Paul, ed. "Mimesis," *The Encyclopedia of Philosophy* , *vol. 5&6* . (New York: Macmillian, 1967) 335. Plato criticizes art as the practice of mimesis, the representation of an imitation, as something that should remain avoided within his ideal society, or Republic.
2. www.sparknotes.com/biography/picasso/section1.html

   "Pablo Ruiz Picasso was born on October 25, 1881, in Málaga, on the southern Spanish coast. He was christened Ruiz after his father, and Picasso after his mother, in the traditional Spanish way. His background was modest; his father, José Ruiz Blasco, supported his family by teaching drawing at the local art school.Picasso was introduced to art by his father, who loved to paint the pigeons that flocked in the plaza outside the family home. Sometimes Picasso's father asked his young son to finish his paintings for him; the precocious boy was more than able to do so. By the time he was 13, his budding talent already overshadowed his father's".
3. Jacquard's approach captured the early attempt to apply computer to textile design.
4. The Windows software is an interface through which softwares are accessed in the computer for interfacing with the computer and creating paintings too.
5. Alan Mathison Turing. (2014). According to The Biography.com website. Retrieved 12:53, Sep 12, 2014, from http://www.biography.com/people/alan-turing-9512017. In 1936, Turing delivered a paper, "On Computable Numbers, with an Application to the Entscheidungsproblem," in which he presented the notion of a universal machine (later called the "Universal Turing Machine," and

then the "Turing machine") capable of computing anything that is computable: The central concept of the modern computer was based on Turing's paper.

6. http://query.nytimes.com/gst/fullpage.html? According to Leonhardt, David (2000). "John Tukey, 85, Statistician; Coined the Word 'Software'". New York Times. Retrieved 12 September 2014.
7. Hilaron Faison was a Master of Fine Arts student in Painting and graduated in 2007.
8. http://www.ISFDB.org: Herbert W. Franke - Summary Bibliography

   "Herbert W. Franke (born 14 May 1927 in Vienna) was an Austrian scientist and writer. He is considered one of the most important science fiction authors in the German language. He is also active in the fields of future research, speleology as well as computer graphics and digital art"
9. http://www.atariarchives.org. According to Laposky (1975?) "My work in computer art is a form of oscillography, the results of which I have called 'Oscillons' or 'Electronic Abstractions.' These are composed of combinations of basic electronic wave forms as displayed on a cathode ray oscilloscope and photographed. Color compositions are achieved by means of special filter arrangements. The resulting art works are presented in photographic exhibitions, kinetic oscilloscope displays, light boxes, or movies".
10. http://noll.uscannenberg.org. **"A. Michael Noll** (born 1939, Newark, New Jersey) an American engineer, and professor emeritus at the Annenberg School for Communication at the University of Southern California. He was a very early pioneer in digital computer art and 3D animation and tactile communication".

11. Faculty of Science, Univrsity of Ibadan (accessed 9/12/2014) History of Computer Science Department. http://sci.ui.edu.ng/compscihistory.
12. School of Postgraduate Studies (2011) Postgraduate Student's Handbook (2011-2013), Ahmadu Bello University Press Limited. Zaria. he elementary school programme includes aspects of computer painting that exposes children to the medium.
13. https://www.bced.gov.bc.ca/irp/pdfs/arts_education/2010visualartsk7.pdf Visual Arts Kindergarten to Grade 7 Curriculum-2010 retieved on 14 September, 2014. According to the Ministry of Education, Province of British Columbia (2010). Skills and Strategies In this curriculum organizer, students learn about the visual conventions that form the "building blocks" of visual images. These include • image-development strategies (including elaboration, repetition, simplification, abstraction, multiplication, superimposition, fragmentation, animation, serialization, stylization, rotation, reversal, point of view, magnification, minification, juxtaposition, metamorphosis, distortion, and exaggeration) • visual elements (including colour, line, shape, texture, form, value, tone, and space) • principles of design (including pattern, symmetrical balance, radial balance, asymmetrical balance, contrast, emphasis, movement, rhythm, and unity) • materials (e.g., paint, chalk, charcoal, markers, paper, clay, glue, fabric, film), technologies (e.g., paintbrush, kiln, loom, camera, **computer**), and processes (e.g., painting, drawing, sculpting, weaving, photography, collage, assemblage, printmaking).
14. www.ucl.ac. uk/slade/scemfa/about "The Slade Centre for Electronic Media in Fine Art (SCEMFA) opened in 1995 and brings together artists and researchers based at the Slade each interrogating the material of the digital from a range of

perspectives. It provides an opportunity to focus on research into Electronic Media and Fine Art, and since its earliest days has contributed to debate on a national and international level".

15. The snowball effect is one where a question is used to get more information. Question 6 in the questionnaire did that. Similarly the artists discovered, were also used to get to other artists.

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APPENDIX I: Transcribed Interviews

Dr. Iyabo Khadijah Tijanni

- **Please what is your name?**
  Dr. Iyabo Tijanni
- **Where were you born?**
  Born in Kaduna
- **Where do you work?**
  I Taught at Kaduna polytechnic and Yaba Collage of Technology, Lagos, and currently at ABU Zaria as a Senior Lecturer.
- **Do you know how this kind of painting started in Nigeria?**
  No
- **Is there any Art Institution teaching this Art form in Nigeria?**
  No
- **What is a computer-generated painting?**
- **How do you use the computer to paint?**
  By cut and paste of elements and repetition mixing of colours
- **How did you learn to paint with the computer?**
  My first contact was in 1990 in the UK my second experience was at Yaba Tech where I learnt it again, because my husband is an accountant and as such, the use of auditing software or linkages like lotus became handy. This helped to build my experience as I had to assist him on his job.
- **For how long have you been counting painting with the computer?**
  Since 1996.
- **Are there other painters using the computer to paint?**
  Yes. In the area of graphics or illustration, basic designs, a photographic enhancement using Photoshop.
- ***How is the final output like?***
  On canvas (printed) and paper.
- ***How would you describe your computer generated paintings?***
  They are mostly influenced by basic shapes and cut and paste. I also borrow element from graphics and basic design.
- ***What element of art do you use?***

Basic shapes colour that I mixed so as to avoid sharp or loud colours.

- **What special tools do you use?**

  CorelDraw is my basic software. In hardware or gadgets, I use desktop, laptop, ipad.

- **Do you apply the principles of design?**

  Definitely I taught Basic Design at Yaba Tech for about seven (7) years so it would be almost impossible not to see it in my work.

