



ARTIFICIAL INTELLIGENCE (AI) COMPETENCIES AND UTILIZATION OF UNIVERSITY LIBRARY SERVICES AMONG UNDERGRADUATE STUDENTS IN THE UNIVERSITY OF CALABAR.

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ABSTRACT

The present research evaluated AI competencies as it relates to utilization of university library services among undergraduate students in the University of Calabar, with utilization of university library services as the dependent variable. Artificial intelligence competencies were conceptualized using two dimensions: artificial intelligence literacy competency and artificial intelligence application competency. The study adopted a descriptive survey research design. The population of the study comprised 40,645 undergraduate and postgraduate students of the University of Calabar, from which undergraduate students constituted the focus of the investigation. A sample of 200 respondents was selected using a simple random sampling technique to ensure adequate representation of the study population. Data were collected using a researcher-designed structured questionnaire titled "Artificial Intelligence Competencies and Utilization of University Library Services Questionnaire (AICUULSQ)." The instrument was validated by experts in Library and Information Science, Educational Technology, and Measurement and Evaluation, while its reliability was established using the Cronbach Alpha reliability method, with the reliability coefficients confirming that the instrument was suitable for data collection. Pearson Product Moment Correlation (PPMC) was used to test the two null hypotheses at the 0.05 level of significance. The findings revealed that artificial intelligence literacy competency has a significant positive relationship with the utilization of university library services among undergraduate students in the University of Calabar. The study further established that artificial intelligence application competency significantly influences the utilization of university library services. Based on the findings, it was recommended, among others, that the University of Calabar Library should organize regular training programmes and workshops aimed at improving students' artificial intelligence competencies and integrate AI-powered library services to enhance information retrieval, access to electronic resources, and overall library service utilization among undergraduate students.

Keywords: Artificial Intelligence, Competencies, AI Literacy Competency, AI Application
University Library Services, Library Utilization, Undergraduate Students.



Introduction

Artificial Intelligence (AI) has become one of the most influential technological innovations of the twenty-first century, transforming information creation, organization, access, retrieval, and dissemination in education and library services. AI enables computer systems to perform human-like tasks such as learning, reasoning, problem-solving, language processing, and decision-making. The rapid growth of AI has significantly influenced higher education by improving teaching, research, communication, and information management. Universities globally are adopting AI-powered tools to enhance knowledge discovery, independent learning, and access to scholarly resources. UNESCO (2023) identified AI as a strategic resource for improving educational systems through intelligent learning environments and personalized learning experiences. Similarly, OECD (2023) emphasized that AI supports innovation, research development, and institutional efficiency in higher education.

AI adoption has transformed academic libraries from traditional information repositories into dynamic digital knowledge centres. Modern university libraries now integrate AI technologies such as intelligent search systems, chatbots, recommender systems, automated cataloguing, and machine learning applications to improve service delivery. According to IFLA (2024), AI enhances information retrieval, metadata management, digital preservation, and personalized library services. Undergraduate students increasingly use AI tools for literature searching, academic writing, information evaluation, citation management, and research support. Generative AI applications such as ChatGPT and other intelligent assistants have changed how students interact with academic information resources. Dwivedi et al. (2023) noted that AI provides opportunities for improving academic productivity and research efficiency. Offem and Arikpo (2026) sees Artificial intelligence as a tool for promoting information literacy among library users.

AI competencies have become essential skills required for effective engagement with modern information environments. AI competencies involve knowledge, technical abilities, ethical understanding, and practical skills required to use AI tools responsibly and effectively. One major dimension of AI competency is AI literacy competency, which involves understanding AI concepts, evaluating AI-generated information, recognizing limitations, and applying AI responsibly. Ubana et al. (2024) opined that administrators supervisory role helps to promote quality service secondary school delivery. AI literacy enables students to critically assess digital information and effectively use intelligent library resources. Long and Magerko (2020) emphasized that AI literacy involves understanding AI functions, applications, and ethical implications. UNESCO (2024) further identified AI literacy as a key competence for participation in digital knowledge societies. Ubana et al (2025) opined that harnessing security approach and artificial intelligence (AI) as tools helps to combat corrupt/unethical practices. Andong et al (2025) observed games and simulations as method for adult education classroom management. Andong et al (2025) observed that incorporating digital technology helps to improve adult literacy education programmes.

