

# Digitalization of Learning Resources and the Perceived Information Use Behaviour of Undergraduate Students in the Face of a Pandemic

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## Abstract

This study investigated the Digitalization of Learning Resources and the Perceived Information Use Behaviour of Undergraduate Students in the Face of a Pandemic. Three objectives of the study, three research questions and two hypotheses were used. The study adopted an Analytical descriptive survey design. The population of the study comprised one thousand four hundred and sixty (1460) final 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. Data was collected using an instrument created by the researcher called the Digitalization of Learning Resources and the Perceived Information Use Behaviour Questionnaire (DLRPIUBQ). The DLRPIUBQ was a 20-items Questionnaire. Mean, Standard Deviation and Pearson Product Moment Correlation (PPMC) were used in answering the research questions while Analysis of Variance (ANOVA) and Pearson Product Moment Correlation (PPMC) were used in testing the hypotheses. The findings of the study revealed that undergraduates find it convenient to use information gotten from digital gadgets. Finally, there is a significant relationship between undergraduate students' digital information literacy level and their perceived information use behaviour. The study concluded that Universities should take the lead role in the study of information use behaviour in the learning environment, as well as, spreading knowledge of digital technologies and digital information resources. The study recommended that Lecturers should use digital technology in delivering lectures to challenge the confidence level of undergraduates in the frequent use of media.

**Keywords:** Digitalization, Information Use Behaviour, Perception, 6 C's.

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## Introduction:

Information gotten must be applied for it to be productive, thus, the action of an individual to utilise this information describes Information Usage. Information usage is concerned with understanding information sources people choose and how people apply information to make sense of lives and situations. The ways people use information are innumerable, as the purpose of usage varies. This may be triggered by; learning, problem-solving, storage, decision-making, exchange and new knowledge formation. However, the pandemic (COVID-19) emphasized that digitalization (technology) is vital in our daily lives, especially for teaching and learning.

Balasubramanian and Shanmugam (2018) stated that Information usage is considered a useful routine for life with an effect on behavioural change. This shows that, for every and anything, information and its usage are required. The advent of new information technology has enabled the library and information centres to change their mode of

service from traditional to internet-based services. This was on an increase in the face of the pandemic (COVID-19). The attitude of individuals towards the use of information reveals their information use behaviour. This refers to the totality of human attitude concerning information usage, information sources and information channels.

Information use behaviour is the reaction of people towards the use of information. It describes the way people interact with information, and the sources of information, including the time taken to retrieve and store information. In a technological world such as this, information use behaviour generally can be influenced by the digital information literacy level of an individual. The ability to utilize information maximally in a digitally connected world is enabled by digital information literacy skills due to the increase in technological advancement. Therefore, as technology improves, sources of information, ways of access and people's information use behaviour will largely be affected, especially in the face of a pandemic.

## **Literature Review**

### **Concept of Digitalization**

The 21<sup>st</sup> century today is seen to be a digital world where all most everything has been digitized. The use of technology in a digital world such as this is inseparable from daily human endeavours. There is little or nothing done in this 21<sup>st</sup> century without any technological involvement. In this era, it is empirical to state that there is high demand for the conversion of physical data or information into digital format with the view to digitalize a system. The survival of an organization in this 21<sup>st</sup> century is largely dependent on how high the level of digitalization of that organization and educational institutes are no exception. Simply put, "no digitalization, no real and big business" and this has been proven to be a fact in the face of the pandemic (COVID-19).

Digitalization is the integration of digital technologies into everyday life by the digitization of everything that can be digitized. According to Gartner (2014), digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business. In other words, Digitalization is the moving from the traditional way of teaching and learning to a modern or digital way of teaching and learning. However, digitalization moves beyond digitization and leveraging of digital information technologies to the entire transformation of education processes by evaluating, reengineering and reimagining the teaching and learning process. Digitalization has to do with the total transformation and adaptation of digital technology and tools for implementation in the educational system.

### **Concept of Information Use Behaviour**

Information can be seen as the basic element in any development activity and it must be available and accessible to all to bring the desired development. Once the information affects the user's knowledge structure, users may put it into use according to the information they obtained. Information user-related research was focused on how users acquired the information they needed and how the information obtained was disseminated. However, there should be more to this than is focused on in the past. The extent and how this information is put to use should also be considered a focus point. The use of information is viewed as an activity which takes place in everyday life and is related to everyday life issues. It is an integral part of human endeavours to orient themselves in daily life and to solve problems. Alica, Colleen and Ivanka, (2018), stated that Information use refers to the physical and mental incorporation of the found information into one's prior knowledge. It refers to what people do with acquired information and includes changes and outcomes on cognitive and behavioural levels. Moreover, information is said to be utilized in cases of specific decisions or courses of action. Decision-making is considered to be one of the end-states of information utilization at both cognitive and behavioural levels.

