DIGITAL LITERACY: AN EMERGING TECHNOLOGICAL CONCEPT FOR INNOVATIVE CLASSROOM CONTENT DELIVERY

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ABSTRACT

Information and Communication Technologies has generated several concepts for education. Hence, technology integration has exposed the academics to concepts like e-learning, online learning, virtual learning, etc. which necessitated the need for the 21st-century teachers to be literate in the application of digital format content in facilitating learning. Digital literacy is central to the efficacy and competency of technology integration to enrich the quality of instruction. This article is a position paper that examined the concept of digital literacy with the intent of x-raying the inherent benefits accrued for its integration into the educational system. It further identified its importance to the teaching profession as well as the skills required for 21st-century academics. This article also explained the barriers that hindered the success of technology integration in the form of digital content. It further identified three activities that explain the concept of digital literacy. Both digital native and immigrant were given adequate attention. The recommendation, therefore, justifies the need for 21st-century academics to be literate in the integration of digital format content delivery.

Keywords: Digital Literacy, Technology Integration, Digital Natives, Digital Immigrants

INTRODUCTION

The teaching profession has come a long way in the history of mankind. Teaching is perceived to be an act of transmitting instructions to learners in sequence to implement the content of the syllabus. In a simple and straightforward statement, teaching is the arrangement of contingencies of reinforcement under which students learn. It implies that teaching provides an array of clearly arranged contingencies to simplify the content of instructions for better understanding of the students. The concept of teaching is viewed as a set of an event designed to support the internal process of the learner by delivering instruction in the posture of playing a traditional or modern role (Sequeira, 2012).

The traditional role requires the discharge of teaching through information dissemination and the students passively listen and take note dictated while the modern role of teaching involves the facilitation of learning by way of encouraging and motivating learners to actively engage in the process of acquiring knowledge. The modern role adopted by teaching encourages the integration of emerging technologies

to supplement teaching such that it propagates in the mind of the learner, a concretize acquisition of knowledge. The integration of emerging technologies has in one way or the other digitalize the content of instructions transmitted to learners based on the implementation of the educational objectives derived from the syllabus of respective disciplines. This singular action was promoted by the prevalent and pervasiveness of all forms of emerging technologies which include Laptops, Palmtops, Portable Digital Device, Smartphone, Wireless Technology, Internet availability, among others.

The prevalence of these identified emerging technologies has transformed the process of teaching, hence giving rise to concepts such as ‘digital native' and ‘digital immigrant' in the context of usage and efficacy. In the submission of Prensky (2001), the current set of students are processing information or instructions in a fundamentally different way compared to the one earlier before them, which probably is due to the prevalence of the identified emerging technologies and has earned them the nomenclature of ‘digital natives. Most of the categories of the described students were generations given birth to in or after the explosion of the computer in the 1980s, while individuals given birth to before then and were fascinated and have adopted the use of the emerging technologies for one form of activities or the other is termed the ‘digital immigrants'.

The ‘digital natives' are ever ready to process instructions and as well as engage in multitasking behaviour thereby intelligently and smartly acquiring knowledge through the availability of the emerging technologies. Hence, the ‘digital natives' are the digital literate individual who tends to process instructions through the utilization and integration of emerging technologies to acquire knowledge. Therefore, digital literacy is a function of developing a versatile behaviour towards the use of emerging technologies to create, process, store and recall instructional content in the context of teaching and learning process.

Concept of Technology Integration in Education

The introduction of information and communication technology (ICT) has greatly enhanced the quality of instruction in the four walls of the classroom. ICT refers to those set of technologies that help us create, access, analyze and communicate information with each other. The ICT has made in-route into all facet of the educational system which subsequently gave rise to several concepts like e-learning, online learning, virtual learning etc. In the bid to promote the viable usability of ICT for instructional delivery and other related educational services, there is the need to encourage and sustain the literacy level of end-users; lecturers, students, administrators, etc. The ICT brings more rich material into the classrooms and libraries for the teachers and students, as well as provides an opportunity for the learner to use maximum senses to access the information (Vhanabatte & Kamble, 2014). These efforts gave rise to the concept of technology integration. In the submission of Levin and Wadmany (2008), technology integration simply implies the quality of technology use in the classroom. The effective use of technology for basic classroom activities implies technology integration.

