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DIGITAL LITERACY: A MUST FOR OPEN DISTANCE AND E-LEARNING (ODEL) STUDENTS

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Abstract:
Digital literacy is generally defined as the ability to utilise information and communication technologies in learning. Open distance and e-learning students have their learning separated by space and time. The utilisation of information and communication technologies comes in handy to enhance learning for open and distance learners. However, open and distance learners should exhibit high levels of digital literacy in order to make use of available information and communication technologies in learning. This paper explores the concept digital literacy and related theories informing it. The paper further discusses the importance of digital literacy for the enhancement of learning for open and distance learners in as well as interrogating the unique nature of open and distance learners and information access. Opportunities and challenges in the utilisation on ICTs by open and distance learners in the developing world shall also be explored.

Keywords: open and distance learning, information literacy, technology integration, teaching and learning

1. Introduction

Digital literacy is imperative in running Open Distance and e-Learning (ODL) programmes in institutes, as ODeL is mainly technology driven (Santos & Serpa, 2017). Lubbe (2016) points out that there are specific skills and competencies in information and Communication Technologies (ICTs) that are required from both lecturers and students to institute a successful programme. Thus, in designing and developing ODeL

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environments, the technological features of Information and Communication Technologies must be put into consideration.

Using the ODeL mode of education is a current dimension that globally, countries have employed in order to make education reachable and affordable to most of their populations (Sparks, Katz & Beile, 2016). According to Osuji (2010), most universities in Kenya use the single mode conventional system of education, while some run the dual mode, while two institutions run the single mode distance education.

ODeL accommodates a large number of students learning in an institute at a time in the same programme. According to Esterhuizen (2015), an approximate number of 30 000 of the about 60 000 teacher-students registered at the Potchefstroom Campus in North West University in South Africa were unqualified or under qualified practising teachers, who are improving their qualifications through ODeL, living and working in all nine provinces in South Africa and in the neighbouring countries, Namibia and Botswana. Liebenberg, Chetty, and Prinsloo (2012:1) state that,

> *"In the context of the University of South Africa (Unisa) as a mega ODL institution, students' access to technology and their functional competence are some of the critical issues to consider as Unisa prepares our graduates for an increasingly digital and networked world."*

Digital literacy is a requirement in ODeL institutes. Both the instructors and the students need to have the ability to use ICT tools in a distance mode of education and these will work well when there is access to the internet (Reynolds, 2011).

2. Defining the concept of digital literacy

The world today has taken a step in literacy, further than the ability to read and write, and the ability to comprehend a text, to a need to master a new skill called digital literacy. According to Dzakiria and Christopher (2008:1),

> "*Open Distance Learning calls upon an impressive range of technologies to enable distance teachers and distance learners - to communicate with each other in real time - and learning opportunities at a time, place, and pace to suit their individual lifestyles, learning preferences and personal developments plans."*

Digital literacy is a skill that all Open Distance e-Learning (ODeL) students must have for a successful ODeL programme (Buckingham, 2006). Technological developments in media are transforming the way educational institutions operate. This move requires members of the education society, not only to possess skills and abilities related to the use of technological tools, but also knowledge regarding the norms and practices of appropriate use of digital devices (Meyers, Erickson & Small, 2013).

Murray (2018) reveals that digital literacy infers to reading-writing skills, but without paper, pencils, books, or lectures. The digital world offers tremendous benefits

to all members of the society, including students in all systems in education. It provides digital platforms and opens up opportunities to learn about new and important issues, and it empowers innovation (Brodie, 2018). Open Distance and e-Learning (ODeL) is one such digital innovation that educational institutions have invented in response to the world that is changing towards a digital lifestyle of its inhabitants. Hence, there is a need for students to be digitally literate, in order for them to fit into the digital modern society.