Information use behaviour, however, can be defined as the many ways in which human beings interact with information, in particular, the ways in which people utilize information. With regards to this study, information use behaviour will be defined as a series of individual actions, such as resource type selection and frequency of time spent using the technology and resources. In a broad field of study, it is of interest to librarians or any institutions that provide information as well as social scientists seeking to understand how people use and understand information daily. Information use behaviour does not only refer to the investigation of used sources and channels but the relation between the participants and the information. Chih-Wen, and Szu-Chia, (2015), pointed out that

information use behaviour should be examined both in comprehending and instrumental ways. Research should not only focus on how the information was acquired to solve problems or accomplish tasks, but also investigate the impact of information used on one's knowledge structure.

The advent of the information age and rapidly expanding digital technology have irrevocably changed the way users interact with information (Younghee, 2016). Information use behaviour has changed tremendously over time with the emergence of and continuous evolution of computers, the Internet, smartphones and web 2.0 technology. It is influenced by a change in technology and the need for information usage. The word information use behaviour refers to an individual response when in contact with a particular phenomenon as information. Information use behaviour is concerned with the way people use the information they receive, their satisfaction level, their outcome in developing new knowledge and how they share this information. Therefore, undergraduates' response to and interaction with information especially as regards usage is a concern as it reveals their information use behaviour. However, there are several factors such as Lack of time to surf the internet for e-resources, lack of digital information literacy skills and lack of infrastructure, attributed to personal constraints and resource availability are constraints to information use behaviour.

### **Concept of the 6 C's**

The 6 C's previously known as the 4 C's of the 21<sup>st</sup> century have been outlined by education experts as an integral part of the 21<sup>st</sup>-century theme. These C's of the 21<sup>st</sup>-century education is part of the 21<sup>st</sup>-century skills reflected under a stratum termed Learning and innovation skills. Previously, the aspects of learning and innovation cover the 4 C's: Critical thinking, Communication, Collaboration, and Creativity. However, education experts came up with additional C's with the view to cover areas that they perceived were not covered by the 4 C's. This is due to the rapid change in technological advancement and the increase in knowledge in this 21<sup>st</sup> century. Miller (2015) coined two (2) other C's as Connectivity and Citizenship, while Fullan (2015), prefers the term Character education and Culture, respectively. The addition of these 2 C's to the 4 C's aided the emergence of the 6 C's.

### **Concept of Perception**

Perception is a single unified awareness derived from sensory processes while a stimulus is present. It is a product of perceiving. According to the Oxford Advanced Learners Dictionary of Current English 3<sup>rd</sup> Edition p. 631; Perception is a process whereby we become aware of changes through the sense of sight, hearing, and touching (feeling). Various schools of thought exist with varying ranging perspective and give opinions about what each person perceive and how they react to various actions and reactions, likes and dislikes, advantages and disadvantages. It is natural and normal, that humans cannot be stuck to a position with the same vision at the same time. This is due to the difference in individual hearing (Audio), seeing (Visual) as well as touching (Tactile). To this view, hearing and seeing (Audio-Visual) becomes better than either hearing or seeing alone. However, a combination of all will be more impactful. This applies to all mankind in any activity.

Theory and studies show that each person (student) is total, but sees, listens (hears), behaves and talks differently from each other on the same topic of classroom activities in the same circumstance and environment. This is the natural and practical essence of thought (perception). According to Smith (2008) in a study on the sense of classroom community and learning style, preference involved 616 rural community college students in the United State. He found limited to gender and age effect. Also, non-traditional age students (age 26 or more) had a higher sense of learning than traditional aged-student (age 18-25). Contrary to the study, Rovai (2001) who surveyed students in a community cohort of 20 adult learners found that female students manifested a stronger sense of classroom community than male students. In other words, perception is simply your understanding, views and reactions to actions. In the light of these views, therefore, every student has his or her freedom, feelings, senses and thought on any particular issue including classroom assignment and other educational activities, as humans are equally gifted in every particular virtue.

This study is related to cognitivism learning theory. Cognitivism is 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 does 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. Learners according to cognitivism are active participants in the learning process. They use various strategies to process and construct their 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 .

