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Perceived Digital Information Literacy Level of Undergraduates at the University of Port Harcourt

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ABSTRACT: *This study investigated the Perceived Digital Information Literacy Level of Undergraduates at the University of Port Harcourt. Two research questions and one were raised for the study. Analytical descriptive survey design was adopted. The population of the study comprised one thousand four hundred and sixty (1,460) forth year (400 level) undergraduate students in the Faculty of Education, University of Port Harcourt. The sample size comprised four hundred and forty-six (446) students from seven Departments in the Faculty of Education. An instrument titled Perceived Digital Information Literacy Level Questionnaire (PDILLQ) was used for data collection. The PDILLQ was a 20-item Questionnaire. Mean and Standard Deviation were used in answering the research questions while Analysis of Variance (ANOVA) was used in testing the hypothesis. The findings of the study revealed that undergraduate students are digitally knowledgeable. Finally, there is significant difference between undergraduate students' digital information literacy level among the various departments. The study concluded that there is universal recognition of the need to be digital information literate especially for undergraduate students who virtually would use digital gadgets and Web 2.0 packages in the course of their academic pursuit. The study recommended that students should engage in and explore more academic activities using digital technology.*

KEYWORDS: digital information literacy, 21st century skill, 21st century learner, digital divide.

INTRODUCTION

Technology is so pervasive that the entire world has becomes a global village. Humans live in a digital world today as everything they do is been shaped by digital intervention. The advent of Information Communication Technology (ICT), fosters rapid change in every phase of life as digital technology remains a focal point of discussion in this 21st century. Just as every other living creature on earth have the ability to adapt to different environmental conditions, humans also, have developed and acquired certain skills to fit in and function effectively in a digital era such as this. The acquired skills in the area of information management is termed as digital information literacy. Digital information literacy is the ability to make and share meaning in different modes and formats with the aim to create, collaborate, communicate effectively and to understand how and when digital information and technologies can best be used to support these processes. Acilar

(2011), referred to it as a set of skills that enable individuals to operate effectively in information searching, retrieval and sharing tasks in a technology-oriented environment. Digital information literacy is the skill and knowledge that enable critical, creative and safe practices when engaging with digital technologies in information management in all areas of life. Furthermore, it is meaningful to state that the composite skills required by students in this 21st century to fit into the digital environment in achieving academic pursuit is called digital information literacy. A digitally information literate person however, is a person who can identify when information is needed, where (relevant source online) and how to search for the needed information, retrieve, evaluate and use information critically simply by manipulating certain digital devices. Therefore, to be digitally information literate is to have access to a broad range of practices that can be applied to digital tools in searching, retrieving, evaluating, using and sharing of information.

The influence of digital technology in the Nigerian educational system cannot be overemphasized. Hardly can any undergraduate student survive in a tertiary institution without the basic skills and knowledge of digital technology. Digital information literacy is vital to enhance students' confidence level in the search, retrieval and use of digital information and electronic databases. Therefore, digital information literacy skill is necessary for retrieval of relevant and up to date information for students' work using appropriate digital tool. However, students need to master digital information literacy skills to exploit and use the growing range of electronic resource because the skills required to use electronic database resources are higher than the ones required for searching printed sources.

LITERATURE REVIEW

Concept of Digital Information Literacy

Digital information literacy is the ability to locate, retrieve, organize, understand, evaluate and create information using digital technology in information management effectively for everyday task. It enables an individual to find, evaluate and use digital information effectively, efficiently and ethically. Digital information literacy is a set of abilities or skill that is required of an individual to recognize when information is needed and have the ability to locate, retrieve, evaluate and use effectively the needed information. Digital Information literacy is one of the major components of the 21st century skills. In other word, it is an essential life skill. Mckee-Waddell, (2015) agrees with this and posits that digital information literacy is critical for a nation's workforce within the present digital world. Digital information literacy encompasses the skills and abilities necessary for information access once the technology is available, including understanding the language, component hardware and software required to successfully navigate through technology (Nwangwu, 2015). Digital information literacy is the use of technology (digital tools) competently to interpret and understand digital content, access its credibility and also the ability to create, research and communicate effectively. Nwangwu, (2015), concurred that digital information literacy is the ability to access, use and disseminate information in the digital age.

