Awareness and Use of Chatbots by Uundergraduates in Universities in Ogun State.

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Abstract

This study examined undergraduates’ awareness and use of chatbots in public universities in Ogun State, Nigeria, focusing on their integration into academic activities. Despite the rapid growth of these tools and their potential benefits, uncertainty remains about their adoption in Nigerian higher education. The study assessed awareness, frequency and types of chatbot use, supported academic activities, challenges, and the effect of awareness on usage. A descriptive survey design was employed, targeting 23,307 undergraduates across three universities. Using stratified random sampling, 277 respondents were selected. Data were collected through a validated questionnaire and analysed with descriptive statistics. Results showed high awareness (mean = 64.75), with ChatGPT, Meta AI, WPS AI, and Gemini AI identified as the most used platforms. Chatbots were applied to exam preparation, academic support, and research. Challenges included reliance on stable internet and limited emotional intelligence in interactions. The study concludes that chatbot use is widespread and impactful, though constrained by infrastructural and ethical concerns. It recommends embedding digital literacy programmes to foster critical, ethical engagement with AI that supports learning while preserving academic integrity.

Keywords: Artificial Intelligence, Chatbots, undergraduates, awareness, use of chatbots

Introduction

The integration of digital technologies has transformed education by shifting access from physical libraries to instant digital resources. Emerging tools such as AI, blockchain, VR, and

cloud computing are reshaping learning when properly managed (Olowofila, 2019). Among these, AI has had the most impact, powering applications like GPT and DALL-E for content creation and chatbots for interactive support. While some chatbots are rule-based, others use advanced machine learning to provide dynamic responses, finding roles across healthcare, finance, and education (Okuda & Shoda, 2018). In higher education, platforms such as ChatGPT, Bard, Bing Chat, and Claude are increasingly popular, with ChatGPT dominant among students due to its role in enhancing engagement, collaboration, and outcomes (Cotton et al., 2023). Students particularly use them during course transitions and assessments, though concerns about privacy, integration, and satisfaction remain (Huang & Chueh, 2021).

Student perceptions of AI chatbots are largely favorable, as they are seen as efficient, interactive, and personalized learning tools, often acting as virtual tutors (Parmar et al., 2022). Acceptance aligns with the Student Acceptance of Technology (SAT) model, which emphasizes utility and ease of use, yet challenges persist, including risks of plagiarism, misinformation, and reduced critical thinking (Ng, 2022). Awareness is central to adoption, but disparities exist, while many students worldwide embrace generative AI, 42% of Nigerian undergraduates reported being unfamiliar with chatbots, though ChatGPT is most used among those aware (Kingful & Ojerinde, 2023). Limited infrastructure and uneven digital literacy in developing regions hinder adoption, underscoring the need for research, literacy programmes, and institutional strategies to ensure equitable and effective integration, particularly in areas like Ogun State.

Statement of problem

The evolution of emerging technology in education has brought about transformation and aid in learning outcomes for undergraduates. Chatbots, which are a product of Artificial Intelligence that qualifies as an emerging technology, seem to have brought about a new lease of life to how undergraduates provide solutions to their information needs, especially based on assignments, term papers, and research work. It seems to help them generate instant feedback, which simplifies and helps them to have a better grasp of a problem and how best to approach it. Despite these enormous benefits that chatbots hold for undergraduates, anecdotal evidence, and random interactions with a few undergraduates have shown that they seem to utilise chatbots for their day-to-day academic tasks, although such cannot be generalised as it is still a relatively innovation which is about 3 years in existence. Hence, it is not clear the extent of their usage of this technology in a developing country like Nigeria. This uncertainty about the extent of their usage opened up new horizons on what could have influenced the uncertainty in the extent of

their usage. Empirical findings suggest that awareness/knowledge of chatbots is not yet firmly rooted in the educational space, especially on their usability and how best they can be deployed for undergraduates not to abuse them. Hence, this study seeks to investigate awareness of the use of chatbots by undergraduates in Universities in Ogun State.

Objectives of the Study

The aim and objectives of this study is to investigate the awareness and use of chatbots by undergraduates in Universities in Ogun State. The specific objectives sought to:

i. examine the level of awareness of chatbots for undergraduates in Universities in Ogun State.
ii. find out the types of chatbots used by undergraduates in Universities in Ogun State.
iii. determine the frequency of using chatbots for academic activities by undergraduates in Universities in Ogun State;
iv. identify the academic activities that chatbots are used for by undergraduates in Universities in Ogun State;
v. examine the challenges of using chatbots by undergraduates in Universities in Ogun State

Research Questions

The following research questions were raised to guide the study:

1. What is the level of awareness of chatbots for undergraduates in Universities in Ogun State?
2. What are the types of chatbots used by undergraduates in Universities in Ogun State?
3. What is the frequency of using chatbots for academic activities by undergraduates in Universities in Ogun State?
4. What are the academic activities that chatbots are used for by undergraduates in Universities in Ogun State?
5. What are the challenges of using chatbots by undergraduates in Universities in Ogun State?

