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Responsible Use of ChatGPT in Academic Writing: Investigating Ethical Awareness and Technology Acceptance Among Adult Learnes

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A B S T R A C T

This study examines adult learners' responsible use of ChatGPT for academic writing by integrating technology acceptance with ethical awareness. Motivated by unresolved questions about over-reliance, plagiarism, and authenticity, it extends the Unified Theory of Acceptance and Use of Technology (UTAUT) to account for ethical factors shaping intention and behavior. Using a sequential explanatory mixed-methods design, we surveyed 285 adult learners from Philippine higher education and conducted follow-up interviews with eight frequent ChatGPT users. Measurement results (PLS-SEM) showed satisfactory reliability and validity; structural paths indicated that performance expectancy, social influence, and facilitating conditions significantly predict behavioral intention, while effort expectancy does not; intention significantly predicts actual use. Thematic analysis revealed ethically oriented practices (e.g., paraphrasing, citation, originality checks) and peer-reinforced norms that regulate responsible adoption. We propose ethical awareness as an added construct and potential moderator of social influence—within UTAUT to better explain AI use in academic contexts. Findings inform guidelines and training that balance efficacy with integrity, and recommend policies that ensure equitable access. Future work should test extended models including trust, critical-thinking competence, and broader digital literacy, ideally through longitudinal designs to observe how adoption and ethics co-evolve.

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RESUMO

Este estudo examina o uso responsável do ChatGPT por estudantes adultos na redação acadêmica, integrando a aceitação da tecnologia à consciência ética. Motivado por questões não resolvidas sobre dependência excessiva, plágio e autenticidade, o estudo amplia a Teoria Unificada de Aceitação e Uso de Tecnologia (UTAUT) para incorporar fatores éticos que moldam a intenção e o comportamento. Utilizando um delineamento de métodos mistos explicativos sequenciais, realizamos uma pesquisa com 285 estudantes adultos do ensino superior nas Filipinas e conduzimos entrevistas de acompanhamento com oito usuários frequentes do ChatGPT. Os resultados das medições (PLS-SEM) demonstraram confiabilidade e validade satisfatórias; as trajetórias estruturais indicaram que a expectativa de desempenho, a influência social e as condições facilitadoras predizem significativamente a intenção comportamental, enquanto a expectativa de esforço não o faz; a intenção prediz significativamente o uso efetivo. A análise temática revelou práticas orientadas pela ética (por exemplo, paráfrase, citação, verificação de originalidade) e normas reforçadas pelos pares que regulam a adoção responsável. Propomos a consciência ética como um constructo adicional e potencial moderador da influência social dentro da UTAUT, visando explicar melhor o uso de IA em contextos acadêmicos. As conclusões embasam diretrizes e treinamentos que equilibram eficácia e integridade, além de recomendar políticas que assegurem acesso equitativo. Estudos futuros devem testar modelos ampliados que incluam confiança, competência de pensamento crítico e letramento digital mais amplo, idealmente por meio de delineamentos longitudinais para observar como a adoção e a ética coevoluem.

Keywords:
ChatGPT, escrita acadêmica, consciência ética, UTAUT, estudantes adultos

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Introduction

The integration of artificial intelligence (AI) into education has accelerated rapidly with the advent of tools such as the Generative Pre-trained Transformer (ChatGPT). Developed by OpenAI, ChatGPT employs natural language processing and deep learning to generate human-like responses, supporting tasks such as essay writing, summarization, and tutoring (Fitria, 2023). Its accessibility and versatility have made it one of the most widely adopted AI applications in education, with over 100 million users within two months of its launch, making it the fastest-growing application in history (El-Seoud et al., 2023).

In academic writing, ChatGPT provides learners with immediate assistance in brainstorming, structuring arguments, and improving grammar and coherence (Fitria, 2023). Research shows that it can generate entire essays, abstracts, and even dissertations, raising important questions about its role in student learning (Bašić, Banovac, & Kružić, 2023). While some studies suggest that ChatGPT can enhance productivity and writing quality, findings remain mixed. For example, Bašić et al. (2023) observed no significant improvement in students' essay scores when using ChatGPT, suggesting that reliance on the tool without adequate skills may hinder authentic learning outcomes. Similarly, the potential for "artificial hallucinations," where the model generates inaccurate or fabricated information, underscores the need for critical evaluation by student users (Alkaissi & McFarlane, 2023).