Concept of 21st Century Skills

The current workplace requires highly skilled workers faced with increasingly complex and interactive tasks. Such workers are expected to efficiently select knowledge from the amount of available information and effectively apply such knowledge, both in their professional and personal lives. Employees not only need excellent technical preparation, they also need sufficient skills to adapt to the changing requirements of the job (Ahmad, Karim, Din & Albakri, 2013). According to Carnevale and Smith (2013) knowledge has become vital in the 21st century and people need to acquire such skills to enter the workforce called 21st century skills. In general, 21st century skills include collaboration, communication, digital literacy, citizenship, problem solving, critical thinking, creativity and productivity (Voogt & Roblin, 2012). These skills are labelled 21st century skills to indicate that they are more related to the current economic, educational and social developments than with those of the past century characterized as an industrial mode of production. New standards for students are replacing the basic skill competencies and knowledge expectations of the past. To meet this challenge schools must be transformed in ways that will enable students to acquire the creative thinking, flexible problem solving, collaboration and innovative skills they will need to be successful in work and life. 21st century skills comprise of skills, abilities and learning disposition that have been identified as being required for success in the 21st century learning environment, society and work places by educators, academics, business leaders and governmental agencies. Therefore, 21st century skills are a set of abilities that students need for development in order to succeed in this information age. However, these 21st century skills have been grouped into three main categories, such as; Learning and innovation, Information, Media and Technology Skills (Digital information literacy skills) and Career and life skills.

Concept of the 21st Century Learners

Students in this 21st century are continuously receiving information, communicating, viewing media and using a myriad of technology based tools. In view of this, teaching learners in a world of instant information is quite a challenge for educators. The use of the Internet, smartphones, computers, tablets, gaming systems, and multimedia devices may be problematic for the educational community. In order to correctly teach students to evaluate, interpret and effectively use technology, educators have to support technology, utilize technology in their classrooms and teach proper use of technology to accomplish tasks (Kaware & Sain 2015). Students are required to have the ability to understand and effectively utilize the information, media, and technology available (Hung, Lee, & Lim 2012). These abilities are necessary for a 21st century learner to be effective, efficient and successful. The 21st century learners are students who are participatory learners, who use digital skills, information technology resources (web 2.0 tools) to accomplish specific academic tasks in order to create knowledge, share resources and participate as a productive member of the global economy. Learning from the 21st century learners view is shift from instructor-led or instructor centered to learner centered education with fluid participatory learning environment of critical thinking, collaboration, co-learning and co-creation.

Concept of Digital Divide

Digital divide is the gap between those individuals who have access to and use technology and those who do not. Digital divide is a manifestation of global technological inequalities. Those with greater capabilities can afford opportunities to gain the necessary skills to better leverage state and private sponsored investments in digital infrastructure and training. However, impoverished communities with limited capabilities have fewer opportunities to gain the skills needed to advance within the rapidly transforming digital economy. Therefore, for a country to be developed the issue of digital divide must be addressed and minimized (Krish, Urvashi, Vidisha, Nozibele & Jaya, 2017). Digital divide is thought to be a gap between people that belong to various sections of society at different socioeconomic levels in terms of their opportunities to access and use information and communication technologies (ICT) and internet. One of the major aspects of digital divide is the information technology (IT) (Navneet 2017). Information technology (IT) can be used to create, share and receive information quickly. Therefore, it is significant to know the gap between those who have access to IT and those who do not. Digital Divide is the process of making strata within society due to inequality of opportunity to access and use internet and digital technologies.

This study is related to cognitivism learning theory. Cognitivism a learning theory that focuses on mental processes, including how people perceive, think, remember, learn, solve problems, and direct their attention to one stimulus rather than another. Psychologists working from a cognitivist perspective seek to understand cognition. Rooted in Gestalt Psychology and Jean Piaget's work, cognitivism has been prevalent in psychology since the 1960s (Mohammed 2012). Contemporary research often links cognitivism to the view that people process information as computers do according to specific rules and instructions. In addition, cognitivism has influenced education, as studies of how people learn potentially sheds light on how to teach most effectively.

