

# DIGITAL INFORMATION RESOURCE NEEDS, USES AND SEEKING BEHAVIOURS OF MECHANICAL ENGINEERING STUDENTS OF BAYERO UNIVERSITY, KANO

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## Abstract

The purpose of this study is to investigate digital information resource needs, uses and seeking behaviours of mechanical engineering students at Bayero University, Kano. The objectives of the study include: to determine digital information resources needs, usage and information seeking behaviour among Mechanical Engineering Students of Bayero University, Kano and to assess various challenges associated with digital information resources needs, usage and information seeking behaviour among Mechanical Engineering students of Bayero University, Kano. This study was premised on the Digital Information Resources Literacy in Four Dimensions Models (DLFD). The study adopted descriptive research design. Simple random sampling in probability sampling techniques was used for this study and the sample size of the study was 169. The findings from the study showed that participants in the research appreciate digital information resources in enhancing learning, research and information needs. The study concluded that though not all the students in public higher institutions in Kano State participated in this study, the use digital information resources among undergraduate Mechanical Engineering students enhances research, current and up-to-date information. The study recommended that there is the need for the university as a matter of policy to strengthen digital information resources needs, usage and information seeking behaviour among Mechanical Engineering students of Bayero University, Kano, for more proactive research and learning capabilities.

**Key Words:** *Digital resources, Information Needs, Information Use, Seeking Behaviour, Students, University Libraries*

## Introduction

The advent of ICTs and revolution in World Wide Web (WWW), smartphones, tablets, robots, e-books, game machines and even light bulbs have enabled students and researchers around the world to develop digital knowledge for effective use of digital resources to improve communication, collaboration, education, research and learning (Howe, 2016). Digital information resources have assisted researchers to assume new thinking and innovation towards increase and timeliness in research as well as increase discovery and creation of new fields of inquiry (Hussaini, 2019).

Despite these positive trends, recent research conducted indicates that students and researchers' level of usage of digital information resources in developing countries had decrease with low skills to interact with digital technology to accomplish library tasks and to enhance access to quick information for research activities (Hussain 2019; Singh, 2019). Bernard (2017) also stresses that students and researchers find it difficult to use digital resources because of poor communication and inadequate computerization experience. Similarly, Obidike and Mole's (2015) findings revealed that inadequate computerisation, insufficient infrastructure, and scarce human capacity were some of the major issues towards the use of ICT and other digital technologies among students and researchers in an educational institution in South East Nigeria.

In spite of these gaps, the intervention of digital resources has given rise to new modes of organizing, processing and accessing information resources in the libraries. With the emergence of Web 2.0 and web 3.0 technologies, cloud computing, social media platforms and electronic resources, libraries now assume new thinking and new role of meeting the need of ever growing and dynamic society (Hussain, 2019).

Bayero University, Kano (BUK) is a conventional non-profit public university, in Kano, Kano state, North-west Nigeria. It is one of the initial 12 universities founded in Nigeria by the Federal Government in 1975 (National Universities Commission, 2022). The University has 17 Faculties and runs programs in different types of academic disciplines. It also awards degrees in both single and double honors. The university library supports teaching, learning and research activities of the university community. It provides different types of Digital Information Resources (DIRs), which include: e-books, e-journals, e-databases, digitized theses, e-reference materials, e-newspapers, digitized past question papers, CD-ROM databases, digitized manuscripts and Compact Discs. The university library

collaborates with the department of Library and Information Sciences (LIS) to promote students' ILS, which overlaps with DL.

### **Statement of the Problem**

Digital resources support and encourage Mechanical Engineering Students to interact through open publishing platforms, wikis, blogs, social media, citation tools, instructional technologies, data visualization tools (Asogwa, 2014). Ekere, Omekwu and Nwoha (2016) assert that accessing and searching for online information using personal computers such as laptops and palmtops and even phones is proving to be successful among students in searching for current and up-to-date information.