Literature Review

Use of Chatbots by undergraduates

The integration of chatbots into higher education has become a transformative innovation, offering scalable, personalized, and interactive learning support. These AI tools provide instant feedback, reduce cognitive load, and enhance motivation by fostering accessibility and

engagement (Ghouri et al., 2023; AL-Smadi et al., 2023). Their rapid adoption reflects the wider trend of AI in education, with uses ranging from answering queries to designing personalized learning paths. Evidence shows that chatbots stimulate active participation and collaboration. For instance, at Sultan Idris University of Education, chatbot integration with game- and problem-based learning improved creativity, cooperation, and engagement (Ghouri et al., 2023). Similarly, platforms like Microsoft Teams can become more interactive with AI, boosting comprehension and motivation (Dearn et al., 2023). Thus, chatbots are increasingly viewed as more than auxiliary tools, supporting deep learning and smooth transitions across teaching methods.

However, challenges remain. Limitations in reasoning, student dissatisfaction with errors, and ethical risks, such as privacy, plagiarism, and algorithmic bias, raise concerns (Herndon, 2017; Choudhry et al., 2024; Huallpa et al., 2023). Critics also fear automation replacing educators, underscoring the need for strict institutional policies. Research highlights diverse applications: improving library services (McKie & Narayan, 2019), supporting project-based learning (Kumar, 2021), gamification during the pandemic (Chaskopoulos et al., 2022), fostering goal setting and social presence in online learning (Hew et al., 2022), and language learning (Mohamed & Alian, 2023). Yet, long-term impacts on cognition remain uncertain (Cao et al., 2023).

Surveys show widespread but cautious adoption. While 64% of students report using or likely using tools like ChatGPT, concerns remain about reliability, plagiarism, and accuracy (Deschenes & McMahon, 2024). A scoping review confirmed motivational benefits but warned against over-reliance, with most studies focusing on STEM and Asia (Schei, Møgelvang & Ludvigsen, 2024). A 6,000-student Swedish survey found broad familiarity but disciplinary and demographic differences, with STEM students more positive than humanities or medicine students (Stöhr, Ou, & Malmström, 2024). Ultimately, chatbots are a powerful complement to traditional teaching, offering scalability, customisation, and engagement. Successful use depends on thoughtful design, consideration of student diversity, and strong ethical safeguards ([Manzanares et al., 2023]; [Abdelhamid, 2020]). Future work should focus on long-term, multidisciplinary studies and ethical frameworks to ensure responsible integration that enhances performance and critical thinking.

Awareness of the use of Chatbots by undergraduates

The rise of AI conversational agents like ChatGPT in education has drawn significant attention, with studies examining knowledge, opinions, and acceptance across levels. At Nnamdi Azikiwe University, more than 90% of students were familiar with ChatGPT, and 92%

understood its functions, though they expressed concerns about plagiarism, credibility, and potential negative effects on critical thinking, alongside fears of AI replacing lecturers (Nnaemeka & Ogunbadejo, 2024). Similarly, at the high school level, awareness ranged from moderate to high, with 83.96% preferring ChatGPT for its personalized feedback, though adoption patterns varied by age and year level (Dayoc & Adlaon, 2024). Both studies recommended training, equity in access, and clear academic integrity guidelines to ensure AI remains an adjunct rather than a replacement for teachers.

Broader investigations in higher education confirm increasing awareness and adoption. In the United States, over 90% of social science undergraduates knew about ChatGPT, with use driven by peer influence and publicity (Jowarder, 2023). Perceived usefulness, ease of use, and social factors emerged as key adoption drivers (Jowarder, 2023; Ayanwale & Molefi, 2024). Graduate students reported more frequent use and higher satisfaction than undergraduates, reflecting differences across academic levels (Sáiz-Manzanares et al., 2023). Despite these benefits, concerns about plagiarism, ethics, and critical thinking highlight the need for training and responsible policy frameworks. Adoption studies also extend beyond higher education. Kang, Kim, & Kang (2022) used a modified Technology Acceptance Model to show elementary students found chatbots useful and easy to operate in violence-prevention education. In Nigeria, 42% of university students were aware of chatbots, yet those who used them, particularly for writing and English learning, showed strong acceptance despite concerns about reduced creativity (Kingful & Ojerinde, 2023). Together, these examples demonstrate the flexibility of chatbots across contexts while underscoring the importance of aligning implementation with learners' developmental needs.

