

EFFECTS OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON TEACHING AND LEARNING OF GRAPHIC DESIGN

IDOWU, K.O, SANGOTOWO, A. O. & OLABIYISI, M.O

Abstract

The indispensability of a new technology to teaching has necessitated the use of a new approach in our current educational system, for efficient and effective outcomes. The teaching and learning of graphic design for instance cannot be effectively administered and achieved without the use of information and communication technology (ICT). Similarly, utilization of such ICT equipment/apparatus is often determined by the status of individuals, and policymakers which is entirely the role of government in power. Therefore, this paper examines the technological effect of Information Communication and Technology on the teaching and learning of graphic design. It further reveals the concepts of both graphic design and information communication technology, significance, and challenges and proffers possible solutions to the identified challenges.

Keywords: ICT, Teaching, Learning, Graphic Design

Introduction

Information Communication Technology (ICT) is very essential and paramount nowadays to the teaching and learning of graphic design. Teaching and learning is the process of imparting and receiving knowledge from one source to another in a

given period of time. It may be in a traditional setting, non-formal, or in a formal setting of education. In view of the above, one could ask what education is. Education is the most important agent of change and the bedrock of

industrial development as well as the socio-economic growth of a nation. Education can also be regarded as the greatest investment a nation can make for the quick development of social, economic, political, technological, and human resources. Most nations of the world give education a high priority in their developmental agenda. For instance, countries like the United States of America (USA), Britain, including Japan among others have embraced and recognized technology as a means of realizing economic independence and self-reliance.

The teaching and learning of Graphic Design in all tertiary institutions in the past and present (Digital Era) are incomparable because during the seventeenth, eighteenth, and nineteenth centuries; the methodology adopted in the teaching of graphic design was rather archaic (Old). Since the 20th century, Information Communication Technology (ICT) brought and served as an agent of change in the way we live, teach, learn, and a

host of others. According to Akindolu (2002) in Mohammed (2013), the first time computer appeared in Nigeria was in 1963 when it was used to process the national census data. He stress further that some companies started the use of computers from that time. In recent time, teaching and learning has gone beyond the way people see it because new technologies have evolved and this has brought innovation in teaching and learning through the development of Computer (Software and Hardware). If one wants to consider fields like Banking, Engineering, Architecture, and Visual Arts in which graphic design is one of the major courses; the effect of ICT across the past two decades has been enormous. The way the above mentions fields operate currently is quite different from how things were in the past. Looking at graphic design, ICT seems to have a great impact and change the teaching and learning of graphic design. Adeyefa, (2012), opined that the educational

system cannot change in a desirable way unless the teachers introduce technology devices into the teaching and learning process of technical and vocational education courses in which Graphic Design is one of the courses. In view of this assertion, it's pertinent for a teacher to be computer literate so that the expected gadgets will be used to impart knowledge to the learners.

Concepts of Graphic Design

Graphic design is the art or profession of visual communication that combines images, words, and ideas to convey information to an audience, especially to produce a specific effect, Jordan, (2018). In other words, graphic design is a communication design that conveys ideas through visuals and designs. These definitions present graphic art as an interdisciplinary branch of design that deals with and revolve around the definition of the problem and the determination of objectives for decision-making through creativity, innovation, and lateral thinking

using digital tools and transforming them for proper interpretation. This activity helps in the optimization of graphic communications.

Graphic design can be used to perform different tasks in the same area of practice regardless of areas of application or utilization. This includes Branding, photography, three-dimensional modeling (3D), animation, programming, signage, and a host of others. All these can be used during teaching and learning to enhance the presentation of subject matter to the learners. Graphic designs help in effective communication with the populace as visual aids are better at communicating ideas to the public. A creatively designed, informative graphic or picture when compared to only words, can communicate ideas and information more effectively and graphic designs are mainly to communicate. Primarily, graphic design is a visual communication; it entails typography, images, and colours to represent certain ideas

or messages. It blends photography, illustration, and motion graphics together to create appealing designs which can capture the attention of the viewers (Velocity Consultancy 2020). According to Interaction Design Foundation (2002), graphic design is defined as a craft where professionals create visuals to communicate messages by applying visual hierarchy and page layout techniques, designer uses typography and pictures to meet users' specific needs and focus on the logic of displaying elements in interactive designs to optimize the user experience.