The learners according to cognitivists are active participants in the learning process. They use various strategies to process and construct their personal understanding of the content to which they are exposed. In a cognitivist learning environment, Students are not considered anymore as recipients that teachers fill with knowledge, but as active participants in the learning. Cognitivism learning theory is relevant to the study in that it requires an individual's full participation in the learning process to construct knowledge.

Adeoye and Adeoye (2017) carried out a study on Digital Information Literacy Skills of Undergraduate Students in Nigeria Universities. Descriptive survey design was adopted. The population for this study consists of undergraduate students of Obafemi Awolowo University, Ile-Ife, Osun State, the University of Ibadan, Ibadan, Oyo State, and University of Lagos, Akoka, Lagos State with a total of sixty thousand nine hundred and ninety-seven (60,997). Multiple stage sampling technique was used to draw five hundred and ninety-five (595) as the sample size. The instrument used for data collection in this study is a self-constructed questionnaire. Statistical Package for the Social Sciences (SPSS), mean and standard deviation were used for the analysis. Finding of the study revealed that majority of the students admitted that they are confident on their

level of digital information literacy skills and the use of electronic media is highly encouraged. Also, Nilgun, Fatma and Kerim (2015), conducted a study on Examining Digital Information Literacy Competences and Learning Habits of Open and Distance Learners. Survey methodology was used in the study. A total number of 20,172 open and distance learners enrolled in the open and distance education system of Anadolu University including three faculties as Open Education Faculty, Faculty of Business, and Faculty of Economics made the population. The number of 16,406 respondents made the sample size. The results of the study revealed that learners believe that they have problem solving and project working skills to deal with educational difficulties. However, they seem to have only basic competences of digital information literacy. They need training on how to use digital tools more efficiently for learning purposes.

Salma, (2018), conducted a study on Gender, school and class wise differences in level of Digital information literacy among secondary school students in Pakistan. The study adopted a descriptive survey design. Data collection was through a survey questionnaire and was analysed using the Statistical Package for the Social Sciences (SPSS). The sample size for the study was 344 students of grade 9 and 10 from a population of three private schools in Pakistan. The study revealed that majority of students possesses adequate level of digital information literacy and demonstrated high level of skills in mobile usage but showed low level of skills in preventing computer from viruses. However, the analysis showed insignificant difference in terms of the students' digital information literacy between male and female and between grade 9 and 10. Moreover, significant difference is found in terms of digital information literacy between the schools. Findings indicate students' proficiency in digital information literacy and points to the importance of developing strategies at policy and school level to help students exploit technological resources in a purposeful, safe and meaningful way. Also, Emre and Mubin (2017), conducted a study on Perceptions of Prospective Teachers on Digital Information Literacy. The population for the study consist of departments in Sakarya University College of Education. The study adopted a correlational survey method. The sample of the study consists of a total of 354 prospective teachers (110 males and 244 females) studying in different departments of Sakarya University College of Education. 30 item questionnaire used to collection data. Exploratory Factor Analysis, Cronbach alpha, t-test and Anova were used for data analysis. Results of the study showed that the digital information literacy levels of male prospective teachers and that of computer education and instructional technology teaching department were found higher than that of their counterparts. In addition, the digital information literacy levels of prospective teachers having continuous internet connection and usage were found high.

Statement of the Problem

The sporadic increase in technological advancement and the rapid expansion of digital media has caused tremendous change in the way people interact with information. Interactions with students has shown that majority of undergraduate students handle one digital device or the other with skills to communicating with one another. However, there are noticeable issues in their use of information. Some of which are; students photocopy documents instead of doing a clear download of such documents when giving class task, students pay others to source for relevant information

online instead of doing it themselves. Could it be that; students have low digital information literacy level? Or Could it be that; students find it difficult to explore the vast availability of information online? These issues and many more in the changing nature of the digital space raises the questioning of one's digital information literacy level, as digital information literacy skill remain the composite skill for the 21st century. Therefore, this study investigated the perceived digital information literacy level of undergraduates at the University of Port Harcourt.

