Artificial Intelligence and Its Impact on Learning Experiences of Library and Information Science Students of Delta State University, Abraka

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Abstract

This study examined artificial intelligence and its impact on students' learning experiences of Library and Information Science students at Delta State.This study employs a descriptive survey research design to examine undergraduates' awareness, digital proficiency, and use of artificial intelligence (AI) in learning experiences. The research focused on a population of 317 students spanning through 200, 300, and 400 levels, deliberately excluding first-year students to ensure more reliable questionnaire responses. A sample of 127 students (40% of the total population) was selected proportionally across the levels. Data were collected via a self-designed questionnaire and analyzed using descriptive statistics, including frequency counts, percentages, and mean values. The findings reveal that while chatbots are widely used to enhance learning, other AI technologies, such as adaptive learning systems and virtual reality tools, remain underutilized. Despite their limited adoption, the study identifies substantial benefits of AI integration, including personalized learning, cost-efficiency, and expanded access to knowledge. However, significant barriers hinder effective AI adoption. These include limited awareness, prohibitive data costs, inadequate technological infrastructure, unreliable internet connectivity, and regulatory impediments. The results underscore the urgent need for initiatives to raise AI awareness, upgrade infrastructure, and establish enabling policies to harness AI's transformative potential in education. The study concludes with recommendations for targeted training programmes and infrastructure enhancements to facilitate effective AI integration, thereby fostering digital innovation and enhancing learning outcomes.

Keywords: Artificial intelligence, impact, learning experiences and library and information science students

Introduction

The education system in Nigeria has become more practical and adaptable, constantly evolving to keep pace with societal changes. Education must be relevant to the needs of the dynamic society it serves, and this is reflected in the country's constantly evolving educational policies, which often mirror its unstable political climate. Education is meant to address the problems faced by society and, therefore, must respond to emerging issues by staying current and up to date (Bharati, 2017). With the rise of technology, all aspects of life have been affected, including education (Emama, 2023). Information and communication technology (ICT) has made learning more accessible and convenient, transforming traditional face-to-face instruction in physical classrooms into long-distance instruction in virtual classrooms. Most educational institutions now use computers, tablets, and smartphones to facilitate this shift (Bostrom & Yudkowsky, 2014). As Ikedinachi (2019) notes, teachers and school leaders must now evaluate the role of new technologies in the teaching and learning process. One of the emerging trends in this field is the innovation of applications, of which Artificial Intelligence is a part.

According to Fahimirad and Kotamjani (2018), artificial Intelligence (AI) refers to computer systems designed to perform tasks that typically require human intelligence, such as problem-solving, learning, and decision-making. Utilizing algorithms and data, AI enables machines to analyze and interpret information, adapt to changing circumstances, and execute tasks autonomously. AI applications range from voice recognition and image processing to complex tasks such as natural language understanding and autonomous vehicle operation, revolutionizing industries with its ability to mimic human cognitive functions. Khare et al. (2018) Artificial Intelligence (AI) is a field of computer science dedicated to creating machines that can simulate and replicate human intelligence.

Through algorithms and data, AI systems can learn, reason, and solve problems, enabling them to perform tasks traditionally requiring human cognitive abilities (Edewor, 2025). Applications span from voice assistants and image recognition to advanced problem-solving in areas like healthcare, finance, and robotics, shaping a transformative technological landscape with the potential to enhance efficiency and innovation across diverse domains.

In education, Artificial Intelligence (AI) refers to the deployment of intelligent computer systems and algorithms to improve and optimize various facets of the learning experience. AI in education involves the development and deployment of technology that can mimic human-like cognitive functions to support teaching, learning, and administrative tasks. This may include personalized learning platforms, adaptive assessment tools, automated grading systems, virtual tutors, and smart educational content (Finley, 2019). The goal is to leverage AI to create more efficient, personalized, and adaptive learning experiences that address individual student needs and promote effective educational outcomes. The use of artificial intelligence for academic activities has increased in Nigeria over the past decade.

