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DIGITAL PHOTOGRAPHY AS A MEDIUM OF VISUAL REPRESENTATION IN CONTEMPORARY PRINTING TECHNOLOGY IN NIGERIA

BY

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ABSTRACT

Visual representation is one of the enthralling aspects of a print media. Images are seen as booster to understanding of text. The method of illustrating a text had gone through a number of transformations over the years. This study looked at the place of digital photography as it affects printing practice in Nigeria. A survey was carried out among printers in Akure, Nigeria. A qualitative research approach was adopted, and data were analysed using thematic approach. The result revealed that larger percentage of the Printers in the study area preferred the use of photographic illustration, and particularly, digital photography for illustrations in their print designs. Although, a number of bottlenecks to the use of digital images were identified, the Printers still favoured the use of digital images in their printing activities. The study therefore recommended that the Nigerian printing team should regularly update their skills in order to keep abreast of the dynamic nature of the digital technology as its affect photography. Relevant governmental bodies are also encouraged to update curriculum of photography at the tertiary institutions and professional study centres to ensure conformity with digital revolution.

Keywords: digital photography, visual representation printing technology, photographers, printers.

1.0 Introduction

Background to the Study

The roles of visuals in printing practices cannot be underestimated, as visuals strengthen texts and convey ideas in a more simple, understandable way (Safer, 2012).It has been argued that when visuals are used to represent certain ideas or concepts, they make such ideas simple, as large amount of information can be absorbed quickly when presented in visual form (safer, 2012). Hence, the use of visuals helps to conserve resources such as time and energy, thus, considered as being 'economical' (ibid).In the practice of printing and printing technology, visuals are represented in form of drawings, paintings, scanned pictures, and photography. However, a form of visual representation commonly used in modern printing is the digital photography. Winston (2013) conceptualises digital photography as advancement in technology of image capturing and sharing. This is evident in the significant changes that have evolved from analogue photography

(also referred to as film photography) to digital photography. In analogue photography, images are recorded using chemical process on items such as film and thin plates whereas images are imprinted on paper. While film photography has been appraised for its ideal duration of image processing and storage (in the sense that a film can last for a lifetime), the analogue method of image production is not without some limitations. For instance, editing and sharing of images produced through film is limited, as there would be need for scanning and enlargement of such images in the lab. In addition to this, the operation and production of film images requires more time as well as robust technical skills to operate (Cummins, 2007).

In digital photography, the approach to image production is quite different. Digital camera is used instead of analogue camera to capture image not onto light sensitive silver film but rather on a light sensitive charge coupled device (CCD). In this case, images are produced when the camera is focused by a lens, as opposed to photographic film's use of an exposure. The capturing and storage of images takes place as digital files and can be viewed, edited, stored, shared and printed digitally. Currently the tendency of photographing an object and at any location is possible with digital photography practice using either digital cameras or mobile phones, and more recently, the drone camera. Also, not only can a picture be taken of anything using a digital camera or Smart phone camera, but it can also be previewed instantaneously on the screen of the camera and shared with friends or colleagues with devices such as mobile phones or the computer systems (Dzukey, 2015in Ibiwoye 2016).The vast prospects that exist within the various practice of digital images has made its use widely implemented in contemporary printing activities.

Printing has been in existence as far back as humanity itself, as man begins to represent ideas visually on surfaces of found objects. Over the years, various methods were adopted in printing such as serigraphy, gravure, lithography, and letterpress. Just like any other field and discipline, the advent of technological advancements has its influence on the practice of printing. Machines such as Computer to Plate (CPT) and Large Format Printing technology were introduced. Digital photography also has its place in modern printing technology as it produces, stores and processes images which are used in printing. The photographs produced are said to be flexible as they can be cropped, enhanced, filtered, and shared easily, hence, digital photographs serve as visuals adopted in modern prints. The printing process has continued to evolve through diverse advancement in technology of which the printing industry has graciously benefited from. The process is carried in a printing press, either as a large-scale industrial process, or as small cottage industry. The art and science of printing - which is characterised by making multiple reproductions of an original copy - involves the production of texts and images, usually by the action of ink on paper or other surfaces.