Balasubramanian, and Shanmugama, (2018), carried out a study on the online information-seeking Behaviour of scholars of MS University Tirunelveli. The population of the study consists of faculty members, Research scholars and postgraduate students. stratified random sampling method a sample of 592 out of the total population of 2368. For the study, both primary and secondary sources of information were used. A structured, close-ended questionnaire and interview techniques were used. Secondary data were collected from the records of the university's central library. Statistical tools such as averages, percentages, tables and SPSS were used for analysis. To test the hypotheses, the Chi-square test was applied. The main findings of the study are that three-fifths of the respondents access the internet from the university enteral Library and Google serves as the main search engine for more than 75% of the respondents. The majority of the respondents use G-Mail for e-mail communication and the second preference goes to Yahoo, wherever possible suggestions have been offered to solve the problems faced by the scholars. Suggestion was also made for creating internet awareness among women faculty members, Research scholars and postgraduate students.

Xuemei (2010), carried out a study on Information-Seeking Behaviour in the Digital Age: A Multidisciplinary Study of Academic Researchers. The study focuses on how electronic information resources influence the information-seeking process in the social sciences and humanities. The study was conducted at Tennessee State University (TSU). Thirty active social sciences and humanities faculty, as well as doctoral students constituting the sample size, were interviewed about their use of electronic information resources for research purposes, and their perception of electronic and print materials. The study included two types of interviewees: faculty members and doctoral students. The study adopted a qualitative approach. Data collection was done through the interview method and was coded and tabulated to facilitate analysis and comparison using both the quantitative and the qualitative analysis methods. Finding from the study shows that there was no difference in the information-seeking behaviour of social sciences and humanities faculty. The researcher further provided suggestions on how current information services and products can be improved to better serve social sciences and humanities researchers. The researcher makes recommendations for improving library services and technologies to better meet the needs of social sciences and humanities scholars.

Younghee, (2016). Carried out a study on the Effect of Digital Literacy on Information Use Behaviour. The study adopted a survey design, with a population that was limited to 45 four-year colleges and universities in Seoul. From an alphabetical list, five universities were selected at random, 250 students at those universities were surveyed as the sample size and 221 were returned, a return rate of 88.4%. The instrument for data collection was a questionnaire developed to analyse the correlation between digital literacy and information use behaviour. The contents of the questionnaire consisted of 3 questions on student background, 50 questions each for technical literacy, bit literacy and virtual community literacy, and 10 questions on information use behaviour, giving a total of 163 questions. Finding from the study reveals that, none of the items showed a significant difference in terms of gender, except those male students showed higher abilities in technical literacy (hardware) and female students showed higher abilities in bit literacy (software) and virtual community literacy (community utilization). It was noted that examination of these detailed items shows that the ability to process information has the most significant effect on information use behaviour followed by information discernment, information editing, community analysis, document editing, use of tools and ability to create cyberculture in that order.

### **Statement of the Problem**

The rapid expansion of digital media has caused tremendous change in the way people utilize digital information. The innovations in digital technologies such as computers, the Internet, and smartphones have caused tremendous change in the Information use behaviour of students. Interactions with students revealed that the majority of undergraduate students at the University of Port Harcourt use a digital devices to communicate with each another according to their level of digital literacy. However, there are noticeable issues in their information utilisation for

academic purposes, such as students paying little or no attention to digital learning resources. Could it be that; students do not find it convenient to utilize the enormous available digital information? Or do students spend more time on social chats and irrelevant materials than academic works online? These issues and many more in the changing nature of the digital space raise the question of whether or not there is a relationship between one's digital information literacy level and their perceived information use behaviour. This study investigated the digitalization of learning resources and the perceived information use behaviour of undergraduate students in the face of pandemic in University of Port Harcourt.

### Aim and Objectives

The aim of this study is to investigate the perceived information use behaviour of undergraduate students in the face of pandemic, Faculty of Education, University of Port Harcourt as a case study. The objectives of the study were to;

1. find out the perceived information use behaviour of students at the Faculty of Education.
2. Examine the difference in the perceived information use behaviour of students in the seven departments at the Faculty of Education.
3. Establish the relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour at the Faculty of Education, University Port Harcourt.

### Research Questions

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

1. How do undergraduate students of the faculty of Education perceive information use behaviour at Faculty of Education?
2. How different is the perceived information use behaviour of students in the seven departments at Faculty of Education?
3. What is the relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour at the Faculty of Education?

### Hypotheses

The following null hypotheses were formulated and tested in this study.

H<sub>01</sub>: There is no significant difference in the perceived information use behaviour of students in the seven departments at the Faculty of Education.

