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## INFORMATION NEEDS AND EXPERIENCES OF UNDERGRADUATE LIBRARY USERS IN RELATION TO ARTIFICIAL INTELLIGENCE: EVIDENCE FROM IGBINEDION UNIVERSITY OKADA, EDO STATE

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### Abstract

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This study examined the needs and experiences of undergraduate library users in relation to artificial intelligence (AI) at Igbinedion University, Okada, Edo State. Specifically, the study investigated users' level of awareness, usage, needs, experiences, perceptions, and challenges associated with AI-based library services. Primary sources of data collection were used through a structure questionnaire. Stratified sampling techniques was adopted. Data collected was analysed using frequency, percentages and one sample t- test. The findings revealed a high level of awareness and usage of AI, alongside a strong and statistically significant need for its integration into library services. This indicates that users widely recognize the importance of AI in enhancing library operations and service delivery. The study also showed that respondents have a positive experience and perception of AI-based library services; however, this was slightly lower than their level of need, suggesting a gap between user expectations and the current implementation of AI services. Additionally, while challenges associated with AI were identified, they existed at a moderate level and were not significant enough to outweigh the perceived benefits and demand for such services. The study concluded that AI-based library services are highly valued and widely accepted, with user demand exceeding both current experience and existing challenges. The study recommends increased investment in AI technologies and infrastructure, improved service quality and accessibility, enhanced training and digital literacy for both librarians and users, and strengthened efforts to address challenges such as system reliability, data privacy, and technical support. Continuous evaluation of user satisfaction and system performance is also essential to ensure that AI-based services effectively meet evolving user needs.

**Keywords:** Undergraduate Library Users, Information Needs, Artificial Intelligence.

## Introduction

The evolution of academic libraries from manual operations to automated and digital environments has not been a neutral or purely technological process; rather, it has continually reshaped how users interact with information and how libraries justify their relevance within universities. The introduction of online public access catalogues (OPACs), electronic databases, institutional repositories, and digital libraries represented attempts to address problems of access, retrieval efficiency, and information overload in increasingly complex knowledge environments (Borgman, 2007; Breeding, 2015). Artificial Intelligence (AI) now emerges not merely as the next technological stage in this progression, but as a contested problem space that raises questions about usability, trust, agency, and the changing role of the library in students' academic lives.

Globally, AI adoption in academic libraries has been promoted as a solution to persistent challenges such as growing user expectations, limited staff capacity, and the demand for personalized information services. Applications such as chatbots for virtual reference, machine-learning-driven collection analysis, and intelligent discovery systems are designed to enhance efficiency and precision by predicting user needs and behaviour (Cox, Pinfield, & Rutter, 2019; Zhu, Xiong, & Luo, 2021). However, these developments also introduce new tensions, particularly around transparency, digital literacy, and the extent to which users meaningfully engage with AI-mediated systems rather than simply encounter them as opaque technologies.

Despite these advancements, the effectiveness of AI in academic libraries depends less on technological sophistication and more on how users perceive, understand, and integrate these tools into their academic practices. User experience therefore becomes central, because AI systems that are poorly understood, mistrusted, or misaligned with users' study habits risk reproducing the same access and usability problems they are intended to solve. This shifts the analytical focus from what AI *can do* to how it is *experienced* by library users, especially students whose information-seeking behaviours are shaped by everyday exposure to non-library AI tools such as search engines, social media algorithms, and educational applications.

In Nigeria, the adoption of AI in university libraries is further complicated by infrastructural and institutional constraints. While some universities

have achieved modest success in digitisation and automation, many libraries continue to face unstable power supply, limited internet bandwidth, inadequate funding, and shortages of skilled personnel. At the same time, undergraduate students are increasingly immersed in AI-driven environments outside the library through smartphones and digital platforms, creating a mismatch between their technological expectations and the services offered within academic libraries. This gap highlights a critical issue: technological investment alone does not guarantee effective AI integration unless user perceptions and experiences are systematically understood. Igbinedion University, Okada, as Nigeria's premier private university, provides a useful context for examining this issue. With relatively stronger ICT infrastructure and a diverse undergraduate population, its library represents a setting where AI-enabled services are plausible, yet their success depends on student acceptance and use. Examining how undergraduates perceive AI applications in the library, what they expect from such systems, and how these perceptions influence their information-seeking behaviour allows this study to contribute empirically to debates that have so far been dominated by technological and administrative perspectives.

By foregrounding undergraduate users rather than AI tools themselves, this study positions its contribution at the intersection of technology, user experience, and academic practice, responding to the growing need for context-sensitive, user-centred evaluations of AI in academic libraries, particularly within developing country contexts.

