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Basic School Teachers' Behavioural Intentions to Use ChatGPT: A Unified Theory of Acceptance and Use of Technology (UTAUT) Perspective

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Abstract

Artificial Intelligence systems such as ChatGPT have brought so many implications to teachers' classroom practices in the digital age. This requires scientific investigations to appreciate the factors that predict teachers' behavioural intention to use ChatGPT at the pre-tertiary levels of the Ghana's educational system. This study examined the topic by collecting data from 94 basic school teachers across kindergarten, primary, and high school grades. Data analysis was done using SPSS and SmartPLS. Results of the study show that effort expectancy and social influence did not predict teachers' intention to use ChatGPT. Contrary, performance expectancy and facilitating conditions predicted their intention to use it. The study therefore recommended to stakeholders to provide the requisite education and curricular modifications to facilitate a responsible and ethical integration of ChatGPT into their pedagogical tools.

Keywords: ChatGPT, Teacher Education, Artificial Intelligence, Behavioural Intentions

Introduction

Education is one of the areas that is undergoing so much transformation because of the emergence of Artificial Intelligence (AI) (Cordero et al., 2024). AI is dramatically changing teaching by way of digital tools and pedagogies (Adiguzel et al., 2023). The role of AI in human development is particularly significant in low-middle-income countries (World Bank, 2026). Chat Generative Pre-Trained Transformer (ChatGPT) emerged in 2022 as a powerful AI model that is capable of providing solutions to a wide spectrum of perplexing phenomenon in human daily life (Adiguzel et al., 2023). It improves teacher

productivity through lesson planning and boosts their self-efficacy (Cordero et al., 2025). It simplifies grading (Dempere et al., 2023) whilst showing promise in delivering content that is appropriate for given situations (Peláez-Sánchez et al., 2024). It also helps in professional development of teachers, stakeholder interactions (Senechal et al., 2023), as well as virtual learning (Yu, 2023). AI has enormous benefits to learners as well in terms of facilitating personalised and self-directed learning (Naznin et al., 2025), and stimulating independent and interdependent learning (Peláez-Sánchez et al., 2024).

That said, there are sustained discussions about fears, insecurities and inequalities associated with AI (Adiguzel et al., 2023). Studies on ChatGPT are beginning to raise concerns about AI taking the jobs of people in almost every sector (Dempere et al., 2023). Worries over surveillance, wrong content, stereotypes and other vulnerabilities have been echoed (Senechal et al., 2023). Its harm on learners' critical thinking (Farinosi & Melchior, 2025) and agency (Han et al., 2024) have also been enumerated. These problems and ethical abuses have led to the restriction and regulation of ChatGPT use in some jurisdictions (Ogugua et al., 2023). Globally, a number of institutions have already placed bans on it (Ogugua et al., 2023; Xiao et al., 2023). Some universities, states and countries including the USA (Han et al., 2024), China, India (Yu, 2023), and Italy (Kishore et al., 2023), after weighing the benefits and infractions, have placed restrictions on its use. These bans are met with criticisms (Harrison et al., 2023) with some users proposing regulating it instead of banning (Farinosi & Melchior, 2025; Kishore et al., 2023).

African countries, rising to the realities of the digital era, are equally developing policies as safeguards in response to the red flags and apprehensions being raised against AI models. This is to ensure that individuals and institutions can harness its potentials. It has been reported by extant literature that AI application in the African continent is a recent development (Modiba et al., 2025). That notwithstanding, there seems to be significant evidence on its use in higher institutions of learning amidst obstacles. The integration and suitability of AI to classrooms in Africa is fraught with abuses, lack of AI 'know how' (Modiba et al., 2025; Yarboi et al., 2026), and ethical concerns (Dake & Gbagbo, 2026). Some preliminary studies indicate a level of mistrust in the content produced by AI among university students in Morocco (Barkouk et al., 2026). Also, lack of digital literacy and insufficient infrastructure emerge as part of key challenges affecting AI integration in rural settings in Nigeria and Ghana (Sarfo et al., 2024). Yarboi et al. (2026) identified the absence of institutional regulations in Ghana as a challenge. These challenges have limited the application of AI to universities with little evidence on its usage at the kindergarten, primary and secondary school levels of Ghana's education sector.