Academic activities where chatbots are used by undergraduates

Studies consistently demonstrate the positive impact of chatbots on students' learning outcomes, adoption intentions, and institutional efficiency. Essel (2022) found that students using chatbots outperformed peers in instructor-led control groups, while Ayanwale (2024) showed that perceived advantages, compatibility, and trialability significantly influenced adoption in Lesotho. Similarly, Esiyok et al. (2024) confirmed that perceived usefulness and ease of use predict continued usage. Beyond academics, chatbots improve access to information, support placements, and reduce administrative workloads (Kesarwani, 2023). They also assist students with research tasks such as summarizing papers, generating literature reviews, and simplifying complex texts, thereby freeing time for critical analysis. In scientific

writing, they support idea generation, text drafting, bibliographic referencing, and improving clarity and coherence, while in STEM fields they act as virtual tutors, debugging code, solving mathematical problems, and organizing study plans (Esiyok et al., 2024; Kesarwani, 2023). Chatbots have also shown value in language learning and student support. Annamalai (2023) reported improvements in English proficiency and material exposure, though responsiveness and critical thinking remain limitations. Similarly, Torres-Cruz (2023) highlighted the usefulness of bilingual chatbots in academic advising, while McKie (2019) showed their role in reducing library-related anxiety and making research more accessible. Patel (2023) further demonstrated how chatbot prototypes can heighten student participation through natural language processing and domain-specific applications. Overall, while chatbots enhance academic performance, engagement, and institutional support, studies emphasise the importance of responsible integration, faculty involvement, and ethical safeguards to address issues of responsiveness, creativity, and critical thinking.

Methodology

The research utilised a descriptive survey research design. This design was selected as appropri ate for collecting responses from a large student population. With such a design, the researchers could depict the students' knowledge and usage of chatbots. Besides, the design also made it pos sible to anticipate the occurrence of future trends by the existing relationships among the variabl es of the study. The population of the study consisted of 23,307 undergraduate students drawn fr om three tertiary institutions in Ogun State, Nigeria: Tai Solarin University of Education (TAS UED), Olabisi Onabanjo University (OOU), and the Federal University of Agriculture, Abeoku ta (FUNAAB). The stratified random sampling technique was adopted due to the heterogeneous nature of the population. Initially, 60% of the population from each faculty or college was select ed, after which 2% of this reduced pool was chosen as the final sample, resulting in a total of 27 7 respondents. This multistage sampling ensured proportional representation across institutions and faculties. The main research instrument was a structured questionnaire, divided into three s ections. Section A captured demographic information, while Section B addressed the research q uestions. The instrument underwent face validation by the researcher’s supervisor, ensuring rele vance and clarity of the questions. For data collection, the researcher personally administered th e questionnaires, with an introductory letter from the Head of the Department of Library and Inf ormation Science. Respondents were assured of confidentiality to encourage honest and accurat e responses. For data analysis, the researchers used the Statistical Package for Social Sciences

(SPSS). Descriptive statistics such as frequency counts, percentages, means, and standard devia tions were applied to address the research questions. A total of 277 copies of the questionnaire were administered to undergraduates in public univesities in Ogun State. 239 copies were return ed and found useful for analysis, giving a response rate of 86.28%.

Results and Discussion

Demographic characteristics of the respondents

Table 1: Demographic characteristics of undergraduates in public universities in Ogun State

University	Frequency	Percentage(%)
Federal University of Agriculture, Abeokuta.	50	20.92
Olabisi Onabanjo University	68	28.45
Tai Solarin University of Education, Ijagun	121	50.63
Gender		
Male	132	55.23
Female	107	44.77
Age		
Less than 18 years	58	24.27
18-21 years	113	47.28
22-25 years	35	14.64
26-31 years	26	10.88
32 years and above	7	2.92
Level		
100	21	8.79
200	42	17.57
300	88	36.82
400	56	23.43
500	34	14.22
600	-	-
Total	239	100

Table 1 presents results for the demographic characteristics of undergraduates in public universities in Ogun State. For the population of undergraduates in universities, it was revealed that the majority of them, 121(50.63%), are from TASUED, while the least are from FUNAAB, 50(20.92%). This implies a higher representation of undergraduates of TASUED for this study.

For the gender of undergraduate students in public universities in Ogun State, it was revealed that, majority of them, 132(55.23%), are Males, indicating a stronger representation of Male undergraduates in public universities in Ogun State for this study.