## Statement of the Problem

Although artificial intelligence is increasingly promoted as a transformative tool in academic libraries, its adoption has largely been driven by technological possibilities rather than systematic evidence of user needs and experiences, particularly in African contexts. Studies of Nigerian university libraries indicate that digital and intelligent systems are often implemented without sufficient attention to users' readiness, awareness, or patterns of use, resulting in low utilisation and limited impact on learning and research (Akanbi & Omeluzor, 2020; Oyedum, 2022). At Igbinedion University, Okada, undergraduate students routinely engage with AI-powered tools outside the library environment, shaping expectations for speed, personalisation, and ease of access to

information. However, it remains uncertain whether existing or emerging AI-enabled library services align with these expectations or effectively support students' academic information-seeking behaviour. Concerns relating to awareness, digital competence, privacy, and academic integrity further complicate students' acceptance and meaningful use of AI-based library systems.

In the absence of empirical evidence on how undergraduates perceive and experience AI within the university library, library administrators risk making technology investment and service design decisions that are misaligned with users' realities. This disconnect may lead to underutilisation of AI tools, inefficient allocation of scarce resources, and missed opportunities to enhance academic support. The core problem, therefore, is the lack of a systematic, user-centred assessment of undergraduate students' experiences and expectations of AI-enabled library services at Igbinedion University, Okada.

### Objectives of the Study

The main objective of this study is to assess the needs and experiences of undergraduate students in relation to the use of artificial intelligence in the library of Igbinedion University, Okada, Edo State.

The specific objectives are to:

1. Determine the level of awareness of AI-based library services among undergraduate students.
2. Identify the information needs of undergraduate students that can be supported by AI technologies.
3. Examine the extent of use of AI-enabled library services and how undergraduate students perceive and evaluate their experiences with these services.
4. Identify challenges faced by undergraduate students in using AI within the library environment.
5. Suggest strategies for improving AI adoption and user experience in the university library.

### Research Questions

The study seeks to provide answers to the following research questions:

1. What is the level of awareness of AI-based library services among undergraduate students of Igbinedion University, Okada?
2. Which information needs of undergraduate students can be supported through AI technologies in the university library?

3. To what extent do undergraduate students use AI-enabled library services?
4. How do undergraduate students perceive and evaluate AI-based library services?
5. What challenges do undergraduate students encounter in using AI within the library environment?
6. What strategies can be adopted to enhance the effective use of AI-enabled services in the university library?

### Research Hypotheses

**H<sub>01</sub>:** Undergraduate students of Igbinedion University, Okada do not have a significant level of awareness of AI-based library services.

**H<sub>02</sub>:** AI technologies do not significantly support the information needs of undergraduate students in the university library.

**H<sub>03</sub>:** Undergraduate students do not significantly use AI-enabled library services in the university library.

**H<sub>04</sub>:** Undergraduate students do not have a positive perception of AI-based library services in the university library.

**H<sub>05</sub>:** Undergraduate students do not encounter significant challenges in using AI within the university library environment.

**H<sub>06</sub>:** Proposed strategies do not significantly enhance the effective use of AI-enabled services in the university library.

### Literature Review

#### Conceptual Framework

Artificial Intelligence (AI) is commonly defined as the capacity of computer systems to perform tasks that typically require human intelligence, such as learning, reasoning, natural language processing, and decision-making (Suleiman et al., 2024). While this definition provides a technical foundation, scholars differ in how they conceptualise AI within academic library environments. Suleiman et al. (2024) frame AI largely as a functional capability embedded in systems, whereas Baber et al. (2025) emphasise AI as a service-oriented intervention aimed at enhancing user interaction with information systems. This distinction is important because it shifts attention from what AI *does* to whom it *serves* within the library ecosystem.

Globally, AI-driven tools are frequently presented as solutions to the challenges of information overload, complex search environments, and rising user expectations. Baber et al. (2025) argue that AI-assisted discovery systems and personalised search engines improve retrieval accuracy by

adapting to user behaviour and contextual cues. However, this optimistic framing contrasts with more cautious conceptual positions that question whether such tools genuinely transform users' information-seeking practices or simply optimise existing systems without addressing deeper usability and literacy concerns. This raises a critical question: are AI tools in academic libraries fully operational and user-facing, or are they largely aspirational technologies discussed at the level of policy and planning?

Within academic libraries, authors generally agree on the core categories of AI applications—chatbots, machine learning algorithms, natural language processing systems, automated cataloguing tools, and recommendation engines. Baber et al. (2025) view these technologies primarily as efficiency-enhancing mechanisms that streamline routine operations and extend service availability. In contrast, user-centred scholars caution that efficiency gains do not automatically translate into improved learning outcomes or meaningful user engagement. While automation may reduce staff workload, it may also risk reproducing existing inefficiencies if systems are poorly aligned with users' information needs and digital competencies.

A key point of divergence in the literature concerns whose needs are prioritised in AI adoption. Much of the conceptual discourse implicitly centres librarians' operational challenges such as staff shortages and workload pressures rather than users' experiences of search, discovery, and information evaluation. Although AI is frequently promoted as enhancing user satisfaction, relatively few studies interrogate whether these tools actually support users' information literacy, critical thinking, or academic integrity. As a result, AI risks becoming a technology-led solution in search of a clearly articulated user problem.