Also, relative absence of research on AI integration in Africa poses as one of the major hindrances to its adoption across the entire spectrum of educational contexts in Africa. This has been articulated by review studies (such as Ayubian et al., 2026; Khoaza & van der Walt, 2025) drawing attention to the absence of studies in the global south on

AI adoption as a pedagogical tool. Confronted with these realities, it is necessary for studies to approach the integration of AI into 21st century teaching in the unique context of Africa. This is timely because gaining access to the basic use of AI is no longer just for convenience but a matter of necessity (Nguyen et al., 2024).

Whilst empirical studies in Uruguay (Jauhiainen & Guerra, 2023), Turkey (et al., 2024) and China (Xie, 2025) have shown that AI models such as ChatGPT have great promise for primary school education, not much is known in the Ghanaian context. Preliminary studies on AI use among Ghanaian basic school teachers are suggesting anxiety (Arthur et al., 2026) and self-efficacy (Ofori & Debreli, 2026) acting as psychological variables against the use of AI in Ghanaian pre-tertiary classrooms.

Also, studies (including Arthur et al., 2026, Arkorful et al., 2026; Darko et al., 2026) conducted on primary and junior high school settings in Ghana have relied on varied theoretical and statistical models with samples from specific geographical locations in their investigations which have not given representative findings for all settings of the Ghanaian pre-tertiary system. For instance, Arkorful et al. (2026) used variance-based structural equation modelling (VB-SEM) whilst Darko et al. (2026) relied on hierarchical multiple regression to explore the topic. Also, it is been observed that most studies explore AI integration through the lens of the Technological Pedagogical Content Knowledge (TPACK) framework (Aybian et al., 2026). There is therefore the need to approach the topic from the perspective of Unified Theory of Acceptance and Use of Technology (UTAUT) framework which has proven to be a robust model for assessing behavioural intentions to use new innovations (Venkatesh et al., 2003). Hence, the behavioural intentions of teachers at the pre-tertiary level to use ChatGPT as a new technology need to be explored.

Purpose of the Study

The study sought to determine the factors that predict basic school teachers' behavioural intentions to use ChatGPT. Specifically, the study sought to answer the following research question:

1. What are the predictors of basic school teachers' behavioural intention to a use ChatGPT base on the UTAUT framework?

Theoretical Framework

This study is underpinned by the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. Studies on behavioural intention of individuals to use new technologies have attracted the interest of scholars from varied disciplines including psychology and information technology. This has yielded a number of theories advanced

to explain the phenomenon. Some of these theories include, the theory of reason action, the theory of planned behaviour, technology acceptance model and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003). Among these theories, the UTAUT has arguably been one of the dominant models used in exploring behavioural intentions to accept and use AI models such as ChatGPT. Recently, studies (including Adam et al., 2025; Arthur et al., 2026; Chen et al., 2026; Köse & Kudratovna, 2026; Manzi & Modise, 2026; Örnek et al., 2026) that adopted the framework have reported insightful findings.

The UTAUT model assumes that behavioural intention to use a system is directly determined by four variables. These are facilitating conditions, effort expectancy, performance expectancy, and social influence (Venkatesh et al., 2003). Effort expectancy explains the ease and simplicity with which users perceive using the system would be. Performance expectancy also describes the gains and rewards they believe they will get from the technology; or how helpful users believe the system will be to them. Also, social influence is the variable that deals with the role of important and influential people in helping the users to be able to work with the new system. This includes the influence of one's friends, peers, workmates, superiors, or family members. Lastly, facilitating conditions encompasses how conducive the environment will be in helping the user to accept the technology. It takes the form of infrastructure, availability of requisite resources, regulations, and polices to provide a fertile ground for users to accept the new system.

