British Journal of Contemporary Education
ISSN: 2997-3198
Volume 4, Issue 2, 2024 (pp. 28-42)
www.abjournals.org

PRE-SERVICE TEACHERS' PERCEPTIONS AND UTILISATION OF CHATGPT IN HIGHER INSTITUTIONS USING UTAUT THEORY: EVIDENCE FROM AN EMERGING ECONOMY

Stella Bolanle Apata[1], Oyenuga Michael Oyedele[2], and Sulaiman Musa Mohammmed[3]

[1]Adekunle Ajasin University, Akungba Akoko, Ondo State, Nigeria.
Email: bolanle.apata@aaua.edu.ng

[2]School of Business, Woxsen University, Telangana, India, 502345.
Email: Oyenuga.michael@woxsen.edu.in

[3]Department of Science Education, University of Ilorin, Ilorin, Kwara State, Nigeria.
Email: sulaiman.mm@unilorin.edu.ng

Cite this article:

Apata, S. B., Oyedele, O. M., Sulaiman, M. M. (2024), Pre-Service Teachers' Perceptions and Utilisation of ChatGPT in Higher Institutions using UTAUT Theory: Evidence from an Emerging Economy. British Journal of Contemporary Education 4(2), 28-42. DOI: 10.52589/BJCE-DBIT7S4T

Manuscript History

Received: 18 Sep 2024

Accepted: 17 Nov 2024

Published: 26 Nov 2024

ABSTRACT: *ChatGPT is a valuable tool for students, aiding in linguistic support, idea clarification, and quick material retrieval. However, issues like data security, privacy, and reliance on technology remain concerns. This study explored Nigerian pre-service teachers' perceptions and use of ChatGPT as it gains traction in education. Using a descriptive research method, data were collected via questionnaires from 450 pre-service teachers at two Nigerian colleges, selected through purposive sampling. Findings showed mixed feelings towards ChatGPT, with accessibility, response quality, and individual preferences as key factors shaping perception. Many pre-service teachers used ChatGPT as a supplementary study tool, though its reputation as a time-saver does not significantly influence their usage decisions. This study provided valuable insights for Nigerian educators and policymakers, underscoring the importance of personalised strategies to optimise ChatGPT's benefits while addressing limitations. Enhancing digital literacy and providing support services are essential steps in bridging the digital divide and fostering effective technology integration in education.*

KEYWORDS: Artificial intelligence, ChatGPT, Emerging economy, Higher education, Pre-service teachers.

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

British Journal of Contemporary Education
ISSN: 2997-3198
Volume 4, Issue 2, 2024 (pp. 28-42)

www.abjournals.org

INTRODUCTION

The 21st century has seen unprecedented technological advancements (Alam et al., 2004), significantly transforming various sectors and in emerging economies, the rationale behind the adoption of technology became evident, especially due to the COVID-19 pandemic (Omale et. al., 2023; Oyedele et al., 2024). Among the prominent innovations, artificial intelligence (AI) has made substantial impacts. OpenAI's ChatGPT, an AI-driven tool utilising natural language processing, exemplifies this transformation by enhancing educational experiences. ChatGPT can generate text, understand natural language, and provide intelligent, context-aware responses, making it a valuable resource for both educators and students (Lo, 2024). However, the model's data training only extends to 2021, limiting its comprehension of events beyond that point (Halaweh, 2024).

Since its launch, ChatGPT has gone through several upgrades, with each version enhancing its capabilities. The introduction of GPT-3 in 2023 marked a significant advancement, featuring 175 billion parameters, making it applicable across fields such as healthcare and education. Following this, OpenAI introduced GPT-4 in March, which significantly increased computational power with 170 trillion parameters (Grassini, 2023). By 2024, OpenAI unveiled ChatGPT-4o, a more advanced version that overcomes previous limitations by incorporating data beyond 2021, allowing for a deeper understanding and improved context recognition (Smith, 2024).