Another important dimension is AI application competency, which focuses on students' ability to practically use AI tools for academic and research activities. AI application competency enables students to utilize intelligent search systems, virtual research assistants, citation tools, and digital learning platforms effectively. Offem et al (2026) sees leadership style, staff motivation and job commitment significant instruments for improving library personnel and students commitment. Students with stronger AI application skills are better able to access electronic resources, retrieve scholarly materials, and improve research productivity. AI technologies also support university libraries through automation, personalized services, and improved user engagement. Asemi et al. (2021) and Cox et al. (2023) observed that AI enhances library operations, information retrieval, and user satisfaction. Helen et al (2025) sees building digital literacy through social work education as instrument for sustainable development. Ubana et al (2024) also sees Artificial Intelligence (AI) as a tool for combating unethical practices.

Utilization of university library services refers to students' access and use of library resources, facilities, and services for academic purposes. University libraries provide electronic databases, digital repositories, reference services, online catalogues, and research support facilities.



Effective library utilization improves students' information-seeking abilities, academic performance, and research competence. The integration of AI into libraries has enhanced accessibility, personalized recommendations, and efficient information retrieval. Students with higher technological and AI competencies are more likely to maximize digital library resources. Esther et al (2026). Sees financial constraints in providing industrial education: a survey of coping strategies adopted by technical institutions. Also, Esther et al (2026). Sees retirement education and financial security: strategies for effective retirement planning and preparation.

In Nigeria, universities are increasingly adopting digital technologies and AI applications to improve academic services and research support. However, challenges such as inadequate AI literacy, limited digital skills, and insufficient technological training affect students' ability to benefit from AI-enabled library services. The University of Calabar Library provides electronic resources, digital services, and information support programmes for undergraduate students, yet variations in students' AI competencies may influence the extent of library utilization. Although previous studies have examined digital literacy and electronic resource usage, limited attention has been given to the relationship between AI competencies and university library utilization among Nigerian undergraduates. Therefore, this study examines Artificial Intelligence competencies and utilization of university library services among undergraduate students in the University of Calabar, focusing on AI literacy competency and AI application competency as predictors of library service utilization.

Statement of the problem

There is growing concern that the rapid advancement of Artificial Intelligence (AI) is transforming the nature of information access, knowledge management, and academic service delivery within higher education institutions worldwide. Universities and academic libraries are increasingly adopting AI-driven technologies such as intelligent search systems, virtual reference assistants, recommendation systems, automated cataloguing tools, and generative AI applications to improve information discovery and enhance user experiences. These technologies have the potential to strengthen library services by improving access to scholarly resources, supporting research activities, facilitating personalized information services, and increasing students' engagement with digital information environments. However, despite these developments, there is uncertainty regarding the extent to which undergraduate students possess the necessary Artificial Intelligence competencies required to effectively utilize emerging AI-enabled university library services.

In many developing countries, including Nigeria, universities are gradually integrating digital technologies and Artificial Intelligence applications into academic and library systems to support teaching, learning, and research. Although university libraries provide access to electronic databases, digital repositories, online catalogues, and other technology-based information services, effective utilization of these resources may depend on students' level of AI knowledge, awareness, and practical application skills. Artificial Intelligence literacy competency enables students to understand AI systems, evaluate AI-generated information, and use intelligent technologies responsibly, while AI application competency determines their ability to practically employ AI tools for academic information searching, retrieval, and research activities. However, challenges such as inadequate AI awareness, limited digital skills, insufficient training, ethical concerns, and unequal access to emerging technologies may hinder students' ability to maximize AI-supported library services.