H<sub>02</sub>: There is no significant relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour at the Faculty of Education.

### Results

**Research question one:** How do undergraduate students of the faculty of Education perceive information use behaviour?

**Table 1: Mean score and standard deviation of how undergraduate students at the faculty of Education perceive information use behaviour**

S/N	Items	Respondents (n=446)		
		$\bar{x}$	SD	Decision
.1	I constantly use the internet to get information concerning my studies.	3.82	0.45	SA
.2	I use devices like my smartphone, flash drive and laptop in collecting and storing information I need for later use later	3.50	0.57	SA
.3	I find it easier to send files or documents to people using devices like my smartphone or computer rather than manually writing them.	3.52	0.57	SA
.4	With my digital device and applications, I am able to learn about new ways of doing things	3.48	0.57	A
.5	I get very uncomfortable when I have to use digital devices like a computer in passing or collecting information	2.41	0.99	D
.6	Receiving and Sharing information has become easy and convenient via digital technologies	3.56	0.58	SA
.7	Learning in a technology-enhanced environment makes learning exciting and	3.51	0.61	SA

	unforgettable.			
.8	I am always surfing the internet in order to be current and aware of happening in my environment	3.47	0.61	A
.9	I subscribe to many educational online sites in order to get accurate information.	3.38	0.64	A
.10	I always try and get sufficient information online before I make a decision on any subject matter.	3.36	0.68	A
.11	I spend a lot of my time collecting and passing information to people using a social networking site	3.37	0.86	A
.12	I rarely use digital technology in passing information	2.22	0.93	D
.13	I prefer talking to people facially rather than using digital devices that enable me to type mail or text.	2.33	0.94	D
.14	I learn most of the things I know online using search engines or social networking sites	3.30	0.66	A
.15	I am always searching for new and improved digital devices to carry out a task	3.44	0.64	A
.16	I feel intimidated when confronted with new digital tools	3.44	0.75	A
.17	I spend a lot of time online trying to get information	2.64	1.00	A
.18	Am always willing to share whatever information I have with people	3.15	0.81	A
.19	I am always excited to learn about new digital technological innovations.	3.25	0.76	A
.20	I spend more time with my digital devices getting information than I do with my friends.	3.32	0.72	A

**Grand mean 3.40**

(Criterion Mean = 2.5, Mean: 1.0-1.99 = Strongly Disagree (SD), 2.0-2.49= Disagree (D), 2.5-3.49 = Agreed (A), 3.5-4.0 = Strongly Agreed (SA).

Table 1 shows the responses of undergraduate students of the faculty of Education on their perceived information use behaviour. However, the majority of the respondents strongly agreed with items 1-3, 6 & 7, while few of the respondents indicated otherwise the items. Furthermore, the majority of the respondents agreed to items 4 & 8-11 and 14-20, while few of the respondents indicated otherwise about the items. Finally, majority of the respondents disagreed with items 5, & 12-13 while few of the respondents indicated otherwise about the items. The implication of this finding based on the criterion mean of 2.5 and the grand mean of 3.40 is that majority of undergraduate students in the faculty of Education indicated Agreed to perceived information use behaviour. Thus, there is a high level of confidence in undergraduate students' use of information.

**Research question two:** How different is the perceived information use behaviour of students in the seven departments at Faculty of Education?

**Table 2: Mean score and standard deviation of the difference in the perceived information use behaviour of students in the seven departments at the Faculty of Education**

Departments	n	Mean	Std. Deviation	Rank
EDC	42	64.57	6.44	4 <sup>th</sup>
EDM	167	64.03	5.39	6 <sup>th</sup>
EDF	40	64.95	2.91	2 <sup>nd</sup>
EDP	98	64.19	7.11	5 <sup>th</sup>
KHE	47	63.87	3.07	7 <sup>th</sup>
DAE	42	66.74	5.00	1 <sup>st</sup>
LIS	10	64.70	6.78	3 <sup>rd</sup>

Table 2 shows the difference in the perceived information use behaviour of students in the seven departments at the Faculty of Education. The result indicated that the perceived information use behaviour of students of DAE ( $\bar{x}$  = 66.74, SD = 5.00) department is higher than that of their counterparts, which is followed by EDF ( $\bar{x}$  = 64.95, SD = 2.91), LIS ( $\bar{x}$  = 64.70, SD = 6.78), EDC ( $\bar{x}$  = 64.57, SD = 6.44), EDP ( $\bar{x}$  = 64.19, SD = 7.11), EDM ( $\bar{x}$  = 64.03, SD = 5.39), and KHE ( $\bar{x}$  = 63.87, SD = 3.07). The implication of this result is that the perceived information use behaviour of undergraduate students of DAE is higher than that of their counterparts in the Faculty of Education.