ChatGPT offers numerous potential applications in education. Its ability to generate learning materials (Utami et al., 2023), provide personalised instruction (Chai et al., 2021), answer students' questions in real-time (Yousef et al., 2021), and offer instant feedback (Jarrah et al., 2023) makes it a valuable virtual teaching assistant. These functions can help educators manage diverse classroom needs effectively, supporting dynamic and engaging learning experiences (Williams, 2024; Oyenuga & Omale, 2024). Despite these benefits, challenges persist. Concerns arise around the transparency of OpenAI’s data sources and training methods for ChatGPT-4o and GPT-4. Additionally, there are worries about the potential over-reliance on AI technologies, which may affect traditional teaching methods and student learning (Tate et al., 2023; Dahmen et al., 2023). Ethical debates centre around AI’s impact on personal freedoms, security, and employment (Ellington, 2003; Mao et al., 2017). However, in Nigerian higher education (Oyetunde et al., 2023), the integration of ChatGPT remains understudied, especially regarding its potential benefits and drawbacks for pre-service teachers. These future educators will shape how AI tools are adopted in classrooms, making it essential to understand their perceptions and usage patterns. Training educators to use ChatGPT effectively is crucial for maximising its potential in language instruction (Nguyễn, 2023). According to Apata (2021), the world is in a constant state of change, and so are its people. Progressive educators worldwide are now expected to adapt their teaching methods to meet the demands of an ever-evolving society. In this fast-paced world, the ability to think critically, learn independently, and discover new information has become more valuable than simply memorising and repeating established knowledge. Apata (2021) further explains that in today’s digital society, it is not just what you know that matters, but how effectively you navigate digital spaces and utilise the vast resources at your fingertips. According to Apata, (2021), this represents a new approach to learning.

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

In medical education, ChatGPT's dual role is noted, where it can simulate patient interactions to build skills, though limitations remain (Hisan & Amri, 2023). While extensive research exists on AI's role in education, little is known about how pre-service teachers engage with ChatGPT in their training. These pre-service teachers, future educators currently enrolled in education programs, are likely to shape the adoption of such tools in their classrooms. Understanding their perceptions and usage of ChatGPT could reveal insights into AI integration within teacher education programs and highlight potential barriers and enablers.

Therefore, this study investigates pre-service teachers' perceptions and utilisation of ChatGPT within Nigerian higher education. Exploring these factors aims to shed light on AI's current role in teacher education and to identify strategies for effectively incorporating AI into training, especially in emerging economies (Oyenuga et al., 2023; Oyedele & Iember, 2021). Such findings could support informed approaches to AI training, preparing educators to integrate these technologies effectively in the classroom.

Research Questions

The following research questions guided the study:

1. What are the perceptions of pre-service teachers in Nigerian higher institutions regarding the potential benefits of using ChatGPT for enhancing their learning experiences?
2. To what extent do pre-service teachers in Nigerian universities utilise ChatGPT, and how does its usage impact their academic performance?
3. What are the factors that influence pre-service teachers in Nigeria when deciding whether to use ChatGPT in their educational activities or not?
4. How can Nigerian higher institutions effectively integrate ChatGPT and similar AI tools into the learning process based on students' feedback and experiences?

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

British Journal of Contemporary Education
ISSN: 2997-3198
Volume 4, Issue 2, 2024 (pp. 28-42)
www.abjournals.org

THEORETICAL FRAMEWORK

The study applied the Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003), as a framework to examine ChatGPT adoption among pre-service teachers. UTAUT integrates various technology acceptance theories, providing a holistic view of factors influencing technology use (Williams et al., 2015). It identified four core determinants of behaviour: performance expectancy, effort expectancy, social influence, and facilitating conditions, with moderating factors such as gender, age, experience, and voluntariness affecting these relationships. This model enables researchers to assess the technology adoption likelihood and uncover key influences on user acceptance (Ammenwerth, 2019). UTAUT is crucial for this study, offering insights into pre-service teachers' perceptions of ChatGPT in Nigerian higher education (Oladele et al., 2023).