In Nigerian academic library contexts, conceptual discussions further complicate this debate. Harriet et al. (2025) and Zainab et al. (2025) acknowledge the transformative potential of AI but highlight persistent infrastructural and institutional barriers, including unreliable power supply, limited internet access, funding constraints, and shortages of skilled personnel. While these authors converge on the structural challenges facing AI adoption, they differ in emphasis: Harriet et al. (2025) foreground institutional readiness, whereas Zainab et al. (2025) draw attention to user awareness and acceptance as equally critical factors. This contrast underscores the need to move beyond abstract discussions of

technological potential to empirical investigations of user experience.

Overall, conceptual literature presents AI as both a technological capability and a strategic tool for reimagining library services. However, a critical gap remains in examining whether AI applications genuinely enhance users' academic practices or merely automate existing systems. As several authors suggest, the success of AI in academic libraries depends not only on infrastructure and system design but also on how users perceive, understand, and integrate these tools into their information-seeking behaviour. This conceptual tension provides a strong foundation for the present study, which foregrounds undergraduate students' experiences as a necessary lens for evaluating AI adoption in academic libraries.

### Theoretical Review

The theoretical framework for this study is grounded in the Technology Acceptance Model (TAM) and the Diffusion of Innovations (DOI) theory. While both theories have been widely applied in studies of educational and information technologies, their combined use in this study is intentional and complementary, as each addresses different but interrelated dimensions of AI adoption in academic libraries.

The Technology Acceptance Model (TAM) explains technology use at the individual level by focusing on users' perceptions and attitudes. Central to TAM are the constructs of perceived usefulness (PU) and perceived ease of use (PEOU), which influence users' behavioural intention to use a system and their overall satisfaction. In the context of AI-enabled library services, TAM provides a framework for examining whether undergraduate students believe that AI tools such as chatbots, intelligent discovery systems, or recommendation engines enhance their academic tasks and whether these tools are easy to learn and interact with. In this study, TAM directly informs questionnaire sections measuring students' perceived usefulness of AI services for information discovery, their perceived ease of use of these systems, and their overall satisfaction and intention to continue using AI-enabled library services.

However, TAM alone does not sufficiently explain why awareness, access, and use of AI services may vary across different groups of students within the same institution. To address this limitation, the Diffusion of Innovations (DOI) theory is incorporated. DOI explains technology adoption as a social and contextual process influenced by

factors such as relative advantage, compatibility with existing practices, complexity, trialability, and observability. Applied to AI in academic libraries, DOI offers a lens for understanding how students at different levels of study or across disciplines become aware of AI services, experiment with them, and observe their benefits over time.

In this study, DOI informs questionnaire sections that assess students' levels of awareness of AI-based library services, perceived compatibility of AI tools with their study habits, and perceived challenges related to infrastructure, access, and institutional support. DOI also guides the interpretation of differences in adoption patterns across faculties and levels of study, particularly may affect diffusion. The combined application of TAM and DOI strengthens the analytical framework of the study. While TAM explains *how* undergraduate students evaluate and accept AI tools based on perceived usefulness and ease of use, DOI explains *why* adoption and usage patterns may differ across user groups and institutional settings. Together, these theories enable a more comprehensive understanding of both individual user experiences and broader adoption dynamics within the university library.

Empirical studies adopting these theoretical perspectives have demonstrated that high awareness of AI tools does not necessarily translate into sustained use, especially where perceived ease of use is low or where infrastructural limitations restrict experimentation and observability (Owolabi et al., 2022). These findings reinforce the relevance of integrating TAM and DOI in analysing AI adoption in Nigerian academic libraries.

In summary, TAM informs the assessment of perceived usefulness, perceived ease of use, satisfaction, and intention to use AI-enabled library services, while DOI provides a framework for understanding variations in awareness, adoption, and use across undergraduate students and institutional contexts. Together, these theories guide the design of the research instrument and the interpretation of findings, ensuring that the study moves beyond technological availability to examine how AI is meaningfully experienced and adopted within the university library.

### Empirical Review

Empirical studies on the adoption of artificial intelligence in academic libraries reveal a growing global interest, yet they also expose significant disparities in implementation levels, user

engagement, and contextual readiness. While international studies often report experimental or partial adoption of AI tools, African and Nigerian studies consistently highlight structural and user-related constraints that limit meaningful utilisation. Findings from Arab countries illustrate moderate institutional engagement with AI technologies. El-Sayyed et al. (2025) report that although over one-third of surveyed academic libraries had implemented AI in at least one service area, usage was concentrated in backend operations such as cataloguing and metadata generation. When compared with African studies, this suggests a pattern in which AI adoption prioritises internal efficiency over direct user-facing services. Notably, El-Sayyed et al. also identify inadequate infrastructure and limited staff training as major barriers, aligning closely with challenges reported in African contexts, despite differences in regional development levels.

Across English-speaking African countries, Abba (2025) documents substantially lower levels of AI adoption, with only a few libraries implementing visible AI applications such as chatbots or automated circulation systems. When contrasted with El-Sayyed et al. (2025), this finding underscores a widening implementation gap between regions, raising questions about whether AI adoption in African academic libraries remains largely aspirational rather than operational. However, both studies converge on the conclusion that organisational capacity rather than technological awareness alone plays a decisive role in determining adoption outcomes.

