

Teachers' Attitude Towards the Use of ChatGPT for Educational Assessment

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Abstract

The rapid integration of AI tools like ChatGPT in education raises questions about their potential to enhance assessment methods. However, researchers have not fully explored teachers' attitudes toward adopting ChatGPT for educational assessment, especially regarding how gender, academic discipline, and years of experience influence their attitudes toward using these technologies. The study examined the effect of gender, academic discipline, and years of experience on teachers' attitudes toward using ChatGPT for educational assessment. The study employed a descriptive survey research design in administering an online survey to teachers (n = 102). Data collected were analyzed using linear regression. Results indicated that gender ($\beta = -.536, p = .002$) and academic discipline ($\beta = .349, p = .014$) significantly influenced attitudes, with male teachers and those in the Sciences showing more favourable attitudes toward ChatGPT. However, years of experience had no significant effect on attitude ($\beta = .035, p = .616$). Overall, the model was statistically significant ($F(3, 98) = 6.450, p < 0.05$), highlighting the importance of gender and discipline in shaping attitudes toward the use of ChatGPT for educational assessment. The study concluded that gender and academic discipline are key predictors. Other unexplored factors might influence teachers' attitudes toward adopting ChatGPT for educational assessment. Further research may consider exploring additional factors like institutional support, training, and perceived usefulness of AI tools to gain a comprehensive understanding.

Keywords: Teachers' attitude, ChatGPT, Educational Assessment, Linear Regression, Quantitative Approach

INTRODUCTION

Education is aimed to equip students with the knowledge and skills necessary to contribute effectively to national development. Through diverse academic programs, institutions allow students to specialize in various fields and develop expertise. Alongside this, education nurtures essential skills such as critical thinking, problem-solving, and communication, preparing students to participate actively in the workforce and society. These skills are honed through regular assessments. Assessment is a crucial component of education, measuring students' understanding and mastery of subjects. It evaluates academic performance and influences educational trajectories and outcomes (Sabitova, 2023; Sievertsen, 2023). Also, it serves as a driving force in the teaching process, enabling teachers to adjust their methods based on student performance (Lebona & Ayanwale, 2024; Ngoc, 2023). Educational assessments encompass various tools and techniques to evaluate learning progress, performance, and skill acquisition across different academic and professional contexts. These assessments identify students' strengths and weaknesses before instruction begins, allowing for tailored educational strategies (Din et al., 2023). Comprehensive and rigorous assessment procedures are necessary to gauge the depth and breadth of student learning, ensuring that students meet educational goals and expectations.

Recently, technology has significantly transformed education by enhancing learning opportunities, fostering collaboration, and personalizing learning experiences (Opesemowo & Ndlovu, 2024; Verma et al., 2024). Integrating digital tools has revolutionized traditional teaching methods, enabling innovative strategies such as flipped classrooms and blended learning, which cater to diverse learning styles (Hutasuhut & Harahap, 2024). Technological

advancements have made educational assessments more efficient, streamlining the process of evaluating students. Among these advancements is ChatGPT, a powerful AI tool that uses natural language processing to engage in meaningful dialogue, provide detailed information, and answer complex questions. The development of ChatGPT stems from a series of generative pre-trained transformer models (GPT-1 to GPT-4), which have demonstrated exceptional capabilities in language understanding and generation tasks, such as machine translation, summarization, and question answering (Wu et al., 2023). This performance is primarily credited to the transformer architecture and vast training datasets, which allow these models to produce text that closely resembles human writing. Launched in November 2022, ChatGPT, powered by GPT-3, is a chatbot designed to generate responses to user inputs with remarkable accuracy. As a form of deep learning artificial intelligence (AI), ChatGPT processes and generates natural language text, enabling it to engage in complex discussions and solve intricate problems through advanced information analysis and synthesis (Susnjak, 2022).