Jackson (2019), opined that graphic designing also known as communication design is a skill that focuses on interpreting the message visually. It can be physical, digital, or anywhere in between. He further explains that it is the art of achieving certain objectives with the use of images, symbols, or even with words. It helps in communicating visually and expressing

concepts and ideas aesthetically using various graphic elements and tools. Nediger (2020) expatiated that graphic art is a visual communication that involves the use of visual elements to convey messages, inspire change or evoke emotions. It is on one part a communication design, that is, creating a message that educates, motivates, and engages, and on the other graphic design, using design principles to communicate that message so that it becomes clear and eye-catching. Nediger explains further that effective visual communication strategies include using data visualization to show the impact of work, using shapes and lines to outline relationships, processes, and flows and among others, using desirable colours to indicate the importance and draw attention.

Meggs (2005) buttressed the notions of Nediger (2020) and explained that the creative minds that create graphic images make use of colours, textures, contours, and shapes that communicate not just messages

but also emotions, attitudes, experiences, lifestyles, and concepts. Like art, graphic representation has the power to reach beyond language, class, sex, education, geography, and age so as to reach a much larger audience. They proved further that graphics are also easily identifiable and memorable, often leaving a lasting impression on viewers that words alone are unable to compete with. In view of the assertion, graphic art as a means of communication could be described as visual communication and it's a form of communication that relies on or has to do with visual cues to transmit a message to people.

Graphic arts design is the art and profession of selecting and arranging visual elements such as typography, images, symbols, and colours to convey a message to an audience (Meggs, 2005). It can also be expressed as visual communication. It emphasizes its function of giving information to users. There is no gainsaying, therefore,

that graphic arts design is a collaborative discipline that involves the use of photography and illustrations to produce a desirable design. The American Institute of Graphic Arts cited in Malvik (2020) sees graphic arts as the art and practice of planning and projecting ideas and experiences with visual and textual content. This explanation stresses the fact that graphic design communicates certain ideas or messages in a visual way. These visuals can be as simple as a business logo, or as complex as page layouts on a website. In light of the above definition and functions of graphic design, one can conclude that designing graphics without the use of either the computer or its software/application will be very difficult to produce befitting and aesthetic artworks that catch viewers' attention.

The above assertions cannot be easily made without the use of Information Communication Technology equipment (Computer software and hardware) and

before effective teaching and learning of graphic design can take place, the ICT apparatus is needed to be in place as a tool for teaching and learning in other to complement the explanation given by the teachers with the concrete example thorough demonstration, manipulation and the use of different tools in a computer such as keyboard, mouse, cursor key etcetera. In view of the aforementioned, if the ICT were not put in place; teaching and learning of graphic design may not be communicable. In line with the view of Ononogbo (1990), Information and Communication Technology is considered a revolution, which has penetrated almost all fields of human activities, thus, transforming our economic and social life. ICT in this sense refers to the use of skills such as the Internet, PowerPoint, and Microsoft Word, in arranging communication and information processes and devices to obtain, analyze, store, recall, and transmit accurate

information at a very high speed from one place to another.

Concept of Information Communication Technology

The concept of information Communication and Technology was explained by different scholars with different points of view. For example, Ademulegun (2006) describes ICT as the item of equipment (hardware) and computer programme (software) that allow us to access, retrieve, store, organize, and manipulate information while Akinde and Adagunodo (2000), asserted that ICT are mechanisms by which a wide group of audience can be reached especially with information that can make meaningful contributions to form decision making in government, banking sector, Oil Company, manufacturing, commerce and education sectors.

Thomas and Ranga (2000), opines that application of computer and other communication technologies in education is divided into categories: Pedagogy through

the application of ICT has the advantage of heightening motivation, with more effective learning with the aid of various components of ICT, also helps to recall previous learning, providing new instructional stimuli activating the learner response. Ikelegbe (2007), categorized the different kinds of information communication technologies into five basic types:

1. **Sensing Technology:** These are devices that help to gather information from the environment and translate the information into a form that can be understood by the computer. Examples are data collection devices such as scanners, computer keyboards, fax machines, computers, and mouse. These are technologies that tie together and facilitate communication between the various kinds of technologies.
2. **Communication Technologies:** Facsimile machine, landed cellular

telephone, computer networks. A network is a group of devices that are linked together, example is the private branch exchange (PBXB) which is also known local Area Network (LAN) which covers several floors within a building or an entire building or even a campus in case of the school environments. The Wide Area Network (WAN) covers a larger geographical area and uses telephone lines, microwaves, and satellite communication networks.

3. **Analyzing Technologies:** The computer hardware and software come with this category. The computer takes information from sensing and communication devices, then stores and processes the information.
4. **Display Technologies:** These are essential output devices, they make processed data available to humans

for use either through loudspeakers, printers or display screens like photocopy machines.

