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EVALUATING THE DIGITAL LITERACY SKILLS OF UNDERGRADUATE STUDENTS IN AHMADU BELLO UNIVERSITY, ZARIA.

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Abstract

This research paper evaluates the digital literacy skills of undergraduate students at Ahmadu Bello University (ABU), Zaria, focusing on the Department of Library and Information Science. Recognizing the pivotal role of universities in societal progress, the study investigates the impact of digital literacy on academic performance, considering factors such as access to information and ICT facilities. The research employs a qualitative survey design, with data collected via structured questionnaire and analyzed using descriptive statistics. Findings revealed varying levels of digital literacy skills among students, with notable challenges including infrastructure limitations and inadequate professional development. Recommendations include organizing digital literacy workshops, enhancing access to ICT facilities, and integrating digital technologies into teaching practices to optimize students learning outcomes. This study underscores the importance of equipping undergraduate students with digital literacy skills to navigate the information landscape effectively.

Keyword: Evaluating, Digital Literacy, Skills, Undergraduate Students, University,

Introduction

In contemporary society, universities serve as pivotal agents of progress, fostering the development of nations through knowledge dissemination, research endeavors, and community engagement. With the proliferation of digital technologies, undergraduate students face a paradigm shift in information access and utilization, necessitating robust digital literacy skills. This paper aims to evaluate the digital literacy skills of undergraduate students at Ahmadu Bello University (A.B.U) Zaria, a crucial endeavor amid the evolving landscape of higher education and technological advancement.

Undergraduates are students in the tertiary institutions pursuing their first-degree program in various disciplines (Osunade, Philips and Ojo 2020). Due to their heavy workload, the undergraduates usually search for information in various sources to support their learning activities. Depending on the mode of study, an average undergraduate is expected to spend a minimum of three years and a maximum of six years in the university (Osunade, Philips and Ojo 2020). Academic performance of an undergraduate in this century depends on his/her digital literacy skills to identify the credible information on the internet. Information and Communication Technology has pervaded all sectors of human endeavor. The preference of the electronic resources by undergraduates may be attributed to what Salaam, (2018) observes about its flexibility in searching than their paper-based counterpart, and that they can be accessed remotely at any time. The emergence of electronic resources has removed the barrier to valuable information resources which until now were difficult to access (Mandinaeh, 2016). This attitude has affected the use of the library's collection and students' perception of library.

Similarly, undergraduates reacquire skills and knowledge which can be dependent on many factors, such as level of digital literacy skills, academic status and rank, ages, access (hardware and location) to electronic database resources and training. A study conducted in Australia by Deng, (2019) found that there were various purposes for a user to use e-resources including: gathering information on a specific topic, gaining general information, obtaining answers to specific questions, completing assignments, reviewing literature, writing essays and helping decision making. It also found that respondents use e-resources for each of the above purposes. Such an observation reflects the fact that currently users are dependent on the availability of e-resources for meeting many of their academic needs (Dolo Nadlwana, 2017). Therefore, Computers and related electronic database resources have come to play a central role in

education (Lang, 2018). For undergraduates to enjoy the benefit provided by electronic database resources, undergraduates need a composite skill which is referred to as digital literacy skills. This skill will help them to acquire information literacy skill, media literacy skill, and ICT literacy. All these skills will enable them connect to library database resources. Digital literacy skill is vital to enhance their confidence in use of electronic databases in the library.

Consequently, Digital literacy skill is necessary for retrieval of relevant and up-to-date information for student's work. Kari (2016) explained that skills required to use electronic database resources are higher than the one required for searching printed sources and that students need to master certain skills to exploit and use the growing range of e-resources (Margaret-Mary Ekenna and Mabawonku Iyabo, 2017). Undergraduates therefore need skills such as, informational literacy skills, ICT literacy and media literacy skills for speedy retrieval of the exact information needed from electronic resources. Okello-Obura and Magara (2018) stated that computer skills of students should be improved for accessibility and utilisation of e-resources. According to Mutshewa (2018), skill is improved through practice and frequent use of information retrieval system such as electronic database resources. Mutshewa pointed out that there is a need for well-defined development programmes that could help people to be competent in the use of information retrieval system. Also, Oliver (1995) stated that users should have appropriate instructions and frequent activity with electronic information system.

