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Extent of Use of AI Chatbots Among Students of the University Of Ilorin, Kwara State, Nigeria

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Abstract

This study investigated the extent of the use of Artificial Intelligence (AI) chatbots among students in the University of Ilorin Kwara State, Nigeria. The research employed a descriptive survey research design, using a structured and validated instrument to collect data. Stratified sampling technique was used in selecting students across five faculties. A total of 196 students served as the sample size for this study. Findings revealed a high level of AI chatbot adoption, primarily for study assistance, while a high level of perceived benefits was equally identified such as time-saving, efficiency, and enhanced learning experiences through personalized resources. However, significant challenges were reported, notably poor internet connectivity, concerns about data privacy and security, and the potential for misleading information due to biased datasets. The study concludes that while AI chatbots hold immense potential to transform learning, addressing infrastructural and ethical concerns is crucial for their effective integration into academic environments were recommended among others.

Keywords: Artificial intelligence, Chatbots, Extent of Use, Adoption, Students

a. Introduction

Higher Education Institutions (HEIs) globally are increasingly

recognizing the transformative potential of Artificial Intelligence (AI) chatbots in enhancing the learning experience. (Varshney, 2023). The rapid adoption of this technology has significantly influenced various sectors, most especially higher education institutions in adopting these digital tools. AI chatbots are automated systems, powered by machine learning and natural language processing. AI chatbots are tools that can facilitate interactive, human-like communication with users. They are designed to understand user inputs, process them, and provide relevant responses in a conversational manner, often through text or voice-based interfaces (Kumar et al., 2019). AI chatbots offer several benefits to HEIs, most especially to students. Some of these benefits include enhancing the student experience, improving operational efficiency by providing readily available assistance thereby ensuring students have immediate access to support and information. (Dhawan, 2020). AI chatbots also empower personalized learning experiences by adapting to individual student needs and learning styles. They offer customized learning paths, provide targeted feedback on assignments, and offer explanations tailored to each student's unique understanding (Jung & Kim, 2018). These intelligent tools can significantly improve students' engagement by facilitating more interactive and dynamic learning experiences. They can also provide immediate feedback and encouragement, fostering a more engaging and motivating learning environment (Chen & Tsai, 2019).

In spite of the benefits of AI chatbots within the Nigeria educational system, students encounter several challenges in the use of these tools. Some of the challenges include limited access to network in some areas, slow network connection which affects the chatbots providing timely support. Also, AI chatbots can help generate text thereby raising concerns about plagiarism and the authenticity of student work (Selwyn, 2020). the data used to train these AI models may contain biases, potentially leading to unfair or discriminatory outcomes for students (Crawford, 2017). In addition, relying too heavily on chatbots can reduce human interaction, which is important for student well-being (Selwyn, 2020). Finally, chatbots may not always provide accurate or reliable information (Jung & Lee, 2018).

The adoption and use of AI chatbots among students in HEIs is still limited due to dearth of studies on the extent of chatbots usage among students. Most existing studies on AI chatbots focus on developed countries, where technological infrastructure and digital literacy are more advanced (Okonkwo et al., 2021). Due to lack of local research in this area, this study is expedient to understand the extent of use of chatbots and what factors influence their adoption. In view of this, this study intends to assess the extent of use of AI chatbots among the students of University of Ilorin, Kwara State, Nigeria.

In the light of the above, this study assessed the extent of use of AI chatbots among students in the University of Ilorin, Kwara State, Nigeria.

1.2 Research Questions

The following research questions guided the study as highlighted below:

- i. What are the primary reasons for using AI chatbots among students at the University of Ilorin, Kwara State, Nigeria?
- ii. What is the frequency of use of AI chatbots among students at the University of Ilorin, Kwara State, Nigeria?
- iii. What are the perceived benefits of AI chatbots among students of University of Ilorin, Kwara State, Nigeria?
- iv. What are the challenges faced in the use of AI chatbots among students of the University of Ilorin Kwara State Nigeria?

2.1 Literature Review

2.1.1 Concept of AI Chatbots

AI chatbots are like smart computers that can respond to user queries and give appropriate answers as reported. They use special skills to understand what you say and give you helpful answers. They can do lots of things, from answering simple questions to giving you advice. (Varshney, 2023). AI chatbots are reshaping the traditional educational landscape by offering scalable, personalized, and immediate support, thus improving the overall student experience. The global adoption of AI chatbots in HEIs has been particularly accelerated by the need for flexible, efficient, and responsive learning

environments. (López-Belmonte et al., 2020).