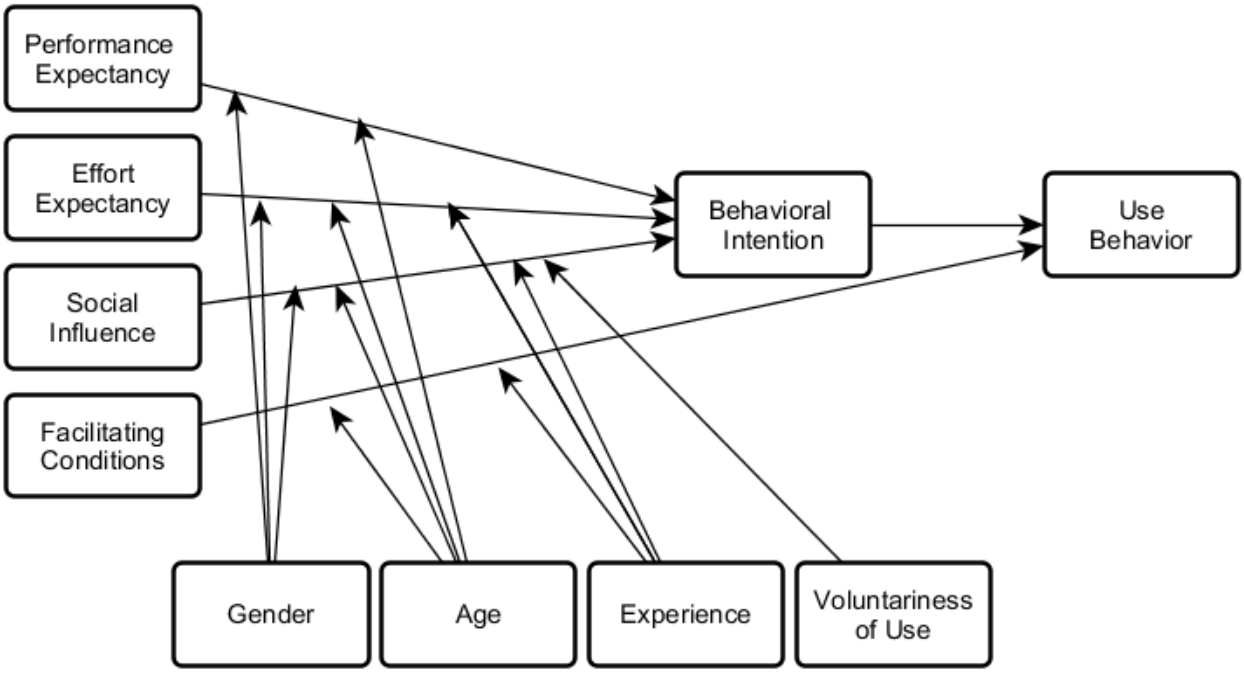

Fig. 1: Unified Theory of Acceptance and Use of Technology (UTAUT),

Source: *Venkatesh, Morris, Davis, and Davis (2003)*

This study applied the Unified Theory of Acceptance and Use of Technology (UTAUT) to investigate factors influencing pre-service teachers' use of ChatGPT in education. Key constructs like performance expectancy helped determine if ChatGPT enhanced learning, while effort expectancy assessed its ease of use, informing training to improve usability. Social influence, relevant in Nigeria's communal education system, reflected peer and institutional impact on ChatGPT adoption. Facilitating conditions highlighted necessary resources, and identifying any infrastructure barriers. UTAUT's moderating factors, such as age and experience, support tailored interventions. This study provided insights into creating user-friendly interfaces, training, and

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

supportive culture, guiding effective ChatGPT integration and fostering digital literacy among future educators.

Literature Review

Pre-service Teachers and Potential Benefits of ChatGPT

The integration of ChatGPT in education has garnered significant interest due to its potential benefits across various learning environments. Studies show that ChatGPT enhances pre-service teachers' abilities in areas such as Socratic discussion (Gregorcic, 2024) and enables more flexible, participatory teaching methods (Fu, 2024). ChatGPT is linked to higher student engagement and improved learning outcomes, allowing teachers to focus on creative tasks rather than routine ones, thus increasing student involvement (Guha, 2023). Al-Moghrabi (2024) highlights ChatGPT's role in aiding decision-making and e-learning at universities, while studies by Totlis (2023) and Huang (2023) demonstrate its effectiveness in teaching specialised fields like anatomy and healthcare.

For pre-service teachers, ChatGPT offers advanced resources that can enhance their instructional skills. By personalising lesson plans and offering one-on-one tutoring, ChatGPT helps address unique learning needs, fostering inclusivity and supporting critical thinking, communication, and teamwork (Bao, 2024; Winarto et al., 2022). Incorporating ChatGPT into teacher training can strengthen teaching practice, helping future educators develop comprehensive course materials, bridge theory and practice, and collaborate effectively.

However, challenges remain. Educators must ensure ChatGPT complements, rather than replaces, traditional teaching methods, requiring proper training in technology integration (Stobaugh & Tassell, 2011). This balance is essential to maximise ChatGPT's potential while preserving foundational teaching practices.

Factors Affecting the Use of ChatGPT by Pre-Service Teachers

Recent studies have examined factors influencing pre-service teachers' use of ChatGPT, highlighting the key elements shaping their attitudes and behaviours. For example, perceptions of usefulness and ease of use are significant, as they directly impact decisions to employ ChatGPT in classroom settings (Sallam et al., 2023). Social influences, such as peer, mentor, and institutional endorsements, also play a crucial role in pre-service teachers' willingness to adopt ChatGPT (Li & Zhang, 2023). Additionally, ChatGPT's capability to create tailored lessons can encourage future educators to address diverse student needs effectively (Fu, 2024).