Aim and Objectives

The aim of this study is to investigate the perceived digital information literacy level of undergraduate students at the Faculty of Education, University of Port Harcourt. The objectives of the study were to;

1. Ascertain the perceived digital information literacy level of undergraduate students at the Faculty of Education.
2. Ascertain the difference in the perceived digital information literacy level of undergraduate students in the seven departments at the Faculty of Education.

Research Questions

This study sought to provide answers to the following research questions which were raised to guide the study.

1. What is the perceived digital information literacy level of undergraduate students at the Faculty of Education?
2. How does the perceived digital information literacy level of undergraduate students in the seven departments at the Faculty of Education differ?

Hypothesis

The following null hypothesis was formulated and tested in this study.

H_{o1}: There is no significant difference in the perceived digital information literacy level of undergraduate students in the seven departments at the Faculty of Education.

RESULTS

Research question one: What is the perceived digital information literacy level of undergraduate students at the Faculty of Education?

Table 1: Mean score and standard deviation on the perceived digital information literacy level of undergraduate students at the Faculty of Education

S/N	Items	Respondents (n=446)		
		$\bar{x}$	SD	Decision
.1	I can type and produce simple digital content like text and tables using applications like Word processing applications (e.g., MS Word)	3.52	0.75	VHL
.2	I can produce simple and complex digital content (e.g. text, tables, images, audio files and so on)	3.27	0.76	HL
.3	I can save or store files or documents using desktop or laptops computers	3.44	0.65	HL
.4	I can write files on a CD, a DVD or a USB drive	3.28	0.82	HL
.5	I can retrieve files once saved or stored on desktop or laptops computers.	3.42	0.66	HL
.6	I can backup information or files I have stored	3.31	0.73	HL
.7	I can use cloud storage services like Google storage	3.21	0.80	HL
.8	I can classify information or documents in a methodical way using folders.	3.28	0.79	HL
.9	I can use my smart phone for multiple functions aside texting, making calls and checking time	3.41	0.64	HL
.10	I can save information found on the internet in different formats	3.39	0.70	HL
.11	I can look for information online using different search engines like Google	3.39	0.66	HL
.12	I use features of online services (e.g. e-banking, online shopping etc.).	3.35	0.72	HL
.13	I can access variety of materials online for academic work easily using e-journals	3.34	0.68	HL
.14	I know what digital tool to use for different purpose	3.26	0.73	HL
.15	I know how to design, create and modify Presentations using presentation applications like MS PowerPoint.	3.17	0.68	HL

.16	I know how to design, create and modify Spread sheets using Spread sheet applications like MS Excel	3.26	0.76	HL
.17	I can apply basic editing/ formatting (e.g. adding and deleting, insert footnotes, charts, tables) to the content I or others have produced.	3.17	0.80	HL
.18	I can download and use apps on digital devices like laptop and smart phones	3.20	0.80	HL
.19	I can use advanced formatting functions of different tools (e.g. merging documents of different formats, using advanced formulas, macros).	3.33	0.68	HL
.20	I actively use a wide range of communication tools (e-mail, chat, SMS, instant messaging, blogs, social networks) for online communication	3.15	0.83	HL
	Grand mean	**3.31**		

(Criterion Mean = 2.5, Mean: 1.0-1.99 = Low Lovel (LL), 2.0-2.49= Moderate Level (ML), 2.5-3.49 = High Level (HL), 3.5-4.0 = Very High Level (VHL).

Table 1 shows the perceived digital information literacy level of undergraduate students at the Faculty of Education. However, majority of the respondents indicated 'Very High Level (VHL)' to item 1, while few of the respondents indicated otherwise to the item. Furthermore, majority of the respondents indicated 'High Level (HL)' to item 2-20, while few of the respondents indicated otherwise to the items. The implication of this finding based on the criterion mean of 2.5 and the grand mean of 3.31 is that majority of undergraduate students of the faculty of Education has High Level of digital information literacy.