2.2 Types of AI Chatbots in Higher Education Institutions Globally

AI chatbots are of varying types, and have been integrated in various fields, offering personalized, efficient, and scalable interactions as highlighted below:

i.ChatGPT: ChatGPT was developed by Open AI and is one of the most recognizable AI models in natural language processing (NLP). It is designed to generate human-like text based on a wide range of prompts. This makes it valuable in fields such as education and customer service, where it can assist with answering questions, tutoring, and creating content (Brown et al., 2020). ChatGPT can generate remarkably accurate and contextually relevant responses. As noted by Bender et al. (2021), the model can sometimes provide misleading information, particularly in areas that require in-depth reasoning. Additionally, the large-scale data used to train ChatGPT can lead to the unintentional reinforcement of biases, raising concerns about the fairness of AI responses.

ii. Gemini: Gemini was developed by Google DeepMind. Gemini incorporates multimodal capabilities, meaning it can process and understand not just text, but also images, video, and other forms of media (Schrittwieser et al., 2021). This feature allows Gemini to offer more dynamic and engaging interactions, particularly in educational contexts where combining different media types can significantly enhance learning (Tay et al., 2023). Gemini also faces challenges, including potential biases in data interpretation and the need for more efficient models to process complex multimodal inputs (Mikolov et al., 2013).

iii. BERT: BERT is an acronym for Bidirectional Encoder Representations from Transformers. It was developed by Google, represents a major leap in AI chatbots' understanding of language. In education, BERT can enhance learning platforms by offering more accurate responses to students' queries and providing more personalized learning experiences (Lee et al., 2019). The significant challenge with BERT is its computational intensity, requiring considerable processing power for large-scale deployment (Sun et al., 2019). This makes it less accessible for smaller institutions or systems

with limited resources.

iv. Bard (Google AI): Bard is used for a wide range of educational tasks such as essay brainstorming, research assistance, language learning, and tutoring. (Schmidt & Weber, 2025; Allen & Brown, 2024)). It also ensures continuous learning and improvement based on new data. (Davis & Miller, 2022). One significant challenge with Bard is its dependence on the quality and diversity of the data it was trained on.

v. GPT-3 (2020): GPT-3, created by OpenAI, has gained significant attention for its ability to generate coherent and contextually relevant text. Brown et al. (2020) pinpointed that GPT-3 is a transformer-based model that can generate human-like responses without being explicitly trained for specific tasks. However, it can atimes be unreliable, generating information that is factually inaccurate or biased. Furthermore, the model's inability to understand the deeper context of conversations is a key limitation, as identified by Marcus (2020). GPT-3 also raises significant ethical concerns, particularly regarding its potential for misinformation (Zeng et al., 2021).

2.4. Benefits of AI chatbots in Higher Education Institutions in Nigeria

The integration of AI chatbots into higher education has significantly transformed teaching, learning, and administrative processes. These AI chatbots offer various benefits that influence the educational landscape. AI chatbots serve as virtual teaching assistants, providing immediate support by answering questions, offering explanations, and supplying additional resources (Perez et al., 2020). This immediate assistance enhances the learning experience by catering to individual student needs and promoting active engagement.

Another significant impact of AI chatbots in Higher Education is their ability to personalize the learning experience for each student. AI-powered tutors and assistants can provide tailored feedback, identify knowledge gaps, and offer customized learning paths based on individual needs and learning styles (Akyol & Yilmaz, 2023). This personalized approach can enhance student engagement, motivation, and overall learning outcomes. The use of AI chatbots increases student's engagement by providing interactive and motivating

learning platforms (Okonkwo & Ade-Ibijola, 2021). Furthermore, AI chatbots can significantly improve the accessibility and availability of educational resources. Students can access educational materials, seek clarification on complex topics, and receive support from AI chatbots around the clock, regardless of their location or time constraints (Li et al., 2023). This accessibility can break down barriers to education and ensure that all students have equal opportunities to learn and succeed.