Digital literacy according to Lynch (2017:1) is "*the ability to find, evaluate, utilise, share, and create information found online…"* Similarly, Heitin (2016) reveals that, "*Digital literacy is the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."* Digital literacy is necessary to become digital populaces and individuals responsible for how they use technology to interact with the world around them (Promethean, 2017). According to Burns (2017), it is vital for digital literacy to be well resourced and taught accordingly as it is the fourth pillar of a child's education alongside reading, writing and mathematics. Thus, digital literacy refers to an individual's ability to find, evaluate, produce and communicate clear information through writing and other forms of communication on various digital platforms. ODL students need digital literacy so that they have the ability to connect to the world and acquire information desired for their studies (Murray & Perez, 2014).

News and media literacy (2018) points out that, digital literacy is part of media literacy, and that digital literacy and media literacy both included the idea of information literacy. Further, Common Sense Media, (2018) reveals that digital literacy specifically applies to media from the internet, smartphones, video games, and other nontraditional sources. Buckingham (2006) purports that, it is important for a teacher to ensure that students are digital literate first before using the digital devices to teach them. While, information literacy is the ability to effectively find, identify, evaluate, and use information. Common sense media (2018) describes digital literacy as the use of the internet, smartphones, video games, and other nontraditional sources. Study Smart Zone (2018:1) reveals that,

> *"Digital literacy means having the skills you need to live, learn, and work in a society where communication and access to information are increasingly through digital technologies like internet platforms, social media, and mobile devices."*

Digital literacy has the ability to develop an individual's skills in grammar, writing, and typing skills on platforms, such as social media and blog sites. Digital Literacy entails the use of devices, such as, smartphones, tablets, laptops, and desktop PCs. Digital literacy does not replace traditional forms of literacy, instead of building upon the skills that form the foundation of traditional forms of literacy (Common sense media, 2018).

Meyers, Erickson, and Small, (2013) reveal that digital literacy encompasses issues of cognitive authority, safety, and privacy, creative, ethical, and responsible use and reuse of digital media. A lack of digital literacy increasingly implicates one's full potential of being a competent student especially in courses offered through ODL. Digital literacy equips a student to be a competent and an empowered employee (Laakkonen, 2015). Though digital literacy is often considered a school-based competency, it is used even in informal learning contexts such as libraries, museums, social groups, affinity spaces online, not to mention the home environment (Sharkey & Brandt, 2008).

Media Smarts (2018) points out that digital literacy is more than technological know-how, it includes a wide variety of ethical, social and reflective practices that are embedded in work, learning, leisure, and daily life. In the education system, digital media is used for a variety of activities like exploring, connecting, creating, and learning. Most students already use digital technology, such as tablets, smartphones, and computers, at home. Many students already know how to navigate the web, share images on social media, and do a Google search to find information. However, true digital literacy goes beyond these basic skills, meaning that individual students who have limited digital literacy abilities might quickly find themselves at a disadvantage (Common sense media, 2018).

Lynch (2017) reveals that it is vital for educators to teach students digital literacy in the classroom so that they fit into current operations in today's world. Digital literacy goes beyond the skills of using digital technology, such as tablets, smartphones, and computers, navigating the web, sharing images on social media, and doing a Google search to find information. One of the most important components of digital literacy is the ability to not just find, but also to evaluate, information.

Common Sense Media, (2018) points out that, there are a number of digital devices that teachers use in class, however, the use of the video has quietly been riding the wave of all of these advancements, benefiting from broader access to phones, displays, cameras and, most importantly, bandwidth. Digital literate teachers are in a position to use digital devices like video player CD player and compute in their classrooms were they let learners watch videos and listen to audios for learning. Brodie, (2018) reveals that digital literacy standards need to improve substantially if technological progress is to be maintained in the years ahead. The best way to do this is by changing teaching methods in classrooms around the world. Educators should be empowered with the resources and knowledge to implant digital learning and problem solving into everyday subjects. However, partnerships between companies and educational institutions provide solutions that not only help businesses get more bang for their buck, they also create researches and ICT projects where young people can participate in to sharpen their digital skills.

2.1 Digital literacy competencies

Guitert and Romeu (2008) state that there are a number of digital literacy competencies which higher education students should possess and these include ability search for

information from the internet, produce digital information, disseminate digital information, acquire communication skills in an online environment, understand the basics of digital technologies, plan and manage a virtual project, acquire a digital civic attitude and acquire team working skills in an online environment. Railean (2015) further notes that students should have the ability to use digital textbooks also called e-textbooks and these are accessed via the Internet and read or downloaded on digital devices such as desktops, laptops, tablets, netbooks, e-readers, or smartphones. All these competencies help to develop students' high levels of digital literacy.

