

BASIC ICT LITERACY AMONG NIGERIAN YOUTHS: AN EXPLORATION OF THE SMARTPHONE TECHNOLOGY

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Abstract

Our world has been largely influenced by technological advancement in the form of ICT. This improvement in communication is regarded as one of the space-shrinking technologies because it brought people from different parts of the world closer. This has led to the common mantra about the world becoming a global village. The implication is that with the emergence of information and communications technology (ICT), people who live millions of miles apart can interact as if they are face to face. One of such means of constant communication and interaction is the smartphone technology, which has become a common gadget in Nigeria, especially among the youths. The use of smartphone has helped to address the problem of ICT illiteracy created by inadequate ICT facilities. Today, millions of Nigerian youths can now send/receive mails, surf the net, upload/download files, edit documents, play music and watch movies, connect with family and friends over the net and engage in video conferencing from the comfort of their homes, offices or while in motion. All these services would not have been possible without the use of smartphone because many people do not have the resources to purchase computer and other needed ICT facilities. Therefore, this paper explores how smartphone technology can further improve basic ICT literacy among Nigerian youths.

Keywords: ICT, ICT devices, ICT Literacy, Smartphone, Nigerian youths.

Introduction

Our world has been largely influenced by technological advancement. Van Raaijen (2021) noted that technology continuously influences and shapes society, including the way people communicate, learn, think, and interact. Such influence has manifested in education, home, banking, transportation, business, entertainment and security. The most notable of these technological advancements is ICT, which has spread so fast that it is now

one of the most sought after field in the world as it has made communications of different types possible and easier. The popularity of ICT arises from the fact that the greater percentage of the world populace may not be able to function to full capacity daily without using it. According to Bosamia (2013) the new technologies of the digital age have been accessible in our everyday life with guaranteed benefits, hence, ICT usage is being encouraged as it improves our living standard greatly. Some of the numerous uses stem from generating, storing, retrieval and processing of data to its transmission. Therefore, one may not be wrong to say that ICT is part and parcel of humanity, for without ICT, human beings cannot function properly as they should. Also, without ICT, the world will not be interconnected as it is presently. Imagine what banking, communication and transmission of information would have been in Nigeria presently without the aid of ICT.

Though likened to Information Technology but different because it is mainly rooted in communication technologies, ICT refers to the hardware, software and telecommunication industries that aid data generation, storage, retrieval and dissemination. Buttressing this point, Ratheeswari (2018) stated that ICT covers all the technological devices that give access to information with the aid of telecommunication companies. In the same vein, UNESCO (2006) views ICT as the branch of technology that is used to communicate, store, create, share or exchange information. ICT is the emergence of tools of microelectronic and telecommunications that are used in the automatic acquisition, analysis, storage, retrieval, manipulation, management, control, movement, display, transmission, reception and interchange of quantitative and qualitative data (Boritz, 2000). From the foregoing, it is evident that ICT involves everything that can be done to data so that it can be communicated as information with the help of communication devices, their software and industries.

Communication devices, which refer to ICT devices, are the digital tools (smartphones, computer, telephone lines, radio and television) that are used in the generation, storage, processing, retrieval and transmission of data. Ogunji (2013) posited that ICT devices include radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software, as well as the equipment and services associated with these technologies such as video conferencing and electronic mail. In his view, Sulaiman (2010) averred that the elements of ICTs include communication media (e.g. radio, television), information machine (e.g. computers) and telecommunications technologies and equipment (e.g. satellite, fibre optic cables, phones and facsimile machines). Summarily, ICT devices comprise both digital tools which may be expensive and out of reach to the common man and some basic ones such as smartphones that are not far-fetched, as we make use of them daily.

Some ICT devices are basic as many people find it difficult to live without using them. These devices are also readily available in many Nigerian societies. While this is the case, in many societies within Nigeria, there is low ICT awareness and usage. For instance, Ugwu (2018) observed that many secondary school students and their teachers comprising a greater percentage of the Nigerian youths are not ICT literate, as they know next to nothing about how to make adequate use of ICT gadgets in their teaching and learning sessions. The study attributed this loophole to lack of ICT facilities, both human and material. The author advised that these facilities be made available so that ICT learning can be maximized. This explains why the present research opines that the problem of ICT illiteracy among many Nigerian

youths can be curtailed through the knowledge and use of smartphones as it can expose people to the basic knowledge of ICT such as sending SMS, multimedia and email messages, surfing the net, uploading and downloading files, typing and storing of data, making use of some applications, taking pictures, videoing and teleconferencing.