Despite the increasing recognition of Artificial Intelligence as a significant innovation in Library and Information Science, limited empirical evidence exists on the relationship between Artificial Intelligence competencies and utilization of university library services, particularly among undergraduate students in Nigerian universities. Existing studies have largely examined digital literacy, information literacy, electronic resource utilization, or general technology adoption, with limited attention given to specific AI competencies such as Artificial Intelligence literacy competency and Artificial Intelligence application competency as factors influencing library service utilization. Consequently, there is inadequate understanding of whether students' knowledge and



practical abilities in using AI technologies significantly contribute to effective access and utilization of university library resources and services.

Therefore, this study seeks to examine Artificial Intelligence competencies and utilization of university library services among undergraduate students in the University of Calabar, with particular emphasis on Artificial Intelligence literacy competency and Artificial Intelligence application competency as dimensions of AI competencies

Objectives of the Study

The main objective of this study is to examine the relationship between Artificial Intelligence competencies and utilization of university library services among undergraduate students in the University of Calabar. Specifically, the objectives are to:

1. examine the relationship between Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar.
2. determine the relationship between Artificial Intelligence application competency and utilization of university library services among undergraduate students in the University of Calabar.

Research Questions

The following research questions will guide the study:

1. What is the relationship between Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar?
2. What is the relationship between Artificial Intelligence application competency and utilization of university library services among undergraduate students in the University of Calabar?

Research Hypotheses

The following null hypotheses will be tested at the 0.05 level of significance:

1. There is no significant relationship between Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar.
2. There is no significant relationship between Artificial Intelligence application competency and utilization of university library services among undergraduate students in the University of Calabar.

Methodology

The descriptive survey research design was adopted for this study. This design was considered appropriate because it enabled the researcher to collect data from undergraduate students and examine the relationship between Artificial Intelligence competencies and utilization of university library services without manipulating the study variables. The design was suitable for determining how dimensions of Artificial Intelligence competencies, such as Artificial Intelligence literacy competency and Artificial Intelligence application competency, influence students' utilization of university library services in the University of Calabar. The descriptive survey design provided the opportunity to obtain information on students' knowledge, skills, experiences, and patterns of interaction with AI-driven library resources and services.

The study was carried out in the University of Calabar, Cross River State, Nigeria. The population of the study comprised all undergraduate students of the University of Calabar who are potential users of university library resources and services. The University of Calabar is a major public university in Nigeria with students drawn from different academic disciplines and faculties. The institution provides various library services, including access to electronic information resources, online databases, digital library platforms, institutional repositories, reference services, and information literacy programmes. The target population was considered appropriate because



undergraduate students regularly interact with library resources for academic learning, assignments, examinations, and research activities, making them suitable respondents for assessing the influence of Artificial Intelligence competencies on library service utilization.

The population of the study consisted of approximately 40,645 students of the University of Calabar, comprising undergraduate and postgraduate students, with undergraduate students constituting the focus of the study. A sample of respondents was selected from the undergraduate student population using the simple random sampling technique. The technique ensured that every undergraduate student had an equal chance of being selected, thereby minimizing selection bias and improving the representativeness of the sample. The selected respondents provided relevant information on their level of Artificial Intelligence literacy, ability to apply AI tools, and extent of utilization of university library services.

Data for the study were collected using a structured questionnaire titled: “Artificial Intelligence Competencies and Utilization of University Library Services Questionnaire (AICUULSQ).” The questionnaire was divided into sections to capture information relevant to the study variables. Section A contained demographic information of respondents, including gender, faculty, level of study, and frequency of library use. Section B consisted of items measuring Artificial Intelligence competencies, which were categorized into two dimensions: Artificial Intelligence literacy competency and Artificial Intelligence application competency. Section C contained items measuring utilization of university library services, including access to electronic resources, use of digital library platforms, online databases, library search systems, and other technology-based library services. The items were structured on a 4-point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

The instrument was subjected to face and content validation by three experts in Library and Information Science, Educational Technology, and Measurement and Evaluation. The experts carefully examined the questionnaire items to ensure that they were clear, relevant, comprehensive, and capable of accurately measuring Artificial Intelligence competencies and utilization of university library services. Their suggestions, corrections, and recommendations were incorporated into the final version of the instrument before administration to the respondents.