For the age of the undergraduates, it was revealed that the majority of them, 113(47.28%), fall between 18-21 years, while the least, 7(2.92%), are 32 years and above. This indicates that most of the undergraduates in public universities in Ogun adopted for this study are young adults.

For the level of undergraduates in public universities in Ogun State, it was revealed that the majority of the undergraduates, 88(36.82%), are in the 300 level, while the least of them, 34(14.22%), are in the 500 level. This indicates that the undergraduates are mostly in the advanced stage of their program at the university.

Research questions one

1. What is the level of awareness of chatbots for undergraduates in Universities in Ogun State?

Table 2: Awareness of undergraduates in public universities in Ogun State

S/N	Awareness	SA	A	D	SD	$\bar{x}$	Std Dev.
	General awareness						
1	I am familiar with what chatbots are.	143 (59.8%)	48 (20.1%)	48 (20.1%)	-	3.40	.80
2	I have encountered chatbots on websites or mobile applications.	143 (59.8%)	48 (20.1%)	48 (20.1%)	-	3.40	.80
3	I understand the purpose of chatbots in digital services.	143 (59.8%)	-	96 (40.2%)	-	3.20	.98
4	I can differentiate between chatbots and human interactions online.	143 (59.8%)	-	96 (40.2%)	-	3.60	.49
5	I am aware that chatbots are used in educational platforms.	95 (39.7%)	144 (60.3%)	-	-	3.40	.49
	Sources of exposure						
6	I have used chatbots on social media platforms (e.g., Facebook Messenger).	143 (59.8%)	48 (20.1%)	-	48 (20.1%)	3.20	1.17
7	I have interacted with chatbots for customer service purposes.	191 (79.9%)	-	-	48 (20.1%)	3.40	1.20
8	My university uses chatbots for student-related services (e.g.,	143 (59.8%)	96 (40.2%)	-	-	3.60	.49

	inquiries or updates).						
9	I learned about chatbots through advertisements or promotional content.	143 (59.8%)	48 (20.1%)	48 (20.1%)	-	3.20	1.17
10	I became aware of chatbots through my peers or classmates.	143 (59.8%)	96 (40.2%)	-	-	3.60	.49
	Knowledge of Chatbot Functions						
11	Chatbots can provide automated responses to queries.	95 (39.7%)	96 (40.2%)	-	48 (20.1%)	3.00	1.10
12	Chatbots are programmed to assist with frequently asked questions.	143 (59.8%)	96 (40.2%)	-	-	3.60	.49
13	Chatbots can simulate natural conversation.	143 (59.8%)	48 (20.1%)	48 (20.1%)	-	3.40	.80
14	Chatbots can guide online learning environments.	95 (39.7%)	144 (60.3%)	-	-	3.40	.49
15	I am aware that chatbots are integrated into AI technologies.	95 (39.7%)	144 (60.3%)	-	-	3.40	.49
	Perceived Benefits of Chatbots						
16	Chatbots are effective in saving time during online interactions.	143 (59.8%)	96 (40.2%)	-	-	3.60	.49
17	Chatbots can make it easier to access information quickly.	95 (39.7%)	144 (60.3%)	-	-	3.40	.49
18	Chatbots provide accurate and reliable information.	143 (59.8%)	96 (40.2%)	-	-	3.60	.49
19	Using chatbots is convenient and user-friendly.	95 (39.7%)	144 (60.3%)	-	-	3.40	.49
	Grand mean					**64.75**	

Key: Strongly Disagree = SD; Disagree = D; Agree = A; Strongly Agree = SA

Table 2 presents results on the awareness of undergraduates in public universities in Ogun Statethey became aware of chatbots through my peers or classmates ($\bar{x}$ = 3.60; Std Dev. = .49); Chatbots are effective in saving time during online interactions ($\bar{x}$ = 3.60; Std Dev. = .49); Chatbots are programmed to assist with frequently asked questions ($\bar{x}$ = 3.60; Std Dev. = .49); while the least of them agreed that they are aware that chatbots can provide automated

responses to queries ($\bar{x}$ = 3.00; Std Dev. = 1.10). This implies majority of the undergraduates became aware of chatbots through their peers or classmates, and chatbots are effective in saving time during online interactions, although some slightly disagreed that they were aware that chatbots can provide automated responses to queries.

Table 3: Test norm table of awareness of chatbots by undergraduates in public universities in Ogun State

Interval	Overall mean score	Remark
1 – 25.3		Low level
25.4 – 50.6		Average level
50.7 – 76	64.75	High level

In order to establish the level of awareness of undergraduates in public universities in Ogun State, a test of norms was conducted. The results showed that a scale between 1-25.3 indicates low awareness; 25.4 - 50.6 indicates moderate awareness, while 50.7 – 76 indicates high awareness. The overall mean of awareness of undergraduates in public universities in Ogun State is “64.75”. It can therefore be concluded that the level of awareness of undergraduates in public universities in Ogun State is high.