An important competence of digital literacy is information and data literacy. According to Law, Woo, de la Torre and Wong (2018) includes browsing and searching for information online as well as managing and evaluating accessed information. Open and distance learning students should be competent in knowledge searches utilising various search engines available online. Managing and evaluating available information is of importance as not all available information online would be important for particular purposes.

Communication and collaboration is another important competence in digital literacy. Students and lecturers should be able to interact and share knowledge through digital technologies. Students should also learn to collaborate in learning by utilising digital technologies. In this view, digital literacies should be utilised for synchronous and synchronous communication (Doh, Rhim & Lee, 2016).

One of the important digital literacy competencies is digital scholarship which entails students' participation in academic, professional and research practices which depend on digital systems (Goodfellow, 2011). Students are expected to develop and perfect skills in professional communities of practice as such communities enable them to undertake research and share research findings utilising digital systems. In Open and distance learning, students are expected to participate in academic groups, where they participate in information generation and sharing through digital platforms.

In digital literacy, students are also expected to develop effective learning skills. This is the ability to study and learn effectively in rich digital environments, both in formal and informal ways (McLoughlin, 2011). Of importance in this competence is students' ability to effectively utilise available technologies to enhance different aspects of learning. This results in students exhibiting elements of digital fluency, where they are able to utilise available technologies for problem-solving purposes (Fields & Hartnett, 2018).

2.2 Approaches and Theories informing digital literacy

The theories that inform digital literacy have to do with technology and connection to a network. A network can be defined as connections between entities. Computer networks, power grids, and social networks all function on the simple principle that people, groups, systems, nodes, entities can be connected to create an integrated whole. Digital learning theories and approaches, such as RAT, SAMR, TPACK, Digital Blooms, Connectivism, Design Thinking and Pedagogy, help teachers develop curricula that get

students to use technology to research, curate, annotate, create, innovate, problem-solve, collaborate, campaign, reform and think critically (Terrell, 2018).

2.3 Connectivism theory of integration technology

Connectivism is the integration of principles explored by chaos, network, and complexity and self-organization theories. The connectivist view learning as a process that is designed and developed (Marhan, 2006). Learning is a process that occurs within nebulous environments of shifting core elements – not entirely under the control of the individual. Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowledge.

Connectivism is driven by the understanding that decisions are based on rapidly altering foundations and new information is continually being acquired (Marhan, 2006). The ability to draw distinctions between important and unimportant information is vital. The ability to recognize when new information alters the landscape based on decisions made yesterday is also critical.

The principles of connectivism spell out that learning and knowledge rest in diversity of opinions, learning is a process of connecting specialized nodes or information sources and that learning may reside in non-human appliances (Marhan, 2006). The principles also allude to the that the capacity to know more is more critical than what is currently known, nurturing and maintaining connections is needed to facilitate continual learning and that the ability to see connections between fields, ideas, and concepts is a core skill (Marhan, 2006). Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities and decision-making is a learning process meaning that choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality.

Connectivism also addresses the challenges that many corporations face in knowledge management activities and presents a model of learning that acknowledges the tectonic shifts in society where learning is no longer an internal, individualistic activity. How people work and function is altered when new tools are utilised.

2.4 RAT theory of technology integration

RAT refers to replacement, amplification, and transformations of technology. Technology replacement refers to the technology used to replace established instructional practices, student learning processes, or content goals. The technology serves merely as a different (digital) means to the same instructional end. Amplification of technology refers to increases efficiency, effectiveness, and productivity of instructional practices, student learning processes, or content goals. The tasks stay fundamentally the same while the technology extends our capabilities ineffectiveness or streamlining. Transformation of technology refers to technology reinvents aspects of instruction, learning, or curriculum in new and original ways. For example, new

cognitive forms could emerge, new people could be involved, or new content may be accessible (Blanchard, Prevost, Tolin, & Gutierrez, 2016).

