

Relevance of Digital Literacy on Undergraduates Knowledge of Educational Research in Lagos State

Victoria Iyabo AREMU

Department of Educational Technology
College of Informational and Technology Education
Lagos State University of Education, Lagos
viaremu@gmail.com

Imoh Godwin UDOFIA

Department of Counselling Psychology
College of Specialised and Counselling Psychology
Lagos State University of Education, Lagos
udofiamofe19@gmail.com

Japhet Omolere OKUNTADE

Department of Educational Technology
College of Informational and Technology Education
Lagos State University of Education, Lagos
dynamicjaphet@gmail.com

Abstract

Undergraduates most times find it difficult to execute research exercises successfully due to their inability to acquire the required knowledge needed for that exercise, hence the rationale for this study. Descriptive survey type of research design was adopted for this study. The population for this study comprised of all undergraduates in Lagos State while the target population was all second year students of Adeniran Ogunsanya College of Education, Ijanikin, Lagos State. Multi-stage sampling technique was used to select the sample size for this study. Simple random sampling technique was used by the researchers to select twenty-eight (28) students each from the ten (10) departments selected for this study. A total of two hundred and eighty (280) students form sample size for this study. A self structured instrument titled, "Questionnaire on Relevance of Digital Literacy on Undergraduates Knowledge of Educational Research (QRDLUKER)" containing 20-items on 4-Likert Scale type was designed. The instrument was validated for content and face validity by experts in educational research. With the use of Cronbach Alpha reliability estimate, r-coefficient of 0.819 was obtained. Pearson Product Moment Correlation and Regression analysis were used to analyse the data at 0.05 significant level. The result reveals that digital literacy plays a significant impact in the students' educational research knowledge. The study among others concludes that acquisition of digital literacy skills should be made compulsory and mandatory for students seeking admission in tertiary institutions as its acquisition would go a long way to enhance their research knowledge.

Keywords: Digital Literacy, Research Knowledge, Information Technology, Undergraduate

Introduction

Due to the evolution and penetration of technology usage in virtually every segment of the human race today, there has also been a corresponding quest for students to be evaluated through the use of technology as against the usual pencil and paper process. It is no news again that

technology advancement has become a contemporary hot subject of discussion even in academics and a major obstacle for undergraduate students all over the world. According to Hammer (2018), the concept of digital literacy encapsulates the advancement in technology to maximize outputs of quantity and quality through advances in computer technology and more specifically, through the use of virtual models and cyber systems for monitoring processes with decentralised decision-making. Digital literacy has enable students to self proffer solution to problems through effective surfing of online platforms which is enabled through their ability to manipulate systems (Feist & Reid 2018).

It has been discovered that economies or societies that gives priority to maximization of digital literacy are always accompanied with positives ranging from improvement in modes of operations, growth and development, dexterity in teaching methods by the teacher, improvement in students' performance among others. Meanwhile Ibid (2018) noted that some of the major changes related to technological advancements include increase in higher productivity level, experience a shift in the nature of work that will eliminate some employment opportunities but create others, substitution of physical labour with computerised digital machines with computer literate skilled workforce and interoperability the capacity to exchange information, technical assistance and decentralized decision-making the four principles that must be adhered to in order to experience changes.

Noura et al, (2019) see the term interoperability as the capacity of two or more devices systems to share data and use it for the benefit of a common purpose. Therefore, the use of information technology in the production process is at the heart of the revolutionary changes in the current era of digital knowledge based economies. With the advancement of technology, global competition for digital skills and literacy has increased astronomically. This competition for industrial labour exist both domestically and internationally. Meanwhile, studies carried out by Albay and Serbes (2017) argued that globalization has created stiff competition in almost every facet of life and this makes it difficult for students to survive without digital literacy, and life outside the classroom is tied to digitalisation.

In the realm of education, digital literacy plays two significant roles; the first is to connect the skills of graduates with industry demands, second is the capacity to effectively compete with international graduates coming from various backgrounds carrying advance digital knowledge.