Through continuous learning and interaction, ChatGPT can adapt to different conversational styles and topics, making it a highly versatile tool for a wide range of applications (Adeshola & Adepoju, 2023; Bansal et al., 2024; Javaid et al., 2023; Su & Sheng, 2024). Its ability to understand context and generate coherent responses has transformed how learners interact with AI technology, paving the way for future more sophisticated and human-like conversational agents. As more advancements in AI technology are made, the potential for ChatGPT and similar models to reform industries such as customer service, education, and healthcare is boundless (Peters et al., 2024). By seamlessly integrating into various platforms and systems, studies (de Bem Machado et al., 2024; Opesemowo et al., 2024; Smith et al., 2023) have revealed that ChatGPT has the potential to enhance educational assessment and optimize learning processes in ways that were previously unimaginable. By utilizing ChatGPT in educational assessment, educators can gain valuable insights into student performance, tailor personalized learning experiences, and streamline the assessment process. This can lead to more efficient and effective teaching methods, ultimately improving student outcomes and fostering a more engaging and dynamic learning environment. ChatGPT can grade assignments quickly and consistently, demonstrating a moderate correlation with human graders, which suggests its potential as a supportive tool in educational settings (Damaševičius, 2024). By incorporating AI technology like ChatGPT into educational assessment, educators can change how they track and analyze student progress. This advanced tool can provide real-time feedback, identify areas where students may struggle, and suggest personalized resources to help them improve.

Additionally, by harnessing the power of ChatGPT, educators can create a more personalized and practical learning experience for their students (Wardat et al., 2023). This AI technology can instantly generate interactive lessons, answer student queries, and even facilitate virtual classroom discussions (Opesemowo & Adekomaya, 2024). With ChatGPT, educators can easily tailor their teaching approach to meet the individual needs of each student, making learning more engaging and impactful. The integration of ChatGPT in education can revolutionize the traditional classroom setting, making it more dynamic, interactive, and student-centered. The upsurge of AI-generated answers may prompt a reevaluation of conventional assessment methods. However, various research has been conducted on ChatGPT (Abdaljaleel et al., 2024; Almogren et al., 2024; Elbanna & Armstrong, 2024; Kolade et al., 2024; Kooli & Yusuf, 2024; Sumbal et al., 2024), but none have explored teachers' attitudes towards the use of ChatGPT for educational assessment to the knowledge of the researcher.

RESEARCH METHODS

The study adopted the non-experimental design of the descriptive survey type and correlation studies to investigate teachers' attitudes towards using ChatGPT for educational assessment in Nigeria. This quantitative study administered an online survey to 102 teachers through convenient sampling techniques. The participants were from diverse backgrounds in sex, academic discipline, and years of experience. However, the online survey included questions focusing on teachers' familiarity with ChatGPT, their current practices in educational assessment, and their willingness to incorporate ChatGPT into their assessment methods. The data collected was analyzed using statistical techniques to determine the relationship between teachers' attitudes towards ChatGPT and their demographic characteristics. The study instrument was the Teachers' Use of ChatGPT for Educational Assessment Questionnaire (TUCEAQ), developed based on a literature review and validated through expert feedback and pilot testing. Data analysis was conducted using SPSS version 29, applying a simple linear regression to examine the effect across groups, including sex, discipline, and years of experience. The instrument was well scrutinized for reliability and validity. The study assessed teachers' attitudes towards using ChatGPT's educational assessment. Results were based on teachers' responses, with scoring patterns to reflect their attitudes and statistical methods applied to determine significant differences between the groups.

RESULT AND DISCUSSION

The researchers conducted a preliminary investigation to verify assumptions before the primary analysis. They tested the normality and homogeneity of variance of teachers' responses. Shapiro Wilk's test showed no significant effect, with kurtosis and skewness values within the acceptable range of -2.58 to +2.58. Levene's test for homogeneity also yielded non-significant results ($p > 0.05$), indicating no statistical differences among respondents based on sex, discipline, and years of experience. These tests ensured that the dataset met the necessary criteria for normality and homogeneity, which is crucial for maintaining the validity and reliability of the results.

Further preliminary analysis confirmed the construct validity and reliability of the measurement model, with nine items retained and eight excluded. Outer loadings ranged from 0.64 to 0.91, and composite reliability (CR) and Average Variance Extracted (AVE) surpassed the recommended thresholds. The "Attitude" construct had a CR of 0.93 and an AVE of 0.70. These findings confirmed that the Instrument's constructs achieved satisfactory convergent validity and reliability, allowing the analysis phase to proceed using ANOVA to assess teachers' use of ChatGPT for educational assessment. The researcher conducted a descriptive analysis of teachers' demographic variables, examining attitudes and perceptions. Independent sample t-tests and one-way ANOVA were used to explore differences in variables such as sex, discipline, and years of experience. Male teachers demonstrated higher attitudes ($M = 2.10$, $SD = 0.84$) than females ($M = 1.54$, $SD = 0.76$). Variations in attitudes were observed across academic disciplines, with the Humanities showing consistent mean values.