2.3 Challenges Faced in the Use of AI Chatbots among students in HEIs in Nigeria

The integration of AI chatbots into Higher Education Institutions (HEIs) present plethora challenges for students, impacting negatively their learning experiences and academic performance. Some of the challenges students may encounter include the following;

i. Academic Dishonesty: One significant challenge lies in the potential for academic dishonesty, as students may be tempted to use chatbots to generate essays, complete assignments, or even solve complex problems, compromising the integrity of the learning process (Akyol & Yilmaz, 2023). This raises concerns about the authenticity of student work and the development of critical thinking and problem-solving skills, which are essential for academic success.

ii. Accuracy and Reliability of Responses: the accuracy and reliability of AI-generated information pose a challenge for students. While chatbots can provide quick access to information, the accuracy of the information provided may not always be guaranteed (Li et al., 2023). This can lead to students relying on inaccurate information. (Okonkwo & Ade-Ibijola, 2021) also agrees that Students often encounter issues with the accuracy and reliability of chatbot responses, which can lead to misinformation and confusion. Chatbots may provide generic or incomplete answers that fail to address specific academic needs. This accuracy can result in student frustration and reduce their trust in AI chatbots.

iii. Existing Inequalities among Students: Another challenge faced by students in HEIs in the use of AI chatbots is the existing inequalities among students. Access to technology and digital literacy skills can vary significantly among students, potentially creating a digital divide

where students with limited access or skills may be disadvantaged in their use of AI chatbots for academic purposes (Akyol & Yilmaz, 2023). Students face technical difficulties, including system glitches, poor user interfaces, or the chatbot's inability to understand complex queries, which can disrupt the learning process (Hill et al., 2015). also, the increasing reliance on AI chatbots may lead to reduced interaction between students and educators, potentially affecting the quality of mentorship and collaborative learning (Hill et al., 2015).

iv. Data and Privacy Problems: Some Students worry about how their personal information is handled when they use chatbots. Chan and Hu (2023) found that many students are cautious about sharing data with AI systems because they fear it could be misused or not properly secured. These privacy concerns make students less likely to use chatbots.

v. Technical Limitations: Despite their growing popularity, AI chatbots face significant technical limitations that can hinder their effectiveness in higher education. Kasneci et al. (2023) opined that students often report frustrations related to system errors, poor interface design, and connectivity issues. These limitations disrupt learning experiences.

vi. Reduced Interaction of Students and educators: Another significant concern is the decline in meaningful student–teacher interaction. Kasneci et al. (2023) noted that the automation of learning support through AI chatbots can lead to a diminished role for human educators in daily academic life. When students turn to chatbots for explanations, feedback, or problem-solving, they may engage less frequently with their educators. This shift could reduce opportunities for mentoring, personalized guidance, and emotional support elements that are central to the student learning experience. The above mentioned may hinder the adoption and effective use of AI chatbots among students in Higher Education Institutions.

2.6. Related Studies on Adoption of AI chatbots in HEIs

Globally and in Nigeria

Several researchers within and outside Nigeria have examined the extent of adoption of AI Chatbots in HEIs. Some of these studies are discussed briefly below:

Chan and Hu (2023) focused on students' perceptions and use of AI chatbots in higher education. This review analyzed 24 empirical articles following a five-stage scoping review methodology was conducted at multiple Universities. The researchers surveyed about 399 undergraduates and postgraduates' students from various disciplines across those institutions. The findings indicated that students perceived AI chatbots as highly beneficial and motivating, especially for tasks like obtaining immediate feedback on writing and coding. However, the authors pointed out concerns about chatbot accuracy, reliability, and their potential negative effects on learning processes, critical thinking, and creativity. Despite these limitations, the study emphasized the positive role chatbots play in enhancing student motivation and learning outcomes, with a significant concentration of studies originating from Asia. In a similar vein, Olayemi and Ahmed (2023) also conducted a survey-based study to assess the integration of AI chatbots in higher education institutions. Their research, involving 250 participants (200 students and 50 lecturers) from three Nigerian Universities. Findings revealed that 75% of respondents agreed that AI chatbots improved efficiency in administrative tasks. However, challenges such as poor internet access and low technical literacy were highlighted as major barriers to effective adoption.