Despite the use of digital information resources by Mechanical Engineering Students, evidence from the literature shows that there is low level on the use of digital information resources in libraries in developing countries (Singh, 2019). Therefore, in order to close the gaps established, this study became paramount to explore and investigate digital information resources needs, uses and seeking behaviours of Mechanical Engineering Students of Bayero University, Kano

### **.Objectives of the Study**

1. To determine digital information resources needs, usage and information seeking behaviour among Mechanical Engineering Students of Bayero University, Kano
2. To Assess various challenges associated with digital information resources needs, usage and information seeking behaviour among Mechanical Engineering Students of Bayero University, Kano

### **Literature Review**

Digital information resources are those information resources that can only be accessed by the use of computers and other ICT devices. These materials may require the

use of a peripheral device directly connected to a computer or computer network (Hallam, 2016). There are different types of digital resources such as, Digital video Disc (DVD), the Internet, Online Public Access Catalogues (OPAC), electronic books, electronic journals and electronic index (Hallam, 2016).

The university libraries of 21st century depend on digital information resources for effective information service delivery. As digital information resources evolves fast and continuously, the users' information needs change and have more expectations from librarians (Coldwell-Neilson, 2013). Librarians need to continuously update their technological skills in parallel with the digital technological changes that occur on a daily basis. Librarians need to accept their new roles and duties and be able to respond to these changes by learning how to use the new digital technologies effectively. In order to respond to an environment that changes continuously they need to be educated so as to acquire the adequate technology skills.

Digital information resources foster access to networked information resources such as bibliographic databases, remote library catalogues, bulletin boards, discussion groups, downloading remote files, acquiring software, ordering and subscription of online information materials and communication with other libraries (Ayoku and Okafor, 2015). A study conducted by Annunobi and Emezie (2016) indicates that the use of digital resources to enhanced access to digital collection of information resources is still a challenge in Nigeria. This challenge according to Odu and Omosigho (2016), is due to poor penetration of digital resources in Nigeria. Echezona, Ibegbulem and Nwegbu (2015) emphasise that lack of steady growth of online access to information to transform the whole concept of academic libraries into a global-information-connected community is still a serious concern in Nigeria. Therefore, effective usage of digital resources to provide library services require initiatives to

drive digital technology service to enhance research output among academic librarians in Nigeria.

Digital information resources are materials that can be conceived and created digitally or by converting analogue materials to a digital format (State Library of Victoria, 2018). These resources include OPAC, DVD, Online-Databases, E-journals, E-books, Internet resources (Oak, 2016). The use of digital resources has made users to become more technologically friendly. Besides, Bajpai, Hada, and Bajpai (2016) in an attempt to offer explanation to digital resources place much emphasis on electronic research. They maintain that e-research is a technique in which a user may use different digital resources such as the Internet, computer technology and multimedia to replace the conventional information system. Bajpai, Hada, and Bajpai (2016) explained that electronic research is giving a new dimension to the libraries through the use of digital resources. In this 21st century, digital resources are increasingly being adopted in libraries because of their relative advantage for public use (Bhardwaj, Nadar and Tripathi, 2016). This offers greater opportunity for mass access and delivery of information services.

Digital information resources help mechanical engineering students to bridge the information seeking behaviours among the students across the world. Ifijeh, Iwu-James and Adebayo (2016) state that mechanical engineering students depends on the digital resources to bridge the digital divide and improve digital inclusion through interaction for professional development. Digital resources offer interaction among librarians to ensure provision of digital content via mobile devices, social media, and virtual research environments. Digital resources support and encourage mechanical engineering students to interact through open publishing platforms, wikis, blogs, social media, citation tools, instructional technologies, data visualization tools (Asogwa, 2014).

