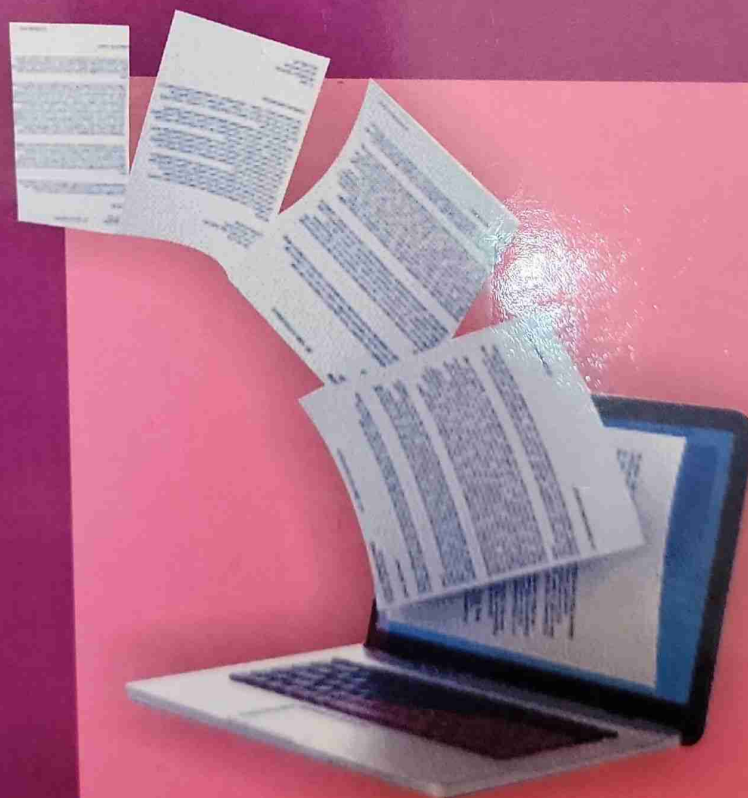


SOCIAL SCIENCES FOR BEGINNERS

VOL. III

Introductory Social Statistics and Computer Appreciation



Editors:
G.T. Ijaiya
U.A. Raheem
R.A. Bakare
F.M. Ajide

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Volume 3

(Introductory Social Statistics and Computer Appreciation)

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Contributors Name and Departments

1. Abdulhakeem A. Kilishi	Department of Economics
2. Folorunsho M. Ajide	Department of Economics
3. Toluwalope M. Agaja	Department of Geography and Environmental Management
Issah, Moshood	Department of Sociology
4. Adekeye D.S., Akangbe T.A., Akor	Department of Sociology
5. Ameen, A.O	Department of Computer Science
6. Ajewole David. O. and Agaja Toluwalope M.	Department of Geography and Environmental Management
7. Bajeh, A O	Department Of Computer Science
8. Mojeed H. A	Department of Computer Science,
9. Mabayoje M. A.	Department of Computer Science
10. Abdulraheem, Muyideen	Department of Computer Science
11. K. O. Laro & U. A. Raheem	Department Of Geography And Environmental Management

Faculty of Social Sciences
University Of Ilorin,
Ilorin, Nigeria

CHAPTER ELEVEN

CHALLENGES OF DIGITAL LITERACY IN NIGERIA

K. O. Laro & U. A. Raheem

Department of Geography and Environmental Management
University of Ilorin, Ilorin

INTRODUCTION

The ability to access, manipulate and use information is the basic requirement for survival and development in the emerging information age in which information is growing by leaps and bounds. However, the capacity and capability to access and apply information must find bearing in information and communication technology (ICT) in the global village (Aduwa-Ogiegbaen & Iyamu, 2005). The ability to access and apply information is widely referred to as information literacy, a term which, according to Kubiato (2007), simply involves the ability to find and use information. Digital literacy has become a “survival skill” in the technological era – a key that helps users to work intuitively in executing complex digital tasks (Eshet-Alkalai & Amichai-Hamburger, 2004, 421).