Nigerian-based studies further reinforce this trend. Ayuba and John (2025) and IJSR (2025) report high levels of professional awareness of AI's potential among librarians, yet low institutional readiness due to unstable power supply, inadequate ICT infrastructure, and limited funding. A notable contradiction emerges here: while librarians express optimism about AI's transformative capacity, empirical evidence shows minimal user-facing implementation. This disconnect suggests a gap between strategic discourse and actual service delivery within Nigerian academic libraries.

Studies focusing on students present a somewhat different picture. Owolabi et al. (2022) find that final-year polytechnic students exhibit moderate awareness of AI in library operations, largely through orientation programmes, but face significant barriers to effective use, particularly limited digital skills and infrastructural instability. In contrast, Aliyu et al. (2025) report higher levels of satisfaction and academic use of AI tools among

undergraduates at Modibbo Adama University, even though concerns about privacy and technical competence persist. This contrast indicates that student engagement with AI may vary significantly across institutions, potentially influenced by differences in ICT investment, institutional support, and exposure to AI tools.

A critical gap across these studies is the limited focus on AI as a library-mediated service rather than as a general academic technology. Many student-centred studies examine AI use broadly such as for assignments or learning support without isolating library-based AI systems. Consequently, it remains unclear how undergraduates specifically experience AI within library environments, how they evaluate its usefulness for information seeking, and what barriers they encounter in that context.

Overall, empirical evidence suggests convergence on key challenges such as infrastructural constraints, limited skills, and uneven implementation while revealing contradictions in reported levels of student satisfaction and use

#### Data Analysis

**Table 1: Demographic Analysis**

S/N	ITEMS	Frequency	Percentages %
	Gender:		
	Male	72	44.4
	Female	90	55.6
	Total	162	100
	Age:		
	Below 18years	91	27.8
	18-21 years	45	27.8
	22-25years	16	9.9
	Above 25 years	10	6.2
	Total	162	100
	Faculty:		
	Art and Social Sciences	19	11.7
	Business and Management science	19	1.7
	Natural and Applied Sciences	18	11.1
	Clinical Medicine	19	11.7
	Law	20	12.3
	Pharmacy	17	10.5
	Engineering	16	9.9
	Basic Medical Medicine	17	10.5
	Basic Clinical Medicine	17	10.5
	Total	162	100
	Frequency in Library:		
	Daily	62	38.3
	Weekly	81	50.0
	Occasionally	10	6.2
	Rarely	9	5.6
	Total	162	100

Source: Author's Compilation, 2026

across institutions. These inconsistencies highlight the need for institution-specific, user-centred studies that move beyond awareness to examine actual usage, perceptions, and experiences of AI-enabled library services. This study addresses this gap by focusing explicitly on undergraduate students at Igbinedion University, Okada, thereby contributing empirical evidence from a private university context that is underrepresented in existing Nigerian library research.

#### Methodology

The study adopts a descriptive survey research design. Primary method of data collection with the aid of questionnaire was used. A sample size of 180 undergraduate students was selected for the study using a stratified random sampling technique. The data collected were analysed using descriptive (Frequency and percentages) and inferential (One Sample T test) statistical techniques

Table 1 above shows the demographic analysis of the respondents. 72 (44.4%) of the respondents are male while 90(55.6) were female students. The age result of the respondents shows that 91 (27.8) were below age of 18 years, 45 (27.8%) were between the age of 18 to 21 years, 16(9.9%) were between the age of 22 to 25 years old and 10(6.2%) were above 25 years old. The faculty that the respondents was also considered and it shows that 19(11.7%) respondents are from College of Art and Social Sciences, Business and Management Sciences, Clinical Medicine, while 18(11.1%) are

from College of Natural and Applied Sciences, 20 respondents are from Law, 17(10.5%) are from College of Pharmacy, Basic Medical Sciences and Basic Clinical Sciences and 16(9.9%) are from College of Engineering. Frequency of the respondents in the library was included in the information collected from the sampled students. 62(38.3%) visits library daily, 81(50.0%) visits weekly while 10(6.2%) visits occasionally and 9(5.6%) visits the library rarely. This shows that majority of the students visits the library weekly.

### Statement Analysis

**Table 2: Awareness of AI-Based Library Services**

S/N	Section B: Awareness of AI-Based Library Services	SA	A	D	SD
1	I am aware that artificial intelligence is used in modern library services	130 (80.2%)	30 (18.5%)	2 (1.2%)	0 (0%)
2	I am aware of AI-powered search tools or discovery systems in the university library	148 (91.4%)	10 (6.2%)	4 (2.5%)	0 (0%)
3	I am aware of virtual reference services or chatbots in academic libraries	135 (83.3%)	21 (13.0%)	4 (2.5%)	2 (1.2%)
4	Library orientation programmes have informed me about AI-based library services	141 (87%)	21 (13.0%)	0 (0%)	0 (0%)
5	I understand how AI can support academic information searching	152 (93.8%)	10 (6.2%)	0 (0%)	0 (0%)