Research question two: How does the perceived digital information literacy level of undergraduate students in the seven departments at the Faculty of Education differ?

Table 2: Mean score and standard deviation of the difference in perceived digital information literacy level of undergraduate students in the seven departments at the Faculty of Education

Departments	n	Mean	Std. Deviation	Rank
EDC	43	65.74	10.86	4th
EDM	167	68.96	4.36	2nd
EDF	40	65.23	3.58	5th
EDP	97	61.46	8.91	7th
KHE	47	64.30	4.79	6th
DAE	42	68.33	7.89	3rd
LIS	10	69.80	7.36	1st

Table 2 shows the difference in the perceived digital information literacy level of undergraduate students in the seven departments at the Faculty of Education. The result indicated that the perceived digital information literacy level of undergraduate students of LIS ($\bar{x}$ = 69.80, SD = 7.36) department is higher than that of their counterparts.

Hypothesis one: There is no significant difference in the perceived digital information literacy level of undergraduate students in the seven departments in the Faculty of Education.

Table 3: Summary of Analysis of variance (ANOVA) on the difference in the perceived digital information literacy level of undergraduate students in the seven departments at the Faculty of Education

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3982.88	6	663.81	14.33	0.00
Within Groups	20336.75	439	46.33		
Total	24319.63	445			

Table 3 shows that there is significant difference in the perceived digital information literacy level of undergraduate students in the seven departments at the Faculty of Education (F_6, = 14.33, df = 445, P =0.00< 0.05). Thus, null hypothesis one is rejected at 0.05 alpha level.

DISCUSSION

From the data gathered and analysis carried out, the findings of research question one showed that majority of undergraduate students at the faculty of Education have High Level of digital information literacy skills and as such, they find it very easy to manipulate digital gadgets and operations. This finding is consistent with the findings of Adeoye and Adeoye (2017). They found that majority of the students admitted that they are confident on their level of digital information literacy skills and the use of electronic media is highly encouraged. The findings of Nilgun, Fatma and Kerim (2015) also revealed that learners believe that they have problem solving and project working skills to deal with educational difficulties. However, they seem to have only basic competences of digital information literacy and the skills to use information and communication technologies at a basic level. They need training on how to use digital tools more efficiently for learning purposes.

Also, the findings of research question two showed that the perceived digital information literacy level of undergraduate students of LIS is higher than that of their counterparts in the Faculty of Education. Furthermore, the result of hypothesis one showed that there is significant difference in the perceived digital information literacy level of undergraduate students in the seven departments in the Faculty of Education. These findings are consisted with the findings of Salma, (2018), who found significant difference in terms of digital information literacy between the schools. It was indicated students' proficiency in digital information literacy and points to the importance of developing strategies at policy and school level to help students exploit technological resources in a purposeful, safe and meaningful way. The finding of Emre and Mubin (2017) also in consistent with the findings of research question two showed that, in terms of gender variable, digital information literacy levels of male prospective teachers and in terms of department variable, digital information literacy levels of computer education and instructional technology teaching department were found higher than that of their counterparts.

CONCLUSION

From the findings of this study; it becomes realistic to conclude that; there is universal recognition of the need to be digital information literate especially for undergraduate students who virtually would use digital gadgets, Information and Communication Technology (ICT) and Web 2.0 packages in course of their education, which has become a norm in this 21st century. This is not to say that, there is no educational imbalance between the rapidly developing technologies and information available to the users.

Recommendations

Based on the findings, discussion and conclusion, the following recommendations were made:

i. Students should engage in meaningful practices and enroll in online programs that will better improve their digital information literacy skills.

ii. Students should engage and explore more in academic activities using digital technology thereby increasing their digital information literacy level.
iii. Universities should ensure that lecturers are sponsored on training programmes regularly through workshops, seminars and conferences to enable them learn the modern technological skills in their chosen field of endeavour.

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