In addition, Winkler et al. (2023) explored the usability of AI chatbots in higher education using mixed methods, including surveys and interviews. Their study used 150 University students and 10 educators across Europe. Finding revealed that that chatbots enhanced administrative efficiency and student engagement. However, technical limitations and a lack of emotional intelligence in chatbots were identified as significant challenges to their widespread use.

Overall, these studies have shown that the adoption of AI chatbots among students in HEIs can be influenced by factors such as perceived usefulness, ease of use, access to enabling resources among others. Students may adopt chatbots for their ability to simplify complex academic tasks and enhance productivity. However, challenges such as limited internet access, technical literacy, and concerns about reliability may affect their effectiveness.

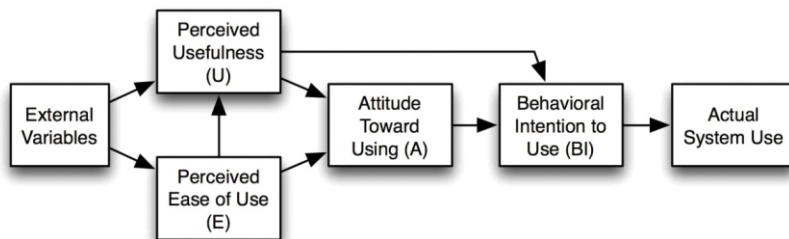
2.4 Theoretical Framework

Two relevant theories applicable to this study are the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) as discussed below:

2.4.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), explains the factors influencing individuals' intentions to adopt a technology. According to TAM, two primary determinants influence technology adoption: perceived usefulness (PU) and perceived ease of use (PEOU).

Perceived Usefulness: The degree to which a person believes that using a particular system would enhance their job performance. In relation to AI chatbots adoption, Perceived usefulness (PU) refers to the extent to which students believe that using AI chatbots can enhance their academic performance. For example, students at the University of Ilorin may view chatbots as valuable tools for answering academic questions, solving assignments, or breaking down complex concepts into simpler terms. If students find that chatbots save time and improve their understanding of course materials, they are more likely to adopt and use them consistently. Within this context, PU can be assessed by exploring whether students feel chatbots provide real academic benefits, such as improving their productivity or enhancing their understanding of course content (Davis, 1989).



Perceived ease of use (PEOU): The degree to which a person believes that using a particular system would be free of effort. Perceived ease of use (PEOU) as applicable to AI chatbots is the extent to which students believe that using AI chatbots is free of effort and stress. Students at the University of Ilorin are more likely to engage with chatbots if they perceive them as simple to use, even without technical expertise. For example, students who can easily navigate the chatbot interface, comprehend its responses, and achieve their goals without frustration are more inclined to adopt the technology. Conversely, if students encounter technical difficulties or find chatbots challenging to use, they may avoid them. In this study, PEOU can be examined by investigating whether students face difficulties in using chatbots and how these challenges influence their willingness to continue using the technology (Venkatesh & Davis, 2000).

On the whole TAM provides a framework for understanding the relationship between the perceptions of students at the University of Ilorin regarding the usefulness and ease of use of AI chatbots and their adoption of this technology for academic purposes.

2.4.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

Unified Theory of Acceptance and Use of Technology (UTAUT) was proposed by Venkatesh et al. (2003), offers an alternative perspective by identifying four key factors that influence technology adoption: performance expectancy, effort expectancy, social influence, and facilitating conditions.

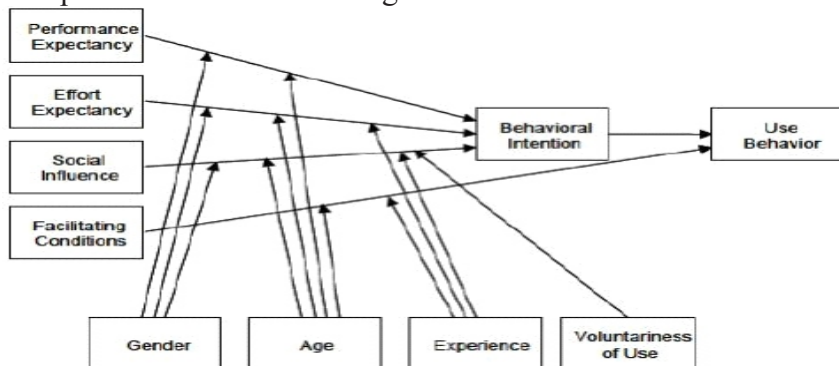
Performance Expectancy: It refers to the belief that using the technology will enhance job performance or improve work outcomes. Performance expectancy as applicable to AI chatbots refers to the degree to which students believe that using AI chatbots will help them achieve academic success or improve their learning outcomes. For instance, students may expect chatbots to provide quick and accurate answers, simplify complex academic concepts, or assist with assignments. If students perceive these benefits, they are more likely to integrate chatbots into their study routines (Venkatesh et al., 2003).