- **How much time do you take to create one?**

  It could take one minute to months.

- **Have you exhibited them in the past?**

  Yes

- **What are the similarities between Computer Generated Paintings and Traditional Paintings?**

  They do the same thing like the use of paint to create forms.

- **What are the differences?**

  Computer generated paintings are dry painted, while traditional painting are wet as in the mixture of colour in the studio, unlike the computer where the brain transmit to the computer

- **What are the advantages and disadvantages?**

  I do not see disadvantages on it, is relevant in the present time or age. The advantages are numerous but importantly, the cleanliness of work creation is one of the advantages. Disadvantage again is in final print quality, as there may be charges in resolution {this may be due to the light in the system used around here in the 3rd world as out there in the UK, there are actually, specially built system used for painting.

- **What are the advantage and disadvantage of traditional painting?**

  The time it takes to wait for example oil on canvas to dry before laying colour is a disadvantage. The advantage is in its value.

- **How would you compare the cost of production of each?**

  It is relative

- **In your opinion which would you prefer?**

  Both

- **Have you sold before?**

- **How do you sell them?**

Yes, I have sold a good number printed on canvas

Felix Adukuno

Please what is your name?

There you. My name is Felix Mauyon Adukonu

When where you born?

I was born in 1977 at Badagry, Lagos

Where do you work?

I work at Omni onyx Studio, Oyo.

When did you establish it?

2009.

What is your qualification?

I have N.C.E (fine and applied art) federal collage of education (special) Oyo and B.A fine arts in view.

Do you know how that kind of painting started in Nigeria?

Actually I do not know how it started, but I practiced with the computer and stumbled over it.

Is there any art school teaching this in Nigeria?

I have not heard of any art school teaching this art form in Nigeria, because it is a new discovery and it has not been in our curriculum in Nigeria.

What is a computer generated painting?

Actually, looking at it is a means of using a technological device to apply effects just as the manual idea is all about. Is not anything apart from what we do with our hand but it involves the use of technological devices.

So how do you use the computer to paint?

Well, there are various ideas I explore in using my camera (phone) to get pictures; I can use a digital camera, to get an image of anything I want to work on. Apart of that I also use a drawing tool on the computer itself to bring out what I want. By using of digital devices, I used any phone camera to capture the image of water spilled by my younger sister. I transferred the image to my computer and developed it. It shows the vast application of computer application.

What kind of software's do you use?

For now there is Photoshop, I also use picassa to edit digital images in summary, I edit with picassa then transfer to Photoshop then to Corel package to finish.

What is difference between digital and computer generated painting?

The computer generated one does not involve the use of maybe an already existing object/image but the use of digital, there is an already existing object or natural or man-made where the camera is used to capture for manipulations.

How did you learnt to apply the computer to painting?

I learnt it by self-taught.

So how did you come in contact with the computer?

I learnt it at a computer school through the national directorate of employment (NDE) where I got a certificate and had my first contact in 2007. The certificate was on desktop publishing, which was awarded by Femonic computer Institute at Badagry, Lagos.

How long have you been painting with the Computer?

It has been for over a year now, because I got into it last year.

Are there other painters you know painting with the computer?

I do not know of any.

What is the final output like?

It is on flex, canvas and laminated canvas.

How would you describe your paintings?

They are more of abstractions that are thought provoking.

What elements of art do you use?

I use colours, forms, shapes and a variety of others.

What special tools do you use to create them?

I use computer, digital camera, phone, and printer.

Do you use the principle of art?

I think they are already programmed into the computer, is a matter of going there and picking them for use.

So how long does it take you to finish one?

It depends on how you want the painting to be. There are some I started in 2011; I still worked on them in 2012 and 2013 before printing.

What are the similarities between computer generated and traditional painting?

The elements, the principles are the similarities

What are the differences?

The duration of making a computer generated painting is shorter. This is because the computer painter has all his materials with him unlike the traditional painter who may be forced to go out and look for materials, and may be hampered in some cases.

Again, the medium seems to be the only difference.

What are the advantages of computer generated painting?

It saves time, has precision, more enhanced, and can be mass produced. And generally speed in production and finishing like printing.

What are the disadvantages of computer generated painting?

It takes one's mind, and can be duplicated if not carefully protected thereby making it losing value.

What are the advantages of traditional painting?

Material use leads to durability. Tactile quality of extraneous objects can be achieved. Furthermore, it cannot be easily copied leading to more value.

What are the disadvantages of the traditional painting?

It takes more time to produce.

How would you compare the cost of production?

It costs more to produce the computer generated paintings due to printing cost.

Which would you prefer?

I would prefer the computer for speed and innovation but the traditional for its value.

Which do you find easier?

I find the computer an easier medium to paint with than the traditional

Ben Atanu

Where were you born?

I was born on 5th of May 1955 at Idah, Kogi State.

Which institution did you attend?

I went to Benue Polytechnic Ugbokolo when it was MUCAST, did my ND and HND. I proceeded to LAUTECH where I am studying for an Mtech in Graphic Design or communication design.

When did you graduate from Benpoly?

1982

What is a computer-generated painting?

A computer regenerated painting is a form of painting generate electronically through a computer device.

How do you use computer to paint?

I use it using various application softwares.

- **How did you learn to apply the computer to paint?**

Through various experiments, class teaching, self-taught process.

For how long have you been painting with the computer?

3 years

Are there others painting with the computer?

Yes, Prof Kalilu, few undergraduates' students who are good and one of my students who is on industrial attachment at Ajaokuta steel company.

How would you describe your painting?

Well I cannot say it is totally successful as it is still evolving.

What elements of Art do you use?

I use all applicable elements in the normal painting.

How do you sell them?

It is electronic, so it is not usually sold, but for self-fulfillment for now.

How do you make them available for clients?

Through exhibition and direct contact mostly, direct contact, because as far as the painting of that process is concerned the normal traditional painting still overshadows it.

What special tools

We have Adobe tools, we have CorelDraw, those are the major software we have and then Photoshop and the rest of them.

Do you apply the principles of art?

Yes, I do, like I said I am still experimenting, so whatever principle are those learnt from the traditional paintings.

What are the similarities?

You have more liberty of expressing with the traditional painting than the electronic

Differences

The difference is that;

1, you have more liberty of expression in the traditional.

2. The electronic has limitations but has more liberty of colour.

Any peculiar advantage of any

The traditional paintings have more advantage than the electronic.

Disadvantage

There is the disadvantage of power or electricity.