This study conceptualises effort expectancy to include the level of teachers' digital literacy and knowledge in using AI (ChatGPT) whilst performance expectancy involves the intended gains, such as lessening the complexities of classroom teaching and administrative routines, teachers believe ChatGPT will offer them. Also, social influence is conceptualised as the role of colleague teachers, and supervisors in assisting them to use ChatGPT in their work. To conclude, facilitating conditions describe policies, internet connectivity and infrastructure available to support the integration of ChatGPT in their daily teaching roles.

Methods

Research Design

The study adopted the descriptive cross-sectional design. The descriptive cross-sectional design was chosen because it allows researchers to gather data from respondents across different demographic variables at a stated time for analysis. In this study, the aim was to sample the opinions of teachers across sex and teachers teaching across different grades of the pre-tertiary level (kindergarten, primary, and high school) of Ghana's educational system.

Participants of the Study

Participants of the study comprised a total of 94 teachers teaching at kindergarten, primary, and high school levels of Ghana's educational system. Out of this number 25 (26.60%) were females whilst 69 (73.40%) were males. An online questionnaire was distributed to respondents through their official social media platforms. Participants were informed that participation in the study was by voluntary consent. Also, they were assured that data obtained from them was for only academic and policy formulation purposes. Therefore, the anonymity and confidentiality of their responses were guaranteed.

Research Instrument

The study adapted the User Acceptance of Information Technology scale developed by Venkatesh et al. (2003). Five dimensions were the focus of this study; social influence (four items), facilitating conditions (four items), performance expectancy (four items), effort expectancy (four items), and behavioural intention to use AI (three items). A total of 19 items were adapted for this study.

Reliability and Validity of the Instrument

The internal reliability of the instrument was evaluated using composite reliability (CR) of each of the dimensions whilst the convergent validity was also assessed by calculating the average variance extracted (AVE) for each dimension. This was done by using Partial Least Squares Structural Equation Modeling (PLS-SEM) where the data obtained from responses were imported from excel into SmartPLS4 (v.4.1.1.6). The results in Table 1 indicate the composite reliability (CR) for Intention to use ChatGPT, Effort Expectancy, Facilitating Conditions, Performance Expectancy, and Social Influence as 0.90, 0.706, 0.861, 0.938, and 0.826 respectively. This suggests that the scale was internally consistent because each of the dimensions yielded a CR value greater than the minimum preferred value of 0.70 (Hair et al., 2017). Also, the AVE values are given as, Intention to use ChatGPT = 0.813, Effort Expectancy = 0.532, Facilitating Conditions 0.496, Performance Expectancy = 0.574, and Social Influence = 0.590 which indicate convergent validity for the scales (Hair et al., 2017) apart from facilitating conditions whose AVE is less than the minimum acceptable value of 0.50.

Table 1: Internal reliability and convergent validity

Dimension	Alpha	CR	AVE
Intention to use ChatGPT (ChatGPT)	0.886	0.909	0.813
Effort Expectancy (EE)	0.707	0.706	0.532
Facilitating Conditions (FC)	0.694	0.861	0.496
Performance Expectancy (PE)	0.738	0.938	0.574
Social Influence (SI)	0.777	0.826	0.590

Also, the discriminant validity of the instrument was assessed using PLS-SEM. This was done base on Heterotrait-Monotrait (HTMT) values and Fornell-Larcker Criterion. The HTMT (Table 2) values between respective dimensions are all less than 0.90 which indicate that the instrument has discriminant validity. Likewise, the results in Table 3 show that the square root of each dimension's average variance extracted (AVE) exceeds their correlations with the other corresponding dimensions. These indicate that the instrument has discriminant validity (Fornell & Larcker, 1981). The PLS-SEM measurement model is presented in Figure 1.