Effort expectancy: It refers to the belief that using the technology is easy and requires little effort (Venkatesh et al., 2003). Effort

expectancy in relation to AI chatbots adoption refers to the ease of using AI chatbots. Students are more inclined to use chatbots if they find them intuitive, user-friendly, and easy to navigate. For this study, this factor can be explored by assessing whether students encounter technical difficulties while interacting with chatbots, such as understanding responses or navigating the interface

Social influence: It is the perceived social pressure from peers, supervisors, or other significant others to use or not use the technology (Venkatesh et al., 2003). Social influence in AI chatbots adoption explains the role of peers and the broader academic environment in encouraging the use of AI chatbots. For example, students may be motivated to use chatbots if their classmates recommend them or if they observe others incorporating chatbots into their academic activities

Facilitating Conditions: It refers to the availability of resources and support that enable the use of any new technology (Venkatesh et al., 2003). Therefore, the necessary support needed to use chatbots effectively cannot be overemphasized. These conditions include reliable internet access, technical support, and training on how to use chatbots for educational purposes. When these resources are readily available, students are more likely to adopt the technology. This UTAUT framework provides a structured approach to analyzing the factors influencing the acceptance and use of AI chatbots among students. Factors such as perceived usefulness, ease of use, performance expectancy, and facilitating conditions may affect the adoption of AI chatbots among students.



UTAUT Model by Venkatesh et al. (2003).

3.1 Methodology

This study employed a descriptive survey design to gather comprehensive quantitative data on the extent of usage of AI chatbots among undergraduate students of University of Ilorin. A structured questionnaire served as the primary data collection tool, and was distributed among Five selected Faculties which are: Faculty of Communication and Information Sciences, Faculty of Environmental Sciences, Faculty of law, Faculty of Pharmaceutical Sciences and Faculty of Life sciences respectively. The population size of the selected Five Faculties totaled 9637 (Nine thousand, six hundred and thirty-seven). In the distribution of the copies of questionnaire, convenience technique was adopted to ensure easy collection of data from students regardless of their levels. A rate of return of 100% was achieved.

3.1.1 Sample Size and Sampling Technique

This study employed a stratified sampling technique to select the five Faculties out of Fifteen that actively implements or make use of the AI chatbots. The researcher adopted 2% criterion in selecting students within each faculty. The total sample size for this study amounted to 196 (One Hundred and Ninety-Six) students as shown in Table 3.12 below.

Table 3.1.2: Showing a Breakdown of the Sample Size for each faculty

Faculty	Total No of Students	2% Criterion
Life Sciences	4152	84
Law	967	20
CIS	3075	62
Pharmaceutical Sciences	568	12
Environmental Sciences	875	18
Total	9637	196

Source: Academic Planning Unit

3.1.3 Instrumentation

The primary data collection tool for this study was a structured questionnaire designed to collect quantitative data on the awareness

and usage of AI chatbots. The questionnaire was divided into four sections, each focused on diverse aspects of AI chatbots usage among students. Section A captured the Bio data of the students. Section B addressed the level of awareness and usage of the students with the AI chatbots. Section C comprised of items that measured perceived benefits of AI chatbots on a 4-point scale. Section D contained items that measured the challenges faced in the use of AI chatbots on a 4-point scale.

3.1.4 Face Validity and Reliability of the Research Instrument

The research instrument underwent a validation process to ensure its accuracy in measuring the intended variables. This included face validity as well as content validity. Face validity was achieved through the project supervisor to ensure clarity, relevance and correctness of the questionnaire items. Content validity was achieved by conducting a pilot study on 30 students from other faculties. Reliability coefficient analysis of the scales revealed a high Cronbach Alpha reliability score of 0.96 and 0.97 as shown in the below table.