Cost of production of each

It's cheaper using the canvas, apart from the cost of pigment, the computer is actually not 'paid' for but you pay for reproduction using printer which may not be cheap.

Should it be encouraged?

Yes, things are changing. First, as computer is taking over various aspect of art now a time will come when the use of computer may be more advantageous. Like in graphics and textile where the drawing boards and drawing tables are going extinct and that is likely going to affect painting.

In your opinion which would you prefer?

Since it's a new system I cannot prefer this or that. Both of them will have to work together.

Ifeanyichukwu Nwachukwu

Please what is your name?

I am Ifeanyichukwu Nwchukwu

Where do you work?

I am self-employed and a student

What is your academic qualification?

I have an ordinary national diploma and currently rounding up my higher national diploma.

Which institution did you attend?

Yaba College of Technology, Lagos, Nigeria

What course did you study?

Graphics and painting.

What is a computer generated painting?

It is any painting produced with a computer software.

How do you use the computer to paint?

By using CorelDraw and Photoshop to create images.

How did you learn to apply the computer to painting?

I learnt it through comics and animation by self-experiment.

For how long have you been painting with the computer?

I have been painting with the computer for about five (5) years.

Are there other painters using the computer to paint?

Yes, I know of few artists like Shedrach Ayahlome, Maya Abiola AdeJare who create paintings using the computer.

What kind of art do they create with the computer?

They do character designs in three dimensions (3d). This involves the use of brush and vector approaches. Alex Oliver does sculptures with computer. Other kinds of art which they do with the computer are; interior decorations, animations, filming and aspects of architectural designs.

How would you describe your computer- generated paintings?

Some of my computer-generated paintings are a fusion of the conventional and digital media. This is borne out of the boredom of using only the conventional

What elements of art do you use?

Textures, colours, lines and others as applied in the conventional.

How do you sell them?

Publishing and advertising agencies create patronage through their usage.

Do you apply the principles of art?

Principles of art are definitely applied.

How do you make them available to your clients?

Through prints, email, storage devices like compact disks (CD), flash drives.

What special tools do you use to create paintings?

I use Photoshop, painter X, and Z brush for textures.

For hardwares, I use the wacom tablet or synthic. Wacom table is connected to the monitor while I draw and paint. The synthic is independent and serves as a drawing surface. Another wacom is connected to the hand paper and drawn with.

Another hardware I use is the laptop and mouse. They are basically used in a more meticulous and rigid way. In the end, these software and hardware produces two kinds of paintings which are vector based paintings and are identified by tonal

gradation while the brush based ones are smooth with distinctive gradations but with a blend.

What are the similarities between computer-generated paintings and conventional paintings?

Colour and composition

What are the differences between computer-generated painting and conventional paintings?

Electronic

What are the advantages of computer-generated painting?

They are easier to create, links you to other aspect of the market like print media, motion and advertisement.

What are the disadvantages of computer painting?

Trendy, needs to be preserved as they may not be durable.

How do you compare the cost of production of each?

Canvas is cheaper than computer. The cost of procuring a laptop, tablet, softwares, printer and the cost of printing itself, for example on a canvas is expensive.

In your opinion which would you prefer?

It is difficult as both are very relevant.

TOSIN OKUSI

Please what is your name?

Tosin Okusi

Where do you work?

I am a final year students

Are you self-employed?

Yes

What is your academic qualification?

Ordinary National Diploma and HND in view.

What course did you study?

Graphic Design andPainting.

Which institution did you attend?

Yaba Collage of Technology, Lagos

What is a computer generated painting?

Any painting done with the computer with the in-built tools, and materials like brushes and colours.

How do you use the computer to paint?

I use software like Photoshop and adobe illustrator.

How did you learn to apply computer to painting?

I learnt it through my brother who is a graphic artist, friends and personal experience.

For how long have you been painting with the computer?

I have been practicing for five years.

Are there other painters using the computer to paint?

Yes

How would you describe your computer generated paintings?

They are mostly graphically inclined with a combination of texts.

What elements of art do you use?

I use lines, colours, shapes and textures.

How do you sell them?

I sold a computer-generated painting through customized shirts.

How do you make them available to your clients?

Through comic illustration web publishing, textiles cover designs, story boards (movie illustration and cartooning)

What special tools do you use to create them?

I use Adobe Photoshop, adobe illustrator and after effects, they are installed in the computer.

Do you apply the principle of art in your painting?

Yes

What are the similarities between computer-generated paintings and conventional paintings?

Both are colourful expressions. They also use the same elements and principles.

What are the differences between computer-generated paintings and conventional paintings?

Computer-generated paintings are easier without much stress and because it is digital, it will be seen by more people unlike the conventional.

What are the advantages of computer-generated paintings?

Coverage; they can be accessed by many people anywhere and time in the world and can be acquired on the web.

What are the disadvantages of computer generated paintings?

It is a threat to traditional paintings because they are easier to make. They might reduce the exhibition of conventional paintings

What are the advantages of conventional paintings?

More durable, they are more respected.

How do you compare the cost of production of each?

It's cheaper with computer-generated paintings, because once you have acquired your computer, printer and other gadgets, you only keep producing, unlike conventional paintings where you must buy materials most of the time.

Edward Lapang

Please, what is your name, date of birth, place of birth?

My name is Edward Lapang, i was born in Plateau state, Nigeria.

Where do you work?

I'm currently self-employed.

What is your academic qualification?

BFA in Painting

What course did youstudy?

Fine Arts, with a specialization in painting.

Which institution did you attend?

Ahmadu Bello University, Zaria.

When did you graduate?

2005.

Do you know how this kind of painting started in Nigeria?

Not really, probably with the advent of computers, as small art programs, like ms paint, are bundled with computers by default, so naturally people try their hands at computer arts using those small programs

Is there any art school teaching this art form in Nigeria?

May be in a few isolated cases, but not in a full blown manner. None that I know of anyway.

What is a computer-generated painting? Is it the same as a digital painting?

I think the distinction there is that the first is a painting generated by a computer program from an existing source example, a photograph, while the latter is one made by a human being, by hand, much like a traditional painting, on a computer.

How do you use the computer to paint?

*Typically by using a mouse or an input device such as a tablet, not an iPad or an android device as such, even though they are also used to some extent, but specialized, professional tablets used developed for artists to paint with digital media. Personally I use the wacom brand, a 6*4 inch tablet attached to my laptop via USB, as this provides me with a very close feeling of the real thing.*

How did you learn to apply the computer to painting?

