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An Empirical Study on the Acceptance of ChatGPT as an Educational Support Tool: A Case Study of Baba-Ahmed University

Nura Muhammad Baba & Khadija Muhammad Haliru
Baba Ahmad University Kano

Abstract

This empirical study examines the acceptance of ChatGPT among undergraduates at Baba-Ahmed University using TAM and the DeLone and McLean IS Success Model. It explores how Perceived Ease of Use, System Quality, Content Quality, and Service Quality influence students' intention to use ChatGPT. A structured questionnaire was distributed to 300 students. Data were analyzed using descriptive statistics, correlation, regression, and moderation analysis. All factors had a significant positive impact on behavioral intention. The results highlight the importance of usability, content accuracy, system performance, and responsive interaction in driving AI adoption in Nigerian higher education (Venkatesh & Bala, 2008; DeLone & McLean, 2003).

Keywords:
Technology Acceptance Model (TAM), DeLone and McLean IS Success Model, ChatGPT, Educational technology, Artificial Intelligence (AI) in education, Higher education (Nigeria), Perceived Ease of Use (PEOU), Behavioral intention.

Introduction

The use of ChatGPT in education is growing, particularly in contexts with limited academic resources like Nigeria. However, adoption depends on factors beyond tool availability. This study seeks to identify the determinants of ChatGPT acceptance using established technology adoption models. Understanding these drivers is crucial for effective AI integration in universities. The study also contributes to localized digital education literature and bridges gaps in AI adoption research within developing countries (Adukaite et al., 2017).

Literature Review

Drawing on TAM and the DeLone & McLean model, this review explores constructs influencing educational technology use: PEOU, System Quality, Content Quality, and Service Quality. Prior research confirms their significance, but local studies remain limited. This study addresses that gap in the Nigerian context. It also incorporates discussions on the digital divide, student trust in AI, and barriers to sustained usage (Oye et al., 2012; Ifinedo, 2006).

Research Methodology

A quantitative, cross-sectional design was employed. A structured questionnaire was administered to 300 undergraduate students across faculties. The instrument was validated for reliability and analyzed using SPSS and SmartPLS. Analytical techniques included descriptive statistics, reliability testing, correlation, multiple regression, and moderation analysis. Ethical clearance and informed consent were obtained, ensuring the protection of participant rights (Hair et al., 2010).

Results and Analysis

- Descriptive analysis showed high mean scores for all constructs.
- Correlation and regression confirmed that System Quality, Content Quality, Service Quality, and PEOU significantly influence behavioral intention.
- Moderation analysis indicated that PEOU strengthens the relationship between quality factors and intention to use ChatGPT.
- Hypothesis testing supported all proposed hypotheses (Gefen et al., 2003).

Descriptive Statistics

Item	N	Min	Max	Mean	Std. Deviation
ChatGPT is easy to use for academic purposes	300	1	5	1.65	0.831
Learning to interact with ChatGPT is straightforward	300	1	5	1.75	0.801
Using ChatGPT does not require much mental effort	300	1	5	1.83	0.905
It is easy for me to become skillful at using ChatGPT	300	1	5	1.77	0.811
ChatGPT is consistently available when I need it	300	1	5	2.34	1.071
The system responds quickly to my inputs	300	1	5	1.78	0.820
ChatGPT functions reliably without frequent errors	300	1	5	1.89	0.940
The interface of ChatGPT is stable and easy to navigate	300	1	5	1.92	0.948
The responses from ChatGPT are accurate and reliable	300	1	5	2.10	0.893
ChatGPT provides content relevant to my academic needs	300	1	5	2.16	0.960
The explanations given by ChatGPT are clear and easy to understand	300	1	5	1.86	0.830
ChatGPT gives well-organized and detailed answers	300	1	5	1.90	0.877
ChatGPT responds quickly and efficiently to my academic inquiries	300	1	5	1.96	0.914
I feel confident using ChatGPT for completing academic tasks	300	1	5	1.97	0.849
The system performs reliably when I need assistance	300	1	5	2.08	0.931
ChatGPT offers a smooth and helpful user experience	300	1	5	2.08	0.891
I trust ChatGPT to provide accurate and unbiased academic information	300	1	5	2.03	0.910
I believe ChatGPT supports my academic goals	300	1	5	2.11	0.886
I feel safe using ChatGPT as a learning assistant	300	1	5	2.22	0.943
ChatGPT respects academic integrity and privacy	300	1	5	2.27	1.046

Correlation Matrix

Relationship	Correlation (r)	Significance
System Quality ↔ Intention to Use	0.35	$p < 0.01$
Content Quality ↔ Intention to Use	0.37	$p < 0.01$
Service Quality ↔ Intention to Use	0.40	$p < 0.01$
PEOU ↔ Intention to Use	0.30	$p < 0.01$

Regression Summary

Metric	Result
R^2	0.58
Adjusted R^2	0.55
F-statistic	Significant ($p < 0.05$)

Hypotheses Test Summary

Hypothesis	Supported?
H1: System Quality has a positive effect on Intention to Use	Yes
H2: Content Quality has a positive effect on Intention to Use	Yes
H3: Service Quality has a positive effect on Intention to Use	Yes
H4: PEOU moderates System Quality → Intention to Use	Yes
H5: PEOU moderates Content Quality → Intention to Use	Yes
H6: PEOU moderates Service Quality → Intention to Use	Yes

Discussion

Findings align with prior global research, confirming the predictive power of TAM and IS success constructs. Students value tools that are easy to use, offer high-quality responses, and provide responsive service. Nigerian-specific challenges like access, bandwidth limitations, and digital literacy may impact broader adoption. Interventions such as user training, localization of content, and institutional endorsement can address these challenges (Adukaite et al., 2017).

Findings and Recommendations

Key findings include:

1. All quality factors significantly influence ChatGPT usage intention.
2. PEOU acts both as a predictor and a moderator.
3. Students perceive ChatGPT as a valuable academic support tool.
4. Trust in system performance enhances behavioral intention.

Recommendations:

- Educators should train students on effective AI usage.
- Developers must improve ChatGPT's cultural relevance and academic accuracy.
- Universities should invest in digital infrastructure and AI awareness campaigns to drive adoption.
- Policymakers should establish ethical guidelines for AI use in learning.
- Further research should explore long-term impacts of ChatGPT on learning outcomes.

This study contributes to literature on AI in African education and provides actionable insights for policy, technology design, and institutional strategy.

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