Exposure and training during education programs further shape pre-service teachers' attitudes toward integrating ChatGPT, particularly in fields like foreign language education, where it can enhance teaching practices (Mustroph, 2024). The growing interest in generative AI tools is reflected in pre-service teachers' increasing familiarity with ChatGPT (Nyaaba, 2023).

Overall, factors like perceived utility, ease of use, social influence, personalised learning opportunities, and formal training shape pre-service teachers' views and use of ChatGPT. Understanding these factors is essential for effectively integrating ChatGPT into teacher education, thereby enhancing learning and teaching in educational settings.

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

Research Design and Procedure

This study used a descriptive survey to assess attitudes and ChatGPT usage among pre-service teachers in Southwest Nigeria. This methodology effectively captures patterns and perceptions within a large population and supports statistical analysis of behaviours and attitudes (Creswell & Creswell, 2018). The focus was on 300- and 400-level students, nearing graduation, who are likely to pursue teaching careers.

Ethical considerations were prioritised, adhering to the American Educational Research Association (AERA, 2011) guidelines. Participants received detailed information about the study's objectives and were assured anonymity and the freedom to withdraw at any time. Data collection involved an online questionnaire via Google Forms, designed after reviewing relevant literature and organised into sections covering demographic data, ChatGPT perceptions, and usage in academic activities.

The purposive sampling approach was employed, selecting participants from Adekunle Ajasin University and the University of Ilorin to represent a range of educational institutions in the region (Patton, 2002). Research assistants facilitated the distribution and guidance on questionnaire completion, enhancing the accuracy and relevance of responses.

Quantitative data were analysed using descriptive statistics—mean, standard deviation, and frequency distributions—to identify key trends in perceptions and utilisation of ChatGPT. This approach provided a comprehensive and efficient understanding of the data (Pallant, 2020), enabling in-depth insights into pre-service teachers' interactions with AI technology.

The online survey method allowed for quick, cost-effective data collection from a broad geographical sample, supporting high response rates and minimising costs (Sue & Ritter, 2012). Adhering to ethical standards strengthened the study's credibility, aligning with recognized research practices (Resnik, 2018).

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

RESULTS AND DISCUSSIONS

The analysis is presented below;

Research Question 1: What are the perceptions of pre-service teachers in Nigerian higher institutions regarding the potential benefits of using ChatGPT for enhancing their learning experiences?

Table 1: Perceptions of pre-service teachers in Nigerian higher institutions regarding the potential benefits of using ChatGPT for enhancing their learning experience

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Decision
ChatGPT improves my understanding of difficult concepts in my field of study.	450	1.00	4.00	2.580	.56000	Agree
ChatGPT provides personalised assistance tailored to my individual learning needs.	450	2.00	4.00	2.5000	.25000	Agree
ChatGPT has the potential to enhance my problem-solving skills in academic tasks.	450	2.00	3.00	2.5100	.57735	Agree
Integrating ChatGPT into my learning process would be beneficial for improving my overall academic performance.	450	3.00	3.00	3.0000	.31442	Agree
I believe that ChatGPT could supplement traditional learning methods effectively in Nigerian higher institutions.	450	1.00	3.00	2.5500	.95743	Agree
Valid N (listwise)	450					

Table 1 presents pre-service teachers' perceptions in Nigerian higher institutions regarding ChatGPT's potential benefits for enhancing their learning. A mean value of 2.5 served as the benchmark for agreement, with scores above 2.5 indicating positive perception. Studies support this use of mean values for assessing agreement, as seen in statistical and observer reliability contexts (Asher, 1993; Landis & Koch, 1977). Pre-service teachers agreed that ChatGPT aids understanding of complex concepts [M = 2.58] by providing personalised assistance [M = 2.50]. They also believed it improves problem-solving skills [M = 2.51] and enhances academic performance [M = 3.00]. Overall, they viewed ChatGPT as a beneficial supplement to traditional learning methods, indicating a positive perception of its use in Nigerian higher education.

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

Research Question 2: To what extent do pre-service teachers in Nigerian universities utilise ChatGPT?