Mostly from online tutorials, these days there are plenty to choose from, with artists of different disciplines teaching varied techniques.

For how long have you been painting with the computer?

Nearly ten years now, I've been experimenting with computer arts a little before I leant traditional art.

Are there other painters using the computer to paint?

In Nigeria, not many, and not professionally. Abroad though, it continues to evolve immeasurably, and its applications continue to widen.

What kind of paintings or art do they create with the computer?

All kinds of art, from realistic to the expressionistic to the surrealistic, just like with traditional art. It all depends on the purpose they adapt it to, in some cases the artists is developing proof of concepts for products, in some cases they are producing concept art for television or film, and in some cases just for personal enjoyment or artistic exploration.

- **How is the final output like? Is it on canvas, paper, wall, etc?**

Computer arts applications are designed for flexibility , in a lot of cases these applications come with preset surfaces or canvases that are designed to give the digital artist variety, in most cases to simulate the real thing, like; canvases, textured papers, scratch boards, panels, etc. With the flexibility of computer design, the art piece can be placed almost anywhere-a wall, on the floor, in the sky. The options are almost limitless.

- **How would you describe your computer-generated paintings?**

  Generally they reflect my more traditional pieces, they are just a bit more colourful, as per the flexibility afforded me by the medium.

- **What elements of art do you use?**

  Mostly pastels and conte crayons, though the palette knife options also give reasonable results. The pencils give very good results too, depending on how they are used.

- **What special tools do you use to create them (software/hardware)?**

  Corel painter 9 mostly, as it's designed with the traditional artist in mind, right now it gives the most natural results amongst most painting software and it comes with almost every imaginable type of art media available. There are also a large number of options for mobile devices, especially with the advent of touch screen tablets which allows the artist the ability to draw directly on the screen. Sketchbook pro and Artflow are among some if the most fluid asps available for mobile devices.

- **Do you apply the principles of art in your paintings?**

  Definitely, digital is just a transfer of traditional, so most of the rules apply.

- **How do you achieve the elements?**

  Some software are built with guides to help the artist out and simplify using the elements-there are perspective guides, guides that split the canvas into portions so you can easily work with the rule of thirds, and guides for the golden ratio. You can also check the number of colors you have used, various tints and shades of a selected color, etc. there are also told to help you draw straight or curved lines directly without using your free hand, as well as applying certain brush stroke attributes to curved or straight lines. Texture can be applied during or after the painting process, indeed this depends on the artist and the application being used, and in some cases can make or break the painting. Certain effects come pre-installed with certain texture effects: from takes to sand. Again thus depends entirely on your application. Indeed the options the digital artist has with the elements at plentiful.

- **How much time does it take to create one?**

  It all depends, personally I found it takes the same amount of time to create a traditional painting, there's just less time used in preparation as canvas creation is instant; you just select your canvas size, canvas color and pixel dimension,

and choose create, and you're good to go. As far as using wet media such as oil and watercolor, there's no waiting for the paint to dry, intact some software come with the option of merely pressing 'dry paint' and that's it, what would take days to set traditionally would set in an instant. With the addition of layers, you can isolate your sketch layer from your paint layer and even your wash layer, so the process is highly simplified and straightforward. Once one gets over the learning curve, the process of digital art creation is quite fast.

- **Have you exhibited them in the past?**
  Not really, just on social media such as Facebook.
- **Do you have images of paintings that are influenced by the computer?**
  Mostly as color guides, as per the flexibility digital art provides. I have used digital for initial studies, as samples to the client, before the actual painting is made.
- **Would you permit their usage for a historical analysis and documentation in this research?**
  Most definitely.
- **What are the similarities between computer-generated paintings and traditional paintings?**
  Well, first off, they look alike. I have seen paintings done digitally I myself still don't believe are digital; the results can be almost indistinguishable. Secondly, digital is firmly based, in most cases, on traditional precepts, so digital is just a copy of traditional. Indeed year by year, as I presumably mentioned earlier, art software releases boast of advances in the realism of painting media. Digital is always trying to catch up with, and enhance, the traditional methods.
- **What are the differences between computer-generated paintings and conventional traditional paintings?**
  There are a lot of differences between the two, but perhaps the most obvious is the lack of tactile texture in digital painting; you cannot 'feel' the surface of the canvas as you would with a traditional painting. There are digital impasto brushes that simulate the look of thick paint, but even when printed, look textured, but don't feel textured to the touch; the art piece is basically a printout. There are art services that boast they can give digital art an embossed look to emulate brush strokes of thick paint, but finally, it's still not the real thing. A minor issue I have with digital is, ironically, an almost over abundance of tools

and media, indeed sometimes it gets overwhelming to choose the variety of pastel I want to use; there are so many with so many brush variances it often gets confusing; most times you just want to pick a tool and make a quick doodle and in such cases the variety can be daunting. To master every aspect of a digital variant of a tool can be time consuming and confusing, and that's where the simplicity of digital shines.

- **What are the advantages and disadvantages of computer- generated paintings?**

  The main advantage of computer generated painting is its flexibility: you can increase saturation of only a specific area of the canvas in isolation without affecting the whole work, thereby producing variants very quickly or even resize you canvas at whim. The luxury of being able to paint every element in a painting on its own layer gives you the ability to experiment with different arrangements and compositions. Personally my favorite is the undo function, you can undo and redo entire brush strokes at the touch of a key, thereby affording you the flexibility of testing different verities of line or even colors with immediate feedback. The advantages are quite numerous.

  As far as disadvantages go, they are also numerous. First off, large canvases require a lot of computer memory, so an artist has to invest substantially in a good computer if he/she wants to work comfortably. Losing an entire canvas due to your computer running out of memory is not a fun experience; hours of work could go just like that, in the blink of an eye. Secondly, it goes without saying that one has to invest a lot of time learning new terminology to master these art applications. Due to the fact they're built by programmers and not artists, the learning curve can be steep, and most artists don't appreciate having to learn some mathematical lingo just to draw a simple line that thick in the middle and thin at the edges. We prefer to just sharpen our pencils and draw.

- **What are the disadvantages of traditional paintings?**

  The only issue I've had with traditional painting is its messy nature. Dealing with colors can be really messy affair depending on the kind of painting you are. Also for rapid proofing and flexibility, it can get quite limiting. Portability can also be an issue, as it's not convenient to carry your works about with you most times for presentations and all that.

- **What are the advantages of traditional paintings?**

Authenticity. An original will always be an original. Whatever digital comes up with, it will always be a derivative of the original. of course to go into detail about its full advantages will require more space than i have allocated here so i digress.