Statement of Research Problem

The fact that the society has embraced the digital technology in most sphere of life is no longer a news. The role visual images in print media cannot be brushed aside as it aids better comprehension and succinctly communicates idea and information. For instance, Ojo, Victor Em.

and Atewolara-Odule (2016) claim that technology has transformed the process of book publishing globally, as the book publishing has grown beyond the traditional practice. This is not without the presence of modern equipment which has made book production as well as printing in general easier and faster especially in the developed world.

It isa natural belief that digital images are easier to handle while designing artwork for print. Based on this credence, it could be assumed that the ease of handling digital images influences printing process and outcomes in some ways. It is however, difficult to document this claim without empirical study on the subject matter. There is a maxim that digital photography is now trendy, however, studies that investigate the use of digital photography as it relates to contemporary printing technology are surprisingly limited. While a number of studies have been conducted to establish the use of digital photography in areas such as news media and photojournalism for instance (Ifeduba and Sadiq, 2014).The effects of digital photography on printing technology and printing practices has not been given suitable consideration in literature, particularly within the Nigerian context.

As the digital technology keeps advancing and the printing industries still patronise the photography for illustration of their text, the relevance of research studies in the field of digital photography remains sustained. The dearth in the availability of relevant literature in the area of digital photography as postulated by Ifeduba and Sadiq (2014) still remain a challenge and conscious step are expected to be taken to address the situation. This current study: "Digital Photography as a Medium of Visual Representation in Contemporary Printing Technology in Nigeria" aims to contribute to the body of knowledge in the field of digital photography by examining the usefulness and impact of digital photography on contemporary printing technology in Nigeria. To achieve this aim, the following objectives are set out and pursued by the researchers:

Research Objectives

Specifically, the research objectives are to:

1. investigate the availability of digital photography in contemporary printing technology,
2. investigate the prevalence of digital photography among contemporary printers, and
3. assess the effects of digital photography on contemporary printing technology in Nigeria.

Research Questions

The research questions are as follows:

1. Which type of photography do modern printers prefer?
2. Why is digital photography prevalent in modern printing technology?
3. What are the effects of digital photography on contemporary printing practice?

2.0 Literature Review

Digital Photography as a Medium of Visual Representation

The diversities of photographic images have been greatly improved by digital technology (Bilton, 2013). This is evident as digital technology, which is a medium through which communication takes place, involves the use of digital images for information dissemination. Hence, digital photography, a means through which digital images are produced, goes beyond a method of capturing, storing and recording events which occurred in the past. Photographic images, according to Clark (2009), are often defined as pictures generated by the action of light on a light-sensitive material (that is, the film). The film is the light sensitive material for analogue photography, while in modern times the film has now been replaced with a light sensitive electronic device called the image sensor. In film photography, the analogue camera is used. The images are produced on a paper through the process of adding chemicals such as developers. However, in digital photography, the adoption of image production materials such as chemicals, films and papers are not required (Sassoon, 2007).

The manner in which digital photographs operates is completely different from the custom film-based image production. While images are captured and stored in films as negatives in film photography, images gathered through digital photography are composed of mathematical data, visually represented in various forms such as temporal resolution and sacrificing colour. Notably, previous scholars such as Manovich (1995) and Sassoon (2007) have argued that the processing of digital images expresses the fact that there is more information in any photograph than those that can be realised with the human eye. Digital photography's progress, according to Adamski (2012), is "a whole new notion and outlook on the photographic picture because digital images are made up of recorded bits of data. The computer translates these bits of data into numerical representations, which are represented as pixels. Pixels are the small "points" consisting of tones and colour from which image is built up. Pixels are the fundamental elements of digital photography (Adamski, 2012s).Pixels are constructed in a complex mosaic for the purpose of generating digital images, just how bricks are used in building a house (Dickman and Kinghorn, 2009).