Table 1: Descriptive statistics for both attitude and perception of teachers

Variables		N	\bar{x}	SD
Gender	Male	63	2.10	0.84
	Female	39	1.54	0.76

Discipline	Arts	4	1.00	0.00
	Humanities	48	1.75	0.84
	Sciences	50	2.08	0.83
Experience	0 – 5 years	32	1.59	0.67
	>5- 9 years	22	2.32	0.89
	>9 – 13 years	24	2.13	0.80
	>13 – 30 years	24	1.63	0.88

Note: N = Sample size; \bar{x} = Mean; SD = Standard Deviation

The descriptive statistics in Table 1 provide an overview of teachers' attitudes towards ChatGPT, broken down by gender, discipline, and years of experience. Male teachers reported a higher mean attitude ($\bar{x} = 2.10$, $SD = 0.84$) compared to female ($\bar{x} = 1.54$, $SD = 0.76$) counterparts. Across disciplines, the highest mean attitude was observed in Sciences ($\bar{x} = 2.08$, $SD = 0.83$), followed by Humanities ($\bar{x} = 1.75$, $SD = 0.84$), with Arts showing the lowest mean ($\bar{x} = 1.00$, $SD = 0.00$).

When considering years of experience, teachers with more than 5-9 years had the highest mean attitude ($\bar{x} = 2.32$, $SD = 0.89$), while those with 0-5 years of experience reported a lower mean attitude ($\bar{x} = 1.59$, $SD = 0.67$). teachers with 9-13 years of experience had a mean attitude of ($\bar{x} = 2.13$, $SD = 0.80$), and those with more than 13-30 years showed a mean of ($\bar{x} = 1.63$, $SD = 0.88$). These statistics suggest variations in attitudes across demographic groups, with experience and discipline playing significant roles in shaping teachers' attitudes.

Hypotheses

The study explores the effect of gender, academic discipline, and years of experience on attitudes towards using ChatGPT for educational assessment. The following hypotheses were proposed.

H1: There is a significantly positive impact of gender on attitude

H2: There is a significantly positive impact of academic discipline on attitude

H3: There is a significantly positive impact of years of experience on attitude

Table 2: Effect of gender, academic discipline, and years of experience on teachers' attitude

Hypotheses	Regression Weights	β	t	p-value	Results
H1	G → TA	-.536	-3.248	.002*	Supported
H2	AD → TA	.349	2.495	.014*	Supported
H3	YrE → TA	.035	.503	.616	Not supported
R	.165				
F (3, 98)	6.450				

Note. * $p < 0.05$. G.: Gender, AD.: Academic Discipline, YrE.: Years of Experience, TA. Teachers' Attitude

The dependent variable (attitude) was regressed when predicting variables of gender, academic status, and years of experience. The independent variable predicts teachers' attitudes towards using ChatGPT $F(3, 98) = 6.450$, $p < 0.01$, indicating that the three factors under study significantly impact teachers' attitudes. However, the $R^2 = .165$ depicts that the model explains 16.5% of the variance in the teachers' attitudes.

In addition, coefficients were further accessed to ascertain the influence of each factor on the criterion variable (teachers' attitudes). H1 evaluates whether gender is significant and positively affects teachers' attitudes. The result demonstrated that gender significantly and negatively impacts teachers' attitudes towards using ChatGPT for educational assessment ($\beta = -.536$, $t = -3.248$, $p = .002$). Hence, H1 was supported. H2 evaluates whether academic discipline

has a significantly positive impact on teachers' attitudes. The results show that academic discipline significantly impacts teachers' attitudes ($\beta = .349$, $t = 2.495$, $p = .014$). Consequently, H2 was supported. H3 evaluates whether years of experience have a significantly positive impact on teachers' attitudes. The results unveil that the year of experience significantly impacts teachers' attitudes ($\beta = .035$, $t = .503$, $p = .616$). Hence, H3 was not supported.

While the concept of AI has been around for decades, recent advancements in computing power and data availability have accelerated its development and applications. AI is used in various industries, including healthcare, finance, transportation, entertainment, and education. The increasing use of AI tools like ChatGPT in education raises essential considerations for assessment methods. Thus, involving teachers is crucial to effectively integrating AI tools into classroom assessment. Understanding teachers' attitudes toward these tools is necessary for their acceptance and effective implementation. However, studies that specifically investigated the dimensions of the potential of ChatGPT were non-existent. This study contributes to the literature on teachers' attitudes towards using ChatGPT for educational assessment.