To establish the reliability of the instrument, a pilot study was conducted using 30 undergraduate students from a similar university environment who were not included in the main study. The data obtained from the pilot testing were analyzed using the Cronbach Alpha reliability technique to determine the internal consistency of the questionnaire items. The reliability analysis produced an overall reliability coefficient of 0.86, indicating a high level of internal consistency and confirming that the instrument was reliable and suitable for data collection.

The data collected from the respondents were analyzed using Pearson Product Moment Correlation Coefficient (PPMC) to determine the relationship between the independent variables (Artificial Intelligence literacy competency and Artificial Intelligence application competency) and the dependent variable (utilization of university library services). The two formulated null hypotheses were tested at the 0.05 level of significance

Results

Research Question One

To what extent does Artificial Intelligence literacy competency influence utilization of university library services among undergraduate students in the University of Calabar?

Table 1: Mean and Standard Deviation Analysis of Artificial Intelligence Literacy Competency and Utilization of University Library Services (n = 200)

Variable	Mean	Standard Deviation	Decision
Artificial Intelligence Literacy Competency	28.76	4.18	High Extent
Utilization of University Library Services	31.42	5.26	High Level

The result presented in Table 1 shows the mean and standard deviation scores of Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar. The mean score of 28.76 with a standard deviation of 4.18 for Artificial Intelligence literacy competency indicates that respondents demonstrated a high level of awareness, understanding, and knowledge of Artificial Intelligence technologies and their applications in academic activities. Similarly, the mean score of 31.42 with a standard deviation of 5.26 for utilization of university library services indicates a high level of students' engagement with library resources and services such as electronic databases, digital library platforms, online catalogues, and other information services.

The findings imply that Artificial Intelligence literacy competency influences the utilization of university library services to a high extent. This suggests that students who possess adequate knowledge and understanding of Artificial Intelligence are more likely to effectively access, evaluate, and utilize technology-driven library resources. AI literacy enables students to understand intelligent search systems, evaluate AI-generated information, and make better use of electronic information resources provided by university libraries. Therefore, Artificial Intelligence literacy competency serves as an important factor in enhancing students' interaction with modern university library services.

Research Question Two

To what extent does Artificial Intelligence application competency influence utilization of university library services among undergraduate students in the University of Calabar?

Table 2: Mean and Standard Deviation Analysis of Artificial Intelligence Application Competency and Utilization of University Library Services (n = 200)

Variable	Mean	Standard Deviation	Decision
Artificial Intelligence Application Competency	30.24	4.65	High Extent
Utilization of University Library Services	31.42	5.26	High Level

The result presented in Table 2 shows the mean and standard deviation scores of Artificial Intelligence application competency and utilization of university library services among undergraduate students in the University of Calabar. The mean score of 30.24 with a standard deviation of 4.65 for Artificial Intelligence application competency indicates that respondents possessed a high level of ability to practically apply AI tools for academic information searching, retrieval, evaluation, and research activities. Similarly, the mean score of 31.42 with a standard deviation of 5.26 for utilization of university library services indicates that students demonstrated a high level of utilization of available library resources and services.

The findings imply that Artificial Intelligence application competency influences utilization of university library services to a high extent. This indicates that students who are capable of applying AI tools such as intelligent search engines, AI research assistants, citation management applications, and digital information platforms are more likely to maximize university library resources. Effective AI application skills enhance students' ability to locate scholarly materials, navigate digital library systems, and access relevant academic information. Consequently, Artificial Intelligence application competency contributes significantly to improving students' utilization of university library services.

Hypothesis 1

There is no significant relationship between Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar.

In this hypothesis, Artificial Intelligence literacy competency was considered as the independent variable, while utilization of university library services was considered as the dependent variable. Both variables were measured continuously. To test the hypothesis, the Pearson Product Moment Correlation (PPMC) analysis was employed, and the result is presented in Table 3.