Furthermore, Hew and Brush (2007) viewed technology integration as the use of technology such as desktop computers, laptops, handheld computers, software, or the internet in a teacher's regular teaching and curricular plans. The application of technology-related gadgets for dispense of instruction to facilitate learning buttressed the position of Hew and Brush (2007). The integration of technology is not envisaged to take the place and pace of a teacher in the delivery of instruction; however, it is view as a supplement to enrich the quality of content delivery in education. The application of technology for educational purpose is not considered as a supplant for face-to-face instruction but rather it is seen as a supplement to achieve instructional objectives that have not been attained efficiently which provides expanding access, promoting equality, improving internal efficiency of educational systems, enhancing quality of education, and preparing generations for a technology-driven society (Haddad & Jurich, 2002). Appropriate integration of technology for the educational purpose has mostly focused on its pedagogical sound use to promote effective teaching and learning activities.

In the submission of Davies (2013), the orientation of technology integration for both classroom and individual levels should be viewed as a progressive step towards effective use of technology to improve instruction and enhancing learning. Furthermore, accessibility to instructional technologies, its use for instructional purposes and facilitation of effective learning constitute the concept of technology integration (Davies, 2011). In an attempt to define technology integration, Davies, Sprague and New (2008) explained that it is the effective implementation of educational technology comprising of tools, piece of equipment, electronic and mechanical devices that are used to assist students to accomplish a specified learning goal and attain an intended learning outcome. The use of technology to effectively and efficiently deliver educational content of the curriculum to encourage and facilitate learning in a flexible, purposeful and creative manner to attain an intended educational goal constitute technology integration (Dockstader, n.d.).

The essence of technology integration was further highlighted by Dockstader (n.d.) is to:

 correctly design and go more depth into the content area of the curriculum;

 adequately align with the current information age to trigger an intrinsic need to learn technology;

 encourage student motivation through technology thereby increasing academic engagement time;

 create an opportunity to cause the student to interact with the depth of the content to able to move beyond knowledge and comprehension to application and analysis of information;

 navigate useful information in an information-rich world to facilitate learning in students;

 expose student computer skills and not be taught in isolation; and

 develop computer literacy skills that can be applied to a real-life situation and be seen as part of the learning process.

The implementation of the activities listed can greatly improve and encourage successful integration of technology for educational intentions. Effective integration of technology to promote a high level of student-centred learning outcome is influenced by several factors that tend to pose as a barrier to achieve in achieving a digitally literate stakeholder; administrator, students, teacher, etc.

Concept of Digital Literacy and the Teaching Profession

The move to digitalize instruction connotes the knack to integrate emerging technologies into instructional delivery. The simple meaning of literacy is the ability to be able to read and write. By United Nations Education and Socio-Cultural Organization's (UNESCO, 2003) assertion, literacy is the ability to identify, understand, interpret, create, communicate, compute and use printed and written materials associated with varying contexts. The conception of literacy is about promoting the basic understanding of the educational goal and objectives of the knowledge society as enshrined in any nation's policy of growth and development. Literacy provides means of handling down to younger generations, value and culture of a particular society which eventually forms the bulk of educational content that promotes healthy and harmonious living. Literacy allows individual to learn to achieve set goals, develop knowledge and potentials, thereby encouraging full participation and integration into the community and the wider society (United Nations Education and Socio-Cultural Organization, UNESCO, 2004). It involves a continuum of learning to enable an individual to achieve own goals, to develop own knowledge and potential and to participate fully in the wider society (Olsson & Edman-Stålbrant, 2008).