Source: Author's Compilation, 2026

Table 2 above shows the response of the respondents to the statements raised on the awareness of Artificial intelligence-based library services. 80.2% (130) strongly agreed with the first statement that says "I am aware that artificial intelligence is used in modern library" while 18.5% (30) agreed and 1.2% (2) disagreed. 91.4% (148) strongly agreed with the second statement that says "I am aware of AI-powered search tools or discovery systems in the university library" while 10% (10) agreed and 2.5% (4) disagreed with the statement. 83.3% (135) strongly agreed, 13% (21) agreed, 2.5% (4) disagreed and 1.2% (2) strongly disagreed with the third statement that says "I am

aware of virtual reference services or chatbots in academic libraries. 87% (141) strongly agreed and 13% (21) agreed to the fourth statement that says "Library orientation programmes have informed me about AI-based library services. Lastly, 93.8% (152) strongly agreed to the fifth statement while 6.2% (10) are agreed which says "I understand how AI can support academic information searching. From the above analysis of the response of the respondents to the statement raised on the awareness of AI based library Services, it shows that majority of the Igbinedion University are aware about an AI based library services.

**Table 3: Use of AI-Based Library Services**

	Section C: Use of AI-Based Library Services	SA	A	D	SD
1	AI-based tools help me identify relevant academic materials easily	130 (80.2%)	30 (18.5%)	2 (1.2%)	0 (0%)
2	I don't use AI-enabled library systems to locate books, journals, or electronic resources	2 (1.2%)	4 (2.5%)	150 (92.6%)	6 (3.7%)
3	I use AI tools (e.g. smart search, recommendations) for completing assignments	142 (87.7%)	20 (12.3%)	0 (0%)	0 (0%)
4	AI-based library services do support my independent learning and research.	110 (67.9%)	52 (32.1%)	0 (0%)	0 (0%)

Source: Author's Compilation, 2026

Table 3 above shows the repose of the respondents as regards to the use of AI-based library services. 80.2% (130) strongly agreed, 18.5% (30) agreed and 1.2% (2) disagreed with the first statement that says that “*AI-based tools help me identify relevant academic materials easily*”. On the contrary 1.2% (2) strongly agreed, 2.5% (4) agreed, 92.6% (150) disagreed and 3.7% (6) strongly disagreed with the second statement that says “*I don’t use AI-enabled library systems to locate books, journals, or electronic resources*”. The third statement stated that “*I use AI*

*tools (e.g. smart search, recommendations) for completing assignments*”, 87.7% (142) strongly agreed and 12.3% (20) agreed to the statement. 67.9% (110) strongly agreed and 32.1% (52) agreed to the fourth statement that says “*AI-based library services do support my independent learning and research*”. The analysis of the respondents shows that majority of Igbinedion University student use an AI based library services.

**Table 4: Needs of AI-Based Library Services**

	Section C: Needs of AI-Based Library Services	SA	A	D	SD
1	I need faster and more accurate search results when using library resources	110 (67.9%)	50 (30.9%)	2 (1.2%)	0 (0%)
2	An AI based library service would help me find relevant books, journal, and resources more quickly than traditional search methods	160 (98.8%)	2 (1.2%)	0 (0%)	0 (0%)
3	Personalized recommendations generated by AI would improve my learning, research, or reading experience	140 (86.4%)	22 (13.6%)	0 (0%)	0 (0%)
4	An AI enabled library system could enhance access to digital resources and reduce time spent searching for information	132 (81.5%)	30 (18.5%)	0 (0%)	0 (0%)
5	Integrating AI into library services is necessary to meet the evolving information needs of modern users	100 (61.7%)	62 (38.3%)	0 (0%)	0 (0%)

Source: Author’s Compilation, 2026

Table 4 above shows the response of the respondents as regards to the need of AI based library services. 67.9% (110) strongly agreed, 30.9% (50) agreed and 1.2% (2) disagreed with first statement that says “*I need faster and more accurate search results when using library resources*”. 98.8% (160) strongly agreed and 1.2% (2) agreed with the second statement that says “*An AI based library service would help me find relevant books, journal, and resources more quickly than traditional search methods*”. 86.4% (140) strongly agreed and 13.6%(22) agreed as regards to third

statement that says that “*Personalized recommendations generated by AI would improve my learning, research, or reading experience*”. 86.4% (140) strongly agreed and 13.6% (22) agreed with the fourth statement that says “*An AI enabled library system could enhance access to digital resources and reduce time spent searching for information*”. 61.7% (100) strongly agreed and 38.3% (62) agreed with the fifth statement that says “*Integrating AI into library services is necessary to meet the evolving information needs of modern users*”.