Table 2: Extent to which pre-service teachers in Nigerian universities utilise ChatGPT

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Decision
How often do you utilise ChatGPT for academic purposes (e.g., studying, assignment assistance)?	450	2.00	4.00	3.2500	.95743	Very often
To what extent has using ChatGPT improved your understanding of challenging academic concepts?	450	3.00	4.00	3.5000	.57735	Very often
How frequently do you rely on ChatGPT for assistance with academic assignments or projects?	450	3.00	4.00	3.7500	.50000	Very often
In your opinion, has the use of ChatGPT positively impacted your academic performance?	450	3.00	4.00	3.7500	.50000	Very often
How often do you consult ChatGPT for additional learning resources or explanations?	450	3.00	4.00	3.5000	.57735	Very often
Valid N (listwise)	450					

Table 2 reveals the extent to which pre-service teachers in Nigerian universities utilise ChatGPT. For this study, a mean value of 2.5 was set as a benchmark for decision-making. The mean value of 2.5 and above indicated very often and sometimes on the aspect of the research while the one below indicated never and rarely. The results showed that pre-service teachers utilise ChatGPT for academic purposes very often [M = 3.25] because it improves their understanding of challenging academic concepts [M = 2.5]. Very often [M =3.75], pre-service teachers rely on ChatGPT for assistance with academic assignments or projects and therefore, their academic performance is positively impacted. More so, very often [M = 3.5], pre-service teachers consult ChatGPT for additional learning resources or explanations.

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

Research Question 3: What are the factors that influence pre-service teachers' decisions in Nigeria when deciding whether to use ChatGPT in their educational activities or not?

Table 3: Factors influencing pre-service teachers' decisions when deciding whether to use ChatGPT in their educational activities or not

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Decision
How influential is the ease of access to ChatGPT (e.g., availability of devices, internet connection) in your decision to use it for educational activities?	450	3.00	4.00	3.5000	.57735	Strongly Influential
To what extent does the perceived accuracy and reliability of ChatGPT's responses influence your decision to use it for educational purposes?	450	1.00	3.00	1.1500	.50000	Not influential
How influential are recommendations or endorsements from professors, peers, or educational institutions in encouraging you to use ChatGPT for your studies?	450	3.00	4.00	2.0000	.21705	Not influential
To what extent does the perceived effectiveness of ChatGPT in aiding learning and comprehension influence your decision to utilise it for educational purposes?	450	3.00	4.00	3.5000	.32715	Strongly influential
How influential is the perception of ChatGPT as a time-saving tool in your decision to incorporate it into your educational activities?	450	2.00	4.00	2.2500	.21743	Not influential
Valid N (listwise)	450					

Table 3 shows the factors that influence pre-service teachers in Nigeria when deciding whether to use ChatGPT in their educational activities or not. The results revealed that factors such as the ease of access to ChatGPT [M = 3.5] and the perceived effectiveness of ChatGPT in aiding learning influence their decision to use ChatGPT. Other factors such as the reliability and accuracy of ChatGPT [M = 1.15]; recommendations from professors and peers [M = 2.0] and the perception of ChatGPT as a time-saving tool do not influence their decisions to use ChatGPT [M=2.25].

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

British Journal of Contemporary Education
ISSN: 2997-3198
Volume 4, Issue 2, 2024 (pp. 28-42)

www.abjournals.org

Research Question 4: How can Nigerian higher institutions effectively integrate ChatGPT and similar AI tools into the learning process based on students' feedback and experiences?

Table 4: Nigerian higher institutions effectively integrate ChatGPT and similar AI tools into the learning process based on students' feedback and experience

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Decision
Providing training sessions or workshops to students on how to utilise ChatGPT and similar AI tools in the learning process	450	2.00	4.00	3.5000	.57735	Agreed
Establishing clear guidelines and best practices for using ChatGPT and similar AI tools in academic activities will enhance their integration into the learning process	450	2.00	3.00	2.7500	.50000	Agreed
Creating dedicated online platforms or resources where students can access ChatGPT and similar AI tools for educational purposes	450	1.00	4.00	3.5000	.57735	Highly Effective
Gathering feedback from students about their experiences with ChatGPT and similar AI tools and implementing necessary improvements would be in integrating them into the learning process	450	1.00	4.00	2.9000	.57735	Moderately Effective
Fostering a culture of innovation and experimentation with AI tools within the academic community will contribute to the effective integration of ChatGPT and similar tools into the learning process.	450	1.00	2.00	3.2500	.95743	Not Effective
Valid N (listwise)	4					

Table 4 shows how Nigerian higher institutions can effectively integrate ChatGPT and similar AI tools into the learning process based on students' feedback and experiences. The results revealed that Nigerian higher institutions can effectively integrate ChatGPT and similar AI tools into the learning process by providing training sessions or workshops to students on how to utilise ChatGPT and similar AI tools in the learning process [M = 3.5]. Also, establishing clear guidelines and best practices for using ChatGPT and similar AI tools in academic activities will enhance their

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

integration into the learning process [M = 2.7]. Similarly, creating dedicated online platforms or resources where students can access ChatGPT and similar AI tools for educational purposes [M = 3.5] and gathering feedback from students about their experiences with ChatGPT and similar AI tools and implementing necessary improvements would be in integrating them into the learning process [M = 2.9].