2. What are the types of chatbots used by undergraduates in Universities in Ogun State?

Table 4: Types of chatbots used by undergraduates in public universities in Ogun State

S/N	Types of Chatbots	No	Yes
1	Copilot	144 (60.3%)	95 (39.7%)
2	Meta AI	48 (20.1%)	191 (79.9%)
3	WPS AI	48 (20.1%)	191 (79.9%)
4	Perplexity.ai	144 (60.3%)	95 (39.7%)
5	Claude	144 (60.3%)	95 (39.7%)
6	You.com	144 (60.3%)	95 (39.7%)
7	Chatsonic	96 (40.2%)	143 (49.8%)
8	Gemini AI	48 (20.1%)	191 (79.9%)
9	Socratic	96 (40.2%)	143 (59.8%)
10	Hugging Chat	96 (40.2%)	143 (59.8%)
11	ChatGPT	48 (20.1%)	191 (79.9%)
12	Bing AI	144 (60.3%)	95 (39.7%)
13	Open AI playground	96 (40.2%)	143 (59.8%)

Table 4 presents results for the types of chatbots used by undergraduates in public universities in Ogun State. It was revealed that majority of the undergraduates used ChatGPT 191(79.9%), Meta AI 191(79.9%), WPS AI 191(79.9%), and Gemini AI 191(79.9%), while the least used chatbots include Copilot 144(60.3%), and Perplexity AI 144(60.3%). This implies that the majority of the undergraduates in public universities in Ogun State utilised chatbots such as ChatGPT, Meta AI (WhatsApp), and WPS AI.

3. What is the frequency of using chatbots for academic activities by undergraduates in Universities in Ogun State?

Table 5: frequency of using chatbots for academic activities by undergraduates in public universities in Ogun State

S/N	Chatbots	Always	Sometimes	Rarely	Never	$\bar{x}$	Std Dev.
1	Copilot	-	191 (79.9%)	`48 (20.1%)	-	2.80	.40
2	Meta AI	144 (60.3%)	95 (39.7%)	-	-	3.60	.49
3	WPS AI	48 (20.1%)	47 (19.7%)	96 (40.2%)	48 (20.1%)	2.40	1.02
4	Perplexity.ai	48 (20.1%)	143 (59.8%)	48 (20.1%)	-	3.00	.64
5	Claude	-	143 (59.8%)	96 (40.2%)	-	2.60	.49
6	You.com	-	95 (39.7%)	144 (60.3%)	-	2.40	.49
7	Chatsonic	96 (40.2%)	47 (19.7%)	96 (40.2%)	-	3.00	.90
8	Gemini AI	96 (40.2%)	143 (59.8%)	-	-	3.40	.49
9	Socratic	-	95 (39.7%)	144 (60.3%)	-	2.40	.49
10	Hugging Chat	96 (40.2%)	95 (39.7%)	48 (20.1%)	-	3.20	.75
11	ChatGPT	96 (40.2%)	143 (59.8%)	-	-	3.40	.49
12	Bing AI	48 (20.1%)	143 (59.8%)	48 (20.1%)	-	3.00	.64
13	Open AI playground	96 (40.2%)	95 (39.7%)	48 (20.1%)	-	3.20	.75

Table 5 presents results on the frequency of using chatbots for academic activities by undergraduates in Universities in Ogun State. It was revealed that the most frequently utilised chatbots by undergraduates are Meta AI ($\bar{x}$ = 3.60; Std Dev. = .49); Gemini AI ($\bar{x}$ = 3.60; Std Dev. = .49); and ChatGPT ($\bar{x}$ = 3.40; Std Dev. = .49), while the least frequently used chatbots by undergraduates include Socratic ($\bar{x}$ = 2.40; Std Dev. = .49);, You.com ($\bar{x}$ = 2.40; Std Dev.

= .49); and WPS AI ($\overline{x}$ = 2.40; Std Dev. = .49). This implies that Meta AI, along with ChatGPT, and Meta AI are the most utilised chatbot among undergraduates in Ogun State.