**Table 5: Experiences and Perceptions of AI-Based Library Services**

	Section D: Experiences and Perceptions of AI-Based Library Services	SA	A	D	SD
1	AI-based library services are easy to use	120 (74.1%)	41 (25.3%)	1 (0.6%)	0 (0%)
2	AI tools in the library improve my overall library experience.	110 (67.9%)	39 (24.1%)	6 (3.7%)	7 (4.3%)
3	AI-based systems save me time when searching for information	160 (98.8%)	2 (1.2%)	0 (0%)	0 (0%)
4	I am satisfied with the AI-related services provided by the university library	113 (98.8%)	39 (24.1%)	10 (6.2%)	0 (0%)
5	I prefer AI-assisted library services to traditional library services	131 (80.9%)	29 (17.9%)	1 (1.2%)	0 (0%)

Source: Author’s Compilation, 2026

Table 5 above is the response of the respondent to the experiences and perception of AI based library services. The result of the analysis shows that 74.1% (120) strongly agreed, 25.3% (41), and 0.6% (1) disagreed to first statement that says “AI-based library services are easy to use”. 67.9% (110) strongly agreed, 24.1% (39) agreed, 3.7% (6) disagreed and 4.3% (7) strongly disagreed with the second statement that says “AI tools in the library improve my overall library experience”. 98.8% (160) strongly agreed with the third statement “AI-based systems save me time when searching for

information” and 1.2% (2) agreed. 98.8% (113) strongly agreed while 24.1% agreed and 6.2% (10) disagreed with the fourth statement “I am satisfied with the AI-related services provided by the university library”. Finally, 80.9% strongly agreed with the fifth statement “I prefer AI-assisted library services to traditional library services” while 17.9% (29) agreed and 1.2% (2) disagreed. The overall analysis of the respondents shows that student of Igbinedion University have good experience and perception of the AI based library Services.

**Table 6: Challenges and Improvement Strategies**

	Section E: Challenges and Improvement Strategies	SA	A	D	SD
1	Poor internet connectivity limits my use of AI-based library services	0 (0%)	7 (4.3%)	32 (19.8%)	123 (75.9%)
2	Lack of adequate training affects my effective use of AI tools in the library.	113 (69.8%)	40 (24.7%)	5 (3.1%)	4 (2.5%)
3	I am concerned about privacy and data security when using AI-based systems.	106 (65.4%)	55 (34.0%)	1 (0.6%)	0 (0%)
4	Erratic power supply affects my access to AI-based library services	2 (1.2%)	2 (1.2%)	36 (22.2%)	122 (75.3%)
5	The university library should provide more training on AI-based services.	145 (89.5%)	16 (9.9%)	16 (9.9%)	0 (0%)
6	The university should invest more in AI technologies to improve service delivery in the library	156 (96.3%)	3 (1.9%)	3 (1.9%)	0 (0%)

Source: Author’s Compilation, 2026

Table 6 shows the responses of the respondents on the challenges and improvement strategies of AI based library services. None of the respondents strongly agreed with the statement one “Poor internet connectivity limits my use of AI-based library services” while only 4.3% (7) agreed, 19.8% (32) disagreed and 75.9% (123) strongly disagreed. 69.8% (113) strongly agreed with the

second statement “Lack of adequate training affects my effective use of AI tools in the library”, 24.7% (40) agreed, 3.1% (5) disagreed and 2.5% (4) strongly disagreed. 65.4% (106) strongly agreed to third statement “I am concerned about privacy and data security when using AI-based systems” while 34% (55) agreed and 0.6% (1) disagreed. 1.2% (2) strongly agreed and agreed

while 22.2% (36) disagreed and 75.3% (122) strongly disagreed with the fourth statement "Erratic power supply affects my access to AI-based library services. 89.5% (145) strongly agreed, 9.9% (16) agreed and 0.6% (1) to the fifth statement "The university library should provide

more training on AI-based services". 96.3% (156) strongly agreed to the sixth statement "the university should invest more in AI technologies to improve service delivery in the library", 1.9% (3) agreed and disagreed.

**Table 7: Reliability Test**  
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.968	.971	25

Source: Author's Computation, 2026 (SPSS 23)

Table 7 shows the reliability test for the variables. The result shows an excellent result of 0.968. Based on this, the disagree to which an instrument yields are consistent.

**Hypothesis Testing**

**Hypothesis One:**

H<sub>01</sub>: Undergraduate students of Igbinedion University, Okada do not have a significant level of awareness of AI-based library services.

**Table 8: Descriptive Statistics**

**One-Sample Statistics**

	N	Mean	Std. Deviation	Std. Error Mean
Awareness of AI based Library Service	162	3.8580	.38395	.03017

Author's Computation, 2026 (SPSS 23)

Table 8 shows the descriptive statistics of the data collected for hypothesis One. It shows the means of 3.858 which implies that respondents have a high level of awareness of AI-based library services since 3.858 is well above the midpoint of 2.5

**Table 9: One Sample T Test**

**One-Sample Test**

	Test Value = 2.5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Awareness of AI based Library Service	45.018	161	.000	1.35802	1.2985	1.4176

Author's Computation, 2026 (SPSS 23)

The one-sample t-test in table 9 revealed that the mean awareness score (M = 3.86, SD = 0.38) was significantly higher than the test value of 2,  $t(161) = 45.02, p < .05$ . This indicates a high level of awareness of AI-based library services among respondents. There is strong evidence that respondents have a significantly high level of awareness of AI-based library services, well above the average benchmark of 2.5

Therefore, we reject the null hypothesis that says undergraduate students of Igbinedion University, Okada do not have a significant level of awareness of AI-based library services and accept the alternate hypothesis that undergraduate students of Igbinedion University, Okada have a significant level of awareness of AI-based library services.