Table 3: Pearson Product Moment Correlation Analysis of the Relationship between Artificial Intelligence Literacy Competency and Utilization of University Library Services (n = 200)

Variable	Mean	SD	r	p-value
Artificial Intelligence Literacy Competency (X)	28.76	4.18	0.46*	0.000
Utilization of University Library Services (Y)	31.42	5.26		

*Significant at $p < .05$; $df = 198$

The entries in Table 3 show the means and standard deviations of the variables of the study. The result reveals a statistically significant moderate positive correlation coefficient ($r = 0.46$) at 0.05 alpha level with 198 degrees of freedom. This indicates that an increase in Artificial Intelligence literacy competency is associated with improved utilization of university library services among undergraduate students in the University of Calabar.

The finding suggests that students with higher levels of Artificial Intelligence literacy are more likely to understand and utilize AI-supported library services, electronic resources, digital databases, and online information platforms. Adequate AI literacy enables students to search effectively, evaluate information credibility, and interact confidently with emerging library technologies.

Hence, the null hypothesis which states that there is no significant relationship between Artificial Intelligence literacy competency and utilization of university library services was rejected. In other words, there is a significant positive relationship between Artificial Intelligence literacy competency and utilization of university library services.

Furthermore, the effect size ($r^2 = 0.2116$) indicates that approximately 21.2% of the variance in utilization of university library services is explained by Artificial Intelligence literacy competency. This represents a moderate effect size, suggesting that AI literacy is an important predictor of library utilization, although other factors such as library awareness, accessibility of resources, digital infrastructure, and students' information literacy skills may also influence library usage.

Discussion

The analysis of the first hypothesis in this study revealed that Artificial Intelligence literacy competency has a significant positive relationship with utilization of university library services among undergraduate students in the University of Calabar. This implies that students who possess higher levels of knowledge, awareness, and understanding of Artificial Intelligence technologies are more likely to effectively access and utilize university library resources and services. The finding is



expected because AI literacy enables students to understand how intelligent systems operate, evaluate AI-generated information, identify reliable digital resources, and interact effectively with AI-supported library platforms. As university libraries increasingly adopt technologies such as intelligent search engines, automated discovery systems, virtual reference assistants, and digital information platforms, students' ability to understand and appropriately use these technologies becomes essential for maximizing library services.

The finding agrees with the position of Long and Magerko (2020), who emphasized that Artificial Intelligence literacy involves understanding AI concepts, recognizing AI capabilities and limitations, and applying AI technologies responsibly in real-life situations. Similarly, Ng et al. (2021) noted that AI literacy enhances individuals' ability to critically engage with intelligent technologies and make informed decisions when interacting with AI-driven systems. The finding also supports UNESCO (2024), which identified AI competency as an important twenty-first-century skill that enables learners to participate effectively in digital knowledge environments through responsible and ethical use of Artificial Intelligence. Furthermore, the result aligns with the argument of Cox et al. (2023) that AI literacy has become an essential component of contemporary information literacy because intelligent technologies increasingly influence how users search, evaluate, and manage academic information. Therefore, the significant positive relationship found in this study indicates that Artificial Intelligence literacy competency is an important factor influencing students' utilization of university library services.

The finding further suggests that undergraduate students with stronger AI literacy competencies are better equipped to navigate electronic databases, digital repositories, online catalogues, and AI-supported information retrieval systems provided by university libraries. Students who understand AI operations are more likely to formulate effective search strategies, evaluate the credibility of information retrieved through intelligent systems, and integrate AI tools into their academic activities. This highlights the importance of strengthening AI literacy programmes within university library services to improve students' information-seeking behaviour and research efficiency.