5. **Storage Technologies:** This is another important category of ICT that helps to store large quantities of information in a form that can be easily accessed. This is made up of secondary storage devices such as magnetic tape, magnetic disc, optical disc, Read Only Memory (CD-ROMS), VCDS, and Video Compact Disc

In recent years there has been an increased emphasis on individualized programmed instruction and Information Communication and Technology to enhance and facilitate teaching and learning at various levels of education. The feasible application of microcomputers in the Nigerian classroom for teaching and learning is gradually recognized as a result of its importance and educational appropriateness.

Significance of Information Technology in the Teaching and Learning of Graphic Design

1. It serves as the link to accessing both the local and globally relevant and current information in the teaching and learning of graphic design for both teachers and learners.
2. It can be used to enhance the creative ability of artists to create designs using a computer-aided system with accuracy.
3. The use of computer software like word processing, desktop publishing, Corel-draw, Adobe Photoshop, and others software makes the creation of graphic design easier and faster than before.
4. Provision and use of interactive teaching packages available for different functions during teaching and learning make teaching and learning more interesting.
5. Through the ICT/Computer system, messages pass across to

- learners are clearer and understood due to the availability of the visual/picture representation rather than word alone.
6. It allows the teachers to pass on information to a larger number of learners within a given period of time with the use of different applications.
 7. It encourages and makes virtual teaching and learning possible without being under four wall of the classroom

Challenges Facing Teaching and Learning Graphic Design through Information Communication Technology (ICT) in Nigeria Institutions

With all the benefits of Information Communication Technology to education, there are hindrances to its utilization in achieving the aims and objectives, especially in the teaching and learning of Graphic Design. These hindrances are the following:

1. **Poor Funding of Vocational and Technical Education:**
Any Nation that is focused on (technological) development must be ready to invest greatly in vocational and technical education which serves as an umbrella to Graphic design. Efforts also need to be made for adequate provision of adequate, effective, and current teaching materials for both teachers and learners.
2. **Inconstant Power Supply:** Poor and unstable power supply can damage ICT programmes, the adequate and stable power supply is vital for Information Communication Technology facilities/equipment to be functional and have a positive impact on teaching and learning.
3. **High-Cost Rate of Information Communication Technology Equipment/Exchange Rate:**
Nearly all ICT equipment is imported from overseas and this

makes it difficult for average or poor teachers and learners to afford due to high cost in price.

4. **Unavailability of Professional Technicians:**

Most ICT equipment malfunctions and is damaged because of the epileptic power supply in nature and without a professional technician to handle and give proper maintenance to the ICT equipment. In line with this fact, many ICT equipment became scrap.

5. **Poor Maintenance Culture:** Both teachers and learners are subjected to take proper care of the ICT equipment made available to them, but due to carelessness and uncared attitude of the user, many pieces of equipment are exposed to dust, high-temperature condition, flipping of water and many more.

6. **Possible Solution and Recommendation**

1. Government needs to pay adequate attention to education in general through adequate funding, provision of necessary current ICT equipment, and seminars/workshop/training for the teachers on the use of ICT gadgets, there is a need for the establishment of monitoring team/personnel to ensure that funds are been used adequately and effectively.
2. Constant Power Supply: Nigeria's power sector needs to be revived so that the rate of damage to ICT gadgets will be minimal. This call for the attention of the government to put an end to the epileptic power supply.
3. Cost Subsidizing of ICT equipment should be made by the government and non-governmental agencies to promote the teaching and learning of graphic design.

4. Philanthropists and non-governmental agencies should assist the government to focus and finance Graphic Design education with the provision of ICT equipment, seminar/training, and other relevant assistance to both teachers and learners because Vocational and Technical Education is the bedrock of a nation.
5. Professional Technicians need to be in place: Government needs to employ professional technicians to handle and fix any problems that may occur, so to assist both teachers and learners to be safe from losing their ICT gadgets to the hand of trails and error technicians.
6. Teachers and Learners of Graphic Design need to acclimatize with the new technology of ICT to enhance both the teaching and learning of Graphic Design in Nigeria Institutions.

Conclusion

Information Communication Technology (ICT) resources are essential in education and necessary for all professions specifically in the teaching and learning of graphic design. No matter what career one decides to take up in life, there is an almost inevitable need to adopt ICT as a teaching resource to understand the subject matter being taught or learned. This will enhance and boost the standard of teaching and learning of graphic design as opined by Jordan (2018) that graphic design as an art or profession of visual communication that combines images, words, and ideas to convey information to an audience, especially to produce a specific effect. Conclusively, ICT is key for conveying ideas through visuals and design, at the same time making use of digital tools to transform the ideas for proper interpretation.

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