**Hypothesis Two:**

H<sub>0</sub>2: Undergraduate students do not significantly use AI-enabled library services in the university library.

**Table 10: Descriptive Statistics**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Uses of AI based Services	162	3.6667	.49844	.03916

Author’s Computation, 2026 (SPSS 23)

Table 8 shows the descriptive statistics of the data collected for hypothesis two. It shows the means of 3.667 which implies that respondents have a high level of use of AI-based library services since 3.858 is well above the midpoint of 2.5

**Table 11: One Sample T Test**

One-Sample Test

	Test Value = 2.5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Uses of AI based Services	29.791	161	.000	1.16667	1.0893	1.2440

Author’s Computation, 2026 (SPSS 23)

Table 11 shows one-sample t-test that was conducted to compare the mean use of AI-based services to a test value of 2.5. The results showed that the mean score (M = 3.67, SD = 0.50) was significantly higher than the test value,  $t(161) = 29.79, p < .05$ . The mean difference was 1.17, with a 95% confidence interval ranging from 1.09 to 1.24. This shows that respondents use AI-based services at a level significantly above the average benchmark. Hence, we a reject the null hypothesis that says Undergraduate students do not significantly use AI-enabled library services in the university library and accept the alternate hypothesis that undergraduate students significantly use AI-enabled library services in the university library.

**Hypothesis Three**

H<sub>0</sub>3: AI technologies do not significantly support the information needs of undergraduate students in the university library.

**Table 12: Descriptive Statistics**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Needs of AI Based Library Services	162	3.8148	.38965	.03061

Author’s Computation, 2026 (SPSS 23)

Table 12 shows the descriptive statistics of the data collected for hypothesis three. It shows the means of 3.815 which implies that respondents have a high level of support that AI technologies support the information needs of the undergraduate students in the university since 3.815 is above the midpoint of 2.5

**Table 13: One-Sample T Test**

**One-Sample Test**

	Test Value = 2.5					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Needs of AI Based Library Services	42.948	161	.000	1.31481	1.2544	1.3753

Author's Computation, 2026 (SPSS 23)

Table 13 indicates the one-sample t-test that the mean score for the need for AI-based library services (M = 3.81, SD = 0.39) was significantly higher than the test value of 2.5,  $t(161) = 42.95$ ,  $p < 0.001$ . This indicates a strong perceived need for AI-based library services among respondents. Therefore, we reject the null hypothesis that says AI technologies do not significantly support the information needs of undergraduate students in the university library and accept the alternate hypothesis that AI technologies significantly support the information needs of undergraduate students in the university library.

**Hypothesis Four:**

$H_{04}$ : Undergraduate students do not have a positive perception of AI-based library services in the university library.

**Table 14: Descriptive Statistics**

**One-Sample Statistics**

	N	Mean	Std. Deviation	Std. Error Mean
Experience and Perception of AI based library Service	162	3.7284	.47319	.03718

Author's Computation, 2026 (SPSS 23)

The results in table 14 shows that respondents had a positive experience and perception of AI-based library services (M = 3.73, SD = 0.47), indicating general agreement, although slightly lower than their expressed level of need.

**Table 15: One Sample T test**

**One-Sample Test**

	Test Value = 2.5					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Experience and Perception of AI based library Service	33.041	161	.000	1.22840	1.1550	1.3018

Author's Computation, 2026 (SPSS 23)

Table 15 shows the one-sample t-test that the mean score for experience and perception of AI-based library services (M = 3.73, SD = 0.47) was significantly higher than the test value of 2.5,  $t(161) = 33.04$ ,  $p < 0.001$ .

This indicates that respondents have a significantly positive perception and experience of AI-based library services. Therefore, we reject the null hypothesis that undergraduate students do not have a positive perception of AI-based library services in the university library. And accept the alternative hypothesis that undergraduate students have a positive perception of AI-based library services in the university library.

**Hypothesis Five:**

H<sub>05</sub>: Undergraduate students do not encounter significant challenges in using AI within the university library environment.

**Table 16: Descriptive Statistics**

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Challenges of AI	162	2.9877	.31500	.02475

Author's Computation, 2026 (SPSS 23)

The results in table 16 above indicates that respondents perceived the challenges of AI at a moderate level (M = 2.99, SD = 0.32), suggesting general agreement but at a lower intensity compared to their perceived need and experience with AI-based library services.

**Table 17: One Sample T Test**

**One-Sample Test**

	Test Value = 2.5					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Challenges of AI	19.704	161	.000	.48765	.4388	.5365

Author's Computation, 2026 (SPSS 23)

Table 17 above indicates one-sample t-test revealed that the mean score for challenges of AI (M = 2.99, SD = 0.32) was significantly higher than the test value of 2.5,  $t(161) = 19.70$ ,  $p < 0.001$ . This indicates that respondents perceive AI-related challenges to be present, though at a moderate level. Hence, the null hypothesis is rejected that undergraduate students do not encounter significant challenges in using AI within the university library environment and accept the alternate hypothesis that undergraduate students encounter significant challenges in using AI within the university library environment.