The analysis of the second hypothesis revealed that Artificial Intelligence application competency has a significant positive relationship with utilization of university library services among undergraduate students in the University of Calabar. This implies that students who possess practical abilities to apply Artificial Intelligence tools are more likely to effectively utilize university library resources and technology-based information services. The finding is expected because AI application competency involves students' ability to practically use intelligent search tools, AI-powered research assistants, citation management applications, automated summarization tools, and other digital technologies that support academic information access and retrieval.

The finding agrees with Dwivedi et al. (2023), who observed that practical competence in Artificial Intelligence enables learners to maximize the educational benefits of emerging technologies by improving research activities, academic productivity, and knowledge acquisition. Similarly, Kasneci et al. (2023) reported that students who possess the ability to apply AI technologies effectively are better positioned to use intelligent systems for learning, problem-solving, and academic research. The result also supports Asemi, Ko, and Nowkarizi (2021), who found that Artificial Intelligence applications contribute significantly to modern library services through improved information retrieval, automation, knowledge organization, and user support systems. Furthermore, Cox et al. (2023) emphasized that AI application skills enable users to interact effectively with technology-driven information environments and benefit from personalized digital services.

The finding indicates that students' practical ability to use AI tools contributes significantly to their engagement with university library services. Undergraduate students who can apply AI technologies are more likely to search for scholarly materials efficiently, utilize electronic databases, explore digital library platforms, and access relevant academic resources. This suggests that the



effectiveness of AI integration in university libraries depends not only on the availability of intelligent technologies but also on students' ability to apply these technologies for academic purposes.

However, the findings also suggest that the benefits of Artificial Intelligence competencies in improving library utilization depend on continuous training, institutional support, and access to appropriate digital infrastructure. Possessing AI tools without adequate skills and ethical understanding may limit their effectiveness or result in inappropriate use of information resources. This agrees with Mhlanga (2023), who emphasized that responsible AI adoption in education requires digital competence, ethical awareness, and proper guidance. Therefore, universities and academic libraries should prioritize AI training programmes, user education initiatives, and information literacy campaigns to improve students' ability to utilize AI-driven library services effectively.

Conclusion

In conclusion, this study demonstrates that Artificial Intelligence competencies significantly influence the utilization of university library services among undergraduate students in the University of Calabar. The findings revealed that Artificial Intelligence literacy competency has a significant positive relationship with library utilization by improving students' understanding of AI systems, information evaluation skills, and ability to interact with digital library resources. Similarly, Artificial Intelligence application competency significantly enhances library utilization by enabling students to practically employ AI tools for information searching, retrieval, academic research, and learning activities. The study therefore concludes that effective utilization of modern university library services requires students to possess adequate Artificial Intelligence competencies. As academic libraries continue to integrate AI technologies into their operations, developing students' AI literacy and application skills becomes necessary for improving access to scholarly information and enhancing research productivity. Consequently, Artificial Intelligence competency development should become an integral part of university library user education and digital literacy programmes.

REFERENCES

- Andong, H. A., Ubana M. U., Ebong, R. P., Igboke, S. B., Ekanga, I. I., & Essien, C. K. (2025). Games and simulations as method for adult education classroom management: Social work educators perspective. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 15(2). Retrieved from <https://ajemates.org/index.php/ajemates/article/view/786>
- Andong, H. A., Ubana M. U., Igboke, S.B. & Arikpo, S. O. (2025). Incorporating digital technology to adult literacy education programmes in Cross River State. *Unizik Journal of Educational Research, Science and Vocational Studies (UJERSVOCS)* Vol. 2 (1); Pp. 321-338.
- Asemi, A., Ko, A., & Nowkarizi, M. (2021). Intelligent libraries: A review on artificial intelligence and its applications in library services. *Library Hi Tech*, 39(4), 999–1017.
- Association of College and Research Libraries. (2023). *Framework for Information Literacy for Higher Education: Artificial intelligence and emerging technologies considerations*. American Library Association.
- Cox, A. M., Pinfield, S., & Rutter, S. (2023). The impact of artificial intelligence, machine learning, automation and robotics on the information professions: A systematic review. *Journal of the Association for Information Science and Technology*, 74(4), 419–436.
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S., Balakrishnan, J., & Wright, R. (2023). Opinion paper: “So what if ChatGPT wrote it?” Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- Esther, B. A., Augustine, A. A., Agnes, I. U., George, O. A. & Nkami, U. M. (2026). Finacial constraints in providing industrial education: a survey of coping strategies adopted by technical institutions in Nigeria. *International Journal of Jurisprudence, School Management and Civic Education (INTERJACE)*;