Digital literacy can be approached from at least two different standpoints: one is from a conceptual point of view and the other is from an operational standpoint; each comes with its own definitions. Eshet-Alkalai quoted by Bawden (2008) says that there are those who see digital literacy primarily concerned with technical skills and those who see it as focused on cognitive and socio-emotional aspects of working in a digital environment. A comprehensive conceptual model of digital literacy, comprised of six literacy skills. They are: photo-visual literacy, reproduction literacy, branching literacy, information literacy, socio-emotional literacy, and real-time thinking (Eshet-Alkalai & Chajut, 2010: 174). Defining these skills proves to be the achievement of digital literacy in the complexity of communicative tools and the relations between them, literacy practices involve cultural knowledge, the employment of artefacts, and representations of the world (Gillen, 2009: 72). In this chapter, we discuss the importance of Digital Literacy, examine digital literacy in Nigeria schools, digital literacy in higher education, paradigms in digital literacy, the connection between digital literacy and citizenship, challenges and Conclusion

What is digital Literacy?

The National Curriculum Framework for All (NCF, 2012) sees digital literacy as a cross-curricular theme where students will, “acquire skills that include confident and critical use of information technology (IT) for communication, work and leisure. The Royal Society for Digital Learning (2012) sees “as the basic skill or ability to use a computer confidently, safely and effectively, including, the ability to use office software such as word processors, email and presentation software to create and edit images, audio and video, and to use a web browser and Internet search engines (Royal Society, 2012). In summary digital literacy is the ability to find, manipulate and use information and must necessarily be grounded in computer literacy, which, at its basic level, involves the ability to use the new computer technologies to effectively perform a variety of tasks involving the processing, manipulation and storage of information.

However, we need to go beyond a skills based understanding of digital literacy. It is erroneous to associate digital literacy only to basic computer skills. Such association would

be akin to saying that literacy is merely the ability to read and write which of course is a part of literacy but digital literacy is deeper. It is about the understanding of meaning and the conveyance of meaning rather than simply reading and writing skill on their own. For Future Lab (2010) states that "Digital literacy refers to the more subtle and situated practices associated with being able to create, understand and communicate meaning and knowledge in a world in which these processes are increasingly mediated via digital technologies." It is largely about understanding and conveying meaning just like literacy but this time mediated through a digital domain.

The British Computer Society argues that digital literacy provides a critical understanding of technology's impact on society and the individual, including privacy, responsible use, legal and ethical issues. (British Computer Society/ Royal Academy of Engineering, 2012). For example finding things on the Internet matters, but an awareness of how a search engine like Google puts those results in order and Google's business model are important in our understanding of technology's impact on our everyday lives. Similarly, the Norwegian Ministry of Modernisation, emphasises the critical element in its definition of digital literacy. According to the ministry, "Digital skills include the ability to exploit the opportunities offered by ICT, and use them critically and innovatively in education and work. Digital skills also include the ability to be critical to sources and assess content. Use of digital tools is a skill the individual must acquire, maintain and continually develop, if he or she is to be a digitally skilled and critical citizen" (Cited in Erstad, 2007).

Digital Literacy in Nigerian Schools

In the context of the Nigerian education system, the first official effort towards integrating computer education into the school system dates back to the 1980s. In 1987, the Federal Government, at the 32nd Ministerial Council Meeting of the National Council on Education, set up a National Committee on Computer Education. This crystallized into the establishment of a National Policy on Computer Education in 1988. The general objectives of the policy aim:

- i. to ensure that the general populace appreciates the impact of ICT on today's society;
- ii. to equip Nigerians with the Knowledge and skills to develop software packages, understand the structure and operation of computers and their history; and
- iii. to appreciate the economic, social and psychological impact of the computer

Beyond the primary objective of ensuring that Nigerian secondary school students are reasonably computer literate, the Federal government of Nigeria has a vision that transcends the realm of computer literacy to embrace the gamut of (ICT). It was this vision that prodded the Nigerian Federal Executive Council into approving the National Policy for Information Technology in 2001 that recognises the use of information technology (IT) in education, wealth creation, poverty eradication, job creation, and global competitiveness. On education, the Policy stresses the importance of restructuring the education system at all levels to respond effectively to the challenges and imagined impact of the information age and, in particular, the allocation of a special IT development fund to education at all levels. Notwithstanding the existence of enabling policies, questions relating to the depths of integration of computer education and the existence of computer literacy disparities continue to crop up. Different studies have shown low levels of computer integration in the school system. Oduwole, et al (2002) citing Ajala (2001) pointed out that studies in Nigeria

have reported the use of ICT in university libraries. Similarly, Akintunde, (2006) reported the use and application of computer by different levels of students (undergraduates and postgraduates) in universities and found that their use of computers was below average. The study by Ozoemelem (2009) on use of e-resources by postgraduates of the Department of Library and Information Science of Delta State University, Abraka, Nigeria observed that there was low level of computer literacy among the respondents. This low level of computer literacy has also been reported by (Issa, et al, 2009) among students of the University of Ilorin, Kwara State, Nigeria where they reported that only 25% of their respondents use computers for searching education-related database.