Beyond technical affordances, ChatGPT introduces new ethical challenges. A major concern is academic integrity, as the line between legitimate assistance and plagiarism becomes blurred. Jarrah, Wardat, and Fidalgo (2023) emphasize that while ChatGPT can be a valuable writing tool, responsible practices such as proper attribution and disclosure of AI use are essential to avoid plagiarism. Cotton, Cotton, and Shipway (2023) further argue that institutions must redefine academic integrity frameworks to address AI-generated content, warning that unregulated use risks undermining fairness and transparency in education.

The debate over whether using ChatGPT constitutes plagiarism remains contested. Some scholars argue that using AI without proper citation equates to passing off non-original work (Wardat et al., 2023), while others see it as acceptable when critically evaluated, rephrased, and cited appropriately (University of Virginia, 2015). This tension highlights the importance of ethical awareness—students must not only know how to use ChatGPT but also when and how to acknowledge its contributions in academic writing.

At the same time, ChatGPT is reshaping pedagogy. El-Seoud et al. (2023) note its potential to increase student engagement, foster personalized learning, and act as a writing coach providing immediate feedback. However, they caution that excessive reliance on AI could diminish critical thinking and originality, echoing concerns raised by educators who fear that ChatGPT may encourage shortcuts rather than genuine learning (El-Seoud 2023). Issues

of bias, privacy, and copyright in AI-generated content demand careful regulation and awareness among both students and faculty (El-Seoud et al., 2023; Jarrah et al., 2023; Ray, 2023).

The present study positions itself at the intersection of technology acceptance and ethical awareness. While the Unified Theory of Acceptance and Use of Technology (UTAUT) explains predictors of adoption such as performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003), it does not fully capture the ethical dimensions of responsible AI use. Current literature suggests a pressing need to integrate ethical awareness into technology adoption models to better understand how students' actual behaviors such as reliance on ChatGPT for academic writing are shaped by their understanding of plagiarism, citation, and academic integrity (Jarrah et al., 2023; Cotton et al., 2023).

This study investigates not only the behavioral intention and actual usage of ChatGPT in academic writing but also how ethical awareness influences responsible use. By integrating insights from both quantitative and qualitative strands, it aims to provide evidence-based recommendations for educators, policymakers, and institutions on embedding ethical guidelines into the adoption of AI tools in higher education.

Statement of the Problem

The adoption of ChatGPT in education has largely been studied through the lens of technology acceptance, focusing on factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions, as outlined in the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003; Attuquayefio & Addo, 2014; Emon et al., 2023). These studies consistently show that students adopt ChatGPT because they perceive it as useful and accessible, while effort expectancy often has a weaker effect (Emon et al., 2023). This suggests that learners prioritize the tool's ability to improve academic outcomes over the ease of interaction.

However, most existing studies stop at measuring intention and adoption, paying limited attention to how students actually behave when using ChatGPT in academic writing. Empirical evidence remains scarce regarding whether learners use ChatGPT mainly for idea generation, drafting, editing, or complete essay production (Bašić et al., 2023). Research has also shown that students do not necessarily produce higher-quality essays with ChatGPT assistance, and in some cases, over-reliance on the tool may reduce authenticity and hinder critical thinking (Bašić et al., 2023; Currie, 2023). These findings highlight the need to investigate not just adoption predictors but also the real patterns of usage and their academic consequences.

At the same time, the ethical dimension of ChatGPT use remains underexplored within technology adoption frameworks. Academic writing carries high stakes for integrity, and concerns about plagiarism, citation, authorship, and originality have emerged as central issues

(Jarrah, Wardat, & Fidalgo, 2023; Cotton, Cotton, & Shipway, 2023). Some scholars argue that without proper attribution, ChatGPT outputs may constitute plagiarism, while others maintain that the tool can be ethically integrated into writing if used transparently and responsibly (Jarrah et al., 2023). Despite this, UTAUT does not explicitly account for ethical awareness—defined as students' knowledge, attitudes, and practices related to responsible AI use—yet this factor likely influences both behavioral intention and actual use.

In particular, adult learners in higher education face unique pressures, such as balancing employment, family responsibilities, and academic demands, which may push them to rely heavily on AI tools for efficiency (De Castro, 2023; El-Seoud et al., 2023). Such reliance raises important questions: Do adult learners use ChatGPT to complement their learning or as a shortcut for completing tasks? How aware are they of the ethical implications of AI-assisted writing? And how does ethical awareness interact with the technological factors identified in UTAUT to shape responsible adoption?