4. What are the academic activities that chatbots are used for by undergraduates in Universities in Ogun State?

Table 6: Academic activities that chatbots are used for by undergraduates in Universities in Ogun State

S/N	Academic activities	Highly Utilised	Moderately Utilised	Not Utilised	$\overline{x}$	Std. Dev.
1	Answering course-related questions.	143 (59.8%)	48 (20.1%)	48 (20.1%)	2.40	.80
2	Providing summaries or explanations of academic topics.	143 (59.8%)	96 (40.2%)	-	2.60	.49
3	Recommending resources such as textbooks, articles, or websites.	143 (59.6%)	96 (40.2%)	-	2.60	.49
4	Generating study guides or outlines.	143 (59.6%)	96 (40.2%)	-	2.60	.49
1.	Assisting with exam preparation through practice questions or tips.	191 (79.9%)	48 (20.1%)	-	2.80	.40
2.	Clarifying complex concepts or theories.	95 (39.7%)	144 (60.3%)	-	2.40	.49
3.	Assisting with essay writing (e.g., brainstorming ideas, structuring essays).	47 (19.7%)	192 (80.3%)	-	2.20	.40
4.	Checking grammar, spelling, and punctuation.	143 (59.8%)	96 (40.2%)	-	2.5	.49
5.	Suggesting improvements for written assignments.	143 (59.8%)	96 (40.2%)	-	2.51	.49
6.	Sending reminders for classes, exams, or assignment deadlines.	95 (39.7%)	144 (60.3%)	-	2.40	.49
7.	Helping create study schedules or timetables.	47 (19.7%)	192 (80.3%)	-	2.20	.40
8.	Managing group project coordination.	191 (79.9%)	48 (20.1%)	-	2.80	.40
9.	Providing information on internships or job opportunities.	143 (59.8%)	96 (40.2%)	-	2.60	.49
10.	Offering tips on resume writing or interview preparation.	95 (39.7%)	144 (60.3%)	-	2.39	.49
11.	Giving guidance on career paths related to their field of study.	95 (39.7%)	144 (60.3%)	-	2.40	.49
12.	Answering inquiries about course registration	143 (59.8%)	96 (40.2%)	-	2.60	.49

	or university policies.					
13.	Providing information about campus events, services, and facilities.	191 (79.9%)	48 (20.1%)	-	2.80	.40
14.	Guiding students on how to access academic support services (e.g., tutoring, libraries).	191 (79.9%)	48 (20.1%)	-	2.80	.40
15.	Suggesting research topics or questions.	191 (79.9%)	48 (20.1%)	-	2.80	.40
16.	Helping locate academic sources and references.	191 (79.9%)	48 (20.1%)	-	2.80	.40
17.	Guiding citation and referencing styles (e.g., APA, MLA).	143 (59.8%)	96 (40.2%)	-	2.60	.49
18.	Teaching coding, foreign languages, or other technical skills.	191 (79.9%)	48 (20.1%)	-	2.80	.40
19.	Recommending online courses or tutorials.	95 (39.7%)	144 (60.3%)	-	2.40	.49
20.	Offering guidance for extracurricular academic activities.	95 (39.7%)	144 (60.3%)	-	2.40	.49

Table 6 presents results on the academic activities that chatbots are used for by undergraduates in Universities in Ogun State. It was revealed that undergraduates use chatbots to assist with exam preparation through practice questions or tips ($\overline{x}$ = 2.80; Std Dev. = .40); guide them on how to access academic support services (e.g., tutoring, libraries) ($\overline{x}$ = 2.80; Std Dev. = .40); suggest research topics or questions ($\overline{x}$ = 2.80; Std Dev. = .40); while the least of them only use it to get recommendations for online courses or tutorials ($\overline{x}$ = 2.40; Std Dev. = .49); and offer guidance for extracurricular academic activities ($\overline{x}$ = 2.40; Std Dev. = .49). This implies that undergraduates in public universities mainly use chatbots for academic activities such as assist ing with exam preparation through practice questions or tips, guiding them on how to access academic support services (e.g., tutoring, libraries), and suggesting research topics or questions.

5. What are the challenges of using chatbots by undergraduates in Universities in Ogun State?

Table 7: Challenges of using chatbots by undergraduates in public universities in Ogun State

S/N	Challenges	SA	A	D	SD	$\overline{x}$	Std. Dev.
1	Privacy and security of personal information	95 (39.7%)	48 (20.1%)	96 (40.2%)	-	3.00	.90
3	Inconsistent accuracy	47 (19.7%)	192 (80.3%)	-	-	3.20	.40
3	Communication barriers	47 (19.7%)	144 (60.3%)	48 (20.1%)	-	3.00	.63