Nyagorme et al. (2017) artificial Intelligence (AI) significantly impacts students' learning experiences by personalizing education, adapting content to individual needs, and offering interactive tools. AI facilitates personalized tutoring, feedback, and assessment, enhancing comprehension and engagement. Automation streamlines administrative tasks, allowing educators to focus on teaching. However, ethical considerations, data privacy, and equitable access to technology must be addressed to ensure AI's positive impact on education for all students. Artificial intelligence revolutionizes students' learning experiences by providing adaptive learning platforms, customized content, and real-time feedback. AI-powered tools enhance comprehension, identify learning gaps, and offer tailored resources, promoting individualized education. Intelligent tutoring systems support student progress, fostering a collaborative and dynamic learning environment (Fahimirad & Kotamjani, 2018). However, challenges such as ethical concerns, teacher training, and equitable access need attention to harness AI's full potential and ensure inclusive educational benefits for diverse student populations. As the aforementioned studies were beyond the purview of our research, we deemed it necessary to conduct a study of our own to investigate artificial intelligence and its impact on students' learning experience, with a focus on Library and Information Science at Delta State.

Statement of the Problem
Artificial intelligence (AI) enhances students' learning experiences by personalizing education, adapting to individual needs, and providing real-time feedback. AI-driven platforms offer interactive lessons, virtual tutors, and customized content, fostering a dynamic and engaging learning environment. Through data analysis, AI identifies learning patterns, enabling educators to tailor curriculum and interventions. Additionally, AI facilitates accessibility, making education more inclusive. However, ethical considerations and the potential for algorithmic bias must be addressed to ensure equitable learning opportunities for all students. Overall, AI positively transforms education, promoting personalized, efficient, and inclusive learning experiences. However, despite the great potential of Artificial Intelligence (AI) to foster education worldwide, observations indicate that undergraduates in the Library and Information Science program at Delta State University, Abraka, rarely use AI as an educational tool (learning experience). The researchers made this observation during an interaction with a few students. The infrequent use of Artificial intelligence (AI) for learning may be due to inadequate awareness of AI's importance for educational purposes, as well as poor perceptions and attitudes, and a lack of knowledge of the concept of AI. Therefore, the study is set out to examine artificial intelligence and its impact on students' learning experience, with a focus on Library and Information Science at Delta State.

Objectives of the Study
The main objective of this study is to examine the impact of artificial intelligence on the learning experiences of Library and Information Science Students at Delta State University, Abraka. The specific objectives are to:

1. Reveal the various Artificial Intelligence (AI) tools used to enhance learning experiences by Library and Information Science students in Delta State University, Abraka.

2. Determine the perceived benefits of Artificial Intelligence (AI) to the learning experiences of Library and Information Science students in Delta State University, Abraka, and

3. Examine the perceived challenges hindering the adoption and effective use of Artificial Intelligence (AI) in the learning experiences of Library and Information Science students in Delta State University, Abraka.

Research Questions
The following research questions were raised to guide the study:

1. What are the various Artificial Intelligence (AI) tools used to enhance learning experiences by Library and Information Science students at Delta State University, Abraka?

2. What are the perceived benefits of Artificial Intelligence (AI) to the learning experiences of Library and Information Science students at Delta State University, Abraka?

3. What are the perceived challenges hindering the adoption and effective use of Artificial Intelligence (AI) in the learning experiences of Library and Information Science students in Delta State University, Abraka?

Literature Review
In this digital era, artificial intelligence (AI) has evolved from a mere science fiction fantasy into a tangible reality, revolutionizing various aspects of our lives. In higher education, AI is playing a fundamental role in transforming how students learn and prepare for the future. Artificial Intelligence (AI) has emerged as a transformative force across various sectors, and its impact on education is particularly noteworthy (Fahimirad & Kotamjani, 2018). According to Mikalef and Gupta (2021), AI tools have been increasingly employed to enhance learning experiences, revolutionizing traditional educational paradigms. Artificial Intelligence (AI) is a multidisciplinary field of computer science dedicated to creating systems that can perform tasks that would typically require human intelligence. The overarching goal of AI is to design machines that can exhibit cognitive functions, learning abilities, problem-solving skills, and decision-making capabilities akin to those of humans. At its core, AI seeks to replicate human intelligence in machines, enabling them to comprehend, analyze, and respond to complex situations.