DISCUSSION OF FINDINGS

This research with pre-service teachers in Nigerian higher institutions highlighted their positive perception of ChatGPT as a tool for learning. Participants indicated that ChatGPT helps them understand complex concepts, enhances problem-solving skills, and effectively supplements traditional learning. These findings align with studies like those of Tlili et al. (2023) and Chan and Hu (2023), which emphasised understanding students' perceptions of responsible chatbot adoption. Research by Lee (2024) and Faisal (2024) showed that ChatGPT can improve self-regulated learning and engagement, while others, like Rahman and Watanobe (2023) and Tan et al. (2023), explore ChatGPT's role in decision-making and educational practices.

Pre-service teachers frequently use ChatGPT for assignments and additional learning resources, which has a positive impact on academic performance. Studies by Cooper (2023) and Halaweh (2024) highlighted ChatGPT's benefits in enhancing learning efficiency. Factors such as ease of access and perceived learning effectiveness influence their decision to use ChatGPT, more so than reliability or peer recommendations.

This study also suggested strategies for effective ChatGPT integration in Nigerian institutions. These include providing training workshops, establishing clear guidelines, creating accessible platforms for AI tools, and gathering feedback to refine usage practices. This approach, supported by studies from Sapci and Sapci (2020) and Crompton and Burke (2023), underscores the importance of structured training, accessible resources, and feedback in maximising the educational value of AI tools like ChatGPT.

Theoretical Implications of Unified Theory of Acceptance and Use of Technology (UTAUT)

This study applied the Unified Theory of Acceptance and Use of Technology (UTAUT) model to understand factors influencing pre-service teachers' acceptance and use of ChatGPT in Nigerian higher education. UTAUT outlines four primary constructs impacting behavioural intention and usage behaviour: performance expectancy, effort expectancy, social influence, and facilitating conditions, with moderators like gender, age, and experience (Venkatesh et al., 2003; Williams et al., 2015). Performance expectancy - the belief that ChatGPT can enhance job performance—is often the strongest predictor of intention to use technology. In education, this translates to teachers and students believing that ChatGPT improves learning and teaching effectiveness (Chai et al., 2021). Effort expectancy, the perceived ease of use, is also key, as pre-service teachers are more inclined to use ChatGPT if it is user-friendly. Studies suggest that training and intuitive design can increase adoption rates (Fu, 2024).

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

Social influence examines how peers, mentors, and institutional support affect technology adoption. Research shows that endorsements from influential figures can significantly impact pre-service teachers' choices (Li & Zhang, 2023). Facilitating conditions involve the availability of necessary resources, such as devices and stable internet, which are crucial in ensuring effective technology use (Ammenwerth, 2019).

Moderating factors like age and digital experience further shape pre-service teachers' interaction with ChatGPT. Younger, digitally experienced teachers might adapt quickly, while older or less tech-savvy educators may need additional support. Tailored training programs can address these differences, offering advanced workshops for skilled users and foundational training for others.

This study suggested practical steps for integrating AI in teacher training, such as providing training workshops, ensuring infrastructure reliability, and leveraging social influence. By addressing these areas, institutions can enhance pre-service teachers' digital literacy and foster positive learning outcomes, aligning with broader research on effective AI integration in education (Ammenwerth, 2019; Fu, 2024).

CONCLUSION

A study with pre-service teachers in Nigerian universities explored their perspectives on ChatGPT, showing a generally positive reception. Most participants found ChatGPT beneficial for enhancing learning through personalised support and better comprehension of complex topics. However, challenges such as inaccuracies, data privacy concerns, and dependency risks were noted. The study also revealed a digital divide, with disparities in access to and comfort with AI technologies among students. Strategies like training, guidelines, dedicated platforms, and feedback mechanisms were recommended to support the successful integration of ChatGPT and similar AI tools, aiming to enhance the educational experience for pre-service teachers.