Table 3.1.5. Showing the Cronbach's Reliability Scores of the Developed Scales

Scales	No of Items	Source	Cronbach Alpha Score
Perceived Benefits of AI Chatbots	7	Self-developed	0.96
Challenges of AI Chatbots	7	Self - developed	0.97

4.1 Presentation of Results

Table 4.1.1: Demographic Information of the Respondents

Gender	Frequency	Percentage
Male	75	38.3
Female	121	61.7
Total	196	100

Age	Frequency	Percentage
16-20 years	83	42.3%
21-25 years	112	57.2%
Above 26 years	1	0.5%
Total	196	100%
Level of the Respondents	Frequency	Percentage
100level	36	18.3%
200level	35	17.8%
300level	55	28.2%
400level	63	32.1%
500level	7	3.6%
Total	196	100%
Faculties	Frequency	Percentage
Life Sciences	84	42.9%
CIS	62	31.7%
Pharmaceutical Sciences	12	6.1%
Environmental Sciences	18	9.1%
Law	20	10.2%
Total	196	100%

Table 4.1.1 shows the gender distribution of the respondents. 75(38.3%) were males while 121(61.7%) were females. This depicts that majority of the respondents were females. In terms of age, the largest age group of respondents is within the 21-25 years constituting 112(57.2%) of the total sample. 83(42.3%) fall within 16-20 years age bracket while 1 (0.5%) was above 26 years of age. A breakdown of the faculties shows that the largest group 84(42.9%) were from Faculty of Life Sciences. This is followed by 62(31.7%) Faculty of Communication and Information Sciences, 20(10.2%) Faculty of law, 18(9.1%) Faculty of Environmental Sciences and 12(6.1%) Pharmaceutical Sciences respectively. Lastly, in terms of level, majority of respondent 7(3.6%) were in 500 Level, 63(32.1%) 400Level, followed by 55(28.2%) 300 Level, 35(17.8%) 200 Level,

and 36(18.3%) 100Level respectively.

4.2 Analysis of Research Questions

Research Question One: What are the primary uses of AI chatbots among students at the University of Ilorin, Kwara State, Nigeria?

Table 4.2.1: Primary Reasons for Using AI chatbots

Primary Reason for using AI chatbots	Frequency	Percentage
Study Assistance	141	72%
Quick answers	45	23%
Scheduling	3	1.5%
Others	7	3.3%
Total	196	100%

Data in Table 4.2.1 shows the primary uses of AI chatbots among students in varying proportions. For instance, 141(72%) shows that the students use AI chatbots for study assistance, 45(23%) quick answers, 3(1.5%) scheduling while 7(3.3%) used AI chatbots for other reasons. This finding shows that majority of students at the University of Ilorin primarily use AI chatbots for study assistance, highlighting the tool's role in their learning. Other uses, such as quick answers, are also notable but less dominant.

Research Question Two: What is the frequency of use of AI chatbots among students at the University of Ilorin, Kwara State, Nigeria?

Table 4.2.2 : Frequency of Use of AI chatbots among students at the University of Ilorin, Kwara State, Nigeria

AI Chatbots	Daily F(%)	Weekly F (%)	Monthly F(%)	Not at all F(%)
CHATGPT	145(73.9%)	39(19.8%)	11(5.61%)	1(0.51%)
Gemini	65(33.1%)	61(31.1%)	26(13.26%)	44(22.44%)
Bard (Google AI)	67(34.1%)	48(24.4%)	25(12.7%)	56(28.57%)
GPT3	55(28.0%)	30(15.3%)	50(25.5%)	61(31.12%)
BERT	0(0%)	0(0%)	0(0%)	0(0%)

Results in Table 4.2.2 shows the extent of use of AI chatbots among students along daily, weekly, monthly and Nil usages. 145(73.9%) reported using ChatGPT daily, it stands out as the most widely and intensively used AI chatbot among the students of University of Ilorin, perhaps due to its user-friendliness and other acceptable features. A much lower. But balanced usage pattern was reported for Gemini, 65(33.1%) reported daily use and 61(31.1%) weekly use. Similarly, the highest number of users, 61(31.12%) GPT3 and 56(28.57%) Bard (Google AI) reported they did not use it at all. This indicates that students were not familiar with these categories of chatbots. However, BERT stands out for its complete absence across all usage categories, registering zero users for Daily, Weekly, Monthly, and "Not at all." This is because BERT is not a stand-alone chatbot designed for direct user interaction like ChatGPT, Gemini, or Bard.