There are two primary categories of AI: Narrow AI (or Weak AI) and General AI (or Strong AI) (Popenici & Kerr, 2017). Narrow AI is designed to handle specific tasks and is prevalent in today's applications, such as voice assistants, recommendation systems, and image recognition software. In contrast, General AI aims to possess human-like intelligence across a broad range of activities, effectively understanding and adapting to diverse scenarios. While Narrow AI is prevalent, achieving General AI remains a complex and evolving challenge. AI encompasses various subfields, including Machine Learning (ML), Natural Language Processing (NLP), computer vision, robotics, and expert systems. Popenici and Kerr (2017) further stated that machine learning is a crucial component of AI, involving the development of algorithms that enable systems to learn from data and improve their performance over time without explicit programming. Natural Language Processing focuses on enabling machines to understand, interpret, and generate human language, facilitating communication between humans and computers. Computer vision enables machines to interpret and

make decisions based on visual data. At the same time, robotics integrates AI to control and enhance the functionality of physical systems. AI applications are ubiquitous in today's society, ranging from virtual assistants like Siri and Alexa to recommendation algorithms on streaming platforms. Industries leverage AI for data analysis, predictive modeling, automation, and to enhance overall efficiency, including in education (Southgate et al., 2019).

According to Zawacki-Richter et al. (2019), artificial intelligence (AI) is increasingly transforming the education landscape, ushering in a new era of personalized, adaptive learning experiences. By leveraging advanced algorithms and machine learning, AI applications can personalize and enhance the educational experience. In education, AI enables adaptive learning platforms that tailor content to individual student needs, fostering a more personalized and efficient learning journey. Additionally, AI-driven educational tools analyze vast amounts of data to identify students' strengths and weaknesses, enabling educators to tailor instructional strategies and interventions. Virtual tutors and chatbots powered by AI provide instant support, contributing to a more interactive and engaging learning environment. Furthermore, AI technologies streamline administrative tasks, allowing educators to focus on more personalized and impactful teaching (Eleyyan, 2021).

Artificial Intelligence (AI) tools play a pivotal role in transforming learning experiences by offering personalized and adaptive educational solutions. These tools, ranging from adaptive learning platforms and intelligent tutoring systems to chatbots and virtual assistants, leverage advanced algorithms to tailor content, provide real-time feedback, and address individual learning needs. Predictive analytics enable educators to anticipate challenges, while natural language processing facilitates automated grading and language learning. Gamification, robotics, and augmented/virtual reality, all enhanced by AI, create dynamic and immersive learning environments. By automating routine tasks and individualizing instruction, AI contributes to a more engaging, efficient, and inclusive educational landscape, ultimately optimizing the learning journey for students (Verma, 2018).

Also, according to Smith (2018), the adoption and effective use of Artificial Intelligence (AI) in learning experiences bring multifaceted benefits. Personalized learning, facilitated by AI's adaptive algorithms, tailors educational content to individual students, fostering a more effective and engaging learning environment. Real-time feedback through automated assessment tools enhances the learning process, enabling prompt identification of strengths and weaknesses. Global accessibility is enhanced as AI-powered platforms transcend geographical constraints, making education more inclusive and accessible worldwide. The data-driven insights provided by AI empower educators to make informed decisions, while 24/7 learning support from AI chatbots ensures assistance is readily available. Resource optimization through task automation allows educators to focus on teaching, and adaptive content delivery accommodates diverse learning styles. AI's role in recommending relevant courses promotes lifelong learning, and the development of essential 21st-century skills equips students for the demands of the modern workforce. In essence, AI in education not only personalizes learning but also streamlines processes, fosters inclusivity, and prepares individuals for a dynamic future (Obi, 2022).

According to Okunade (2024), integrating AI into learning experiences fosters collaboration and community building. AI-powered platforms facilitate group projects, peer-to-peer learning, and collaborative problem-solving activities, enhancing teamwork and communication skills among students. Through AI-enabled tools, learners can engage in virtual classrooms and forums, exchanging ideas and perspectives across diverse backgrounds and cultures. This collaborative approach not only enriches the learning experience but also cultivates essential social and emotional competencies necessary for success in today's interconnected world. Thus, AI not only enhances individual learning outcomes but also fosters a collaborative, supportive learning ecosystem where students can thrive together. Aina et al. (2023) identified several perceived barriers and challenges

that hinder the widespread adoption and effective use of Artificial Intelligence (AI) in learning experiences:

1. **Cost and Resources:** Implementing AI technologies often requires significant financial investment for both hardware and software, as well as ongoing maintenance costs. Many educational institutions, especially those with limited budgets, may find it challenging to afford such investments.