Table 2: Discriminant validity – Heterotrait-Monotrait Ration (HTMT)

Dimension	ChatGPT	EE	FC	PE	SI
Intention to use ChatGPT (ChatGPT)					
Effort Expectancy (EE)	0.450				
Facilitating Conditions (FC)	0.503	0.521			
Performance Expectancy (PE)	0.559	0.818	0.370		
Social Influence (SI)	0.329	0.408	0.669	0.352	

Table 3: Fornell-Larcker criterion discriminant validity

	ChatGPT	EE	FC	PE	SI
Intention to use ChatGPT (ChatGPT)	0.902				
Effort Expectancy (EE)	0.368	0.729			
Facilitating Conditions (FC)	0.485	0.401	0.704		
Performance Expectancy (PE)	0.511	0.537	0.274	0.757	
Social Influence (SI)	0.302	0.307	0.504	0.192	0.768

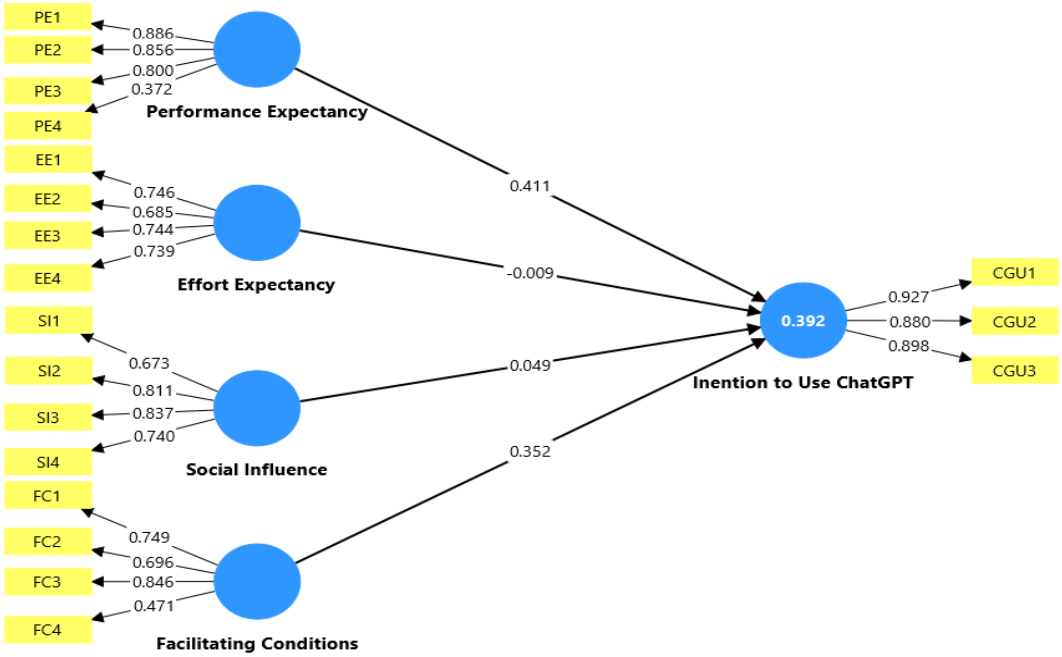


Figure 1: PLS-SEM measurement model

Results

Research Question: What are the predictors of basic school teachers' behavioural intention to use ChatGPT base on the UTAUT framework?

Data analysis was done by importing responses of respondents into SPSS (version 27) and SmartPLS4 (v.4.1.1.6). SPSS was used to calculate the descriptive statistics for each of the dimensions of the measurement model. The mean of means and standard deviations are presented in Table 4. Also, SmartPLS was used to calculate the path coefficients to determine the predictors of teachers' behavioural intention to use ChatGPT (Table 5).