Research Question Three: What are the perceived Benefits of AI chatbots among students at the University of Ilorin, Kwara State, Nigeria?

Table 4.2.3: Perceived Benefits of AI chatbots among students at the University of Ilorin, Kwara State, Nigeria

Perceived Benefits of AI chatbots	SA F (%)	A F (%)	D F (%)	SD F (%)	Mean F (%)	Std. Dev F (%)
AI chatbots help me to save time in my academic work.	123 (63%)	70 (35.5%)	3(1.5%)	0 (0%)	3.61	0.52
AI chatbots are reliable source of information for schoolwork	68 (34.6%)	118 (60.2%)	9 (4.6%)	1 (0.6%)	3.29	0.57
AI chatbots help me to develop quick thinking and problem -solving skills.	93 (47.4%)	95 (48.4%)	7 (3.6%)	1 (0.6%)	3.43	0.59
AI chatbots accurately help to evaluate student learning.	56 (28.6%)	121 (61.7%)	18 (9.1%)	1 (0.6%)	3.18	0.60
AI chatbots enhance my learning experience by providing personalized study resources	73 (37.2%)	112 (57.1%)	9 (4.6%)	2 (1.1%)	3.31	0.60
AI chatbots offer immediate feedback whenever I make enquires.	110 (56.1%)	81 (41.3%)	4 (2.1%)	1 (0.5%)	3.53	0.57
AI chatbots is available 24/7 allowing me to get help whenever I need it	126 (64.3)	56 (28.6%)	9 (4.6%)	5 (2.5%)	3.57	0.90
Grand mean					3.41	

Analysis in Table 4.2.3 shows a high level of perceived benefits of using AI chatbots among students of the University of Ilorin with a grand mean of 3.41 on a 4-point scale. For instance, 193(98.7%) agreed that AI chatbots help them to save time in their academic work, 187(94.8%) agreed that AI chatbots are a reliable source of information for academic work. In addition, 185(94.3%) agreed that AI chatbots accurately help evaluate student learning, thereby providing personalized study resources, offer immediate feedback whenever they make inquiries, and are available 24/7 for assistance. Also, 179(90.8%) agreed that AI chatbots help them to develop quick thinking and problem-solving skills. On the whole, these findings depict that AI chatbots is highly beneficial to students, therefore they are potent tools.

Research Question Four: What are the challenges faced in the use of AI chatbots among students of the University of Ilorin, Kwara State, Nigeria?

Table 4.2.4: Challenges Faced in the use of AI chatbots among students of the University of Ilorin, Kwara State, Nigeria

Table 4.2.4: Challenges Faced in the use of AI chatbots among students of the University of Ilorin, Kwara State, Nigeria

Challenges Faced in the use of AI chatbots	SA F (%)	A F (%)	D F (%)	SD F (%)	Mean	Std. Dev.
I experience connectivity problems which hinders my effective use of AI chatbots	81 (41.3%)	74 (37.7%)	28 (14.3%)	13 (6.7%)	3.14	0.90
I have concerns about data privacy while using any of the AI chatbots	33 (16.8%)	95 (48.5%)	52 (26.5%)	16 (8.2%)	2.74	0.83
I rely too much on AI chatbots which hinders my ability to think and solve problem independently	43 (21.6%)	54 (27.6%)	68 (35%)	31 (15.8%)	3.14	1.64
I lack access to sufficient financial resources and support to effectively utilize AI chatbots in my academic work.	27 (13.8%)	85 (43.3%)	65 (33.2%)	19 (9.7%)	2.61	0.84
I am not always satisfied with output from AI chatbots due to inconsistent responses	49 (25.1%)	76 (38.7%)	60 (30.6%)	11 (5.6%)	2.83	0.87
I find it difficult to inquire freely on some AI chatbots due to their non-friendly interfaces	15 (7.7%)	45 (23%)	101 (51.5%)	35 (17.8%)	2.20	0.82
At times AI chatbots may mislead one due to biased datasets	35 (17.8%)	119 (60.7%)	26 (13.2%)	16 (8.3%)	2.88	0.79
Grand Mean					2.80	

Data in Table 4.2.4 shows the challenges faced while using AI chatbots among students of the University of Ilorin with a grand mean of 2.80. For instance, 155(79%) agreed that Poor internet connectivity hinders their effective use, this strongly suggests that internet access is a major issue due to students' inability to fully leverage AI chatbots. Also 154(78.5%) of students agreed that AI chatbots might sometimes provide misleading information due to biased datasets; while 128(65.3%) agreed that they have data privacy and security concerns when using AI chatbots. These results suggest that the students face moderate challenges in the use of AI chatbots, however, it does not hinder the usage among the students.