Drawing from the background, this paper aims to explore the usage of smartphone technology among Nigerian youths with a view to highlighting their level of ICT literacy. The paper begins to address the topic area through a conceptual angle to highlight how and why basic ICT literacy is essential in our contemporary Nigeria. This paper covers the following sections: concept and history of ICT, smartphone technology, ICT literacy among Nigerian Youths (Emphasis on the smartphone technology), and how smartphone technology can improve basic ICT literacy among Nigerian youths

Concept and History of ICT

The term ICT is a confluence from information technology (IT) and communication technology (CT). ICT is a technology that uses information to meet human needs or purposes including processing and exchanging. Ogunsola (2005) described ICT as “an electronic based system of information transmission, reception, processing and retrieval, which has drastically changed the way we think, the way we live and the environment in which we live”. It supports activities involving information such as gathering, processing, storing and presenting data. Increasingly, these activities also include collaboration and communication. **According to UNESCO (2002)** ICT is a scientific, technological and engineering discipline and management techniques used in handling information, application and association with social, economic and cultural matters. ICT is a driving force in the process of transferring worthwhile goals from one individual to another that would make them to be useful to themselves and the society at large.

The conception of ICT could be traced back to when human beings started using objects to communicate with one another. They resorted to using stone and pebbles to keep count of their properties. Thus, the era of ICT in history is grouped in different stages as follows:

1. The pre-mechanical stage: This can be traced back thousands of years ago, around 3000 BCE 1450 CE. During this stage, people started communicating with one another using words and pictograms carved on rocks and writing as substitutes for pictures to depict ideas, objects, and animals. These gave rise to our modern day alphabet.
2. The mechanical stage: The mechanical stage can be defined as the time between 1450 and 1840. During this stage, the interest in automating and speeding up numerical calculation grew. The machines driven by mechanical means such as steam and gears dominated information processing and calculation.
3. The electromechanical stage: This became the beginning of telecommunication. It started around 1840-1940. The use of electricity for information handling and transfer increased. The need and the urgency to share information with one another in a faster yet reliable manner over long distances arose. This stage saw the use of the telegraph to transmit information over long distances.

4. The electronic stage: This is the last stage in ICT history. It started in the 1940s and continued to the present. The highlight of this stage is focused on the advent of solid state devices or electronic devices. The four main events found in this stage are the late vacuum tubes stage, the transistors stage, the integrated circuits stage, and the computer processors stage. (See <https://openbookproject.net/courses/intro2ict/history/history.html> and <http://informationcommunicationempowerment.blogspot.com/2016/07/evolution-of-ict.html>).

As ICT continues to improve and the Internet expanded to near universal coverage in most developed countries, software-based network applications are being developed and applied far beyond the information and communication industries in the banking, retail and service sectors, in industrial production, agriculture, education and medical services, and in government services ranging from issuing licenses to taxation. Increased capabilities for gathering enormous volumes of detailed information (meta data) and the establishment of networks of communicating devices (e.g., Internet) have provided new opportunities for beneficial applications in fields such as science, health and environmental monitoring (Melody, 2015).

The Smartphone Technology

A smartphone is a mobile phone that functions similarly like a computer, with features such as a touchscreen interface, Internet access, and an operating system which enables it to run downloaded apps (Oxford Living Dictionaries, 2017). In their view, Brynjolfsson and McAfee (2014) added that a smartphone is a multipurpose physical device of internal complexity with processors, sensors, GPS, camera, microphone, speaker and display. The term mobile suggests that smartphones are portable and movable and are personal in the sense that they can only be owned and used by one person. People have so gotten glued to smartphone that it is seemingly impossible for one to go out without it. In support of the foregoing, Xia et al (2015) opined that “Smartphones are becoming increasingly intertwined with people’s daily lives because they are now equipped with more powerful processors, more memory, multiple network interface, and more powerful operating systems such as Windows Phone, Android, Apple IOS”. This means that smartphones have become part and parcel of our daily activities as many people find it difficult to accomplish their daily tasks without the help of a smartphone. Figures 1 and 2 are some images of the smartphone.



Figure 1



Figure 2

Figure 1: Screen view image of a smartphone showing some applications, while figure 2 consist of two images; the first one shows the back view of a smartphone with the camera button, and the second shows another screen with a screen saver displayed on it (source: images gotten from clip art).