In light of the rapid and continual development of digital technology, undergraduate students are required to use a growing variety of technical, cognitive, and sociological skills in order to perform tasks and solve problems in digital environments. These skills are referred to in the literature as "digital literacy" (Pool, 1997).

Statement of the Problem

Undergraduate Students in Nigeria face various challenges, including difficulties accessing information resources. When accessing the digital literacy skills of Ahmadu Bello University Zaria undergraduate students, several key issues emerge. These include their struggle to access information, potentially due to how it is presented, as well as their low digital literacy levels and other socio-economic problems. It is against this background that, this study is set to investigate evaluating digital literacy skills of undergraduate students in the Department of Library and Information Science in Ahmadu Bello University, Zaria.

Research Questions

1. What digital literacy skills do undergraduate students possess at A.B.U Zaria?
2. What impact do digital literacy skills have on undergraduate students at A.B.U Zaria?
3. What ICT facilities are provided to undergraduate students to maintain their digital literacy skills at A.B.U Zaria?
4. What factors influence the digital literacy skills of undergraduate students at A.B.U Zaria?
5. What are the challenges affecting undergraduate students in establishing their digital literacy skills at A.B.U Zaria?

Objectives of the Study

This study aims to achieve the following objectives:

1. To assess the digital literacy skills of undergraduate students at A.B.U Zaria.
2. To determine the impact of digital literacy skills on undergraduate students at A.B.U Zaria.
3. To identify ICT facilities available for undergraduate students to maintain their digital literacy skills at A.B.U Zaria.
4. To investigate the factors influencing the digital literacy skills of undergraduate students at A.B.U Zaria.
5. To explore the challenges hindering undergraduate students in establishing their digital literacy skills at A.B.U Zaria.

Review of Related Literature

Concepts and Significance of Digital Literacy Skills

Digital Literacy Skill is the combination of the two terms –Digital and Literacy. Digital Information is a symbolic representation of data, and literacy refers to the ability to read for knowledge, write coherently, and think critically about the written word. Digital Literacy skills have led to great increase in information that can be conveniently and quickly accessed and facilitate the collaboration and sharing of computer knowledge. With other forms of digital literacy skills, one is also seeing an increasing on digital modes of communication. Digital Literacy Skill is increasingly being recognized as a powerful enabler for economic and social development. Digital Literacy can advance economic growth, enhance social inclusion, increase

health and education services and improve governance at all levels.

The engine that drives the deployment of knowledge and information is what we collectively called digital literacy. It is the pipes and mechanisms through which knowledge and information are packaged and transmitted, to be unbundled for deployment at the receiving end; by virtue of the vast technologies and applications which have come to be (and are continuously being) developed through innovation. Digital Literacy Skills have become so important to virtually all aspects of life, activities and operations, from research and development to industrialization, from health services to entertainment, from education to systems of governance, that they have become fundamental to basic life.

Information technologies are rapidly transforming the content and services of libraries and information centers worldwide (Abbas 2015). Hence, digital literacy researchers explore a wide variety of topics, digital technologies (Birger,2018). Digital Literacy Skills is the ability to locate, organize, understand, evaluate, and analyze information using digital technology. It involves a working knowledge of current high technology, and an understanding of how it can be used. People with digital knowledge and skills can communicate and work more efficiently, especially with those who possess the same knowledge and skills. Research around digital literacy skill is concerned with wider aspects associated with learning how to effectively find, use, summarize, evaluate, create, and communicate information while using digital technologies, not just being literate at using a computer (Faloki, 2015).

Components of Digital Literacy Skills for Teaching

In the recent decades, there is growing evidence and perception that the teaching is rapidly evolving from a hard-material-based infrastructure towards a digital one, and less obviously, from a craftsmanship operation towards a fully automated one. Hagel (2016) explained that for an individual to be digitally literate he must possess those skills which include:

Computer literacy: With the use of computer teachers can teach students how to locate and retrieve files in various directories, Save those same files in multiple locations (flash drives, My Documents, network folders); recognize and save files in various formats (i.e.bmp, .jpg, .pdf, .html, etc.); create folders to organize files; Rename files; Delete files; Select appropriate printer and print; choose appropriate page setup features; use multiple ways to accomplish the same task.