4	Dependence on internet connectivity	143 (59.8%)	96 (40.2%)	-	-	3.60	.49
5	Technical limitations	95 (39.7%)	96 (40.2%)	48 (20.1%)	-	3.20	.75
6	Lack of emotional intelligence	95 (39.7%)	144 (60.3%)	-	-	3.40	.49
7	Over-reliance on Chatbots	95 (39.7%)	144 (60.3%)	-	-	3.40	.49
8	Limited integration with the curriculum	95 (39.7%)	96 (40.2%)	48 (20.1%)	-	3.20	.75
9	Frustration with repeated errors	95 (39.7%)	96 (40.2%)	48 (20.1%)	-	3.20	.75

Key: Strongly Disagree = SD; Disagree = D; Agree = A; Strongly Agree = SA

Table 7 presents results on the challenges of using chatbots by undergraduates in Universities in Ogun State. It was revealed that the major challenges affecting undergraduates' use of chatbots in public universities in Ogun State include dependence on internet connectivity ($\overline{x}$ = 3.60; Std Dev. = .49); lack of emotional intelligence ($\overline{x}$ = 3.40; Std Dev. = .49); and over-reliance on Chatbots ($\overline{x}$ = 3.40; Std Dev. = .49). This implies that undergraduates in public universities in Ogun State continue to face challenges with internet-dependency, and over-reliance on chatbots.

Discussion of Findings

Findings from Ogun State public universities reveal a high level of undergraduate awareness of AI tools, signaling a technological awakening in Nigerian higher education. Although chatbot use remains more advanced in developed nations, supporting educational guidance, mental health, and administration, the strong awareness in Ogun State suggests students not only understand but may already be engaging with such tools. This trend aligns with broader research on digital learning adoption. For instance, Mujallid et al. (2023) showed that chatbot-driven platforms significantly improved Arab youths' digital citizenship, while Ahmad (2022) found that e-learning knowledge among students and lecturers in tertiary institutions surged during the COVID-19 pandemic. Together, these findings highlight that Ogun State undergraduates are positioned for increased receptiveness to AI-powered systems like chatbots. The advantages of chatbots extend beyond academics, offering support for communication, guidance, and efficiency. Zhu et al. (2022) demonstrated the effectiveness of SMS-based chatbots in hazard alert communications, suggesting their relevance in education for areas such as course advice or mental health support. Applied in Ogun State, such tools could enhance student support systems, boost institutional efficiency, and foster a digital-forward educational paradigm. However, institutions must go beyond raising awareness to actively integrate

chatbots into academic structures, ensuring they strengthen staff–student engagement while addressing the broader goals of digital transformation.

Findings from Ogun State public universities show that most undergraduates actively use chatbots such as ChatGPT, Meta AI (WhatsApp), and WPS AI, reflecting the deepening integration of artificial intelligence (AI) in Nigerian higher education. This adoption signifies both a technological shift and evolving academic practices shaped by digital tools. ChatGPT's versatility in handling academic queries, offering writing support, and summarising information has become central to AI-assisted learning. Vargas-Murillo et al. (2023a) highlight its global role in tasks such as research, data processing, and paper writing, suggesting Nigerian students are keeping pace with international peers by leveraging these tools for productivity, efficiency, and academic support. Jo (2023) further notes that ChatGPT fosters user engagement and social approval among students, while Dhanunjay et al. (2023) show its frequent use for generating content and enhancing convenience, particularly significant in Ogun State, where infrastructural limitations make AI tools indispensable.

However, rising dependence on chatbots raises concerns about academic honesty and over-reliance. Vargas-Murillo et al. (2023b) stress the ethical risks of uncritical AI use, particularly its impact on critical thinking and academic integrity. To address these challenges, universities in Ogun State must introduce digital literacy initiatives and establish clear policies governing ethical AI use. Ultimately, the widespread adoption of ChatGPT, Meta AI, and WPS AI illustrates the growing acceptance of AI technologies in Nigerian education, a trend with transformative potential if supported by structured safeguards to ensure AI strengthens, rather than undermines, learning.

Study results show that ChatGPT and Meta AI are the most widely used chatbot tools among undergraduates in Ogun State, reflecting a broader digital shift in higher education. ChatGPT, developed by OpenAI, is valued for mimicking human conversation and assisting with academic tasks such as assignments, coding, and clarifying difficult topics. Its effectiveness in delivering customized content and fostering interactive learning has been emphasised by Baidoo-Anu and Owusu Ansah (2023), aligning with its use among Ogun State students. Meta AI, integrated into WhatsApp and similar platforms, stands out for its accessibility and real-time communication features, making it particularly relevant in contexts where mobile phones are the primary medium for academic and social interaction. Carolus et al. (2023) highlight how such literacy tools enhance AI competence, bridging formal education with everyday digital practices.