The first smartphone was designed by IBM and sold by BellSouth in 1993. It included a touch screen interface for accessing its numerous functions. With the introduction of solid-state computer memory and integrated circuits in smartphones, it became more computer-like with more-advanced services such as Internet access. Advanced services became ubiquitous with the introduction of the third-generation (3G) mobile phone networks in 2001. Before 3G, most mobile phones could send and receive data at a rate sufficient for telephone calls and text messages. Using 3G, communication takes place at bit-rates high enough for sending and receiving photographs, video clips, music files, e-mails, and more. (William, 2022)

Today, the 3G of yesterday has metamorphosed into 4G and 5G and with this, the smartphone became very fast, with an increased features and bandwidth. The smartphone is characterized by its handheld size and its ability to be used in making/receiving calls, sending/receiving messages and having the functions of a computer, hence the name, miniaturized computer.

One of the most important elements of a smartphone is its connection to an app store. An app store is a centralized portal where users can search for and download software applications to run on their phones. A typical app store offers thousands of Mobile apps for productivity, gaming, word processing, note-taking, organization, social media and more. (Alyssa, 2019)

Furthermore, some other features of the smartphone are as follows:

- Internet connectivity.
- A mobile browser.
- The ability to sync more than one email account to a device.
- Embedded memory.
- A hardware or software-based QWERTY keyboard.
- Wireless synchronization with other devices, such as laptop or desktop computers.
- The ability to download applications and run them independently.
- Support for third-party applications.
- The ability to run multiple applications simultaneously.
- Touchscreen.
- Wi-Fi.
- A digital camera, typically with video capability.
- Gaming.
- Unified messaging.
- GPS.

Uses of the smartphone technology among Nigerian youths

Smartphone empowered by the GSM communication protocol has emerged as the most prevalent means of voice communication in Nigeria (Nwachukwu & Onyenakeya, 2017).

Accordingly, Degusta (2012) opined that smartphone has turned out to be one of the technologies that has extensively spread and has been adopted widely in different parts of the world. The way people access information has changed with the emergence of smartphone technology. Thus, the functions of a smartphone are not limited to messaging and assessing of information, it also allows for long distance communication among many others such as listening to online music, online shopping and banking, watching movies, uploading and downloading images, and enabling the rescue of workers in a disaster zone through pinpointing their exact location (Anderson, 2016). Buttressing the above, Yudhijit and Bhattacharjee, (2019) stated that smartphones have revolutionized our lives in ways that go well beyond how we communicate with one another. Similarly, Darko-Adjei (2019) added that smartphones have replaced the works of cameras, video recorders, and digital watches as they are becoming unfamiliar for one to acquire for personal use except needed for commercial purposes. Some of the essential uses of the smartphone technology are further discussed as follows:

Increased Awareness: Smartphones help young people, both in rural and urban areas, to stay connected with each other and with the world by staying up-to-date with the political, economic and social issues affecting Nigeria. In support of the above, Lim and Loh (2019) averred that there has been some level of enthusiasm associated with smartphones and their ability to make mobile internet access a possibility for previously disconnected communities thereby availing them with stimulating chances to communication, education, health and consumer services. For instance, The EndSARS protest at Lekki Tollgate in Lagos on October 10, 2020 shows how smartphone technology helped protesters to make their voices heard by the outside world. Videos of the Nigerian army shooting in Lekki Tollgate was filmed and livestreamed (Arogbono, 2021). Assuming there were no smartphones and internet, anything would have been said about what happened on that fateful day.

Creativity and Innovation: Mobile phones are equipped with different applications, features and capabilities that can easily be applied to create useful innovations. According to Warschauer (2007), mobile technologies have great prospects for promoting more cutting-edge educational procedures as they will not only help subject content learning, but may also expedite the development of communication, problem-solving, creativity, and other high-level skills among young people. For instance, some students from northern Nigeria created and shot some science fiction films produced with the aid of their smartphones. The movies went viral and brought the creativity of these students to limelight. Many Nigeria youths are very close to their smartphones and can easily manipulate it to perform different functions. This makes it a valuable tool for innovations and creativity. Beyond the entertainment industry, such creativity and innovation can also be found in other sectors in Nigeria such as education, security, religion and transportation (Onyema, 2019).

Promotes Classroom and Outdoor Learning: One of the uses of Smartphone can also be seen in the manner in which it facilitates learning both in and outside the classroom. According to Sung et al (2016), mobile devices such as laptops, personal digital assistants, and mobile phones have become learning aids with great prospects in both the conventional classroom learning and beyond. Mobile phones support the amount of learning that occurs during the many activities of everyday life, learning that occurs spontaneously in impromptu settings outside of the classroom and the usual environment of home and office. (Valk et al., 2010).