### **Theoretical Approach**

This study is premised on the Digital Information Resources Literacy in Four Dimensions Models (DLFD). The theory is appropriate for this study, as it was designed to predict digital information resources in four dimensions (Ternero, 2004). The four dimensions are: Operational, Semiotic, Culture and Civic. The operational dimension focused on the technical ability to use computers and information technology facilities effectively. That is, the ability to operate and use a computer and its components to create images, audio and video, and web browser. Semiotic dimension is the ability to use the language of the media to communicate appropriately. This means designing programming language to evaluate and create information using digital technology, computer hardware, software, the Internet, cell phones, personal digital assistant (PDAs) and other digital devices. Culture dimension centered on the ability understand intellectual environment driven by digital technology. This involves the combination of functional technology skills, critical thinking, collaborative skills and social awareness to drive the intellectual environment. The civic dimension deals with rights and duties to use the digital technologies and devices. Right in solving the problem of digital technology starts with defining the problem, moving to the discovery of how the problem arose, dreaming or looking at the solution in the future, designing and mapping out the process for how the problem will be solved in conformity with digital technology regulations. Digital Information Resources Literacy in Four Dimensions Models is most suitable because this study is aimed at inculcating the skills and competencies in the undergraduate Mechanical Engineering Students ability to use these digital technologies for effective library services.

### **Methodology**

This study was guided by descriptive research design. The study population consisted of 294 registered undergraduate Mechanical Engineering Students from Level one to five hundred levels. Simple random sampling in probability sampling techniques was used for this

study. Probability sampling is a sampling technique that permits the researcher to specify the probability or chance, that each member of a defined population will be selected for the sample (Crowell, 2012). According table1, a sample size for a population of 294 to 300 (N) is 169 (S). ‘N’ is a population size and ‘S’ is a sample size. However, the Mechanical Engineering students are 294 which fall under the range of 169 as given in the Krejcie and Morgan’s table. Therefore, with the sample size of 169 students, structured questionnaire copies were randomly distributed to the study population. Of the 169 copies of the questionnaire administered, 110 copies were returned. Data analysis was done using frequency count and simple percentages. Statistical package for social sciences (SPSS) software version 24.0 was used as tool for data analysis in research.

**Results**

**Research Objective 1:** To determine digital information resources needs, usage and information seeking behaviour among Mechanical Engineering Students of Bayero University, Kano.

**Table 1: Digital information resources needs, usage and information seeking behaviours among Mechanical Engineering Students**

<b>Digital information resources needs, usage and information seeking behaviours among Mechanical Engineering Students</b>	<b>Stro ngly Agree</b>	<b>Agree</b>	<b>Strongly Disagree</b>	<b>Disagree</b>
	<b>Count%</b>	<b>Count%</b>	<b>Count%</b>	<b>Count%</b>
Digital information resources enhance speedy information search for efficient research productivity	39 (35.4%)	29 (26.3%)	24 (21.8%)	18 (16.3%)
Digital information resources enhance performance in the retrieval of current information service provision	38 (34.5%)	28 (25.4%)	25 (22.7%)	19 (17.2%)
Digital information resources change my behaviours towards seeking for new knowledge in my field of study	37 (33.65)	32 (29.0%)	23 (20.9%)	18 (16.3%)
Digital information resources decrease my productivity in the provision of information service delivery	22 (20.0%)	15 (13.6%)	45 (40.9%)	28 (25.4%)
Digital information resources build networks in sharing of information students and other	39 (35.5%)	29 (26.3%)	24 (21.8%)	18 (16.3%)

researchers across the globe				
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**Source:** Field Data, (2023).

The findings revealed that 68 (61.8%) of the respondents indicated that digital information resources enhance their speedy information search for efficient research productivity, while 42 (38.1%) had a divergent view. Similarly, the finding also showed that 66 (60%) of the respondents revealed that digital information resources enhances their performance in the retrieval of current information service provision, while 44 (40%) had contrary view. On the aspect digital information resources change which behaviours towards seeking for new knowledge in my field of study, 69 (62.7%) of the respondents strongly agreed or agreed with the statement, while 41 (37.2%) disagreed or strongly disagreed. Overall, the implication of these findings in relation to the digital information resources needs, usage and information seeking behaviour among Mechanical Engineering Students of Bayero University, Kano, suggested that most of the respondents appreciate the digital information resources in enhancing learning, research and information needs.

The finding is in line with a study by Chirra and Madhusudhan (2016) in a survey on the use of electronic journals by doctoral research scholars of Goa University, India, revealed that all (100%) of respondents used the e-journals of the consortium and accessed them effectively. Though, majority of the respondents appreciate digital information resources as key to their academic success because digital information resources played and still playing a fundamental role in learning, research and information needs thereby changing their information seeking behaviours.