Communication literacy: Reading and writing are creative tasks, requiring both the building and breaking down of words or "tinkering." As literacy grows, and the forums develops, in

which a students can build grow too. You can help students transition from what frequently is their comfort zone to more in-depth commentary, such as a written blog. Create simple tools for your class like flexible, common rubrics, to enable students to self-select topics, publish journals, music, or videos weekly. These short, on-demand duration tasks not only build writing stamina and ownership of their craft, they also reinforce the iterative nature of communication.

Media literacy: A person's ability to perform tasks effect read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments. Many teachers have started to supplement traditional curriculum with everything from video to online articles. But simply adding in new content is not enough. We must instill a complementary skill set that enables students to closely read things within those mediums. Believe it or not, this can be done with lessons you currently have with a bit of tweaking.

Technology literacy: Is the ability of an individual, working independently and with others, to responsibly, appropriately and effectively use technology tools to access, manage, integrate, evaluate, create and communicate information? Includes all electronic tools, both hardware and software, that assist an individual in his/her ability to acquire and communicate information.

Visual literacy: Ability to critically use images to understand the economic, legal and social issues surrounding the use of digital images access and use of image information ethically and legally. Visual literacy is about analyzing and creating messages. Images can be used to influence and persuade, so it is incumbent upon educators to learn how to teach with and about images and to help our students understand the language of photography.

Big6 skills for information literacy: These information processes models provide road maps for implementation and instruction of information literacy skills in the curriculum. Big6 approach was developed by Mike Eisenberg and Bob Berkowitz (2019). The Big6 guide learners as they embark on information problem solving activities, and provide educators with a framework for teaching the research processes and including information technology skills in the curriculum developed from practice, observation, and work by Eisenberg and Berkowitz in a number of different teaching and learning situations and across grade and student age groups as follows:

i. **Task definition:** the first part in the information problem solving process involves recognizing an information need exists, defining the problem and identifying the types and amount of information needed in order to solve the problem. They should have a

clear hypothesis, a specific question, and a clear understanding of what is needed in order to answer that question. This can be done by communicating with teachers, subject area expert using e-mail, online discussion or brainstorm.

ii. **Information seeking strategies: in** this stage, once the information problem has been formulated it requires teachers first to identify all the possible sources of information, develop a plan and then determine which source is best for them to use. They should be able to assess the value of various types of electronic resources, primary resources, use a computer to generate modifiable flow charts and as well use handheld devices such as personal digital assistants (PDAs).

iii. **Location and access:** After you determine your priorities for information seeking, you must locate information from a variety of resources and access specific information found within individual resources. These will enable you to locate appropriate computer resources and technologies available throughout the institution and within the library and also use the internet.

iv. **Use of information:** is comprised of traditional bibliographic skills. Teachers should not only find individual resources such as books, magazines, reference materials, and Web sites, but also find the information within each source through the use of table of contents, indexes, and other resource specific tools. Next, they must engage each source (read, view or listen) and extract specific information from it through the application of note taking, highlighting, and summarizing.

v. **Synthesis:** Teachers should organize and communicate the results of the information problem solving effort, requiring them to make a decision, create a product, or formulate an answer. Synthesis is linked to task definition in that students are expected to answer the specific question they created when initially engaging in the problem-solving process.

vi. **Evaluation:** requires teachers to evaluate not only their final product (whether it is a decision, paper, etc.), but also to evaluate how well they performed when the information problem solving task.

Ability to create digital content teaching: Schools and educators today have heightened sense of urgency towards understanding how educational technology can both support new curriculum standards and enable engaging relevant classroom learning experiences. The proficient in the use of digital tools enhances online teaching effectiveness for LIS educators (David-West,

2022). Moreso, educators are turning to the implementation of digital content such as eBooks, videos and interactive simulations in the classroom to address both challenges. Per the national Speak Up 2014 research in the United State of America, 61 percent of educators noted that the use of digital content in their schools has already been producing enhanced student achievement; in 2017, only 42 percent of educators noted that same impact (Smith & Anderson, 2015).