- **How do you compare the cost of production of each?**
  I noticed earlier that the cost of producing digital is somehow much cheaper than traditional painting. Once you secure hardware that's comfortable for you, all that limits you is your creative energy and time, and in our case, electricity. Traditional painting on the other hand demands you replenish your art supplies from time to time: canvases, oil tubes, mixing agents, etc. So looking at both, an investment in a capable computer that can last you several years can save you a lot of money on physical art supplies.
- **In your opinion, which would you prefer?**
  Honestly I prefer both, but due to the amount of time I've spent on learning digital arts and the flexibility it provides, digital is my favorite right now, though i make traditional pieces from time to time.
- **How do you sell them?**
  Mostly I use digital media for practice of for study and proof of concept, so the question of sale isn't much of an option as the machinery needed to print digital find art isn't on the ground in Nigeria. However it's something I'm still looking into.

Ibe Ananaba

- **Please, what is your name?**
  Ibeabuchi Ananaba
- **Where do you work?**
  Officially, I work as a Group Head, (art) at Insight Communications Limited. Personally, I run a home studio where I practice art.
- **Are you self-employed?**
  No
- **What is your academic qualification?**
  Higher National Diploma
- **What course did you study?**
  Fine and Applied Arts (Painting Major).

- **Which institution did you attend?**
  Institute of Management and Technology, Enugu.
- **When did you graduate?**
  1999
- **Do you know how this kind of painting started in Nigeria?-**
  Honestly, I do not know.
- **Is there any art school teaching this art form in Nigeria?**
  I wouldn't know if there's any art school officially teaching this art form now but we live in a digital age and with the help of technology/social media, one can actually be self-taught.
- **What is a computer-generated painting? Is it the same as a digital painting?**
  I will say YES…to me the difference is just use of words but in essence, they are same (my opinion)
- **How do you use the computer to paint?**
  For me, by using an installed photo-editing software.
- **How did you learn to apply the computer to painting?**
  Mine was an adventure. I was privileged to have a computer with Photoshop and Corel Draw installed to play with. Basically, it was a try-your-luck kind of situation where I failed countless times and kept learning from my failures. I still do till date… let me say till tomorrow. It never ends. You know by using graphic/photo-editing software, In it there is a colour swatch/palette where you can pick colour from so for me it offers me the platform to 'play'. I would like to add that all my digitally-done paintings were borne out of my quest to figure out how it works. By being inquisitive, I prepare my mind to play and by playing and trying things out you stumble upon things you never knew existed. It's like an adventure really. You know the feeling when you discover stuff on your own and it leads you to more.
- **For how long have you been painting with the computer?**
  Since 1997 till date. 14years
- **Are there other painters using the computer to paint?**
  Lots of them
- **What kind of paintings or art do they create with the computer?**

Coining a name for the kind of art they create using computer will be limiting it. But they create amazing stuff. I see new ones virtually every day. Ok, I'll be safe to say the kind of painting they create is AMAZING!

- **How is the final output like? Is it on canvas, paper, wall, etc?**
  Final output depends on what the artist wants. It could end up as wallpapers, canvas, paper, t-shirt…list goes on.
- **How would you describe your computer-generated paintings?**
  They are extended versions of my drawings. I set out playing with elements with the use of tools available at the software I'm using and the effect I get would determine the final outcome. I usually don't have a laid out plan or image of what the final result will be before starting. I enjoy the adventurous process.
- **What elements of art do you use?**
  Basically, line and colour.
- **What special tools do you use to create them (software/hardware)?**
  Mainly Photoshop. The last I did was on a friend's iPad with software called ARTRAGE and it was an amazing experience.
- **Do you apply the principles of art in your paintings?**
  I try to. Sometimes I don't. My mood determines.
- **How do you achieve the elements?**
  Could you rephrase this [particular question, please] If you mean the ELEMENTS OF ARTS, they are already there. Like I answered earlier, the elements I basically use are LINE and COLOUR. To achieve LINE, I simply click on the brush tool, adjust to size that I need at the moment and stroke my line. For COLOUR, I go to the colour palette and choose form the swatch.
- **How much time does it take to create one?**
  I haven't timed myself before. I let inspiration flow. It could be seconds, hours, days, weeks, months…there's really no set time for me.
- **Have you exhibited them in the past?**
  Formally, NO
- **Do you have images of paintings that are influenced by the computer?**
  Yes I do
- **Would you permit their usage for a historical analysis and documentation in this research?**

Yes, with strict agreement that it's ONLY for this purpose and NOT any other venture or commercial purpose(s)

- **What are the similarities between computer-generated paintings and traditional paintings?**

  Application, or usage of elements in art.

- **What are the differences between computer-generated paintings and conventional traditional paintings?**

  The feeling is different. With Digital work, you can do and undo at will but you do not have that privilege in traditional painting. The basic difference is one is VIRTUAL and the other is REAL. In the virtual (digital/computer-based) you can only see it on the screen while doing it. With the traditional, you can feel it. Your hands can't get stained with paints while doing the computer-based painting. The aroma or smell of live oil paint isn't there for the computer-based painting. Even the sound of the brush on canvas when applying paint isn't there until they new inventions that will have all of these come.

- **What are the advantages and disadvantages of computer-generated paintings?**

  Let me start with the advantages. Its portability is enjoyable. By this I mean you can save it out on different devices, you can mail out, and you can share on social media. You can make copies and variations at ease. You can undo and retrace your steps backward just in case you make mistakes.

- **What are the disadvantages of traditional paintings?**

  It's not as portable or electronically transferable as the digital.

- **What are the advantages of traditional paintings?**

  There's only one original. Reproducing it exactly would have to come in a different medium.

- **How do you compare the cost of production of each?**

  For me the value of the traditional is always higher because of its bespoke nature.

- **In your opinion, which would you prefer?**

  It depends on the end usage/function. Personally, traditional painting still has more 'soul' than the computer-based. This is because I started off with the traditional style when technology hasn't advanced to the level it is today so I still have more time to fully get converted (if I have to).

- **How do you sell them? You mean computer-based?**

You can sell in prints on paper or any other format like I stated earlier.

Victor Ehikhamenor

Please, what is your name?

Victor Ehikhamenor

Where do you work?

I am a studio artist

Are you self-employed?

Yes

What is your academic qualification?

Postgraduate level

What course did you study?

English and Literature, Technology Management and Creative Writing

Which institution did you attend?