2. **Lack of Infrastructure:** Inadequate technological infrastructure, including reliable internet access and up-to-date devices, can impede the seamless integration of AI tools in educational settings, particularly in regions with limited technological resources.

3. **Resistance to Change:** Educators and administrators may resist adopting AI due to a lack of familiarity, fear of job displacement, or a preference for traditional teaching methods. Overcoming resistance and fostering a culture of innovation is crucial.

4. **Data Privacy Concerns:** The use of AI involves collecting and analyzing vast amounts of data, raising concerns about student privacy and data security. Ensuring compliance with privacy regulations and establishing robust security measures is essential, but can pose challenges.

5. **Lack of Teacher Training:** Integrating AI effectively requires educators to have the necessary skills and knowledge. A shortage of training programs and professional development opportunities can hinder teachers' ability to leverage AI tools optimally.

6. **Bias and Fairness Issues:** AI systems can inadvertently perpetuate biases present in their training data. Ensuring fairness and mitigating bias in AI algorithms is a significant challenge, especially when assessing student performance.

7. **Complex Implementation:** Implementing AI in education often involves complex integration processes, and interoperability issues may arise when combining various AI applications and tools. This complexity can be a barrier for institutions with limited technical expertise.

8. **Ethical Concerns:** AI applications in education raise ethical dilemmas, including their use in decision-making, grading, and student monitoring. Ensuring ethical guidelines and frameworks for AI use in education is an ongoing challenge.

9. **Limited Customization:** Some AI solutions may struggle to adapt to the unique needs of diverse learners, leading to a one-size-fits-all approach that fails to address individual learning styles effectively.

10. **Regulatory Hurdles:** Stringent regulations and compliance requirements in the education sector can pose barriers to AI adoption, as institutions navigate legal frameworks and policy considerations for using technology in learning environments.

Methodology

A descriptive research design was chosen because it helps describe and collect data from respondents without the researcher manipulating the data to suit his/her own opinion. This study examined the impact of artificial intelligence on students' learning experiences in Library and Information Science. The study encompasses a population of 317 undergraduates distributed across the 200-, 300-, and 400-levels. Notably, first-year (100-level) students were deliberately excluded to prevent potential inaccuracies in questionnaire completion arising from their recent enrollment. The breakdown of the population is 117 students at the 200 level, 70 at the 300 level, and 130 at the 400 level. Corresponding sample sizes for each level were established, resulting in 47 students sampled from

the 200 level, 28 from the 300 level, and 52 from the 400 level. The study sample comprises 127 students, a strategically chosen subset of the overall population for more targeted and effective data collection and analysis. This represents 40% percent of the population. This is supported by Ogbo Baxter and Babbie (2004), who recommended that when the population runs into a few hundred, use 40% or more; when several hundred, use 20%; when thousands, use 10%; and when several thousand, use 5% or less. The research instrument used for data collection was a self-constructed questionnaire designed by the researchers to elicit information from respondents. Their responses will be immediately collected. This is to ensure a high response rate. The collected data were presented and analyzed using descriptive methods, such as frequency counts and simple percentages. This was adopted because of its ease of understanding and interpretation.

Presentation of Results and Data Analysis
Questionnaire Response Rate and Demographic Characteristics of the Respondents
Table 1: Response Rate of and Demographic Characteristics

Copies of the Questionnaires Administered	Copies of the Questionnaires Returned	Percentage of Copies of Questionnaire Returned
117	101	86
Gender	Frequency	Percentage
Female	63	62
Male	38	38
Total	101	100
Level	Frequency	Percentage
200 level	38	38
300 level	30	30
400 level	33	33
Total	101	100

Table 1 provides an overview of the questionnaire distribution, response rate, and respondents' demographic characteristics. Of the 117 questionnaires administered, 101 were returned, yielding an 86% response rate. The gender distribution among respondents shows a slight majority of females (62%) compared to males (38%). In terms of academic levels, the respondents were relatively evenly distributed across the 200, 300, and 400 levels: 38% at the 200 level, 30% at the 300 level, and 33% at the 400 level.