What students need to know about digital literacy in the 21st century

- i. Students need to be able to solve complex problems in real time (problem solving);
- ii. Students need to be able to think differently and creatively in both digital and non-digital environments to create new and useful solutions (creativity);
- iii. There is a significant difference between teaching how to learn and teaching content. Often in schools the focus is on content because it is easy to measure. It is very easy to test and assess low-level factual recall. Assessing the low level recall should be considered the minimum starting point and not the end and final goal. So students need to think analytically; comparing, contrasting, evaluating, synthesizing in the higher end of Bloom's Digital Taxonomy - (Critical thinking and information literacy);
- iv. Students must have the ability to collaborate seamlessly in both the physical and virtual spaces with both real and virtual partners. (Collaboration);
- v. Students must be able to communicate but not just with text or speech but in multiple multi-media formats. (Communication and media literacy);
- vi. Students need to act ethically taking personal responsibility, take calculated risks, being resilient, having a global perspective, understanding other cultures, traditions, customs and religions. This category also includes environmental stewardship and acting altruistically. (Actions, ethics and accountability).

Digital Literacy in Higher Education

Digital literacies are variously defined by different scholars but can include fluency with texts in digital form, a critical stance regarding digital texts, and comprehension of the contexts that produce those texts. Some definitions focus on the need to understand the complex ideas represented in digital media. Others focus on the skills and tools needed to use technology to engage information sources. Still others emphasize technology, research and critical thinking generally, within the context of knowledge production. Digital literacy in higher education should include a critical understanding of the context of information, media and knowledge production, including not only the limitations and constraints imposed by the design of digital tools, but also the social, legal, political, economic, and cultural constraints of the media. These broad definitions of digital literacy (including meta-literacy, critical reflexivity, and multi-literacy) are applicable in many contexts from early childhood to adulthood; they are especially important in understanding digital literacy in undergraduate and graduate education and in professional scholarship.

Digital Literacy and Citizenship

This Digital Literacy document takes the stand claimed by “

It is better to look at digital Literacy and Digital Citizenship as a hand in glove relationship. Some scholars have examined the relationship between this two. For example Gilster (1997), Pool (1997), and Lankshear and Knobel (2011) documented that digital literacy involves “mastering ideas, not keystrokes. Digital Literacy and Digital Citizenship are different but they should be done together because improvements in one create improvements in the other. Digital literacy is about knowledge; it is a package of skills that is related to the digital world. This includes the ability to search, to tell the difference between an advert and a scholarly result, between a biased and an impartial, fair result. These all fit into the digital literacy portion.

Digital citizenship is about action. It is about the way one treats and respects other people. In a way, digital literacy leads to digital citizenship. When teaching students how to critically engage with the web one actually empowers them to do the same in their relationships on the web. Digital literacy is the essential skills required to consume, synthesise and create. Students may look at something and ask whether it is biased or current, who is writing it and why is it being written. Then, the students can take those pieces of information, understand how they are contextualised and ask further questions to see where else and what else is required to fill in gaps. Finally, the students come to a point where they will need to formulate an opinion either as a group who assume different roles or as individuals.

Paradigms for Digital Literacy

It has been found that the use of ICTs is dependent on the perceptions of developers and users about the nature of technologies and their role in different ways of life (Aviram and Tami, 2004). Sasseville (2004) have found that ICT-related changes are “not perceived as a collective experience or social change rather, personal challenge. ICTs can play either “instrumental” or “substantive” role in the learning process (Macleod, 2005). Jonathan Ezer (2006) classifies this issue into 'instrumental' and 'liberal' conceptions of e-Learning. Instrumental view asserts that ICTs are just technologies and their role depends on their use while substantive view posits that these technologies have the power to change the society and their mere existence can make the difference (Mehra & Mital, 2007).

According to Tinio (2002) he suggested three roles of ICTs and digital literacy:

- i. Learning about ICTs, where digital literacy is the end goal.
- ii. Learning with ICTs where technologies facilitates learning.
- iii. Learning through technologies thereby integrating it into curriculum.