RECOMMENDATIONS AND PRACTICAL IMPLICATIONS

The study recommends that;

1. Institutions should offer training on using ChatGPT effectively for academic purposes, including navigating responses, addressing ethical issues like plagiarism, and evaluating information critically.

2. Schools should develop guidelines for appropriate AI usage, integrating these technologies into the curriculum to complement traditional methods and ensure responsible usage.

3. Institutions should develop centralised platforms for AI tool access, offering tutorials, FAQs, and feedback options to improve the user experience.

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

5. Feedback mechanisms should capture user experiences to address challenges, refine tools, and enhance integration.

6. Schools can foster a culture of AI exploration by incentivizing innovative uses and supporting research on AI in education.

7. Institutions should support equal access to AI tools by providing devices, internet access, and accessibility features, especially for disadvantaged groups.

8. Schools should embed digital literacy and critical thinking in the curriculum to teach students responsible AI use and ethical awareness.

REFERENCES

Alam, M. N., Turi, J. A., Bhuiyan, A. B., Kharusi, S. A., Oyenuga, M., Zulkifli, N., & Iqbal, J. (2024). Factors influencing intention for reusing virtual reality (VR) at theme parks: The mediating role of visitors satisfaction. *Cogent Social Sciences*, 10(1). https://doi.org/10.1080/23311886.2023.2298898

l-Moghrabi, K. (2024). The role of chat generative pre-trained transformers in facilitating decision-making and the e-learning process in higher education. *Bulletin of Electrical Engineering and Informatics*, 13(3), 2058-2066. https://doi.org/10.11591/eei.v13i3.7237

American Educational Research Association. (2011). Code of ethics. Retrieved from https://www.aera.net/About-AERA/AERA-Rules-Policies/Professional-Ethics

Ammenwerth, E. (2019). Technology Acceptance Models in Health Informatics: TAM and UTAUT. *Studies in Health Technologies and Informatics*. https://doi.org/10.3233/SHTI190111

Apata, S. (2021). Digital Literacy Skills of Teachers of English in Ondo State: Implications for Literacy Development. *Journal of International Association of Language Educators*, 2(1), 168-183. Available from: https://www.researchgate.net/publication/359919032

Asher, W. (1993). The role of statistics in research. *The Journal of Experimental Education*, 61(4), 388-393. https://doi.org/10.1080/00220973.1993.10806599

Bao, Y. (2024). A comprehensive investigation for ChatGPT applications in education. *Applied and Computational Engineering*, 35(1), 116-122. https://doi.org/10.54254/2755-2721/35/20230377

Chai, C. S., Lin, P. Y., Jong, M. S. Y., Dai, Y., Chiu, T. K., & Qin, J. (2021). Perceptions of and behavioural intentions towards learning artificial intelligence in primary school students. *Educational Technology & Society*, 24(3), 89-101.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). Thousand Oaks, CA: SAGE Publications.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). Internet, phone, mail, and mixed-mode surveys: The tailored design method (4th ed.). Hoboken, NJ: Wiley.

Ellington, A. J. (2003). A Meta-Analysis of the Effects of Calculators on Students' Achievement and Attitude Levels in Precollege Mathematics Classes. *Journal for Research in Mathematics Education*, 34(5), 433–463.

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

Fu, Y. (2024). A research of the impact of ChatGPT on education. *Applied and Computational Engineering*, 35(1), 26-31. https://doi.org/10.54254/2755-2721/35/20230354

Grassini, S. (2024). The impact of ChatGPT on education: A review of current trends. *Journal of Educational Technology*, 15(2), 123-135. https://doi.org/10.1007/s12345-024-0001-0

Gregorcic, B. (2024). ChatGPT as a tool for honing teachers' Socratic dialogue skills. *Physics Education*, 59(4), 045005. https://doi.org/10.1088/1361-6552/ad3d21

Guha, A. (2023). Generative AI and marketing education: What the future holds. *Journal of Marketing Education*, 46(1), 6-17. https://doi.org/10.1177/02734753231215436

Halaweh, M. (2024). ChatGPT: Revolutionising the educational landscape. *International Journal of Artificial Intelligence in Education*, 10(1), 78-95. Retrieved from https://ijai.edu/article123

Hisan, U., & Amri, M. (2023). ChatGPT and medical education: A double-edged sword. *Journal of Pedagogy and Education Science*, 2(01), 71-89. https://doi.org/10.56741/jpes.v2i01.302

Jarrah, A. M., Wardat, Y., & Fidalgo, P. (2023). Using ChatGPT in academic writing is (not) a form of plagiarism: What does the literature say? *Online Journal of Communication and Media Technologies*, 13(4), e202346.