Photographs, according to Dickman and Kinghorn (2009), are visual images which capture the gamut of emotions the human face expressions, as well as the beauty of the land and the skies inherited by man. The richness and confusion that man has created are also part of the record maintained by photos. The general public are good at creating visuals which contains surfaces and feels that are relevant. Recently, it has become an important need to comprehend the basics of colour as the expectations of colour understanding and use in recent times has been increased more than ever (Victoria, 2015).

Digital Photography and Digital Images

Since the transition from analogue to digital photography, there have been tremendous improvements in digital images (Busch, 2006). For instance, an important change in this transition

phase is how quick the visual images can be produced as compared to the analogue counterpart (film base picture). The tendency to share digital photograph by way of communicating it visually with others still remains the culture of easy sharing. Digital photography requires no developing and processing of films. Instead, photos are shot with the digital camera and stored on a removable drive (Dzukey, 2015).The ease of sharing digitised photographic images has in no little measure influenced the printing operations in the contemporary society (Ifeduba & Sadiq, 2014).Nigerian adolescents – which consists of a larger percentage of Social Networking Sites members - can now easily publish or share images, engage with beloved and acquaintances, and build connections on social networking sites. These affordances were made possible through technological improvements such as computer technology as well as the ease of access and use of imaging devices (Ibiwoye, 2016).

As digital cameras grow in popularity, so also does the adoption of digital photograph as means of visual illustration in print and electronic media. Ibiwoye (2016) further note that the advent of digital camera, its accessibility as well as its afford ability either as a unitgadgetor as built-in phones,hasinnosmallmeasurecontributedtotheexponentialgrowthofelectronic sharing of photographs and the speed at doing such had also increased. The culture of printing technology and digital photography is a way of disseminating visual information. The latest technology adoption in the life of photography in recent times could be the use of Smartphone to communicate visually (Dzukey, 2015). Smartphones in recent times can capture pretty good pictures due to their high-resolution camera Cochrane & Bateman (2010) and share them almost instantly and automatically through internet integrated infrastructure subscribed by users (Dzukey, 2015). The use of Smartphones is not limited to social media alone, as pictures taken with these devices are also used by printers in creating designs for printing. For example, souvenirs printed as incentives for a wedding anniversary in South-Western Nigeria often contain stunning photographs of couples as they were customized for the intended occasion. In this case, the photographs were captured using either a digital camera or Smartphone. In the printing industry, the digital photographs were taken to the design units where it is shared with the computer system. The editing would be done by the graphics designer and the design would be sent to the press for printing.

Digital Photography and Printing Technology in Nigeria

The print media industry has been transformed into a versatile communication form through technological advancements. With advances in technology, the wider audience can access printed objects by using concepts and photographs that meet individual or societal needs. For instance, electronic systems and gadgets such as electronic colour correcting systems, electronic scanners, electronic publishing, electronic monitoring and control systems on presses, and electronic controlled cameras have all transformed almost every aspect of print production. There is little doubt that the print media industry has progressed from the Gothic era of relief printing to today's electronic document printing (Ani, 2015).However, while information and communication technology have transformed the printing workplace and workflow, the print medium's core format has stayed unchanged.

In the production of a print, pre-press, press, and post-press are the three types of printing production systems, (binding or finishing).Prepress is the process of converting text and images into final pages and preparing them for printing. In this production system, printers design the pages of printed contents, including its layout and margins, scanning, importing and transferring of images, image editing and colour settings within the same system to produce an offset-printing plates or film. The systems produced by plates are often referred to as Computer-to-plate (CtP) while systems produced by films are addressed as Computer-to-film (CtF). In the press system, CtF prints are made directly from the computer on film. With the use of ultra-violet illuminations, the films are exposed to plates which has been pre-sensitised (Ani, 2015). In the instance of CtP, films are not generated. Instead, the images move directly from the computer to the printing plates (as in the case of Direct Imaging machines). However, a shared feature of both systems is that photographers and printers ensure that images are correctly incorporated in the design before being sent for print. Post press includes the finishing, trimming, folding and binding of printed items which can be magazines, jotters, souvenirs, and books (Ani, 2015).