Answering Research Questions
Research Question One: What are the various Artificial Intelligence (AI) tools used to enhance learning experiences by Library and Information Science students at Delta State University, Abraka?
Table 1: Various Artificial Intelligence (AI) Tools Used to Enhance Learning Experiences

S/n	Various Artificial Intelligence (AI) Tools Used	SA	A	D	SD	$\bar{x}$
1.	Chatbots	52	47	1	1	3.49
2.	Adaptive learning platforms	5	2	11	83	1.30
3.	Virtual reality (VR) and augmented reality (AR)	4	5	12	80	1.34
4.	Personalized learning systems	3	7	8	83	1.31
5.	Intelligent tutoring systems	5	3	10	83	1.31
6.	Content recommendation systems	2	7	9	83	1.29
7.	Speech recognition	1	3	7	90	1.16
	Average Mean					**1.60**
	Criterion Mean					**2.50**

Data in Table 1 reveal an average of 1.60, which is lower than the criterion mean of 2.50, indicating that the use of Artificial Intelligence (AI) tools to enhance learning experiences among Library and

Information Science students at Delta State University, Abraka, is generally low. Among the AI tools evaluated, only chatbots ($\bar{x}$ = 3.49) exceeded the criterion mean, suggesting significant potential to enhance learning experiences. Other tools, such as adaptive learning platforms ($\bar{x}$ = 1.30), virtual reality (VR) and augmented reality (AR) ($\bar{x}$ = 1.34), personalized learning systems ($\bar{x}$ = 1.31), intelligent tutoring systems ($\bar{x}$ = 1.31), content recommendation systems ($\bar{x}$ = 1.29), and speech recognition ($\bar{x}$ = 1.16), were minimally utilized. This demonstrates a need for greater integration and adoption of diverse AI tools to enrich students' learning.

Research Question Two: What are the perceived benefits of Artificial Intelligence (AI) in the learning experiences of Library and Information Science students at Delta State University, Abraka?

Table 3: Perceived Benefits of the Adoption and Effective Use of Artificial Intelligence (AI) in the Learning Experiences

S/n	Perceived Benefits of Artificial Intelligence (AI)	SA	A	D	SD	$\bar{x}$
1.	It can be used as a supplemental resource.	44	45	6	6	3.26
2.	Educational content can be easily shared	52	37	9	3	3.37
3.	Usable anywhere, at school or at home.	41	55	5	0	3.36
4.	Free and, as such, cost-effective.	51	43	5	2	3.42
5.	It offers multiple views for the same task.	35	55	7	4	3.20
6.	Provides hands-on experiences to develop skills.	40	54	6	1	3.32
7.	Automates tasks, freeing time for focus	47	46	4	4	3.35
8.	Boosts knowledge through easy information access	52	41	5	3	3.41
9.	Promote personalized learning	57	36	4	4	3.45
10.	I captivates with an interactive, engaging experience	63	23	11	4	3.44
	Average Mean					**3.35**
	Criterion Mean					**2.50**

Data in Table 3 reveals an average mean of 3.35, which is higher than the criterion mean of 2.50, indicating that the perceived benefits of adopting and effectively using Artificial Intelligence (AI) in the learning experiences of Library and Information Science students at Delta State University, Abraka, are high. Key benefits include promoting personalized learning ($\bar{x}$ = 3.45), captivating students through interactive, engaging experiences ($\bar{x}$ = 3.44), and being free and cost-effective ($\bar{x}$ = 3.42). Additional advantages include boosting knowledge through easy access to information ($\bar{x}$ = 3.41), enabling the sharing of educational content ($\bar{x}$ = 3.37), and usability across multiple locations ($\bar{x}$ = 3.36). AI also automates tasks, freeing time for focus ($\bar{x}$ = 3.35), provides hands-on experiences for skill development ($\bar{x}$ = 3.32), offers multiple views for the same task ($\bar{x}$ = 3.20), and serves as a supplemental resource ($\bar{x}$ = 3.26). These findings emphasize the value of AI in enriching the students' learning experiences.