**Discussion of findings**

The findings of this study reveal important insights into respondents' views on AI-based library services, focusing on their awareness, uses, needs, experiences, and perceived challenges. Firstly, the result shows that respondents have a high level of awareness of AI based library services (M = 3.85), the t-test further confirmed that this awareness is

significantly higher than the bench mark value of 2.5 ( $t = 45.02$ ,  $p < 0.00$ ). This shows that Igbinedion University student has a very level of AI based library service awareness. This result supports the result of Ayuba and John (2025) and contrary to that of Abba (2025).

Secondly, it shows that the respondent use AI based library services (M = 3.67), the t-test further confirmed that this awareness is significantly higher than the bench mark value of 2.5 ( $t = 29.79$ ,  $p < 0.00$ ). This revealed that the respondent makes use of AI based services. This finding supports the finding of Aliyu et al, (2025) and contradict that of Abba (2025). Thirdly, there is a high level of need for AI-based library services (M = 3.81). The one-sample t-test further confirmed that this need is significantly higher than the benchmark value of 2.5 ( $t = 42.95$ ,  $p < 0.001$ ). This indicates a strong demand for the integration of artificial intelligence in library services. The high mean and low standard deviation suggest that respondents are largely in

agreement, reflecting a widespread recognition of the importance and relevance of AI in modern library operations. This may be attributed to the increasing reliance on digital technologies for information access, retrieval, and management. This result supports the result of El-Sayyed (2025) and not in support of Abba (2025)

Fourthly, respondents reported a positive experience and perception of AI-based library services ( $M = 3.73$ ), which was also found to be significantly above the test value ( $t = 33.04$ ,  $p < 0.001$ ). This suggests that users are not only aware of AI applications in libraries but also find them useful and satisfactory. However, when compared with the level of need, the mean score for experience is slightly lower. This indicates a gap between expectations and actual experience, implying that while users strongly desire AI services, their current exposure or satisfaction may not fully meet these expectations. This gap could be due to limited implementation, inadequate infrastructure, or insufficient user training. This result is in line with the findings of El-Sayyed (2025) and deviate from that of Abba (2025).

Lastly, the findings revealed that respondents perceive challenges associated with AI at a moderate level ( $M = 2.99$ ). Although the one-sample t-test shows that these challenges are statistically significant and above the benchmark ( $t = 19.70$ ,  $p < 0.001$ ), the magnitude of the mean difference is relatively smaller compared to needs and experience. This suggests that while challenges such as technical issues, lack of expertise, cost, or data privacy concerns exist, they are not severe enough to overshadow the benefits and demand for AI-based services. This finding is supported by the findings of Abba (2025) and contradict that of El-Sayyed (2025).

Generally, the study demonstrates a clear pattern of high level of awareness, uses, high need for ai services, positive but slightly lower level of experience and moderate level of challenges. This pattern implies that users are ready and willing to embrace AI-based library services, and the existing challenges are manageable rather than prohibitive. The findings highlight the importance of improving implementation strategies, enhancing user training, and addressing infrastructural and technical barriers to bridge the gap between user expectations and actual service delivery.

## Conclusion

This study examined the needs and experiences of undergraduate library users in relation to artificial intelligence, evidence from Igbinedion University, Okada, Edo State. The study investigates their level of awareness, uses, needs, experience and perception, and challenges of AI-based library services among respondents. The findings revealed that there is a high level of awareness, uses, strong and significant need for AI integration in library services, as indicated by the high mean score and statistically significant results. This suggests that users widely recognize the importance of AI in enhancing library operations and service delivery. The study also found that respondents have a positive experience and perception of AI-based library services. However, this was slightly lower than the level of need, indicating that while users are receptive to AI technologies, their current experiences may not fully meet their expectations. This points to a gap between the demand for AI services and their actual implementation or effectiveness.

Furthermore, the findings showed that challenges associated with AI exist but at a moderate level. Although these challenges are statistically significant, they are not substantial enough to outweigh the perceived benefits and demand for AI-based services.

Overall, the study concludes that AI-based library services are highly valued and accepted, with demand exceeding both current user experience and perceived challenges. This implies that with proper implementation and support, AI has great potential to significantly improve library services.

## Recommendations

The study recommended that there should library management and relevant authorities should invest in modern AI technologies and infrastructure to meet the high demand for AI-based services. Efforts should be made to bridge the gap between user needs and actual experience by enhancing the quality, accessibility, and efficiency of AI-driven library services. Also, Librarians and users should be provided with adequate training and digital literacy programs to improve their ability to effectively use AI tools and systems. Furthermore, stakeholders should work towards minimizing challenges by improving system reliability, ensuring data privacy and security and providing technical support. Lastly, libraries should regularly assess user satisfaction and system performance to ensure that AI services continue to meet evolving user needs.

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