RAT is a framework that can be used by teachers to develop lesson plans that they will use in their classroom. In using RAT the iPads, laptops, and other forms of technology that students are given or bring into class with them as learning tools, and not just distractions that occasionally have a useful function are used.

2.5 SAMR model for technology integration

SAMR is a model designed to help educators infuse technology into teaching and learning. This model was popularized by Dr. Ruben Puentedura. SAMR refers to substitution, augmentation, modification, and redefinition. According to Kirkland (2014), SAMR is a framework meant to assess the richness of the technical tasks used for learning. The SAMR model supports and enables teachers to design, develop, and infuse digital learning experiences that utilize technology. The goal of including the SAMR model into the teaching and learning is to transform learning experiences to higher levels of achievement for students. It is apparent for teachers to create tasks that target the higher-order cognitive skills (Bloom's) as well as design tasks that have a significant impact on student outcomes (SAMR) in teaching and learning (Kirkland, 2014).

2.6 TPACK model of integrating technology, pedagogy, and content knowledge

TPACK refers to technological, pedagogical and content knowledge. The TPACK model provides a framework for identifying the teacher knowledge required to integrate technology effectively within the complexities of the larger context of teaching. In TPACK, Technological Knowledge – TK, is most effective when it is combined with deep Content Knowledge – CK (curriculum subject matter) and Pedagogical Knowledge – PK (teaching strategies and knowledge of the learner). While the intersection of Content Knowledge and Pedagogical Knowledge is largely understood to be at the heart of effective teaching, adding Technological Knowledge into the mix provides an effective filter for teachers to really examine the way that they think about technology integration (Kirkland, 2014).

Literacy is about development so understanding digital literacy in this way is important; we acquire language and become increasingly proficient over time and eventually reach a level of fluency. Beetham and Sharpe's framework (2010) describes digital literacy as a development process from access and functional skills to higher level capabilities and identity. However, this often changes depending on the context so it also reflects how individuals can be motivated to develop new skills and practices in different situations. According to the Beetham and Sharpe's (2010) digital literacy framework, the basic developmental stage involves access and awareness. Students should have access to the technological equipment and develop an awareness of how to utilise the available equipment in learning. There are instances where students may desire to use technological equipment, which may not be available or contrary, have all the equipment but lack awareness or ability to use it.

Beetham and Sharpe (2010) further note the importance of the development of skills, in students, of the use and utilisation of technological equipment for knowledge generation and use. In order, to ensure that students develop the requisite skills in utilisation of technological equipment in learning. Once the skills are acquired, students are then expected to practise them in order to perfect them. The practising of skills entails the actual utilisation of acquired skills in exhibiting digital literacy. Through constant use of the skills, students then develop an identity as competent technological equipment users (Beetham & Sharpe, 2010).

2.7 Exploring open distance e-learning (ODeL) and ODeL students

According to Ofole (2018), Open and distance learning is a form of instruction by an approach other than the face-to-face mode, there is physical separation between the instructor and the student, and instruction takes place through a variety of ways including print and digital media. Bright Knowledge (2018) describes distance learning as open learning, home study or correspondence. Open and Distance Learning (ODL) is a general term for the use of telecommunication to provide or enhance learning (Rouse, 2005).

Kibria (2014) further notes that ODL reflects those courses or qualifications and training that can be completed from home. The student is given assignments, projects, essays or exams, to complete by a specific given time and completed work can be submitted in online or sent in the post (Study Portals, 2018). In the present days, ODL has mainly used Skype, audio and computer teleconferencing and theses have influenced the delivery of instruction in public schools, higher education, the military, business, and industry (Price, 2016).

Ghosh, Nath, Agarwal, Nath, Chaudhuri (2012) purports that the concept of open learning and distance education system focuses on open access to education and training to make the learners free from the constraints of time and place, and offering flexible learning opportunities to individuals and groups of learners. According to Vioreanu (2016), ODL has been around for a long time and in most instances, it combines online education with a few contact hours. Open and Distance Learning (ODE) has grown into an important strategy in resolving problems of access to education in most developing and developed countries (Ofole, 2018).