Research Question Three: What are the perceived challenges hindering the adoption and effective use of Artificial Intelligence (AI) in the learning experiences of Library and Information Science students in Delta State University, Abraka?

Table 4: Perceived Challenges Hindering the Adoption and Effective Use of Artificial Intelligence (AI) in the Learning Experiences

S/n	Perceived Barriers or Challenges	SA	A	D	SD	$\bar{x}$
1.	Limited awareness and understanding	70	24	5	2	3.60
2.	Limited electricity hinders computer/phone charging availability	49	44	6	2	3.39
3.	Poor internet connection to access.	43	41	11	6	3.20
4.	Insufficient tech infrastructure	41	51	6	3	3.29
5.	Limited evidence creates skepticism about AI benefits	47	41	8	5	3.29
6.	Strict regulations impede AI implementation in education	53	39	7	2	3.42
7.	Cultural reluctance impedes innovative AI-driven learning	50	42	6	3	3.38
8.	Educator skepticism and fear	46	45	5	5	3.31
9.	High data costs discourage AI learning usage	59	33	6	3	3.47
	Average Mean					3.37
	Criterion Mean					2.50

Data in Table 4 reveals an average mean of 3.37, which is higher than the criterion mean of 2.50, indicating that the perceived barriers or challenges hindering the adoption and effective use of Artificial Intelligence (AI) in the learning experiences of Library and Information Science students at Delta State University, Abraka, are significant. Key challenges include limited awareness and understanding ($\bar{x}$ = 3.60), high data costs ($\bar{x}$ = 3.47), and strict regulations impeding AI implementation in education ($\bar{x}$ = 3.42). Other barriers identified are limited electricity availability ($\bar{x}$ = 3.39), cultural reluctance to adopt AI-driven learning ($\bar{x}$ = 3.38), insufficient tech infrastructure ($\bar{x}$ = 3.29), skepticism due to limited evidence of AI benefits ($\bar{x}$ = 3.29), poor internet connection ($\bar{x}$ = 3.20), and educator skepticism and fear ($\bar{x}$ = 3.31). These findings highlight the need for strategic interventions to address these barriers and enhance AI adoption.

Discussion of Findings
Upon analyzing and interpreting the data gathered from the research questions posed in this study, the following key findings emerged and are discussed as follows:

Various Artificial Intelligence (AI) Tools Used to Enhance Learning Experiences
The analysis of the gathered data has revealed a noteworthy trend among students, where the majority actively embrace Chatbots as Artificial Intelligence (AI) tools to enhance their learning experiences. However, a contrasting perspective emerged, with most students expressing disagreement about the use of other AI tools such as adaptive learning platforms, virtual reality (VR) and augmented reality (AR), personalized learning systems, intelligent tutoring systems, content recommendation systems, and speech recognition systems. This aligns with Bharati's (2017) findings, which highlighted a lack of awareness among undergraduate students regarding various AI tools used to enhance learning experiences, except for Chatbots. The results suggest a potential gap in understanding or exposure to diverse AI applications in education, underscoring the need for greater awareness and education about the benefits and functionalities of various AI tools for learning enhancement.

Perceived Benefits of Artificial Intelligence (AI) in the Learning Experiences

The analyzed data unveils a range of perceived benefits associated with the adoption and effective use of Artificial Intelligence (AI) in learning experiences. AI is perceived as a valuable supplemental resource, facilitating the easy sharing of educational content and offering the flexibility to be utilized anywhere, whether in a school setting or the comfort of one's home. Notably, it is highlighted as a cost-effective solution. The benefits include providing multiple perspectives on the same task, offering hands-on experiences for skill development, automating tasks to save time for focused learning, enhancing the efficacy of knowledge and qualifications through easy access to vast information, promoting personalized learning, and captivating learners with interactive, engaging experiences. These findings align with those of Ikedinachi et al. (2019), who highlighted similar advantages, reinforcing the multifaceted benefits of integrating AI into learning environments.

Perceived challenges hindering the adoption and effective use of Artificial Intelligence (AI) in the learning experiences.