Moreover, the use of tablets and mobile platforms has become part of everyday experience and we have seen the popularity of ideas such as MOOCs (Massive Open Online Courses) and of open educational resources, of BYOD (Bring Your Own Device), and of the flipped classroom and fully online learning. The mainstreaming of badges, gasification and learning analytics is just „on the horizon", and 3D printing and we more widespread by 2018 as well as the use of wiki linked as a collection of linked web pages accessible for editing and shared by several people together (New Media Consortium 2014). On the other hand, discussion groups, e-mails, blogs based on an ordered or hierarchical chain of responses should be evaluated accordingly. Wiki platforms may also serve the needs for assessment of cooperative learning and are effective for measuring cooperation because they contain records of the content edited by all students on each page (Area, 2015). The importance of active personal and collaborative engagement of students in their learning processes is that they are able to share objectives, produce artifacts in teams, and apply both self-reflection and peer review. Such processes are central to knowledge creation as it is understood in this context.

Challenges Encounter by Undergraduate Student in Establishing their Digital Literacy Skill

Establishing digital literacy skills among undergraduate students faces several challenges which include:

Infrastructure: The availability and quality of technological resources, such as internet access, computers, and software, significantly influence students' digital literacy development. Limited access or outdated equipment can hinder students' ability to engage effectively with digital tools and platforms.

Professional development: Adequate training and support for educators are crucial in fostering students' digital literacy skills. Teachers who are proficient in utilizing technology can better integrate it into their curriculum, providing students with meaningful learning experiences.

Personal characteristics: Individual attributes, such as prior experience with technology, confidence in using digital tools, and motivation to learn, impact students' digital literacy acquisition. Students with diverse backgrounds and abilities may require tailored approaches to accommodate their unique learning needs.

Technical assistance: Access to timely and effective technical support services is essential for students to overcome challenges and troubleshoot issues encountered during their digital learning activities. Having reliable technical assistance can alleviate frustration and promote confidence in utilizing digital resources.

Research Methodology

The research adopted a qualitative approach employing a survey design to evaluate the digital literacy skills of undergraduate students in the Department of Library and Information Science at Ahmadu Bello University, Zaria. The population of the study consisted of undergraduate students in the department. A structured questionnaire was distributed to 44 respondents, with a response rate of 84%, yielding 37 usable responses Data was collected using a structured questionnaire, validated by experts in Library and Information Science. The questionnaire covered various aspects related to digital literacy skills, perception towards digital information resources, impact of digital literacy skills, activities utilizing digital literacy skills, ICT facilities provided, factors influencing digital literacy skills, and challenges faced by students in establishing digital literacy. Descriptive statistics, frequency counts, and percentages were used to analyze the data. The Statistical Package for Social Sciences (SPSS) was employed for data analysis.

Response Rate

A total of 44 copies of the questionnaire were administered to respondents for the study in the department of library and information science A.B.U Zaria; out of which 37 copies (84%) were duly completed, returned and found useable for the study. Meanwhile, 84% response rate is very good enough to provide a highly credible and reliable result of the study. Therefore, data for this study was analyzed based on the 37 returned copies of the questionnaire.

Table 1: Digital Literacy Skills of Undergraduate Students at A.B.U, Zaria

Digital Literacy Skills	Very Confident (%)	Quite Confident (%)	Not Confident (%)	Total
Knowledge of information available on the web	15(40.5)	10(27.0)	12(32.4)	37(100%)

Digital Literacy Skills	Very Confident (%)	Quite Confident (%)	Not Confident (%)	Total
Familiarity with information in online libraries	17(45.9)	10(27.0)	10(27.0)	37(100%)
Use of advanced search options	12(32.4)	10(27.0)	15(40.5)	37(100%)
Ability to use keywords effectively	10(27.0)	15(40.5)	12(32.4)	37(100%)

Key: 1= Very Confident 2 = Quite Confident 3 = Not Confident

Table 1 revealed that knowledge of information available on the web, familiarity with information in online libraries, use advanced search options, ability to use keys effectively to quickly access the key relevant information have average scores of over 32.4% for all the undergraduate students in the DLIS. These can be said to have high significant influence on the respondent on locating above 32.4% scores. Whereas, I can use advanced search option to limit and refine a search have average mean scores of over 27.0% for all the undergraduate students in the DLIS. This suggests that such factor locating of digital Information because they are recorded over 27.0% scores. This means that the respondents have similar factors to locate digital information on the web.