Ambrose Alli University, Ekpoma Nigeria and University of Maryland, College Park, USA

When did you graduate?

1991, 2003, 2008

Do you know how this kind of painting started in Nigeria?

NO

Is there any art school teaching this art form in Nigeria?

I think there are a few. I am sure Yabatech does.

What is a computer-generated painting? Is it the same as a digital painting?

Not really, they are close. My own computer generated paintings are a montage of my original works, which I digitize and mix together through the help of a software.

How do you use the computer to paint?

I merge two or more original works, usually a photograph and oil/acrylic painting. Both materials are always mine in the first place.

How did you learn to apply the computer to painting?

I learnt it through a friend in America, Professor Michael Platt, who is also an artist and a printmaker.

For how long have you been painting with the computer?

8 years now

Are there other painters using the computer to paint?

Many

What kind of paintings or art do they create with the computer?

They vary from realism to abstract

How is the final output like? Is it on canvas, paper, wall, etc?

I either print on canvas or high quality paper. Sometimes I show it on the computer screen which is also another medium.

How would you describe your computer-generated paintings?

A painting by an artist using computer hardware and software instead of the traditional old fine art tools like brush and paint or pencils

What elements of art do you use?

(Question not understood)

What special tools do you use to create them (software/hardware)?

I use Photoshop or Microsoft paintbrush

Do you apply the principles of art in your paintings?

Yes, otherwise the painting won't make sense and it will fall flat.

How do you achieve the elements?

Some of the software provides the opportunity to achieve the same element; one still has to apply his artistic sensibility and knowledge to achieve the work.

How much time does it take to create one?

It depends on the work. It takes 8 minutes to three weeks.

Have you exhibited them in the past?

Yes.

Do you have images of paintings that are influenced by the computer?

Yes I do

Would you permit their usage for a historical analysis and documentation in this research?

Yes, only for the purpose of this research.

What are the similarities between computer-generated paintings and traditional paintings?

Some artist use computer to paint realism, sometimes you cannot tell the difference. But because I mix photography and painting, it is easily discernable that only computer can achieve the kind of things seen in the work.

What are the differences between computer-generated paintings and conventional traditional paintings?

The feel and texture is different. Physical paints are not mixed. And it is usually too smooth to be real in the hands of some artists; others can do better in masking computer generated artworks.

What are the advantages and disadvantages of computer-generated paintings?

Once you buy software, you can use it for a long time to make lots of art as oppose to buying cans and gallons of paints and other consumables. A lot of collectors and other art purists haven't quite warmed up to the whole idea of painting with computer, therefore the collection rate is low and slow. You can scale up and down during painting, as oppose to canvas or paper limitation. You don't get your hands dirty with any paint. Disadvantage is you will still need to print out the work for people to see.

What are the disadvantages of traditional paintings?

There are really no disadvantages, except for some of the already stated ones above,

What are the advantages of traditional paintings?

It is still the oldest way of making artworks. Your creativity is not really questioned. A lot of people still warm up to the traditional painting that computer generated art. It is more expensive and has more secondary market value than computer generated art.

How do you compare the cost of production of each?

At the end of the day, traditional painting is more expensive to produce, considering materials, and studio space wise.

In your opinion, which would you prefer?

Both are fine by me, just a little bit leaning towards traditional painting.

How do you sell them?

I print them on acid free and good quality paper, I touch it up with hand and frame.

Victor Ekpuk

Please, what is your name, date of birth, place of birth? Where do you work?

Are you self-employed?

Yes

What is your academic qualification?

BA Fine Arts

Which institution did you attend?

University of Ife

When did you graduate?

Do you know how this kind of painting started in Nigeria?

No

Is there any art school teaching this art form in Nigeria?

I do not live in Nigeria now, so I do not know

What is a computer-generated painting? Is it the same as a digital painting?

A quick research on Google will lead you to these answers.

How do you use the computer to paint?

I plus in my Wacom tablet to my computer, a software like Photoshop recognizes that tablet, I create a blank canvas, pick my pencil or brush within the

application, pick my color and start to draw. I may also use a scanner to scan a photograph of other objects into the art making software and continue to manipulate the image until I arrive at a desired result.

How did you learn to apply the computer to painting?

I developed a curiosity for the possibilities using technology as a tool for making art.

I bought a computer, read relevant books on softwares and hardware applications and experimented a lot.

For how long have you been painting with the computer?

More than ten years.

Are there other painters using the computer to paint?

David Hockney is good example

What kind of paintings or art do they create with the computer?

I use the computer to draw, make sketches for my traditional painting; I generate collages and whatever else my imagination leads.

How is the final output like? Is it on canvas, paper, wall, etc?

The final output of a computer art could be viewed on screen or printed on paper, canvas or suffices that would take inkjet.

How would you describe your computer-generated paintings?

I create mixed media drawings. After the images I create on computer are printed on large scale paper, I continue to embellish them using traditional tools like inks and pastels.

What elements of art do you use?

I do not understand you

What special tools do you use to create them (software/hardware)?

Hardware: iMac, iPad, Iphone, Wacom Intuos tablet, scanner, digital camera

Software: Adobe photoshop, Adobe Illustrator, iSketch,Asketch, AetRage, Zen Brush, etc

Do you apply the principles of art in your paintings?

I do not understand

How do you achieve the elements?

How much time does it take to create one?

It depends on composition and my satisfaction, from 30 minutes to a week.

Have you exhibited them in the past?

Yes

Do you have images of paintings that are influenced by the computer?

Yes. Though not influenced by computer but created using computer as tool

Would you permit their usage for a historical analysis and documentation in this research?

Yes

Kindly attach a few of your works for the purpose of analysis, with the following information and any additional info; title, software used, date, location.

What are the similarities between computer-generated paintings and traditional paintings?

What are the differences between computer-generated paintings and conventional traditional paintings?

What are the advantages and disadvantages of computer-generated-paintings?

What are the disadvantages of traditional paintings?

What are the advantages of traditional paintings?

How do you compare the cost of production of each?

At this stage in the development of digital tools for making art, traditional method is still less expensive. The tools of realizing digital art are expensive, from high end computer to a good quality inkjet printer. Smart phones could also be expensive for some people.

In your opinion, which would you prefer?

I prefer both.

How do you sell them?

Through my gallery

David Osagie

Please, what is your name, date of birth, place of birth?

I am David Osagie. Born on September 23r, in the Eighties, back in Kaduna, Nigeria.

Where do you work?