**Research question three:** What is the relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour at the Faculty of Education?

**Table 3: Pearson Product Moment Correlation Analysis on the relationship between the perceived digital information literacy level (DILL) of undergraduate students and their information use behaviour (IUB)**

Variables	Mean	SD	n	r	Remark
DILL	66.15	7.39	446	0.20	Weak
IUB	64.45	5.59			

Table 3 shows the extent of the relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour at the Faculty of Education. However, the result indicated that the relationship that exists between perceived digital information literacy level and information use behaviour of undergraduate students' is weak ( $r = 0.20$ ).

**Hypothesis one:** There is no significant difference in the perceived information use behaviour of students in the seven departments at the Faculty of Education

**Table 4: Summary of ANOVA on the difference in the perceived information use behaviour of students in the seven departments at the Faculty of Education**

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	284.90	6	47.48	1.53	0.17
Within Groups	13625.61	439	31.04		
Total	13910.51	445			

Table 4 shows that there is no significant difference in the perceived information use behaviour of students in the seven departments at the Faculty of Education ( $F_6 = 1.53$ ,  $df = 445$ ,  $P = 0.17 > 0.05$ ). Thus, null hypothesis two is retained at 0.05 alpha level.

**Hypothesis two:** There is no significant relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour at the Faculty of Education.

**Table 5: Summary of Pearson Product Moment Correlation Analysis on the relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour at the Faculty of Education**

Variables	Mean	SD	n	r	Sig.	Decision
DILL	66.15	7.39	446	0.20	0.00	Significant
IUB	64.45	5.59				

Table 5 shows that there is a weak, positive and significant relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour at the Faculty of Education ( $r = 0.20$ ,  $p = 0.00$ ). Hence, null hypothesis three is rejected at 0.05 level of significance.

## Discussion of Findings

The study investigated the digitalization of learning resources and the perceived information use behaviour of undergraduate students in the face of a pandemic. From the data gathered and analysis carried out, the findings of research question one showed that the majority of undergraduate students indicated Agreed with the perceived information use behaviour and as such, they find it convenient and satisfactory to use information gotten from their digital gadgets. This finding is consistent with the finding of Balasubramanian and Shanmugama, (2018). Their findings indicated that three-fifth of the respondents access the internet from the university enteral Library, Google serves as the main search engine for more than 75% of the respondents. Majority of the respondents use G-Mail for e-mail communication and the second preference goes to Yahoo, wherever possible suggestions have been offered to solve the problems faced by the scholars. The result in research question two showed that the perceived information use behaviour of undergraduate students of DAE is higher than that of their counterparts in the Faculty of Education. Furthermore, the result of hypothesis two showed that there is no significant difference in the perceived information use behaviour of students in the seven departments at the Faculty of Education. This finding is consistent with the finding of Xuemei (2010), whose finding indicated that there was no difference in the information-seeking behaviour of social sciences and humanities faculty. Finally, the result in research question three showed that there is a significant relationship between perceived digital information literacy level and information use behaviour of undergraduate students. Furthermore, the result of hypothesis three showed that there is a weak, positive and significant relationship between the perceived digital information literacy level of undergraduate students and their information use behaviour in the Faculty of Education. These findings are consistent with the findings of Younghee, (2016), whose finding indicated that the ability to process information has the most significant effect on information use behaviour followed by information discernment, information editing, community analysis, document editing, use of tools and ability to create a cyber culture in that order.

## Conclusion

Educating people to use information technologies is becoming an important educational objective for effective teaching as well as for research purposes in Universities in Nigeria. Therefore, Universities should take a lead role in the study of information use behaviour in the learning environment, as well as, spreading knowledge of digital technologies and digital information resources. Regarding the educational system's approach toward new digital technologies information management, effective funding and planning should be more focused on equipping educational institutes with new devices as well as helping students develop a new approach toward new digital technologies.

## Recommendations

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

- i. Lecturers and other academic staff should use digital technology in delivering lectures in order to challenge the confidence level of undergraduates in the frequent use of media.
- ii. Undergraduates should be encouraged to engage in academic research using the available electronic information resources on the web without committing plagiarism to improve their information use behaviour.
- iii. The government should assist the universities by providing facilities for a digital teaching and learning environment to enable students to practice and acquire digital skills and be digital information literate in other to boost their information use behaviour.

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