Figure 1: Perception of Undergraduate Students towards Digital Information Resources

Table 2: How do undergraduate students perceive digital information resources at A.B.U, Zaria?

ITEMS VC		QC	NC	Total
	(%)	(%)	(%)	(%)
I can discern the depth of information provided on websites.	20	15	2	37
I am capable of evaluating the credibility and trustworthiness of online sources or individuals.	20	10	7	37
I am able to differentiate between facts and opinions within provided information.	20	10	7	37
I can determine whether the given information is current or outdated.	20	15	2	37

Key: 1= Very Confident 2 = Quite Confident 3 = Not Confident

It was evidence from table 2 that I can discern the depth of information provided on websites, I am capable of evaluating the credibility and trustworthiness of online sources or individuals, I am able to differentiate between facts and opinions within provided information and I can determine whether the given information is current or outdated have average scores of over 15.0% for all the undergraduate students in the DLIS. This showed that they have high significant influence on the respondent's Information source because they all recorded above 3.00 mean scores. On the other hand, responses on I can determine whether the given information is current or outdated have less significant influence on the respondent" searching and retrieval because in web they al havel information recorded above 20.0% mean scores.

Table 3: Impact of Digital Literacy Skills on Undergraduate Students

Impact Statements	Very Confident (%)	Quite Confident (%)	Not Confident (%)	Total
Ability to create content in different media	15(40.5)	20(54.0)	2(5.4)	37(100%)
Adding comments to blogs, forums, or web pages	20(54.0)	15(40.5)	2(5.4)	37(100%)
Knowledge of making information retrievable online	20(54.0)	10(10.0)	7(18.9)	37(100%)
Ability to cite references using correct format	20(54.0)	10(27.0)	7(18.9)	37(100%)

Key: 1= Very Confident 2 = Quite Confident 3 = Not Confident

Table 3 indicated that Ability to create content in different media and I know how to create online to tag "allow others to inform a retrieve it quickly have average mean scores of over 3.00 for all the undergraduate students in the DLIS. Whereas, respondents that indicated that Adding comments to blogs, forums, or web pages Ability to cite references using correct format have average score of over 20.0% for all the undergraduate students. This suggests they have less significant influence on the respondent recorded over 2.00 mean scores.

Table 4: Activities Utilizing Digital Literacy Skills

Activities	Very Confident (%)	Quite Confident (%)	Not Confident (%)	Total
Communication with others online	20(54.0)	10(27.0)	7(18.9)	37(100)
Use of media-capture devices for recording and editing	20(54.0)	10(27.0)	7(18.9)	37(100)
Interaction with others on various	20(54.0)	10(27.0)	7(18.9)	37(100)

Activities	Very Confident (%)	Quite Confident (%)	Not Confident (%)	Total
online platforms				
Creation of online content for different audiences	20(54.0)	10(27.0)	7(18.9)	37(100)

Key: 1= Very Confident 2 = Quite Confident 3 = Not Confident

Table 4 revealed that communication with others online, Use of media-capture devices for recording and editing, Interaction with others on various online platforms, Creation of online content for different audiences have average mean scores of over 54.0% for all the undergraduate students in the DLIS. These can be said to have high significant influence on the respondents because on communicating all recorded above 54.0% mean scores. Whereas, Communication with others online, Interaction with others on various online platforms and Creation of online content for different audiences have average mean scores of over 2.00 for all the undergraduate students in the three institutions studied. This suggests that such factors have locating of digital Information because they are recorded over 2.00 mean scores.

Figure 2: ICT Facilities Available for Undergraduate Students

Table 5: I.C.T facilities available for undergraduate students in AB.U, Zaria.