Therefore, this study addresses this gap by examining the intersection of UTAUT constructs and ethical awareness in relation to adult learners' actual behaviors when using ChatGPT for academic writing. By focusing on both quantitative predictors of adoption and actual use, as well as qualitative insights into ethical awareness, the study seeks to extend the UTAUT framework to capture the complexities of responsible AI use in academic contexts.

Research Questions

What factors influence adult learners' behavioral intention and actual use of ChatGPT in academic writing, based on the UTAUT model?

Which UTAUT constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) significantly predict adult learners' behavioral intention to use ChatGPT in academic writing?

How does ethical awareness influence the adoption of ChatGPT in academic writing, and can it be integrated into the UTAUT model as a new construct or moderating variable?

Research Objectives

To examine the interplay between ethical awareness and technology acceptance factors that influence adult learners' responsible use of ChatGPT in academic writing.

To determine the factors that influence adult learners' behavioral intention and actual use of ChatGPT in academic writing, based on the UTAUT model.

To identify which UTAUT constructs—performance expectancy, effort expectancy, social influence, and facilitating conditions significantly predict adult learners' behavioral intention to use ChatGPT in academic writing.

To analyze how ethical awareness influences the adoption of ChatGPT in academic writing and assess whether it can be integrated into the UTAUT model as a new construct or moderating variable.

Theoretical Framework

This study adopts the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003). The UTAUT model emerged from the synthesis of eight prior theories of information technology acceptance, including the Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Motivational Model (MM), a combination of TAM and TPB (C–TAM–TPB), Model of PC Utilization (MPCU), and Social Cognitive Theory (SCT). By integrating these models, Venkatesh et al. proposed UTAUT as a more comprehensive framework that explains users' behavioral intention and actual use of technology.

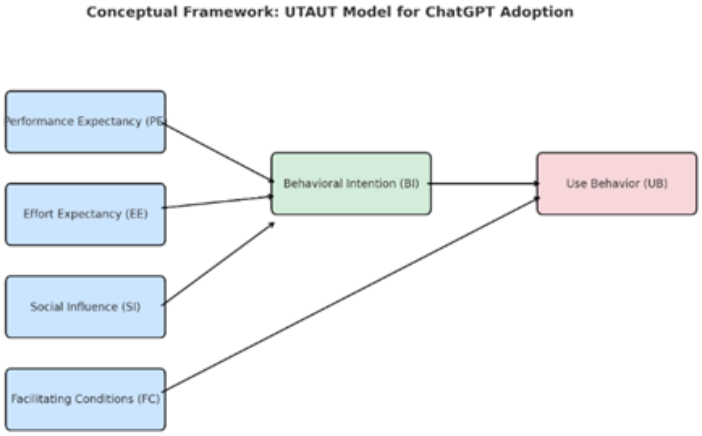
The UTAUT model is composed of four core constructs performance expectancy, effort expectancy, social influence, and facilitating conditions that directly influence behavioral intention and use behavior. Additionally, the model includes moderating variables such as gender, age, voluntariness, and experience, which shape the strength of these relationships (Venkatesh et al., 2003).

In this study, UTAUT is applied to the context of ChatGPT adoption in academic writing among adult learners. Performance expectancy captures learners' perceptions of ChatGPT's usefulness for improving writing outcomes. Effort expectancy addresses the perceived ease of interacting with the tool. Social influence reflects peer or instructor approval of ChatGPT use, while facilitating conditions encompass access to resources such as stable internet, devices, and technical support. Behavioral intention represents the learner's readiness to use ChatGPT, while use behavior reflects actual engagement with ChatGPT during the writing process.

To address gaps in the literature, this study extends the UTAUT framework by incorporating ethical awareness as a factor that may influence or moderate adoption behaviors. Ethical awareness is defined as adult learners' knowledge, attitudes, and practices regarding plagiarism, citation, authorship, and responsible AI use in academic writing.

Figure 1.

UTAUT Model



Note:

According to Venkatesh et al. (2003), the four constructs of the UTAUT model were as follows:

- Performance Expectancy
- Effort Expectancy
- Social Influence
- Facilitating Condition

Definitions of the variables in the initial research model were presented in Table 1, based on the definitions proposed by Venkatesh et al. (2003).