With the efforts of multiple players, the educational innovation has undergone significant transformations (Shahroom & Hussin, 2018). Our higher education system in Nigeria is beginning to fit into the digital space and as a result only students with digital literacy can function optimally at this time. Through digital literacy students can be assisted in four major areas of which includes information technology, operational technology, the internet of things, and the big data analytics. This style of higher education mixes digital and real-world problems to produce graduates who are skilled with data, technology, and people to find tentative solutions to these problems (Maemunah, 2018).

Johnson and Long-John (2019) opines that the component of digital literacy includes data literacy (focuses on competencies involved in working with data), information literacy (Notable in situations requiring decision making problem solving or the acquisition of knowledge), visual literacy (Presentation of sourced information in an image and object), media literacy (Process of making the populace understand and contribute to public discourse and eventually elect sound leaders when faced with election) and metaliteracy (It is the ability to evaluate information for its bias, reliability and credibility and apply for the context of knowledge build-up). These components best justifies the true meaning of digital literacy. Whichever component an individual maximises, it is all designed to achieve the same stated objectives of digital literacy as learners ability, quality of information, literacy level regarding digitalisation, improved visualisation, identification and regulation of the media to use in information dissemination among others are made possible through effective and efficient maximization of digital literacy (Johnson & Long-John, 2019).

However, in line with the above, Isangedighi in Agwuma, Ochogba & Agwuma (2018) noted that academic performance of students in tertiary institutions especially in the 21st century is tied to learners ability to manipulate technology positively. Institutions are gradually flooding the teaching process with the use of technology packages like Zoom, Goggle classroom, Canva, Flip, Kahoot and many others in teaching while also complementing the same process by assessing learners too using same platform. Students who have spent quality time in the mastery of digital literacy skills do stand a better chance of responding to items quickly especially during test and examination conditions.

In University undergraduate programmes, research knowledge remains an indispensable tool for problem solving activities. The knowledge of educational research guide students in research proposals, project reports, a foundational base for students to build constructive analytic minds especially in disciplines that are not numbers friendly, introduce and expose students to elementary data analysis among others. It does not give room for rigid conceptualization of events and occurrences rather a platform to vary occurrences and events as they occur. Proficiency in educational research would allow for a detailed mind, concise presentation of facts and figures, dependence on data for result interpretation.

However in order to increase the knowledge of students in research based activities the introduction of digital literacy would go a long way to ensure more knowledge acquisition, independent study through the use of technology, attainment of mastery knowledge on a given phenomenon among others. With the gradual deviation by institutions from the conventional form of teaching to the use of ICT, the researchers are motivated in investigating relevance of digital literacy on undergraduates' knowledge of educational research in Lagos State.

One of the perennial constraints confronting undergraduate students in tertiary institutions is that of knowledge acquisition in educational research. These students are confronted with inability to relate personal experiences, hunch, past works from literatures and surfing online materials in articulation of educational research exercise. It is believed that their inability to successfully carry out such task could lead to poor understanding of research and poor execution process. But with the introduction of digital literacy, undergraduates would be conditioned to source for contents, materials and establish in-depth knowledge of the phenomenon in the course of research studies. Through digital literacy, students' knowledge on phenomenon of discourse are critically examined and studied independently in other to get a robust understanding which in turn lead to effective and efficient execution of research exercise. It is expected among others that in order to promote good mastery of students in educational research, the study was designed to investigate relevance of digital literacy on Undergraduates' knowledge of educational research in Lagos State.

Purpose of the Study

- i. Establish the relevance of digital literacy indices on students' knowledge of educational research.
- ii. Determine the contribution of digital literacy indices on students' knowledge of educational research.

Research Hypotheses

H₀₁: There is no significant association between digital literacy indices and students' knowledge of educational research.

H₀₂: There is no significant contribution of digital literacy indices on students' knowledge of educational research.