Another researcher (Sahay, 2004) identifies four dimensions of digital literacy:

- i. ICTs as an Object: Learning about the technology itself. Here, courses are offered to get knowledge and develop skills about different tools. This prepares students for the use of ICTs in education, future occupation and social life.
- ii. Assisting tool: ICT is used as a tool for learning, for example, preparing lectures or assignments, collecting data and documentation, communicating and conducting research. ICTs are applied independently from the subject matter.
- iii. Medium for teaching and learning: This refers to ICT as a tool for teaching and learning itself, the medium through which teachers can teach and learners can learn. Technology based instructional delivery appears in many different forms, such as drill and practice exercises, in simulations and educational networks.

iv. ICTs for education management: The most common and wider application of ICTs

is in the organizational and logistic functions of the higher education institutions in the form of transaction processing systems (TPS) and management information systems (MIS). Furthermore, 'instrumental' vs. 'substantive' dichotomy reflects the 'behaviourist vs. constructivist' (Boundourides, 2003) modes of teaching and learning with regards to digital literacy. Behavioural or objectivist approach (instrumental) to teaching and learning ICTs believes more in physical activities and outcomes. Constructivist (substantive) mode of teaching and learning is ideological and cultural with the belief and conviction that ICTs should be integrated into the very core of teaching and learning with mega changes in pedagogy and knowledge-acquisition (Mehra & Mital, 2007). The technological advancements in eLearning are linked with the theories of learning like behaviourism, objectivism, constructivism and cognitive and social constructivism.

Instrumental/behaviourist

Instrumental view of technology is the most commonly held belief, which considers technology as a 'tool' without any inherent value (neutral) and its impact lies in how it is used so a 'one-size-fits-all' policy of universal employment is used (MacLeod, 2005; Radosevich & Kahn, 2006). The logic of this first sentence is hard to get at. If technology is considered a tool, with its impact depending on how it is used, the conclusion cannot be "one-size-fits all". There is room for plurality of approaches, and different uses in different contexts. There are clearly some "instrumentalists", (big top-bottom planners) who adhere to the "one-size-fits-all" policy but it is not inherent to the instrumental approach to technology. Instrumental education is based on the premise that education serves society so focus is on the utility and usefulness of education to the economy.

The underlying philosophy behind the instrumental point of view is the objectivist approach wherein instructor presents the learner with the required stimuli along with the required behavioural responses within an effective reinforcement regime. The degree of learning is assessed through observable measures such as tests, assignments and examinations (Ward et al., 2006). "Objectivism believes that everything related to learning is predictable therefore one learning-model fits all. Likewise, behaviourism give priority to the stimulus response relationship in learning and underplays cognitive role therefore sees the learning environment as in objectivism (Young, 2003). This is exactly like behaviour of scientific management where worker is taken as a part of a big machine called organization. The objectivist teaching gives complete control of materials to the teacher who manages the pace and direction of learning thereby making learning a sequential process where there is a single reality about which the "learners display an understanding through declarative, procedural and conditional knowledge (Phillips et al., 2008)." It is difficult to agree with such an oversimplification, it looks like the "Pavlovian debate of the beginning of the 20th century.

Substantive/ Constructivist

The ICTs can play a supplemental as well as central role in learning by providing digital cognitive or adaptive tools or systems to support constructivist learning (Sirkemaa, 2001). Contrary to instrumental, substantive view of ICTs is a determinist or autonomous approach, which argues that technology, is not neutral and has positive or negative impacts. Technological determinism encourages the idea that: the mere presence of technology leads to familiar and standard applications of that technology, which in turn bring about social

change (Macleod, 2005; Radosevich & Kahn, 2006). The substantive theory matches with the 'liberal theory' of education (Ezer, 2006), which views learning as active and interconnected experience and not simply a recollection of facts. This paradigm suggests using ICTs beyond their 'supplemental (instrumental)' role to broader. Constructivists contend that ICTs should not be guided by a technologically deterministic approach. The social, cultural, political, and economic dimensions of technology use have to be taken into consideration so that by facilitating the development of electronic literacy, culturally relevant online content, interfaces and multimedia, the process of social inclusion can be achieved within developing countries (Macleod, 2005).

The effectiveness of the behavioral approach is questionable in areas that require comprehension, creativity and 'gray' answers (Ward et al., 2006). The moves towards constructivism in higher education have been pushed by the emergence of universal connectivity through ICTs (Wims & Lawler, 2007), which enabled the masses to globally communicate and most importantly access to the world knowledge resources through the advent of internet after 1990s. Given the access to broader sources of knowledge, contemporary theory suggests that collaborative learning is the most effective means of facilitating teaching and learning in digital environments (Phillips et al., 2008).