Table 1.

Variable definition in the research model

Variable	Definition
Performance Expectancy (PE)	Related to users' perceptions of how using ChatGPT could enhance the quality, coherence, and creativity of their papers compared to traditional writing methods.
Effort Expectancy (EE)	Related to users' perceptions of the ease of interaction with ChatGPT for generating and refining academic writing content, encompassing factors such as user interface simplicity and learning curve.
Social Influence (SI)	Included perceptions of peer or instructor approval, as well as recommendations from influential sources regarding the benefits of using ChatGPT for academic writing tasks.
Facilitating Condition (FC)	Accessed reliable internet connectivity, availability of compatible devices, access to ChatGPT platforms, and technical assistance if needed.
Behavioral Intention (BI)	Referred to an individual's subjective likelihood or readiness to actively engage in the behavior of using ChatGPT for writing academic content in the future.
use behavior (UI)	This referred to the actual engagement and utilization of ChatGPT as a tool throughout various stages of the academic writing process.

In Table 1, the use behavior was specified as the dependent variable. The influencing factors consisted of four independent variables: PE (performance expectancy), EE (effort

expectancy), SI (social influence), and FC (facilitating conditions). The mediating variable was the behavioral intention (BI). The moderators encompassed sex, age, and year level. The gender variable comprised two values: 'male' and 'female'. Year level ranged from First to Fourth year College.

Based on the definition of the constructs of UTAUT as described by Venkatesh, the researcher formulated the following hypotheses regarding the use of ChatGPT in academic writing, as shown in Table 2.

Table 2.

Hypothesis

Hypothesis Number	Hypothesis content
H1	Performance expectancy positively influences adult learners' behavioral intention to use ChatGPT in academic writing.
H2	Effort expectancy positively influences adult learners' behavioral intention to use ChatGPT in academic writing.
H3	Social influence positively influences adult learners' behavioral intention to use ChatGPT in academic writing.
H4	Facilitating conditions positively influence adult learners' use behavior of ChatGPT in academic writing.
H5	Behavioral intention positively influences adult learners' use of ChatGPT in academic writing.

These hypotheses were formulated based on the theoretical framework of the UTAUT model, which posited that users' behavioral intention to adopt and use technology was influenced by their perceptions of its performance, effort required, social influences, and facilitating conditions. UTAUT incorporated moderating variables that could influence the relationships between the core constructs of the model and individuals' technology adoption and usage behaviors. These moderating variables included Gender, Age, Experience, and Voluntariness of Use.

The UTAUT model was widely used in the information and technology industry. It helped management and decision-makers make more effective decisions by explaining the factors that influenced users' behavior regarding the acceptance of technical and/or socio-technical innovation (Lin, 2019).

Methodology

This study adopted a sequential explanatory mixed-methods design, which combined quantitative and qualitative approaches to provide an understanding of ChatGPT use in academic writing. According to Creswell and Plano Clark (2018), this design is appropriate when the researchers first collects and analyzes quantitative data to identify patterns and relationships, and then follows up with qualitative inquiry to provide deeper explanations.

In this study, the first phase employed a quantitative survey to examine adult learners' behavioral intentions and actual usage of ChatGPT for academic writing, guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) framework (Venkatesh, Morris, Davis, & Davis, 2003). The second phase used qualitative interviews to further explore students'

ethical awareness, responsible use, and peer influence, thereby extending the explanatory power of the UTAUT framework.

The survey instrument was divided into three main sections. The first section focused on demographic information, gathering data on sex, age, and year level, which served as moderating variables in the UTAUT model. The second section measured the core UTAUT constructs—Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), and Behavioral Intention (BI). This section consisted of 21 items adapted from previous UTAUT studies (Venkatesh et al., 2003; Attuquayefio & Addo, 2014; Lin, 2019) and employed a five-point Likert scale to assess the extent to which respondents perceived ChatGPT as useful and acceptable for essay writing tasks.

Table 3.

Five-Point Likert Scale for UTAUT Constructs in Academic Writing

Scale	Indicator	Description
5	Strongly Agree	I considered ChatGPT essential for improving writing productivity, quality, and creativity.
4	Agree	I perceived ChatGPT as helpful for generating, editing, or enhancing academic writing content.
3	Neutral	I was uncertain about the utility of ChatGPT in academic writing,
2	Disagree	I perceived ChatGPT as having limited usefulness in academic writing writing tasks.
1	Strongly Disagree	I believed that ChatGPT was not useful for academic writing and had serious reservations.