The simultaneous use of ChatGPT and Meta AI demonstrates that students draw on both formal (academic) and informal (social) AI resources, indicating growing digital competence. This trend signals the need for universities to adapt by embedding AI tools into instructional design, fostering digital literacy, and providing ethical guidance. However, widespread reliance also raises concerns. Vargas-Murillo et al. (2023) warn of risks tied to dependence, disinformation, and academic honesty, stressing the importance of institutional frameworks that ensure responsible use. Ultimately, the prominence of ChatGPT and Meta AI among Ogun State undergraduates reflects an educational shift toward AI-mediated learning, one that requires strategic integration to maximize benefits while safeguarding academic integrity.

Research shows that undergraduates in public universities increasingly rely on chatbots for academic activities such as exam preparation, accessing support services, and generating research topics, marking a shift in student learning behavior. These tools reflect both technological innovation and intentional alignment with educational goals. ChatGPT, for instance, has proven effective in exam contexts, Bommineni et al. (2023) demonstrated its strong performance on the MCAT, where it provided personalised explanations and practice questions. Similarly, Abu-Haifa et al. (2023) found ChatGPT effective in solving GRE quantitative and verbal reasoning tasks, reinforcing its role in structured test preparation. Beyond exams, Gebbing et al. (2023) highlighted the value of AI-driven virtual companions in directing students to libraries, tutoring, and resilience tools, offering vital support in under-resourced contexts.

Chatbots also extend into research and professional training. Madrid-García et al. (2023) showed how ChatGPT could analyse rheumatology exam questions, highlighting its potential for clinical reasoning and research development. Ogun State undergraduates' widespread use of such tools demonstrates their digital competence and the flexibility of AI to support diverse academic needs, from brainstorming topics to refining questions and summarising texts. However, this reliance underscores the necessity of institutional policies and curriculum frameworks that foster critical thinking, uphold academic integrity, and build AI literacy. With careful orchestration, chatbot adoption could strengthen academic excellence and innovation across Nigerian universities.

The study finds that while undergraduates in Ogun State's public universities show high awareness and active use of chatbots like ChatGPT and Meta AI, they face two key challenges: poor internet access and over-reliance on AI. Limited connectivity, a widespread issue in less developed regions, restricts equitable use of digital tools (Adedeji et al., 2021). At the same time, heavy dependence on chatbots risks shallow learning and reduced critical thinking,

echoing global concerns about generative AI's double-edged role in education (Jameela & Deepthi, 2023; Krullaars et al., 2023; Chan & Hu, 2023). Addressing these issues requires balanced integration of AI through digital literacy initiatives, critical engagement practices, and infrastructure improvements to ensure chatbots serve as supportive aids rather than replacements in learning.

Conclusion

The research unfolds a complex picture of the usage of chatbots by university students in Ogun State public universities. The study depicts a very high awareness and usage of several tools suc h as ChatGPT, Meta AI, and WPS AI. In sum, these platforms are the most chosen means for aca demic purposes, for instance, exam preparation, taking up support services, or just being familia r with the research topic that mirrors the users' thoughts, as they are like friends in the education journey. Yet, some issues are still there. The main factors are the infrastructural problem, such a s unstable internet access, and the reliance on chatbots to the extent that the ability to think critic ally is lost, and the traditional academic support system is undermined. To be more specific, the work done provides evidence of a very strong relationship between the knowledge and the use o f the tool, indicating that familiarity with the tools in the course of training drives the use. The re sults ask for the implementation of such a program that would combine the digital transition and the ideas of enhancing access, digital literacy, and the promotion of guided use, which would be the best guarantee for academic integrity and the development of autonomous learning skills.

Recommendations

The following recommendations were made imperative:

1. Public Universities ought to make use of this already existing understanding by blendin g structured digital literacy programmes into the curriculum, with the emphasis on the c ritical engagement and the ethical use of AI technologies.
2. Universities should establish well-defined rules of usage and support systems that woul d foster the responsible and academic-focused application of chatbots so that they are ef fective in the learning environments.
3. The educational stakeholders' community should explore the possibility of partnering with developers or platforms such as OpenAI and Meta to customise the functionalities of chatbots to meet the needs of institutions and thus increase their relevance and pedago gical alignment.

4. The academic staff should be facilitated with the necessary skills to use chatbot tools in t heir various teaching strategies, making the students use them as supplementary aids rat her than the main sources of information.
5. An infrastructural expansion is necessary to ensure internet reliability across campuses. Such an initiative should go hand in hand with activities that promote critical thinking a nd a balanced blend of traditional and AI-assisted learning.
6. The scope of the awareness initiatives should be increased so that people would have a b etter understanding of the capabilities and limitations of chatbots, and that the use of cha tbots would be informed, purposeful, and aligned with academic goals.

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