Bright Knowledge (2018) reveals that Open or Distance learning is for those students who want to continue their studies or further their education but cannot attend fulltime classes. ODL is a concept of education that came from an idea where learning should take place but, the learners and the teachers cannot be in a classroom and they should be separated by some geographical distance or maybe they can not come close to each other (Ghosh, Nath, Agarwal, Nath, Chaudhuri, 2012).

3. Importance of digital literacy of ODL students

Digital literacy is essential for ODL students as it allows both students and lecturers to access current information and offers alternative ways to use the information in order to

make appropriate decisions. Julien (2018:1) points out that digital literacy is important in ODL because it is a "… *set of skills, knowledge, and attitudes required to access digital information effectively, efficiently, and ethically. It includes knowing how to evaluate digital information, and how to use it in decision-making.*" The National Library of New Zealand (2018) reveals that digital literacy boosts confidence in students using digital content and tools in their learning. Digital literacy skills enable students to find and access digital content that is fit for purpose, analyse and combine information to develop their own understandings as well as creating and sharing digital content in purposeful ways. Web percent (2019) reveals that being digitally literate can save hours per month for tasks that could only be done offline in the past and that students learn faster as they may be in a position to study data, facts, figures and try new things and some old without fear from digital tools. Digital literacy also allows the student to be connected to technology and be in a position to talk to anyone, anytime including their colleagues and instructors.

Digital literacy allows the student to search, study, analyze and compare everything at any time and it gives the student an advantage of being employed as most jobs today require some form of computer skills including jobs outside the traditional office. A digital literate student no matter how technically advanced the world gets, will always love creativity and can influence the world through politics, religion, activism and even entertainment (Web percent, 2019).

3.1 Opportunities and challenges in the utilisation on ICTs by open and distance learners in the developing world

Information literacy is a skill that is central to learning. Mnkeni-Saurombe (2015) points out that, librarians in ODL institutions must be actively encouraged to develop and implement information literacy programmes for students and academics. This is very necessary for an open distance learning environment because students and academics function in an information environment that is rapidly developing and becoming increasingly complex with the dynamic ICT tools introduced every now and then.

ODL has brought high flexibility study frameworks to post-secondary education, however, digital literacy plays a vital role in ODL. Liebenberg, Chetty, and Prinsloo (2012) reveal that amongst the different challenges ODL institutions in higher education face, is the access to information and communication technology (ICT) and students' abilities to use ICTs. Osuji (2010) points out that, some of the challenges of ODL include limited access to computers, inadequate electricity supply to some areas of the countries, limited access or slow broadband and a high cost of internet access.

It is important that students, especially those in open and distance learning, utilise available technologies to enhance learning but as Cloete (2015) observes in most developing countries there is a digital divide, where some students have access to technology and technological skills and those that do not. In instances where students do not have access to technology and technological skills, it becomes a serious challenge to expect effective utilisation of technologies in teaching and learning. Issues of access would have to be addressed first followed by training. However, there are

opportunities for digital learning even in developing countries through mobile devices. Students may have access to smartphones among a host of other mobile devices, and such devices can easily be utilised in mobile learning.

4. Conclusion

Digital literacy is the the ability to use ICTs in finding, evaluating, utilising, sharing, and creating information found online. ODeL is heavily dependent on the use of ICTs hence the need for instructors and learners to be digitally literate. Digital literacy is vital to ODeL. There are approaches and theories that have been developed to enhance the integration of technology into the teaching and learning. However, a number of opportunities and challenges have been noted with utilising ICTs and ODeL.

4.1 Recommendations

In the light of the foregoing discussion, the following recommendations are made;

- Open distance and e-learning institutions should invest heavily in making available latest and useful Information and Communication Technologies to enhance teaching and learning.
- Open distance and e-learning institutions should prioritise training students and lecturers in technology integration in teaching and learning.
- Technology-enabled communities of practice should be encouraged among distance education learners in order to ensure effective knowledge sharing.
- Available Information and Communication Technologies in distance education institutions should be utilised to enhance synchronous and asynchronous forms of communication between and among students and course lecturers.

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