The third section assessed Use Behavior, which measured the frequency of ChatGPT use in essay writing tasks. A six-point frequency scale, adapted from prior usage studies, was employed to capture the extent to which respondents engaged with ChatGPT, ranging from "Never" to "Always."

Table 4.

Frequency of ChatGPT Usage in Essay Writing

Scale	Indicator	Description
6	Always	The respondent always used ChatGPT, indicating very frequent or constant use.
5	Frequently	The respondent used ChatGPT regularly and often.
4	Sometimes	The respondent used ChatGPT occasionally but not consistently.
3	Occasionally	The respondent used ChatGPT irregularly or infrequently.
2	Rarely	The respondent used ChatGPT only on rare occasions.
1	Never	The respondent had never used ChatGPT.

The survey was disseminated online using Google Forms across multiple higher education institutions in the Philippines. This approach allowed broader participation from adult learners enrolled in various programs and year levels. A total of 285 responses were collected, ensuring a diverse sample of non-traditional learners beyond a single institution.

Prior to full-scale data collection, a pilot test was conducted with 32 respondents to assess the clarity of items and initial reliability of the instrument. Results showed that all constructs achieved Cronbach's alpha values above the 0.70 threshold, indicating acceptable internal consistency (Hair et al., 2019). Minor wording adjustments were made to improve clarity before deploying the final questionnaire.

Data from the main survey (N = 285) were then analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) in SmartPLS 4.0. This method is well-suited for exploratory research, predictive modeling, and small to medium sample sizes (Kline, 2015). The analysis followed the two-stage approach recommended by Hair, Hult, Ringle, and Sarstedt (2019): first evaluating the measurement model, then testing the structural model.

The measurement model demonstrated satisfactory internal consistency reliability across constructs. As shown in Table 5 (Cronbach's Alpha and Composite Reliability), Cronbach's alpha values ranged from 0.721 (Effort Expectancy) to 0.876 (Use Intention), while composite reliability (ρc) values ranged from 0.716 to 0.916. These values exceed the 0.70 benchmark, confirming strong reliability (Hair et al., 2019).

Convergent validity was established using the Average Variance Extracted (AVE). All constructs reported AVE values above the recommended 0.50 threshold (Fornell & Larcker, 1981), ranging from 0.555 (Effort Expectancy) to 0.784 (Behavioral Intention). This indicates that the constructs explained a substantial proportion of the variance in their respective indicators. In addition, rho_A values ranged from 0.716 to 0.877, further supporting construct reliability.

Behavioral Intention (BI) emerged as the most robust construct, with ρA = 0.877, AVE = 0.784, Cronbach's alpha = 0.863, and ρc = 0.916. Effort Expectancy (EE), while showing the lowest reliability (Cronbach's alpha = 0.721; AVE = 0.555), still met the minimum acceptable criteria.

Table 5.

Five Point Likert Scale for UTAUT Constructs in Academic Writing

Construct	rho_A	AVE	Cronbach's Alpha	rho_C
Behavioral Intention (BI)	0.877	0.784	0.863	0.916
Use Intention (UI)	0.716	0.779	0.876	0.716
Facilitating Condition (FC)	0.860	0.697	0.855	0.902
Social Influence (SI)	0.839	0.651	0.821	0.881
Effort Expectancy (EE)	0.753	0.555	0.721	0.830
Performance Expectancy (PE)	0.833	0.667	0.828	0.888

Table 6 presents the Fornell–Larcker discriminant validity results for the six constructs of the study: Behavioral Intention (BI), Effort Expectancy (EE), Facilitating Conditions (FC), Performance Expectancy (PE), Social Influence (SI), and Use Intention (UI).

Table 6.

Discriminant Validity of Constructs using the Fornell-Larcker Criterion

Construct	BI	EE	FC	PE	SI	UI
BI	0.885					
EE	0.633	0.745				
FC	0.732	0.704	0.835			
PE	0.701	0.741	0.602	0.817		
SI	0.687	0.623	0.553	0.637	0.807	
UI	0.699	0.647	0.764	0.624	0.605	0.882

The Fornell–Larcker criterion was applied to evaluate discriminant validity among the constructs: Behavioral Intention (BI), Effort Expectancy (EE), Facilitating Conditions (FC), Performance Expectancy (PE), Social Influence (SI), and Use Intention (UI). The diagonal values in the table represent the square root of the Average Variance Extracted (AVE), and in all cases these values are greater than the corresponding inter-construct correlations. This indicates that each construct shares more variance with its own measures than with other constructs, thus confirming discriminant validity (Fornell & Larcker, 1981).