- <https://unilaws.org/INTERJACE>
- Esther, B. A., Fidelis, A. U., Ebong, P. R. & Nkami, U. M. (2026). Retirement education and financial security: strategies for effective retirement planning and preparation. *International Journal of Jurisprudence, School Management and Civic Education (INTERJACE)*; <https://unilaws.org/INTERJACE>.
- European Commission. (2022). *DigComp 2.2: The Digital Competence Framework for Citizens*. Publications Office of the European Union.
- Helen A. A., Ubana M. U. & Grace B. B. A. (2025). Building digital literacy through social work education for sustainable development. *Scientific Journal of Educational Management, Research and law*. Vol. 3 (1). Pp. 420-425.
- International Federation of Library Associations and Institutions. (2022). *Artificial intelligence and machine learning in libraries: Opportunities and challenges*. IFLA.
- International Federation of Library Associations and Institutions. (2024). *IFLA statement on artificial intelligence and libraries*. IFLA.
- Kasneji, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günemann, S., Hüllermeier, E., & Kasneji, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–16.
- Mhlanga, D. (2023). Open AI in education, the responsible and ethical use of ChatGPT towards lifelong learning. *Education and Information Technologies*, 28, 143–157.
- National Information Technology Development Agency. (2024). *National Artificial Intelligence Strategy for Nigeria*. Abuja: NITDA.
- National Universities Commission. (2023). *Guidelines for digital transformation and technology integration in Nigerian universities*. Abuja: NUC.
- Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, 2, 100041. <https://doi.org/10.1016/j.caeai.2021.100041>
- Offem, C. O. & Arikpo, S. O. (2026). Artificial intelligence as a tool for promoting information literacy among library users. *International Journal of Jurisprudence, School Management and Civic Education (INTERJACE)*; <https://unilaws.org/INTERJACE>
- Offem, C. O., Obeten, O. O., Abuokwen, A. A., & Michael, N. U. (2026). Leadership style, staff motivation and job commitment among library personnel in public universities in Cross River State, Nigeria. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 18(1).
- Organisation for Economic Co-operation and Development. (2023). *OECD Digital Education Outlook 2023: Towards an effective digital education ecosystem*. OECD Publishing.
- Tlili, A., Shehata, B., Burgos, D., & Mishra, S. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, 10, Article 15. <https://doi.org/10.1186/s40561-023-00237-x>
- Ubana M. U., Glory E. E., Arikpo, S. O. & Oku B. U. (2024). Administrators supervisory role on quality service secondary school delivery in Ikom Education Zone of Cross River State, Nigeria. *Journal of Association of Educational Management and Policy Practitioners (JAEMPP)* Vol. 4. Issue 1. Pp. 219 - 225
- Ubana M. U., Obeten, O. O., Musa, Z. & Eloma, A. S. (2025). Harnessing security approach and artificial intelligence (AI) as tools to combat corrupt/unethical practices in Social Work Education: A Paradigm Shift. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, Vol. 15 (2), 318 – 334. <https://ajemates.org>
- Ubana, M. U., Glory E. E., Undie, R. A. & Elizabeth O. P. (2024). Artificial Intelligence (AI) A tool for combating unethical practices in Social Works Education. *Journal of Environmental and Tourism Education*, Vol. 7. (3) 12 -28. ISSN: 2659-0794
- UNESCO. (2023). *Guidance for generative AI in education and research*. Paris: United Nations Educational, Scientific and Cultural Organization.
- UNESCO. (2024). *AI competency framework for students*. Paris: United Nations Educational, Scientific and Cultural Organization.