The study delves into the perceived barriers and challenges that hinder the adoption and effective use of Artificial Intelligence (AI) in learning experiences. The majority of participants agree on various obstacles, including limited awareness and understanding, the unavailability of electricity or power for device charging, poor internet connectivity, insufficient technological infrastructure, skepticism stemming from limited evidence regarding AI benefits, strict regulations that impede AI implementation in education, and cultural reluctance that hinders innovative AI-driven learning. These findings resonate with previous research by Fahimirad and Kotamjani (2018), which identified challenges such as power supply issues, inadequate internet access, technological infrastructure limitations, skepticism towards AI benefits, regulatory hurdles, and cultural resistance. Ikedinachi's work also aligns with the present study, emphasizing similar barriers to AI adoption. Bharati (2017) further reinforces these findings, noting financial constraints, poor network connectivity, unstable electrical power, and the need for regular application updates as additional obstacles. This convergence of evidence underscores the consistent and multifaceted nature of challenges impeding the seamless integration of AI into educational settings.

Conclusion

The findings of this study illuminate a nuanced landscape surrounding the integration of Artificial Intelligence (AI) tools in learning experiences. Notably, the majority of students show a positive inclination towards Chatbots, indicating widespread acceptance of this AI tool. However, a stark contrast emerges: other AI tools, such as adaptive learning platforms, virtual and augmented reality, personalized learning systems, intelligent tutoring systems, content recommendation systems, and speech recognition intelligence, face resistance among students. Perceived benefits of adopting and effectively using AI in learning experiences are diverse and impactful. AI is viewed as a valuable supplemental resource that facilitates easy content sharing and offers flexibility in learning environments. The cost-effectiveness of AI solutions is particularly emphasized.

Additionally, AI is recognized for providing diverse perspectives, hands-on skill development, task automation for efficient learning, and enhanced access to vast information, thereby promoting personalized and engaging learning experiences. On the flip side, participants express a consensus on various barriers hindering the adoption and effective utilization of AI in education. These include limited awareness, power constraints, poor internet connectivity, inadequacies in technological infrastructure, and skepticism due to limited evidence of AI benefits, regulatory hurdles, and cultural resistance. Addressing these challenges is crucial to the successful integration of AI in education, underscoring the need for comprehensive strategies that account for the multifaceted nature of these impediments.

Recommendations

Based on the findings of this study, several recommendations can be proposed to enhance the integration of Artificial Intelligence (AI) tools in learning experiences:

1. **Diversify AI Tool Introduction:** Given the positive reception of Chatbots, educators and institutions should consider gradually introducing other AI tools, emphasizing their benefits and addressing concerns. Providing demonstrations and interactive sessions can help students become familiar with various AI applications.

2. **Promote Awareness and Education:** Recognizing the prevalent barriers to awareness and understanding, efforts should be directed at educating students, teachers, and stakeholders about the potential benefits of AI in education. Workshops, seminars, and informational campaigns can play a crucial role in dispelling misconceptions and building a positive attitude towards AI.

3. **Invest in Technological Infrastructure:** To overcome challenges related to power constraints, poor internet connectivity, and insufficient technological infrastructure, educational institutions should invest in robust infrastructure. This may include providing reliable power sources, improving internet connectivity, and ensuring access to necessary devices for AI-enabled learning.

4. **Evidence-Based Advocacy:** Acknowledging the skepticism stemming from limited evidence of AI benefits, it is essential to conduct and disseminate research that showcases successful case studies and tangible outcomes of AI integration in education. Evidence-based advocacy can help build trust and confidence in the effectiveness of AI tools.

5. **Collaborate on Regulatory Frameworks:** Educational institutions, policymakers, and regulatory bodies must work together to establish clear, supportive frameworks for AI integration in education. This involves addressing concerns, defining ethical standards, and streamlining regulations to encourage innovation while ensuring the responsible use of AI.

6. **Cultural Sensitivity and Adaptation:** Recognizing cultural reluctance as a barrier, AI implementation strategies should be culturally sensitive and adaptable. Customizing AI tools to align with cultural values and norms can foster acceptance and integration within diverse educational settings.