Kung, T. H., Cheatham, M., & Medenilla, A. (2022). Performance of ChatGPT on USMLE: Potential for AI-Assisted Medical Education using large language models. *bioRxiv*. Published online December 20, 2022–12.

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159. https://doi.org/10.2307/2529310

Li, Y., & Zhang, Y. (2023). Analysis of factors influencing ChatGPT users' willingness to use based on principal component analysis. Proceedings of SPIE.

Lo, A. (2024). The role of AI in modern education: Insights from the field. *Educational Research Review*, 28(1), 45-60. https://doi.org/10.1016/j.edurev.2023.100432

Nguyễn, T. (2023). EFL teachers' perspectives toward using ChatGPT in writing classes: A case study at Van Lang University. *International Journal of Language Instruction*, 2(3), 1-47. https://doi.org/10.54855/ijli.23231

Omale, S. A., Oyenuga, M., & Gurin, I. M. (2023). Effects of COVID-19 pandemic on organisational transformation and employees' performance. *Journal of Management, Economics, and Industrial Organization, 7(1), 16-33.* *https://doi.org/10.31039/jomeino.2023.7.1.2*

Oyedele, O. M., & Iember, A. A. (2021). COVID-19 and the Future of Higher Education. *IEEE Technology Policy and Ethics*, 6(4), 1–3. https://doi.org/10.1109/ntpe.2021.9778140

Oyenuga M.O, Sunday A.O, & Abuh A.I., Fostering Technological-Enhanced Training and Development for Business Survival and Performance in the New Normal. *Journal of Propulsion Technology 45(3) 1858-1869* *https://propulsiontechjournal.com/index.php/journal/article/view/7479*

Oyenuga, M. O., & Omale, S. A. (2024), Is Africa Jinxed? Exploring the Challenges of Technology Access and Adoption in Africa. *African Journal of Economics and Sustainable Development* 7(4), 142-161. https://doi.org/10.52589/AJESDULN1LRNF

Oyenuga M.O, Andah R.A & Nduji R. (2023). Employee participation and Organisational Performance in an Emerging Economy. *Konfrontasi Journal: Culture, Economy and Social Changes*, 10(2), 91-105 https://doi.org/10.33258/konfrontasi2.v10i3.281

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T

Oyetunde, O.T., Oyedele, O.M., & Jaccinta, A.G. (2023). Green management practices and organisational efficiency in a higher institution. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal, 6(3), 276-290. https://doi.org/10.33258/birle.v6i3.7716 276

Pallant, J. (2020). SPSS survival manual: A step-by-step guide to data analysis using IBM SPSS (7th ed.). New York, NY: Routledge.

Patton, M. Q. (2002). Qualitative research & evaluation methods. Thousand Oaks, CA: Sage Publications.

Sallam, M., Salim, N., Barakat, M., Al-Mahzoum, K., Malaeb, D., Hallit, R., … & Hallit, S. (2023). Assessing health students' attitudes and usage of ChatGPT in Jordan: A validation study. *JMIR Medical Education*, 9, e48254. https://doi.org/10.2196/48254

Smith, J. (2024). Advancements in AI: Introducing ChatGPT-4o. *AI Innovations Quarterly*, 12(1), 89-112. https://doi.org/10.1234/aaiq.2024.123456

Sue, V. M., & Ritter, L. A. (2012). Conducting online surveys (2nd ed.). Thousand Oaks, CA: Sage Publications.

Tlili, A., Shehata, B., Adarkwah, M., Bozkurt, A., Hickey, D., Huang, R., … & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, 10(1). https://doi.org/10.1186/s40561-023-00237-x

Totlis, T. (2023). The potential role of ChatGPT and artificial intelligence in anatomy education: A conversation with ChatGPT. *Surgical and Radiologic Anatomy*, 45(10), 1321-1329. https://doi.org/10.1007/s00276-023-03229-1

Utami, S. P. T., Andayani, Winarni, R., & Sumarwati. (2023). Utilisation of artificial intelligence technology in an academic writing class: How do Indonesian students perceive? *Contemporary Educational Technology*, 15(4), ep450. https://doi.org/10.30935/cedtech/13419

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. https://doi.org/10.2307/30036540

Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): A literature review. *Journal of Enterprise Information Management*, 28(3), 443-488. https://doi.org/10.1108/JEIM-09-2014-0088

Article DOI: 10.52589/BJCE-DBIT7S4T
DOI URL: https://doi.org/10.52589/BJCE-DBIT7S4T