Table 4: Descriptive statistics

Dimension	N	M	SD	Interpretation
Performance Expectancy	94	4.01	.702	High
Effort Expectancy	94	3.98	.640	High
Social Influence	94	3.12	.766	Moderate
Facilitating Conditions	94	3.70	.582	High
Intention to Use ChatGPT	94	4.12	.606	High
Valid N (listwise)	94			

From Table 4, the descriptive statistics indicate that respondents rated performance expectancy (M = 4.01, SD = 0.702), effort expectancy (M = 3.98, SD = 0.640), facilitating conditions (M = 3.70, SD = 0.582) high among the four variables of the UTAUT framework. They also rated social influence (M = 3.12, SD = .766) moderately. Likewise, respondents rated their behavioural intention to use ChatGPT (M = 4.12, SD = 0.606) highly. This means that respondents positively perceived the four factors of ChatGPT use.

Table 5: Path coefficients

Paths	β	M	SD	T statistics	P values
EE -> ChatGPT	-0.009	0.012	0.119	0.075	0.940
FC -> ChatGPT	0.352	0.347	0.098	3.572	0.000
PE -> ChatGPT	0.411	0.412	0.092	4.450	0.000
SI -> ChatGPT	0.049	0.057	0.095	0.514	0.607

Results in Table 5 shows that EE (β = -0.009, p = 0.940), and SI (β = 0.049, p = 0.607) are not statistically significant predictors of teachers' behavioural intention to use ChatGPT. The two variables also demonstrate weak negative and positive effect on teachers' behavioural intentions to use the model, respectively. On the contrary, FC (β = 0.352, p = 0.000) and PE (β = 0.411, p = 0.00) are both statistically significant predictors of teachers' behavioural intention to use ChatGPT. FC and PE also show moderate positive effect on teachers' intention to use ChatGPT. Collectively, the four variables explain 39.20% of teachers' behavioural intention to use the AI model (Figure 1).

Discussion

Results of the study show that effort expectancy and social influence are not predictors of ChatGPT use among teachers at the pre-tertiary level. That is notwithstanding the fact that these two variables were respectively rated high and moderate (Table 4). This means that participants believe that they have the knowledge and skills to use ChatGPT whilst also demonstrating that they have people in their social circles to assist them use

ChatGPT. Nonetheless, the results further show that effort expectancy and social influence have weak effect on teachers' behavioural intentions to use ChatGPT. These factors do not influence or predict their intention to use ChatGPT. This agrees with emerging body of literature that points to the fact that social influence and effort expectancy have no effect on AI users' intention to use the model in Ghana (Antwi et al., 2026; Salifu et al., 2025; Twum & Yalley, 2024). This finding could be attributed to the fact that teachers generally believe that using AI in academic contexts compromises their integrity leading to guilt. Abdul-Gafaar et al. (2024) reported that cognitive dissonance is among the factors that affects the intentions of individuals to use AI due to the tension between its perceived usefulness and their personal beliefs regarding AI being a source of plagiarism among others.

On the other hand, the study found that facilitating conditions and performance expectancy are statistically significant predictors of teachers' intention to use ChatGPT. The two factors also demonstrate moderate positive impact on their intentions. This means that the perceived benefits teachers derive from using ChatGPT and the supporting structures available to them influence their intention to use the technology. This agrees with other studies in Ghana (Antwi et al., 2026; Salifu et al., 2025). This could be attributed to the fact that Ghana recently launched an AI policy which to a large extent has eliminated institutional silence on AI systems.

Conclusion

This study has contributed to the emerging scientific discourse on AI and ChatGPT integration into teachers' pedagogical toolkit in Ghana. Its findings highlight the predictors of ChatGPT acceptance among teachers at the pre-tertiary levels of education in Ghana. This has also contributed to fill the research gap on AI use at lower levels of the country's educational system as focus has since been on the higher education landscape. Findings of the study have implications for stakeholders. First it brings to the attention of stakeholders the need to provide the enabling environment by integrating AI into curricular designs and modifications. Also, there is the need for stakeholders to upgrade the skills and knowledge of teachers on how to use ChatGPT by ensuring ethical use which will eliminate risks associated with the system.

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