ICT FACILITIES	FREQUENCY	PERCENTAGE%
Internet	10	27.0%
Computer System	10	27.0%
Telecommunication Network	5	13.0%
Software	12	32.4%
Total	**37**	**100%**

From table 5 above show the response of respondents on the types of I.C.T facilities that are provided for undergraduate students of DLIS and 10(27.0) of the response of the respondents indicate internet and computer system are the I.C.T facilities available for undergraduate students in the department while 12(32.4) which is the highest of the response of the respondents lament on the software and the response of the respondents which is 5(13.5) said telecommunication has a lowest response.

Table 6: Factors Influencing Digital Literacy Skills

Factors	Frequency (%)	Percentage (%)
Use of technology like computers and iPods	15	40.5%
Integration of digital storytelling and PowerPoint	10	27.0%
Utilization of electronic storybooks for reading motivation	10	27.0%
Usage of social media platforms like Skype	2	5.4 %
Total	**37**	**100%**

Table 6 indicated that respondent Use of technology like computers and iPods, Integration of digital storytelling and PowerPoint, Utilization of electronic storybooks for reading motivation Usage of social media platforms like Skype. This indicates undergraduate students in DLIS can integrate digital content in their classroom. The implication of this study indicate that lecturers can integrate digital content in their teaching as Higgins (2009) confirms that the level of skill, confidence, and knowledge learners have when using digital technologies will impact on the quality of their use of the technology.

Table 7: Challenges Affecting Establishment of Digital Literacy Skills

Challenges	Frequency (%)	Percentage (%)
Infrastructure	10	27.0%
Inadequate professional development	10	27.0 %
Personal characteristics	10	27.0%
Lack of technical assistance	10	18.9%
Total	**37**	**100%**

Table 7 indicated that 48% of the respondents were very sure that lack of access to the infrastructure always, inadequate professional development, personal characteristics, and Lack of technical assistance have the average of 3.00 for all the undergraduate students in the DLIS. These can be said to have high significant influence on the respondents. The implication of this study is that these are the factors hindering the use of digital technology it goes in line with Plomp, Anderson, Law, & Quale, (2009), confirmed that effective adoption and integration of digital technology into teaching in schools depend mainly on the availability and accessibility of digital technology such as hardware, software, etc. Obviously, if lecturers cannot access digital resources, then they cannot use it. Therefore, access to computers, updated software and

hardware are key elements to successful adoption and integration of technology.

Conclusion

The research paper on evaluating the digital literacy skills of undergraduate students at Ahmadu Bello University, Zaria, highlights several key findings. The study reveals that undergraduate students possess varying levels of digital literacy skills, with a majority demonstrating confidence in locating and accessing digital information. However, challenges such as limited access to infrastructure, inadequate professional development, and technical assistance hinder the development and utilization of these skills. Despite this, there is a significant impact of digital literacy skills on students' ability to create content, interact online, and integrate digital technology into their learning.

Recommendations

Based on the findings of the research study, the following recommendations are suggested by the researcher:

1. Ahmadu Bello University Zaria should ensure or organize digital literacy skills that will focus on the use of advance search in search engines. In addition Undergraduate students should also be taught how to recognize when to change search strategy or when their search is completed.
2. The undergraduate students in the Department of Library and Information science in the DLIS should be taught on how to identify the depth or comprehensiveness and purpose of digital information resources.
3. Undergraduate students in the Department of Library and Information science in the DLIS should be trained on how to cite online information resources to help them avoid being accused of plagiarism.
4. Undergraduate students in the Department of Library and Information science in North-Eastern State of Nigeria should be provided with more training like workshops, conferences and seminars on how to create content online for different audience.
5. The Department of Library and Information science should provide digital technologies such as teleconferencing for the undergraduate students to integrate it in their teaching process.
6. Emphasis should be given to digital technology components by the institutions so as to equip the undergraduate students in the Department of Library and Information science in

the DLIS with the requisite expertise to fully harness the potentials of Information and Communication Technology in teaching learning and research. Also, there is urgent need for the increase in the budgetary allocation to the universities by the government in order to raise their ICT affordability status.

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