The inter-construct correlations highlight several meaningful relationships. BI demonstrates strong correlations with FC (0.732) and UI (0.699), suggesting that students' behavioral intention to use ChatGPT is significantly shaped by available support and their ultimate intention to use. EE and PE also correlate strongly (0.741), aligning with the UTAUT framework which posits that perceptions of ease of use reinforce performance expectations (Venkatesh, Morris, Davis, & Davis, 2003). Similarly, FC shows strong associations with EE (0.704) and UI (0.764), highlighting the importance of facilitating resources in enhancing both ease of use perceptions and eventual usage behavior.

SI, while showing moderate correlations with BI (0.687) and EE (0.623), maintains discriminant validity as its diagonal value (0.807) exceeds these correlations. Overall, the results provide empirical evidence that the six constructs are distinct while also being theoretically meaningful and interrelated. This strengthens the validity of the measurement model and provides a reliable foundation for testing the hypothesized structural relationships in the context of ChatGPT adoption for academic writing among adult learners.

After confirming the measurement model's validity and reliability, the structural model was evaluated. Path coefficients (β) were examined to test the hypothesized relationships (H1–H5). Coefficients of determination (R^2) were calculated to assess the explanatory power of the model, while predictive relevance (Q^2) was tested to evaluate predictive accuracy. To determine the significance of the paths, bootstrapping with 5,000 resamples was employed, ensuring robust estimation of standard errors and p-values.

For qualitative data gathering, a phenomenological approach was employed to gain a deeper understanding of how adult learners interpret and practice ethical awareness in their use of ChatGPT, particularly in relation to plagiarism, citation, and responsible authorship

(Braun & Clarke, 2006; Creswell & Plano Clark, 2018). From the survey respondents, eight adult learners who reported “Always” using ChatGPT for academic writing were selected through purposive sampling. This ensured that participants were experienced users capable of providing nuanced perspectives. Semi-structured interviews were conducted either in person or online, guided by questions informed by the UTAUT constructs of Performance Expectancy and Social Influence, and extended to address issues of ethical awareness and academic integrity. With participants’ consent, interviews were recorded and transcribed verbatim.

The qualitative data were analyzed using thematic analysis (Braun & Clarke, 2006). The process followed six steps: familiarization with the data, coding, theme generation, reviewing, defining, and reporting. This analysis revealed recurring themes such as Responsible Use, Collaboration, Effective Use, Convenience, and Academic/Professional Application. These themes provided interpretive depth to the quantitative findings, illustrating how adult learners negotiate the balance between technological convenience and ethical responsibility in academic writing.

The study adhered to strict ethical standards in accordance with the Data Privacy Act of 2012 (Republic Act No. 10173). All participants provided informed consent, and their responses were kept confidential, anonymized, and used solely for academic purposes.

Results and Discussion

This section presents the results of the quantitative analysis based on the first research question. The findings provide insights into the demographic characteristics of respondents, their ChatGPT usage patterns, and the structural relationships among UTAUT constructs in predicting behavioral intention and actual usage of ChatGPT for academic writing.

For data collection purposes, Tables 7 to 10 presented the frequency distribution of respondents based on their sex, year level, and age as recorded in the survey.

Table 7.

Frequency and Percentage distribution of respondents in terms of Sex

Sex	Frequency	Percentage
Male	148	51.92
Female	136	47.71
Intersex	1	0.35
Total	285	100.00

The survey data collected comprised responses from 285 participants, among whom 148 were male (51.92%), 136 were female (47.71%), and 1 identified as intersex (0.35%). Table 5 presented the frequency distribution of respondents in terms of Year Level who answered the survey.

Table 8.

Frequency distribution of respondents in terms of Year Level

Year Level	Frequency	Percentage
First Year	79	27.71
Second Year	67	23.50
Third Year	42	14.73
Fourth Year	97	34.03
Total	285	100.00

The distribution of participants across different year levels indicated that the majority were from the fourth year, constituting 97 respondents (34.03%). This was followed by the first year with 79 participants (27.71%), the second year with 67 participants (23.50%), and the third year with 42 participants (14.73%).