Methodology

The researchers adopted the descriptive survey type of research design. This design type allows the researchers to study a large sample of participants and draw up conclusion from a well selected group of samples. The population for this study comprised of all undergraduates in Lagos State while the target population was second year students in selected departments in Adeniran Ogunsanya College of Education, Ijanikin, Lagos. Multi-stage sampling process was used to select samples for this study. The researchers introduced purposive sampling to identify two departments each from the five schools in the institution thereby proportionate sampling by fifty percent (50%) was further introduced to select samples. Simple random sampling technique was then introduced by the researchers to select twenty-eight (28) students each from the ten (10) departments selected for this study. A total of two hundred and eighty (280) students formed the sample size for this study.

A self-structured instrument titled, "Questionnaire on Relevance of Digital Literacy on Undergraduates Knowledge of Educational Research in Lagos State (QRDLUKER)". The instrument contains 20 items on 4-Likert Scale type of Very True (VT), True (T), Not True (NT) and Not Very True (NVT) respectively. The Questionnaire was validated by two academics in the Department of Educational Technology, LASUED and the validated instruments were said to meet both content and face validity. With the use of Cronbach Alpha reliability estimate, the r-coefficient of 0.819 was obtained meaning that the instrument is reliable. Pearson Product Moment Correlation and Regression analysis were used to analyse the data and tested at 0.05 significant level.

Results

H₀₁: There is no significant association of digital literacy indices on students' knowledge of educational research.

Table 1: Pearson Product Moment Correlation analysis of Digital Literacy indices and students' knowledge of educational research

Variables	N	Mean	P	r-cal	Sig.	Decision
Digital Literacy	115	10.5				
Students' Knowledge	165	8.5	0.05	.875	.013	Rejected

Source: Researchers work, (2024)

From table 1 above it shows that r-cal. value of 0.875 reveals a positively strong association between digital literacy indices and students' knowledge of educational research. However, it reveals that at p-value of 0.013 less than 0.05, the null hypothesis is rejected while the alternative which states that there is a significant association between digital literacy indices and students knowledge of educational research is retained.

H₀₂: There will be no significant contribution of digital literacy indices on students' knowledge in educational research.

Table 2a: Regression Analysis of Digital Literacy Indices on Students' Knowledge in Educational Research

ANOVA

Model	Sum of Squares	Mean Square	p	F	Sig.	Decision
Regression	2.666	5.33				
Residual	158.958	.491	0.05	51.087	.006	Significant
Total	161.624	329				

$\alpha = 0.05, r = .955 \quad r^2 = .912$

a. Dependent Variable: Performance

b. Predictors: (Constant), data literacy, information literacy, visual literacy, media literacy and meta-literacy

Table 2a shows that F-value of 51.087 is significant at 0.05 alpha-level (p-value of 0.006 is less than 0.05) hence there is a significant contribution of digital literacy indices on students' knowledge of educational research. This indicates that the null hypothesis is rejected.

Table 2b: Regression Analysis showing Contribution of digital literacy indices on students’ knowledge of educational research method

Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-3.621	.175	.865	9.677	.000
Data literacy	.763	.016	.834	6.050	.001
Information literacy	.890	.027	.313	12.255	.009
Visual literacy	.149	.019	.567	4.869	.041
Media literacy	.329	.019	.602	17.177	.009
Meta literacy	.283	.319		9.160	.008

For table 2b it shows that data literacy contributed .865 and was significant by .001; information literacy contributed .834 and significant by .009; visual literacy contributed .313 and significant by .041; media literacy contributed by .567 and significant by .009; meta literacy contributed .602 and significant by .008 respectively. Hence reveals that data literacy, information literacy and meta literacy contributed the most while media literacy and visual literacy contributed to students’ knowledge of educational research method.