Furthermore, a new version of this kind of thinking is 'social constructivism', which is gaining foothold in higher education because teaching and learning can now easily be undertaken as a social and community activity through social software (Bondarouk, 2006). Social software enables collective learning (social) along with individual (cognitive) with the help of traditional email/chatting and modern wikis, blogs, vblogs, RSS feeds and the list continues (Klamma et al., 2007). For example, RSS is a format used to publish frequently updated works like blog-entries, new headlines, audio and video. As shown in (Figure 1), instrumental and substantive are two distinct moments in the learning process

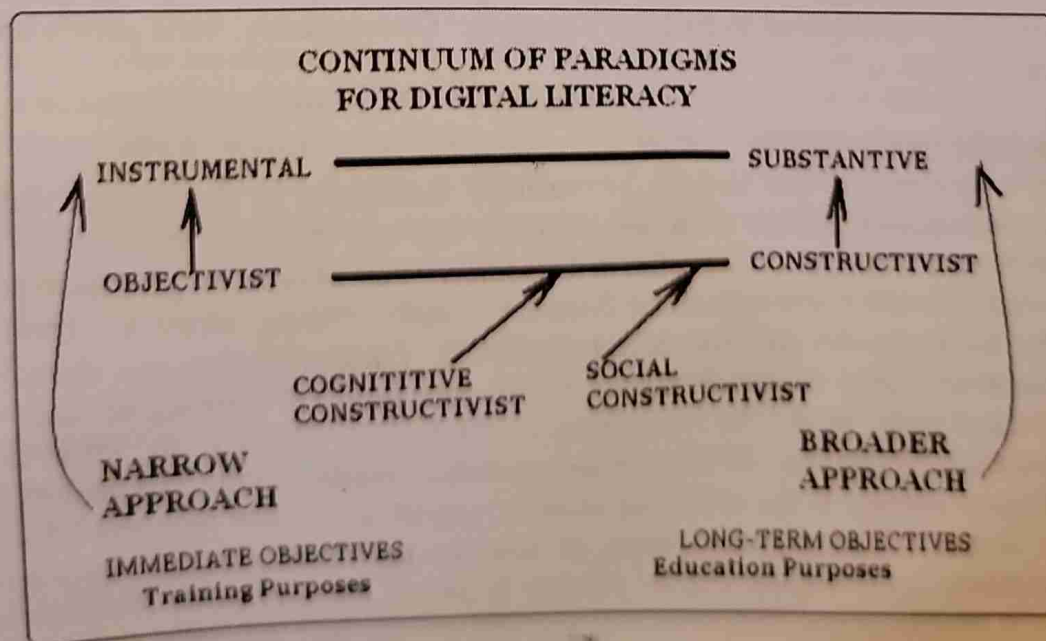


Figure 1: Continuum of paradigms for digital literacy.
Source: Nawaz, A. & Kundi, G. M. (2010)

Both are essential for successful mastering of any technology, art, science, etc. learners. If the environment is too complex the user will be lost, confused or frustrated. On the other hand, too simple or non-systematic environments cause motivational problems (Sirkemaa, 2001). Technology is by nature disruptive and so, demands new investments of time, money, space and skills and changes in the way people do things (Aaron et al., 2004). Furthermore, face to-face communication is critical for classroom social relationships and interpersonal processes while, online technologies have reduced support for social interaction. Although, emotions can be conveyed through e-mail or chatting, it does not replace "the fundamentals of our socio-emotional well-being (Russell, 2005)." Thus, "barriers can make technology use frustrating for the technologically perceptive, let alone the many teachers who may be somewhat techno-phobic (Ezziane, 2007)."

Challenges of Digital Literacy in Nigeria

A number of factors have been outlined by various interest groups as reasons for Nigeria's poor performance in global ICT (by extension digital literacy) compared to developed countries of the world. Some of these reasons are outlined below.

Illiteracy / Language Barrier

Literacy in its simplest definition is the ability to read and write, while adult literacy rate is the percentage of people ages 15 and above who can both read and write with understanding a short simple statement about their everyday life. The National Commission for Mass Literacy, Adult and Non-formal Education (NMEC) (2019) posited that 35% of the nation's adult population were illiterate. Though the Nigerian government has made efforts to bridge the literacy gap by embarking at one time or the other, on programmes with various captions such as Education for all, Mass Literacy Campaign (MIC), one-third of the adult population still lack basic literacy. Nigeria is a multi-lingua state; some of her citizens can only write and speak in local languages other than English. Most, if not, all of the ICT facilities imported into Nigeria are configured in English Language. Consequently, these people are digitally excluded.