The full participation of an individual in the scheme of learning for the betterment of the society is currently being driven by the digitalized information which has promoted the concept of digital literacy. In the submission of UNESCO Institute for Information Technologies in Education (2011), digital literacy is perceived to be an umbrella body synonymously used interchangeably with concepts like ICT literacy, technological literacy, and information literacy. In other words, digital literacy encompasses the elements or integral part of every other concept regarded in the pool of literacy because it retains some close connections with other basic literacies. According to Centre for Research and Innovation in Learning and Teaching (2009), digital literacy involves students and teachers using digital technology to enable, sustain and enrich all aspects of the inquiry cycle of learning which include asking, investigating, creating, discussing and reflecting on basic information on knowledge acquisition.

A digitally literate individual is expected to design, develop and apply skills in the use of appropriate emerging technologies for information creation, discovery, transfer, analysis, review and communication tendencies. The activities of digital literacy can be divided into three forms which include locating and consuming digital content; creating

digital content, and communicating digital content (Spires & Bartlett, 2012). This is diagrammatically depicted in figure 1:

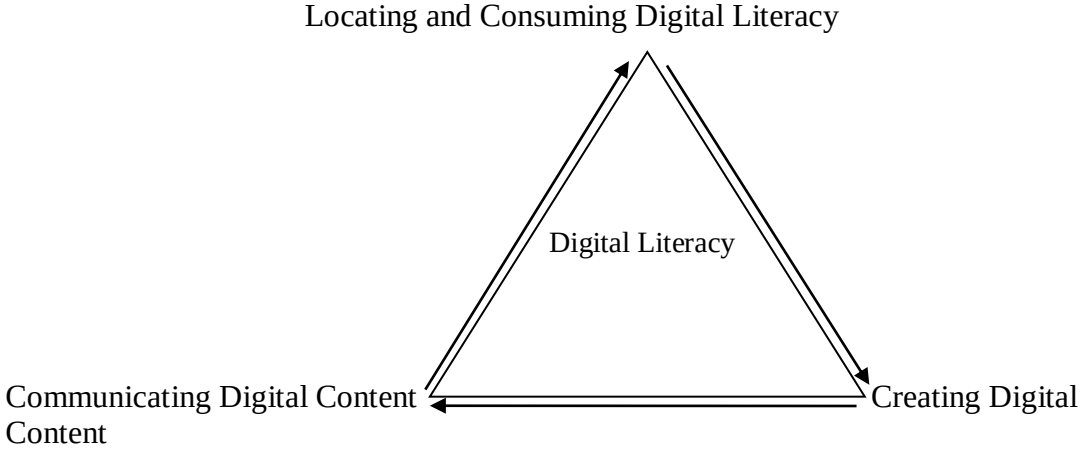

Figure 1: Digital Literacy Practice

Source: Spires & Bartlett (2012)

The application of digital literacy requires that an individual should develop the skill of locating and consuming digital content through the use of emerging technologies. It simply buttresses the fact that student or teacher needs to surf the world wide web in the search for relevant and appropriate content that will promote a better understanding of a particular concept in a field of study. The effectiveness of searching for information requires the skill of evaluation in sieving the content for accuracy and relevancy concerning knowledge acquisition (Leu, Coiro, Castek, Hartman, Henry, & Reinking, 2008). It implies that the drive to facilitate learning among students through teaching require the development of skill to be able to access the internet for digital contents and as well assess the content for relevancy, accuracy and consistency. The ability to assess digital content for scrutinization of relevant instruction to facilitate learning in students portends that the teaching process is effective and of high-quality information.

In addition to building on the ability to craft productive web search terms, search lessons should involve direct modelling of the use of search techniques, differentiating between domain names, and querying sites for accuracy and transparency (Khosrow-Pour, 2017). Consequently, the skill to surf the web for accuracy and transparency explains the need for both teachers and students to further acquire skills of creating or designing digital contents for lesson preparation to support the three domains of learning; cognitive, psychomotor and affective. In the opinion of Khosrow-Pour (2017), the skill to create digital content should be promoted for both the students and the teacher through multiple media and varieties of Web 2.0.tool. Furthermore, digital

content can be an effective means of enhancing the teaching-learning process, as well as promoting digital literacy among teachers to acquire the needed 21st-century skills that should be mastered for instructional delivery purpose.