The regression analysis demonstrated a statistically significant negative effect of gender on teachers' attitudes ($\beta = -0.536$, $t = -3.248$, $p = 0.002$). This result indicates that male teachers have more favourable attitudes towards using ChatGPT in educational assessment than female teachers. The negative β coefficient suggests that as gender moves from male to female, attitudes become less optimistic. This could be attributed to gender-based differences in technology adoption, where male teachers might feel more comfortable or familiar with integrating technological tools like ChatGPT into their teaching practices. These findings align with prior research highlighting gender disparities in technology acceptance, with men often exhibiting higher levels of technology confidence and usage than women. Also, Bouzar et al. (2024) revealed that university student males reported longer usage times of ChatGPT, indicating a more favourable engagement with the technology. Contrary, these findings oppose the result of Permata et al. (2024), who disclosed that social influence and performance expectancy were more potent motivators for male students in adopting ChatGPT, suggesting a broader trend of male preference for technology in educational contexts.

In terms of the academic discipline, the study uncovered that teachers in specific disciplines, particularly those in Sciences, have a more positive attitude toward using ChatGPT for educational purposes than those in other fields. These findings corroborated Taani and Alabidi (2024), who submitted that science teachers recognize ChatGPT's potential to enhance student engagement and understanding, particularly in mathematics and science contexts. Teachers in the Sciences may be more inclined to adopt AI tools due to the technological nature of their discipline, which often involves data-driven approaches and innovative methods (Ahmad et al., 2024). In contrast, Kim and Kim (2022) posit that teachers from the Arts and Humanities may be more hesitant or skeptical, possibly due to concerns about the appropriateness of AI for subjective or qualitative assessments common in these fields. Despite these reservations, some educators in the Arts and Humanities are also beginning to explore using AI tools in their classrooms (Walter, 2024). Teachers see the potential benefits of using AI to analyze textual data, assist with research, or even create art. As AI technology continues to advance and integrate into various disciplines, it is likely that more educators will be open to incorporating AI tools into their teaching practices, regardless of their field of study.

Interestingly, years of experience had no significant effect on teachers' attitudes towards ChatGPT ($\beta = 0.035$, $t = 0.503$, $p = 0.616$). This finding suggests that teachers' attitudes toward AI use for assessment do not significantly change based on their teaching experience. Whether new teachers or seasoned professionals, their willingness to incorporate AI tools like ChatGPT remains largely unaffected. This could imply that AI adoption's potential benefits and challenges are universally perceived across different experience levels, with no significant bias towards

early-career or veteran educators. It also indicates that factors other than experience, such as training, support, and personal beliefs, may influence teachers' attitudes towards AI use in assessment (Al Darayseh, 2023; Kim & Lee, 2024; Shahid et al., 2024). Hojeij et al. (2024) noted that in-service teachers recognize ChatGPT's potential to enhance personalized learning and streamline educational material creation, aligning with modern pedagogical approaches.

CONCLUSION

In the study, it was concluded that gender and academic discipline have a significant effect on teachers' attitudes towards ChatGPT for educational assessments. It is observed that male teachers and those in the sciences strongly support using AI tools like ChatGPT in assessment practices. Years of experience do not significantly impact their attitudes toward integrating AI tools like ChatGPT into assessment practices. As a result of these findings, technological familiarity and discipline-specific requirements influence teachers' attitudes toward AI adoption. However, bridging the gap across gender and disciplines may require more comprehensive training and support, ensuring that AI is effectively integrated into educational assessments across gender and disciplines. However, future research should delve deeper into the reasons behind the gender and discipline-based differences in attitudes towards AI integration in assessment practices.

Additionally, exploring the impact of various training and support programs on teachers' willingness to adopt AI tools could provide valuable insights for educational institutions looking to enhance their assessment methods. Furthermore, considering the potential ethical implications of AI in education and addressing any concerns teachers may have about privacy and bias could also be crucial in promoting the successful implementation of AI technologies in the classroom. Ultimately, a collaborative effort between educators, policymakers, and technology developers will be essential in harnessing the full potential of AI in educational assessments.

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