4.3 Discussion of Findings

The findings of this study are discussed in line with the research questions earlier raised and the extant literature.

Research Question One: What are the primary uses of AI chatbots among students in the University of Ilorin, Kwara State, Nigeria?

Results revealed that students used AI chatbots for diverse reasons, but in varying proportions. For instance, majority, 141(72%) use AI chatbots for study assistance. This finding support Allen & Brown, (2024) who affirmed that student majorly use AI chatbots for academic purposes.

Research Question Two: What is the frequency of use of AI chatbots among students at the University of Ilorin, Kwara State, Nigeria?

Results revealed that ChatGPT was the most widely used AI chatbot, with 145(73.9%) of students reported daily use. This was followed by 65(33.1%) Gemini for daily and 61(31.1%) weekly use. This finding supports past studies on the adoption of AI chatbots among students in HEIs which pinpointed that students are mostly attracted to ChatGPT for academic use due to its human-like conversational abilities (Allen & Brown, 2024; Schrittwieser et al., 2021; Brown et al., 2020)

Research Question Three: What are the perceived benefits of AI chatbots among students of University of Ilorin, Kwara State, Nigeria?

Results revealed a very strong positive perceptions, with a grand

mean of 3.41. Almost all students 193(98.7%) agreed that AI chatbots helped them save time, 187(94.8%) also agreed that they were reliable sources of academic information, while 179(90.8%) said chatbots helped them develop quick thinking and problem-solving skills. This finding supports past studies (Akyol and Yilmaz, 2023; Li et al., 2023) which pinpointed that AI chatbots support personalized learning and enhanced engagement as well as availability and accessibility of resources.

Research Question Four: What are the challenges faced in the use of AI chatbots among students of the University of Ilorin Kwara State Nigeria?

Results revealed a moderate level of challenges with a grand mean score of 2.80. The most frequent challenge was reported by 155(79%) poor internet connectivity consistent with infrastructural issues in Nigeria, 154(78.5%) biased datasets, and 128(65.3%) data privacy concerns. This finding supports past studies which pinpointed those students in HEIs experience challenges while using AI chatbots (Kasneji et al., 2023; Li et al., 2023; Zeng et al., 2021; Bender et al., 2021; Zeng et al., 2021; Okonkwo & Ade-Ibijola, 2021).

5.1 Conclusion

This study has proven that AI chatbots are playing an increasingly significant role in the academic lives of students at the University of Ilorin. The dominant perception is that AI chatbots serve as effective academic aids offering quick feedback, enhancing learning experiences, and helping students manage their academic workload efficiently. However, there is a need for increased awareness of the limitations, ethical implications and responsible use of these tools. Without any iota of doubt, AI chatbots have come to stay, and are valuable academic companions to students in HEIs.

5.2 Implication

This study can be replicated to cut across other public and private institutions to determine their usage patterns, level of acceptance and adoption. This would go a long way in ascertaining the peculiarities of usage and limitations of varying categories of AI chatbots among

students from diverse institutions in Nigeria.

5.2 Recommendations

In a bid to addressing some of the challenges of AI chatbots, the following recommendations are hereby made:

- i. HEIs should organize regular sensitization programs on digital privacy and the safe use of AI platforms.
- ii. Federal Government should develop educational policies to encourage the use of AI chatbots to ensure adherence to strict data protection standards.
- iii. University Management should integrate digital literacy and ethical AI usage into the curriculum of HEIs to help students navigate privacy concerns more confidently.
- iv. University Management should help to subsidize internet access to enable the seamless use of AI chatbots among students as the need arises.
- v. University of Ilorin should integrate AI chatbots for students' use into the official university portal most especially the learning management systems.

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