Young people have all these information at their fingertips with a mobile phone. Smartphones has also made it possible for young people not to be restricted to school books for learning as they can now learn about the world by browsing sites on their mobile phones. In the same vein, the use of smartphone is gradually becoming a compelling learning tool used to enhance teaching and learning in distance education as its usage promotes flexible course delivery and equally help learners to access online learning platforms and be able to interact digitally (Darko-Adje, 2019). Today, many Nigerian youths are keen to utilize the smartphone in gaining worthwhile skills and practical knowledge from the many available resources online and this in turn helps to broaden their thinking through global exposure.

How Smartphone technology can Improve Basic Knowledge of ICT of Nigerian Youths

The invention of smartphones and its usage as an ICT device has exposed Nigerian youths to recent innovations and developments in science and technology in this digital age thereby advancing their learning and knowledge of ICT. The use and functionality of smartphones towards improving the knowledge of ICT among Nigerian youths are further discussed as follows:

Smartphone Features and Functions

According to Technorati (2019) “A smartphone is a mobile phone with highly advanced features. A typical smartphone has a high-resolution touch screen display, WiFi connectivity, Web browsing capabilities, and the ability to accept sophisticated applications”. Ifeanyi and Chukwuere (2018) opined that smartphones are products of ICT inventions developed with multimedia features, such as camera function, sound recording function, video function, internet function, applications for data processing function and many others, of which, these features assist students to drive their learning process and dreams effectively. The respective functions of each feature of a smartphone make the knowledge of ICT among Nigeria youths to be driven home quickly with a more tangible hands-on experience. It is worthy to note that in Nigeria as a developing country, the invention of smartphone technology thrived with the quest for new knowledge on global system of communication and information dissemination through ICT and towards technology advancement (Ezemenaka, 2013). Smartphones and mobile technologies have made exchange, access to and mobility of information much easier and more personal to the individual (Kent, 2016). Ebiye (2015) enumerated specific benefits of smartphones, which comprise mobile teleconferencing, mobile audio and visual calls, as well as sending and receiving electronic mails, thus, improving ICT literacy among its users (Nigerian youths inclusive).

Smartphone Literacy on Dialogue and Collaboration

Ifeanyi and Chukwuere (2018) noted that “collaboration is a key in 21st century skill that Singapore’s teachers are trying to help their students learn. Therefore, embracing the effective use of smartphones, students (Nigerian youths) are engaged in dialogues, educative debates, transactional analysis and other collaborative activities as this showcases an excellent illustration of how the smartphone facilitates conversation and information/content sharing thus, an example of ICT basic knowledge (Buck et al., 2013; Vanwelsenaers, 2012). Smartphones has brought bank and business transactions closer to its users, through credit cards, Automated Teller Machine (ATM) and bank-apps which are being used to withdraw and transfer money from banks thereby exposing Nigerian youths to new knowledge of ICT.

Smartphone Digital learning

In this 21st century, it can be posited that smartphones have proven to be key ingredients in engaging children in activity-based learning or flipped classroom, such that students from different kinds of socioeconomic backgrounds have the same opportunity to access learning materials through digital-age information such as e-library, e-learning or mobile learning (Ifeanyi & Chukwuere, 2018). The significant progression in ICT has brought about tremendous benefits in human life especially in the area of teaching and learning. Ebiye (2015) regards a smartphone as a smart device used for fast access to knowledge, geared towards students achieving their teaching, learning and academic research objectives. Smartphone encourages micro-learning, distance learning and social-media app learning which involves the use of ICT gadgets for the employed and unemployed youths for advancement of knowledge and skills (Emerson & Berge, 2018). From the ongoing, it can be deduced that Nigerian youths (including students) who have low literacy skills and knowledge towards ICT becomes more enlightened through their smartphones as they continually use their devices to multitask on mobile-apps, social media, surf the net on recent innovations in science and technology as a whole and communicate globally.

Conclusion

Even though the computer system is an important ICT tool, many Nigerian youths are ignorant of how to make use of it. This is worrisome because ICT has become the order of the day and it is not possible to refer to any sector of human life without referring to its importance and uses in that sector. However, a solution to this problem can be found in the smartphone technology as it is equally an ICT tool. The smartphone has become increasingly popular among Nigerian youths as their lives revolve around it. Given the situation, this study has argued that since the smartphone otherwise known as a miniaturized computer can perform most of the functions of the computer system, it can as well help Nigerian youths to improve their basic knowledge of ICT literacy such as communicating information, surfing the net, uploading and downloading files, engaging in video conferencing, sending emails, and interacting with one another through social networking sites.

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