Work mostly as freelance creative at David Osagie Freelance Design.

Are you self-employed?

Yes, except for the organizations I consult with.

What is your academic qualification?
B.Sc Botany.

What course did you study?
Botany
Which institution did you attend?
Ambrose Alli University, Ekpoma, Edo State.

When did you graduate?
2009

- **Do you know how this kind of painting started in Nigeria?**
  I can say it's been a bit back dated - towards the new millennium, though not too well practiced, until very recently.

- **Is there any art school teaching this art form in Nigeria?**
  A couple of new age institutions and privately owned setups teach this form of art.

- **What is a computer-generated painting? Is it the same as a digital painting?**
  Computer-generated paintings are mostly referred to as digital paintings. Though nothing is auto-generated, but true digital paintings are born out of talent and skillful use of appropriate software.

- **How do you use the computer to paint?**
  It's almost as good as using a brush on canvas. The only difference is the canvas appears on screen and the brushes are moved around by your computer mouse or a pen tablet.

- **How did you learn to apply the computer to painting?**
  Personal research and a couple of years in active practice with computer softwares.

- **For how long have you been painting with the computer?**
  I began in 2002, originally began an active career in digital painting in the year 2009.

- **Are there other painters using the computer to paint?**
  Yes sure! We do have James Abinibi, Niyi Okeowo, Daniel Emeka and a couple of recent art talents rising within Nigeria.

- **What kind of paintings or art do they create with the computer?**
  It is mostly called Digital Arts or CGI.

- **How is the final output like? Is it on canvas, paper, wall, etc?**
  Final work could be rendered on Canvas, Wall, Paper, mugs, shoes, bags, clothes, curtains or whatever surface medium the artist requires. There a dozen specialized process for rendering final Digital Artworks.

- **How would you describe your computer-generated paintings?**

My paintings are a fuse of contemporary lifestyle expressed within pure African Scenery. I require my digital paintings to feel as traditional as possible, trying much more to celebrate my strokes and maintain my raw brush feel far much more.

- **What elements of art do you use?**
  Line, shape, form, space, texture, value and color

- **What special tools do you use to create them (software/hardware)?**
  Mostly Adobe Photoshop, A Wacom Tablet and a Graphic Improvised Computer System.

- **Do you apply the principles of art in your paintings?**
  I enjoy using Rythmn, Color and Balance to emphasize my works. A true David Osagie piece would always feel well-balanced and pleasant to the eyes.

- **How do you achieve the elements?**
  Carefully piecing together unique composites, most times I have to sketch all these ideas on paper and scan unto computer before painting.

- **How much time does it take to create one?**
  Depending on how complex a project is, it may likely span between 5 and 32 hours in total to complete a masterpiece.

- **Have you exhibited them in the past?**
  No Exhibition Yet.

- **Do you have images of paintings that are influenced by the computer?**
  Quite a couple I have kept in an inspiration folder I keep for reference purposes only.

- **Would you permit their usage for a historical analysis and documentation in this research?**
  This is permitted provided rights protection is not violated.

- Kindly attach a few of your works for the purpose of analysis, with the following information and any additional info; title, software used, date, location.

- **What are the similarities between computer-generated paintings and traditional paintings?**
  CG Paintings are not much different from traditional; It's to the artist what his art is, actually. Software provides you with all the tools, in and out of the box ... So there are much more possibilities in developing Digital Images than Traditional.

- **What are the differences between computer-generated paintings and conventional traditional paintings?**
  Noticeable differences are the process of final production.
  CG paintings are rather printed on canvas or whatever media is required, but traditional paintings are more or less 'locked' within the media it is produced.

Digital Art gives lot more options to the artist, but traditional is purely based on raw skill.
Traditional artists may be more skilled at their work, but digital artists may find shortcuts to creating their art.

- **What are the advantages and disadvantages of computer-generated paintings?**

Advantages are:

- *CG paintings are more futuristic. Probably we all believe that will be the future, as all things traditional are going digital.*
- *CG paintings open the artists to a range of options almost impossible in traditional media*
- *CG paintings appeal to more recent markets such as advertising, than traditional media.*
- *CG paintings may be backed up in drives, and stored up for future use*
- *CG Paintings are open to editing without losing original files*

Disadvantages
- *CG paintings are more expensive to produce*
- *CG paintings are highly dependent on users software skills*
- *CG paintings may be under estimated*
- *CG paintings may be replicated easily without the artists permission*

- **What are the disadvantages of traditional paintings?**
- *Traditional painting may age with time, hence losing the original work*
- *Traditional paintings may be more hectic to produce*
- *Traditional paintings require talent*

- **What are the advantages of traditional paintings?**
- *Traditional paintings permit the artist to use a range of physical elements and materials that are unique to his art*
- *Traditional painting helps the artist to see the finished work unlike digital art that may not be the final produced work*
- *Traditional painting may be hard to replicate. Hence discouraging piracy.*

- **How would you compare the cost of production of each?**
- *Traditional paintings may be cost effective, depending on canvas print prices, Giclee prints may cost a digital artist a higher budget compared to traditional art.*

- **In your opinion, which would you prefer?**
  I would prefer digital art; I think with the exception of the learning curve involved in computer softwares, every other process is purely exciting!

- **How do you sell them?**
  Digital Art is marketed just like every other art. There is a market for digital art and because it is relatively new within Nigeria, a couple of collectors are scouting for original pieces!

APPENDIX II: INTERVIEW QUESTIONS

Topic: An Investigation of the Application of Computer to Painting in Nigeria

Dear Sir/Madam,

Introduction

The researcher is a postgraduate student of the Department of Fine Arts, Ahmadu Bello University, Zaria. He is "Investigating the Application of Computer to Painting in Nigeria." Kindly offer the necessary assistance by providing useful information on the topic. Information supplied would be considered confidential and used only for the purpose of this study.

Section one: General Information about Respondents

1. Please, what is your name, date of birth, place of birth?
2. Where do you work?
3. Are you self-employed?
4. What is your academic qualification?
5. What course did you study?
6. Which institution did you attend?
7. When did you graduate?

Objective 1: Investigate the history and dimensions of computer application by Nigerian artists in Painting.

Interview Questions

- Do you know how this kind of painting started in Nigeria?
- Is there any art school teaching this art form in Nigeria?
- What is a computer-generated painting? Is it the same as a digital painting?
- How do you use the computer to paint?
- How did you learn to apply the computer to painting?
- For how long have you been painting with the computer?
- Are there other painters using the computer to paint?
- What kind of paintings or art do they create with the computer?
- How is the final output like? Is it on canvas, paper, wall, etc?