**Research Objective 2:** To assess various challenges associated with digital information resources needs, usage and information seeking behaviour among Mechanical Engineering Students of Bayero University, Kano

**Table 2: Challenges associated with digital information resources needs, usage and information seeking behaviours among Mechanical Engineering Students**

Challenges	Strongly Agree	Agree	Strongly Disagree	Disagree
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	<b>Count%</b>	<b>Count%</b>	<b>Count%</b>	<b>Count%</b>
Lack of digital information resources lowered my acquisition of knowledge towards usage of digital information resources	24 (21.8%)	18 (16.3%)	39 (35.4%)	29 (26.3%)
Inadequate digital information resources training and re-training affect my skills to deliver quality to acquire digital technology	23 (20.9%)	18 (16.3%)	37 (33.65)	32 (29.0%)
Lack of skills on creating awareness and understanding of digital information resources affect my research and information needs to improve my knowledge	25 (22.7%)	19 (17.2%)	38 (34.5%)	28 (25.4%)
Poor knowledge of digital information resources usage have render slow rate and change of behaviours toward digital information resources	12 (20.0%)	15 (13.6%)	45 (40.9%)	38 (25.4%)
Poor skills in digital information resources posed a great danger in the future of information service delivery in the library	24 (21.8%)	18 (16.3%)	39 (35.5%)	29 (26.3%)

**Source:** field data, 2023

A total of 68 (61.8%) of the respondents disagreed that lack of digital information resources lowered my acquisition of knowledge towards usage of digital information resources while, 42 (38.1%) of the respondents concurred with the statement. Also, 83 (75.4%) of the respondents also disagreed that Inadequate digital information resources training and re-training affect their skills to deliver quality to acquire digital technology, while 27 (24.5%) of the respondents agreed with the statement. On the aspects of Lack of skills on creating awareness and understanding of digital information resources affect research and information needs to improve knowledge, 68 (61.8%) of the respondents did not accept the statement while 86 (38.1%) claimed otherwise. Similarly, 66 (60.0%) of the respondents indicated their disagreement on the aspects of Poor knowledge of digital information resources usage have render slow rate and change of behaviours toward digital information resources, while 44 (40.0%) agreed with the statement. This implies that despite challenges associated with digital information resources needs, usage and information seeking behaviour among Mechanical Engineering Students of Bayero University, Kano, many respondents indicate otherwise.

This is in line with study conducted of Singh, (2019) who justified that digital information resources is spreading to all nooks and crannies around the world, thereby fostering new thinking among students and researchers to acquire knowledge that would foster new research skills and learning capabilities. The findings of this study disagreed with the finding of Ani and Ahiauzu (2016) who revealed that the many students and researchers in higher institutions in Nigeria are lagging behind because of poor skills in digital information resources which have been major set- back in many higher institutions in Nigeria.

### **Recommendations**

- a. There is the need for the university to as a matter of policy strengthen digital information resources needs, usage and information seeking behaviour among Mechanical Engineering Students of Bayero University, Kano, for more proactive research and learning capabilities.
- b. There is also the need for the university and university library to create awareness and sensitization on the value of electronic resources, computer, database, electronic books, electronic journals, electronic dictionaries, electronic encyclopedias and other digital resources to close the gaps established in the findings of this study.

### **Conclusion**

This findings from the study established that usage of digital resources among undergraduate Mechanical Engineering Students enhances research, current and up-to-date information, improve skills, interaction with colleagues, seeking information, and searching for online information materials. The study concluded that the usage of digital resources such computers, smartphones, DVD, scanners, printers and the Internet, contributes immensely to facilitate easy access to information seeking behaviours among the students of Bayero University, Kano. However, study also concluded that gaps still exists in the usage of digital

resources among some undergraduate Mechanical Engineering Students in their inability to be familiar and skillful in the use of digital resources information to improve their learning capabilities and research output.

The study maintains that despite this challenge, the usage of digital resources by undergraduate Mechanical Engineering students has enhanced access to current and up-to-date information, facilitates access to networking, promotes effectiveness on information sharing, interaction and communication as well as collaboration for sustainability on the usage of digital resources.

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