3.0 Research Methodology

Research Design

The design of this research is descriptive survey. This study was aimed at examining the influence of digital photography on prints in contemporary printing technology, hence, due to its investigative nature, the study considered a qualitative research approach as an appropriate method for its investigation. In qualitative research approach, the application of qualitative data such as interviews, documents, and participation observation data is used in qualitative research approach to gain an in-depth understanding of a given social phenomena (Flick et al, 2004).Forthis study, open-ended questionnaires were used as data collection instrument, as it gives respondents the option to freely give their responses whilst expressing their views regarding a given phenomenon (Flick et al, 2004).In addition to this, an interview was conducted to further elicit the opinions of the respondents.

Population and Sampling Technique

Thirty-two practitioners in selected printing firmsin Akure, Ondo State Nigeria were identified for the research. Using purposive sampling technique, twenty-three printers and nine photographers were recruited in printing firms in selected study area. The choice of printers and photographers were made as they are both responsible for the processing of digital photographs in the printing industry. For instance, the photographers capture images and edit them for print, while the printers oversee the output of final designs from start to completion. The sample size consisted of twenty-eight percent (28%) photographers and seventy-two percent (72%) printers. Furthermore, 87.5% of the respondents were male (N=28) while 12.5% were female (N=4) with an average age of thirty-three years and an average working experience of twelve years. The data gathered from the study were analysed using thematic approach.

4.0 Effects of Digital Photography on Contemporary Printing Technology in Nigeria

Only a few people would disagree that digitally conveyed information and digital technologies are at the core of our present age (Agar et al, 2002). This is evident in printing technology as digital technology has brought significant changes to the manner in which photography and printing is perceived. In the enquiry conducted by the researcher among selected photographers and printers, out of the total number of thirty-two (32) questionnaires administered to printers and photographers in the study area, thirty-two (32) representing 100% of the total number administered were returned and used for the analysis. In addition to this, an interview was carried out by the researcher among five of the respondents to further elicit their views about the subject matter.

Findings from this study are discussed using thematic approach. Analysis of the surveys indicated positive impact of digital photography in the printing industry as most printers responded positively about the use of digital photographs in their printing works. The findings reveal that there are two categories of photography based on the technology used, namely, digital photography and the analogue photography, otherwise known as film photography. Results show that printers have started to embrace digital technology for their printing works as the respondents who use digital photographs constituted a greater proportion of the study 29 (91%) while only 3 (9%) utilizes film photography as a means of visual representation in their printing works.

In order to ascertain the reasons why digital photography is prevalent in modern printing technology, the respondents were further asked what informs their choice of printing practice. From the results gathered, 87.5% of the respondents indicated that they use digital photographs because it improves image storage and sharing experience among users. They emphasized that photographs can be easily transferred through storage and processing devices such as memory cards and computer networking systems. In addition to this, it was identified that the speed at which digital photographs are taken and processed for printing purposes is another reason why digital photography is prevalent among the printers. This is also facilitated by modern printing technological equipment such as the Direct Image Printing machines and Computer-to-Plate (CtP) Machines. However, respondents who uses film photography avers that its components (such as film) are cheaper to acquire as compared with digital photography. Considering the effects of digital photography on contemporary printing practice, the researcher figured out that digital photographs positively affect printing outputs, and the identified effects are discussed under the following themes:

Enhanced Visual Quality of Print

Findings indicate that digital photography increases visual quality of print as most of the respondents assert digital photographs as a major reason for enhanced quality of their prints. While other factors such as paper quality and skill of photographer may affect printing quality (Ifeduba & Sadiq, 2014), the adoption of digital photographs was found to improve print quality in some ways. This is particularly evident in terms of print resolution as this relates to image DPI (Dots Per Inch) or PPI (Pixel Per Inch) both are often used interchangeably. For instance, while 72 DPI is a minimum standard pixel for screen displays, printers aim for a standard DPI of 300 pixels

for print. Asides from image size setting which digital photographs affords, the use of digital photographs also gives room for image cropping, resizing and sharpening. In a large format printing tasks for example, a higher resolution may be required to ensure the sharpness of the print. In addition to this, the study also reveal that digital photographs enhance print's visual quality as it offers the option of colour management controls. Since the images are digitally captured, they go through series of edits using photo editing software for colour adjustments such as contrast, variance, texture, and brightness. This finding is similar to studies by Ifeduba & Sadiq (2014) which argue that an improvement in photo quality leads to an improved print output.

Mass production of prints

It has been argued that the printing industry is evolving rapidly as digital technology is being widely used in making prints (Ani, 2015). As digital photography constitutes a major part of the digital workflow in modern printing industry, it tends to facilitate mass production. While images generated through film photography had to go through series of process such as developing, rinsing, and fixing (Cummins, 2007), the study gathered that this process can often be a tedious and time-consuming activity for printers. However, with the wide integration of digital photographs, clear affordance is given to digital scanning, image digitization, and sharing among printers. Hence, digital photographs facilitate mass production owing to the accuracy and speed involved in producing digital images used in prints.

Increased print sales

Most respondents emphasized that they have benefited significantly from the adoption of digital photography into their design and printing works. This is because majority of printers in the study are opine that the use of digital photography does not only enhance the visual quality of their prints, but also facilitates mass production, thereby increasing production and sales. For instance, by adopting digital imagery and printing techniques, the aesthetic features of printed items become improved. Additionally, the accuracy, precision and speed offered by digital technology in printing encourages production of multiple copies of prints, hence, more sales are being generated through this process. While printing technology has benefited tremendously from the use of digital photography, the study identified some factors that limit its adoption and practice by some printers in Nigeria.

The major factor identified is the cost of materials procurement. For instance, the modern digital camera (with high quality lens) was identified to be quite expensive to purchase, particularly within small scale printing firms. This is not unconnected with the foreign exchange rate in Nigeria Naira at time of this study. Another limiting factor identified is the lack of technical know-how among some photographers working within the printing section. This is because the modern digital camera comes with various control settings to enhance its functionality whereas these controls (such as aperture settings, lens replacement) demands specific skills and can therefore prove to be overly complex to manage. For example, some of the cameras have soft keys controls with their instructions represented with icons, as opposed the analogue camera with less complex

settings and control options. However, most respondents acknowledge the positive influence of digital photography on modern printing technology and embrace the adoption of digital photography in their printing activities whilst seeking means to address the factors limiting its usage.

5.0 Conclusion and Recommendations

This study indicates that the practice of digital photography has made it possible to photograph anything and at anywhere in our contemporary world, and this practice is also applicable in modern printing practice. When a shot is taken, the photograph can be cropped, enhanced, filtered, and easily shared, hence, digital photographs serve as visuals adopted in modern printing practice. From this study, it was found out that the extent to which digital photography influenced modern printing technology is high. Its impact cannot be over-emphasized, as digital photographs help to enhance visual quality of prints, facilitates mass production and thereby, increase sales among contemporary printers.

Based on this finding, the following recommendations were made. Technical and functional digital photography skills should be acquired regularly by Nigerian contemporary printing team members to enable relevance and global competitiveness particularly in Nigerian printing firms. Related to this, the formal acquisition of the concepts and practices of digital photography and its relevance in modern printing technology should be included in Nigerian education curriculum by the appropriate governmental bodies, particularly in vocational training centres and tertiary institutions where such trainings are most needed. On the other hand, professional study centres incorporating contemporary digital photography curriculum should be established by stakeholders in Nigeria printing industries, as this will be invaluable to meeting the future needs of printing and printing technology in Nigeria.

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