Poor Digital Literacy Skills

Virtually every area of our lives is increasingly dominated by the internet and digitized services; individuals unable to access, interact and use digitized services are gradually excluded from enjoying basic benefits in the society. "Just as providing books to people who cannot read does not solve functional illiteracy, simply offering access to technology does not bridge the digital divide" (Maria & Lane 2017). Lack of basic digital literacy skill is a major threat to digital economy. Conventional education i.e. learning to read, write and communicate; can never be downplayed. However, literacy in information and communication technology (ICT) is a non-negotiable standard in the 21st century (Posigha, 2010). Digital literacy is the ability to identify, search and utilize required information in multiple formats from a wide range of sources presented through information and communication technologies. Digital literacy is one of the core skills required for digital economy. It enables one to find, critically appraise and manage information that is useful for every area of life.

Affordability

A survey by Research ICT Africa (2014) disclosed that 70% of non-internet users in

Nigeria say affordability is the main reason for not using the internet. Majority of internet users in Nigeria access it exclusively using mobile devices. Smart phones and tablets have become very popular in Nigeria. Nevertheless, a mobile broadband cost is high for most people in a country like Nigeria where low per capita incomes subsist. World Bank (2014) reported that around 80% of Nigerians earned \$2 or less a day, or \$730 per year. The cost of ICT services is a major barrier to increased internet and broadband usage. Nigeria cannot boast of free Wi-Fi to enable internet access; and internet speeds are particularly slow. For Nigerians with low per capita incomes, the price of a mobile phone can represent a consequential barrier to access and even regular usage of the internet ²¹. When respondents to a Research ICT Africa (2014) survey who did not use the internet were asked why they did not, almost 70% reported that the services were too expensive. From that Survey, only 3.4% of households, or 747,025, have a fixed internet connection, and 62% of internet users depended solely on their mobile phone for online access.

Internet Crime / Computer Phobia

Internet scam coded as 419 is very popular in Nigeria and has made the internet to appear unsafe. Incidents of hacking into persons and organizations important files and exposure of confidential documents have not helped matters. These have left people vulnerable to online threats including identity theft, cybercrime and exposure to hate sites. Consequently, many people have become apprehensive when it comes to computer/internet access and usage. They would rather not have anything to do with such ICT facilities.

Urban and Rural Areas Disparities

Rural areas in Nigeria constitute about sixty percent of the country's habitable land space²⁴. These parts of the country are adjudged economically underdeveloped as they are plagued with poor infrastructure hence the continuous migration of persons in the productive age bracket from rural to urban areas in Nigeria. Considering the development advantages that ICT offers, those who are on the disadvantaged side of the digital divide will remain digitally excluded and underdeveloped. The level of information and computer illiteracy in the rural areas is alarmingly high. Apart from illiteracy, most people in these communities are low income earners and as such, the provision of ICT facilities remains a luxury. Ibikunle (2013) reported that internet access in rural communities is poor and almost non-existent. From a general household survey of 2011, it was reported that 84% of urban dwellers have access to mobile phones while only 58.5% of rural dwellers have access to mobile phones. Most owners of mobile phones in rural areas use them for making calls, rather than for accessing the internet to interact and search for important information. Correa and Pavez (2016) corroborated this when they observed that in the rural communities there is a lack of telecommunications infrastructure, a lack of electricity and a reluctance on the part of internet services providers (ISPS), cybercafé operators and other stakeholders to extend their internet services

CONCLUSION

This chapter has given an overview of different definitions of Digital Literacy while each of these definitions is valued and weaved into a comprehensive view of a 21st century learner, the expected roles and competences emerge and were highlighted accordingly. To be successful in life beyond the school, students need problem-solving skills; they need creativity, critical and analytical thinking and communication and collaboration skills. The

digital era is not going to disappear anytime soon and so there is need for education to respond to the growing digital tide which is rapidly increasing. Governments, IT companies, NGOs, and the international community have a vital role to play in spreading digital literacy across different geographical and social strata. In addition there should be provision of infrastructures for broadening ICT and broadband reach to remote areas as well as reducing the cost of access for the low income group. This will help the citizenry to acquire 21st century digital skills they need to attain sustainable development.

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