Finally, the skill to communicate digital content is as important as locating and creating it. Digital content needs to be communicated effectively to serve as a useful medium to facilitate learning among students. The use of emerging technologies requires both teacher and student understanding for easy manipulation of digital contents through multiple formats that enhance the concretization of knowledge dissemination and acquisition respectively. According to Khosrow-Pour (2017), the use of emerging technologies such as social networking sites like Facebook, Twitter, WhatsApp and Instagram requires users to understand and manipulate information in multiple formats through Web 2.0 tools that is social, participatory, collaborative, easy to use, and facilitate the creation of online communities which provides convenience and immediacy to the communication process for teachers and students.

Conclusively, therefore, the advent of digital literacy is to promote the skills of locating, creating and communicating digital contents to enrich the quality of the instructional content and as well promote the integration of emerging technologies into instructional delivery. Furthermore, it exposes and encourages the stakeholders in the business of instructional delivery to a novel pathway that is consistent with the 21st-century skills that the teaching profession should imbibe. Hence, promoting a paradigm shift from the conventional means of instructional delivery to a more digitalized format that match-up with the digital natives in the effort to gain access to instructions that promotes learning tendencies should be the concern of teaching professionals. It also encourages a standardized systemic means of instructional delivery to meet up with the UNESCO ICT competency framework for the 21st-century teachers. The framework simply recognizes the determining approaches for the development of a teacher in the area of digital literacy, knowledge deepening and creation about technology integration. The digital literacy approach is to present a simplified learning environment for the student to use technology in order to learn more efficiently, the knowledge deepening enhances in-depth knowledge on curriculum content area through the application of technology while the knowledge creation promotes creativity in novel ideas to sustain harmonious, fulfilling and prosperous society the integration of technology. Several other factors also compete with the attainment of the core approaches highlighted by the UNESCO ICT Competency Framework which, in most cases, hinders the effective, efficient and successful integration of technology for varieties of educational purposes.

Barriers to the Development of Digital Literacy among Stakeholders

The integration of technology for educational purposes (teaching, learning or administrating) requires high-level digital literacy. Stakeholders; teachers, students and administrators need to acquire the 21st digital literacy skills that will propel the successful application of technology integration in the education industry. The affinity to technology integration, however, is impeded by several factors which inhibit the advancement of digital literacy among the identified stakeholders in the education industry. According to Levine (1998), there are nine major components that promote

effective technology integration in education; formulating a planning team, collecting and analyzing data, formulating the visions, goals, and objectives, exploring available technology, determining training and staffing needs, determining a budget and funding sources, developing an action plan, implementing the plan, and evaluation. The application of technology integration in educational settings requires needs-analysis, proper planning and management activities (Jhurree, 2005).

These components are hindered by several barriers that have accounted for the slow in progress or outright failure in the integration of technology for educational activities. Consequent upon the huge investment in the provision of technological infrastructure in the education industry coupled with the increasing sophistication of emerging digital technologies, little influence has been recorded concerning its integration (Hixon & Buckenmeyer). On the overall, stakeholders seem to be hesitant about integrating technology into their teaching, learning and administrative practices, and more importantly, most stakeholders still adopt technology to support traditional teacher-centred instruction, archaic learning style and cumbersome bureaucratic system (Jhurree, 2005). In the opinion of Ertmer (1999), there are majorly two factors that hinder the successful integration of technology; first and second-order barriers. The first-order barriers are inadequate external resources which comprise limited equipment, time, teachers' training and support while the second-order barriers include teachers' internal beliefs for understanding the teacher-student roles, curricular emphasis and assessment practices (Ertmer, 1999).

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