Objective 2: Describe and analyze computer-generated paintings

- How would you describe your computer-generated paintings?
- What elements of art do you use?
- What special tools do you use to create them (software/hardware)?
- Do you apply the principles of art in your paintings?
- How do you achieve the elements?

- How much time does it take to create one?
- Have you exhibited them in the past?
- Do you have images of paintings that are influenced by the computer?
- Would you permit their usage for a historical analysis and documentation in this research?
- Kindly attach a few of your works for the purpose of analysis, with the following information and any additional info; title, software used, date, location.

Objective 3: Comparison

- What are the similarities between computer-generated paintings and traditional paintings?
- What are the differences between computer-generated paintings and conventional traditional paintings?
- What are the advantages and disadvantages of computer-generated paintings?
- What are the disadvantages of traditional paintings?
- What are the advantages of traditional paintings?
- How do you compare the cost of production of each?
- In your opinion, which would you prefer?
- How do you sell them?

Thank you.
Gyegwe Gabriel
(Ph.D/Env/Des/09667/08-09)

APPENDIX III: RESSEARCH QUESTIONNAIRE

INSTRUCTION

This questionnaire is designed for Artists, Art connoisseurs, Public/Private gallery workers, Art collectors, Gallery owners, and those in the culture sector who are conversant with visual art practice in Nigeria.

Dear Sir/Madam,

The researcher is a postgraduate student of Ahmadu Bello University, Zaria, undertaking a study of computer-generated paintings, as well as **'Investigating the Application of Computer to Painting in Nigeria'**. Kindly offer necessary assistance by providing useful information on the topic. Information provided will be considered confidential and used only for the purpose of this study.

SECTION I: Respondents' Background – (pleases tick or write where appropriate)

(1) Respondent's category:

(a) Art collector ☐
(b) Artist ☐
(c) Gallery work ☐
(d) Foreign cultural personal ☐
(e) Others (please specify…….....

(2) How long have you been working in the area indicated above?

(a) 0-5 years ☐
(b) 6-10 years ☐
(c) 11-15 years ☐
(d) 16 years and above ☐

SECTION II: Research questions- (please tick or write where appropriate

(3) Have you heard of computer generated paintings?

(a) Yes ☐ (b) No ☐

(4) If yes, through what means did you come to know about computer painting?

(a) Through internet ☐
(b) Television / Radio ☐
(c) Lectures (art lessons) in school ☐
(d) Other means (please specify) ☐

(5) Do you know of any artist who is into computer painting?

(a) Yes ☐ (b) No ☐

(6) If yes: mention the artist(s) and address in Nigeria. (Kindly include phone numbers and email or website)

(a) .....

(b) .....

(c) .....

(d) .....

(e) .....

(7) Do you know of other dimensions of computer application that Nigerian artist are using to paint?

(a) Yes ☐ (b) No ☐

(8) If yes, briefly state or explain

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(9) As an artist, art collector or art consumer, etc: between computer painting and conventional paintings, which would you prefer and why?

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(10) In your opinion, what do you think is the implication of computer paintings on contemporary Nigerian art practice?

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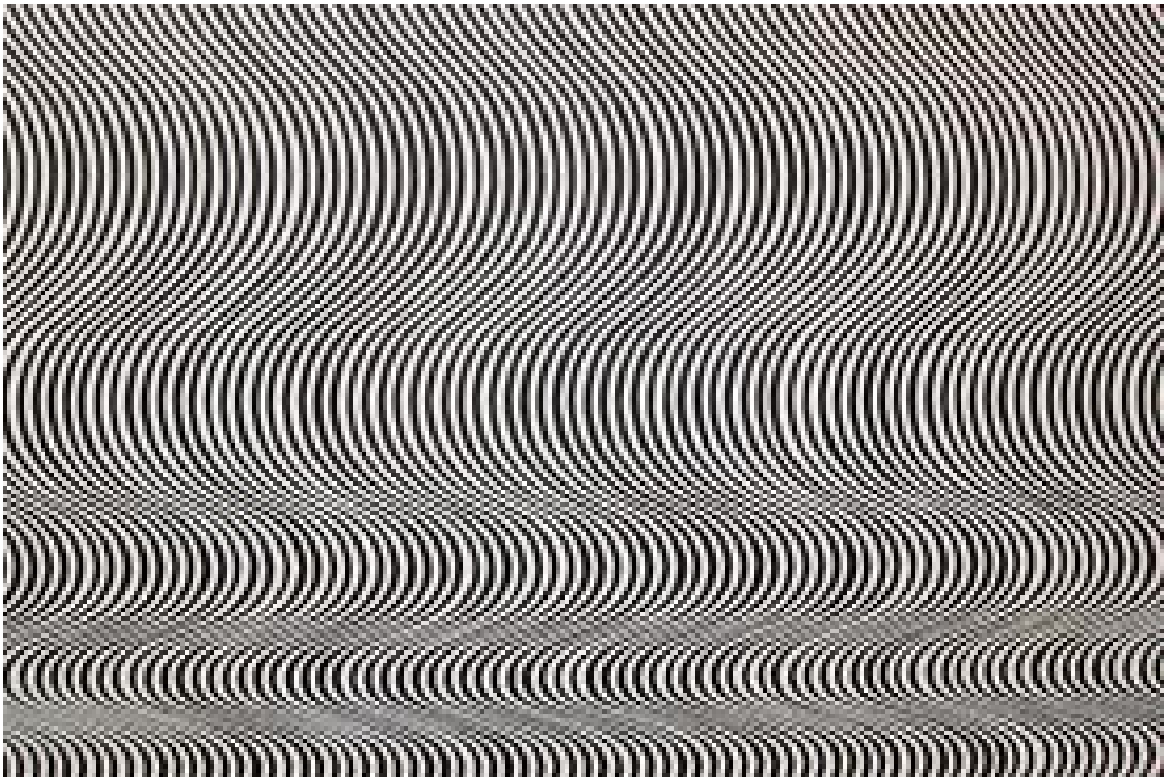
(11) Comment freely on the use (application)of computer to paintings in Nigerian art

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Thank you

Gyegwe Gabriel.

APPENDIX IV: DRIFT 2



Title: Drift 2,
Artist: Bridget Riley
Size: Unknown
Medium: Unknown
Date:
Source: https://www.google.com.ng/search?q=the+drift+by+bridget+riley