Discussion of findings

From hypothesis one it reveals that there is significant association between digital literacy indices and students’ knowledge of educational research. It has been discovered that economies or societies that give priority to maximization of digital literacy are always accompanied with positives ranging from improvement in modes of operations, growth and development, dexterity in teaching methods by teacher, improvement in students’ performance, acquisition in knowledge level, independence of learners among others. This finding is in line with study of Hammer (2018) who claimed that viability of digital literacy transcends to all sectors of humanity. Hammer (2018) claimed that through digital literacy information sourcing, affirmation of quality of response, personal development in different tasks driven by technology, self reliance and self confidence, better improvement mechanism among others are some of the positives associated with digital literacy. Students who persistently develop skills of digital literacy to proffer solution to lectures and class activities have a likelihood of performing better in tests and examination respectively.

Findings from hypothesis two reveal that there is a significant contribution of digital literacy indices on students’ knowledge of educational research. Digital literacy indices of

information literacy, meta literacy, media literacy, visual literacy and data literacy are sub-components that shows the relative nature of literacy level a student is expected to exhibit. Technology has a broad spectrum and in the process of carrying out any activity knowledge acquisition is assured. This outcome was corroborated by study carried out by Johnson and Long-John (2019) who noted that these components best justifies the true meaning of digital literacy. They further stated that whichever component an individual maximises, it is all designed to achieve the same stated objectives of digital literacy as learners ability, quality of information, literacy level regarding digitalisation, improved visualisation, identification and regulation of the media to use in information dissemination among others are made possible through effective and efficient maximization of digital literacy in which knowledge level of students is dependent on especially in this world of technology.

Conclusion

From this study, the researchers concluded among others that development of digital literacy skills should be made compulsory and mandatory for students seeking for admission in tertiary institutions as its acquisition would go a long way to enhance academic performance. Furthermore, institutions should model contemporary and recent digital programmes available for academic staff at all levels and also at an affordable cost so that members of teaching staff can have up to date information on technology while also devising new means for instruction.

Recommendations

Based on the findings of this study, the following recommendations were made:

- i. Government should mandate the teaching of digital literacy to undergraduates especially in Lagos State institutions.
- ii. Institutions should invest in digital literacy programmes in order to promote knowledge acquisition.
- iii. Acquisition of digital literacy skills should be made compulsory for students seeking for admission in tertiary institutions as its acquisition would go a long way to enhance independence and self confidence in classroom tasks.
- iv. The use of digital literacy should be extended to pupils in public primary schools so that it can help build their emotional, psychological and mental abilities in order to coping with future responsibilities.

References

- Albay, M. & Serbes, M. (2017). Importance of career planning and development in education. *International Journal of Social Sciences & Educational Studies*, 4(2), 149- 154.
- Fiest, D. & Reid, D. (2018). Technology and Teaching: (Technology and Student-Centered Pedagogy in 21st Century Classroom. In *Handbook of Research on Digital Content, Mobile Learning, and Technology Integration Models in Teacher Education*, 69-87. IGI Global.
- Hammer, C. (2018). Digitisation and Industry 4.0 in pharma production. *On drug Delivery Magazine*, 83, 81-83.
- Ibid, V.O. (2018). Digital literacy and Classroom management among Tertiary Institution Students. *Journal of Educational Planning and Management, University of Sokoto*. 9(3) 34-37
- Isangedighi, A. D., Agwuma, O. & Ephraim, A.S. (2018). Impact of digital literacy on Academic Performance of Students in Public Secondary Schools, Anambra State, Nigeria. *Journal of Educational Research and Planning. University of Port-harcourt*. 7(2), 54-57
- Johnson, C.O. & Long-John, A. M. (2019). Exploring Students' Use of ICT and Expectations of Learning Methods. *Electronic Journal of e-learning*, 8(1), 13-20.
- Maemunah, M. (2018). Kebijakan pendidikan pada era revolusi industri 4.0.
- Noura, M., Atiquzzaman, M. & Gaedke, M. (2019). Interoperability in internet of things: Taxonomies and open challenges. *Mobile networks and applications*, 24(3), 796-809.
- Shahroom, A. A., & Hussin, N. (2018). Industrial revolution 4.0 and education. *International Journal of Academic Research in Business and Social Sciences*, 8(9), 314-319.