By implementing these recommendations, educators and institutions can pave the way for a more seamless and effective integration of AI in learning experiences, fostering a positive and inclusive environment for technological advancements in education.

References

Aina, M. A., Gbenga-Epebinu, M. A., Olofinbiyi, R. O., Ogidan, O. C., &Ayedun, T. O. (2023). Perception and Acceptance of Medical ChatbotAmong Undergraduates in Ekiti State University, Nigeria. *British Journal of Education, 11*(11), 1-14.

Bharati, K. F. (2017). A survey on artificial intelligence and its applications. *International Journal of Innovative Research in Computer and Communication Engineering, 5*(60), 11614–11619.

Bostrom, N., & Yudkowsky, E. (2014). The ethics of artificial intelligence. *The Cambridge Handbook of Artificial Intelligence, 1*(2014), 316–334.

Ebele, M. I. (2014). Repositioning polytechnic education for self-reliance and economic development in Nigeria. *International Journal of Economic Development Research and Investment, 5*(3), 52–59.

Edewor, A.O. (2025). Artificial Intelligence: A Panacea for Optimizing Environmental Monitoring and Conservation. *Abraka Journal of Humanities, Law and Social Sciences*, Vol. 1(2), 53-59

Eleyyan, S. (2021). The future of education according to the fourth industrial revolution. *Journal of Educational Technology & Online Learning, 4*(1), 23–30. DOI: 10.31681/ jetol.737193

Emama, E.O. (2023). The morphology and effect of sms/social media habituation on the spelling patterns of some secondary students in Delta State, Nigeria. *KIU Interdisciplinary Journal of Humanities and Social Sciences* 4 (1), 127-138

Fahimirad, M., &Kotamjani, S. S. (2018). A review of the application of artificial intelligence in teaching and learning in educational contexts. *International Journal of Learning and Development, 8*(4), 106–118.

Finley, F. (2019). The democratization of artificial intelligence: One Library's approach. *Information Technology and Libraries, 38*(1), 8–13. https://doi.org/10.6017/ital. v38i1.10974.

Ikedinachi, A. P., Misra, S., Assibong, P. A., Olu-Owolabi, E. F., Maskeliūnas, R., &Damasevicius, R. (2019). Artificial intelligence, smart classrooms, and online education in the 21st century: Implications for human development. *Journal of Cases on Information Technology (JCIT), 21*(3), 66–79.

Khare, K., Stewart, B., &Khare, A. (2018). Artificial intelligence and the student experience: An institutional perspective. *The International Academic Forum (IAFOR).*https://doi.org/10.22492/ije.6.3.04.

Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information and Management, 58*(3), 103434.

Nyagorme, P., Qua-Enoo, A. A., Bervell, B., &Arkorful, V. (2017). The Awareness and Use of Electronic Learning Platforms: A Case of a Developing Country. *World Journal of Computer Application and Technology, 5*(2), 13–23. http://www.hrpub.org DOI: 10.13189/wjcat.2017.050201

Obi, M. N. (2022). Ethical Considerations in the Use of Artificial Intelligence in Nigerian Education. *Ethics in Education Quarterly, 38*(1), 45-62.

Okunade, A. I. (2024). The Role of Artificial Intelligence in Teaching Science Education in Secondary Schools in Nigeria. *European Journal of Computer Science and Information Technology, 12*(1), 57–67.

Popenici, S. A., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning, 12*(1), 1–13.

Smith, J. R. (2018). The Impact of Intelligent Tutoring Systems on Student Learning Outcomes: A Meta-analysis. *Educational Psychology Review, 28*(4), 523–548.

Soma, D. (2018). Artificial intelligence for education.

Southgate, E., Blackmore, K., Pieschl, S., Grimes, S., McGuire, J., &Smithers, K. (2019). Artificial intelligence and emerging technologies (virtual, augmented, and mixed reality) in schools: A research report. Canberra: The Australian Government.

Verma, M. (2018). Artificial intelligence and its scope in different areas, with special reference to the field of education. *International Journal of Advanced Educational Research, 3*(1), 05–10. Retrieved from www.educationjournal.org.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education–where are the educators? *International Journal of Educational Technology in Higher Education, 16*(1), 1–27.