Table 9.

Frequency distribution of respondentes in terms of Age

Age Bracket	Frequency	Percentage
19 – 20	125	43.85
21 – 22	58	20.35
23 – 24	78	27.36
25 above	24	8.42
Total	285	100.00

The data illustrated the age distribution of respondents, with the majority falling within the age bracket of 19-20, constituting 125 individuals (43.85%). Following this, 23-24-year-olds comprised 70 respondents (27.36%), while those aged 21-22 accounted for 58 participants (20.35%). Additionally, 25 respondents were aged 25 and above (8.42%), while only 8 respondents were below 18 years old (2.80%).

Table 10.

Frequency distribution of respondents in terms of ChatGPT usage

Frequency of Use	Frequency	Percentage
Always	8	2.80
Frequently	28	9.82
Sometimes	103	36.14
Occasionally	64	22.45
Rarely	70	24.56
Never	12	4.21
Total	285	100.00

The results on the frequency of ChatGPT use in academic writing show that the majority of respondents use the tool only on a moderate basis. Specifically, 36.14% reported using it sometimes, while 22.45% used it occasionally, and 24.56% used it rarely. In contrast, only a small proportion reported high levels of usage, with 9.82% using it frequently and 2.80% using it always. Notably, 4.21% indicated that they had never used ChatGPT. These findings suggest that while ChatGPT has gained traction among students, its adoption is not yet fully pervasive,

with most learners using it selectively rather than habitually. This reflects prior research that highlighted both potentials and limitations of ChatGPT in supporting academic work (Memarian & Doleck, 2023). This moderate use may reflect factors such as varying levels of digital literacy, ethical concerns, or dependence on traditional academic practices.

As shown in Table 11, the structural model results indicate that four of the five hypotheses were supported. Performance Expectancy (H1, $\beta = 0.41$, $p < 0.05$), Social Influence (H3, $\beta = 0.36$, $p < 0.05$), and Facilitating Conditions (H4, $\beta = 0.35$, $p < 0.05$) all had significant positive effects on Behavioral Intention, showing that students' perceptions of usefulness, social pressure, and available support strongly shape their intention to use ChatGPT. Furthermore, Behavioral Intention had a significant effect on actual Use Behavior (H5, $\beta = 0.36$, $p < 0.05$), confirming the predictive validity of intention within the UTAUT framework. However, Effort Expectancy (H2, $\beta = 0.08$, $p > 0.05$) was not significant, suggesting that ease of use was not a decisive factor in influencing students' intention to adopt ChatGPT. This may imply that students, being digital natives or already familiar with AI tools, did not view usability as a barrier. Overall, the findings highlight that usefulness, social context, and support mechanisms play a more critical role than perceived ease of use in driving ChatGPT adoption.

Table 11.

Path coeficiente in the structural model and the results of the significant tests

Hypothesis No.	Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	T statistic > 1.96 Significant at p<.05
H1	Performance Expectancy -> Behavioral Intention	0.41	0.41	0.07	4.92	0.00	Yes
H2	Effort Expectancy -> Behavioral Intention	0.08	0.08	0.09	0.90	0.36	No
H3	Social Influence -> Behavioral Intention	0.36	0.36	0.07	4.63	0.00	Yes
H4	Facilitating Condition -> Behavioral Intention	0.35	0.35	0.07	4.75	0.00	Yes
H5	Behavioral Intention -> Use Behavior	0.36	0.36	0.07	5.471	0.00	Yes

RQ1: What factors influence adult learners' behavioral intention and actual use of ChatGPT in academic writing based on the UTAUT model?

The findings of the structural model demonstrate that Performance Expectancy, Social Influence, and Facilitating Conditions significantly influenced adult learners' behavioral

intention to use ChatGPT. In addition, Behavioral Intention strongly predicted Use Behavior, confirming that intention translates into actual usage when enabling conditions exist. These results validate the predictive power of the UTAUT framework in the context of ChatGPT adoption.

The significant role of Performance Expectancy highlights that adult learners adopt ChatGPT primarily because of its perceived usefulness in improving productivity, coherence, and creativity in academic writing which supports recent findings that AI can act as a transformative educational tool (Su & Yang, 2023). This finding aligns with Venkatesh et al. (2003) and has been echoed in recent studies showing that perceived benefits drive students' acceptance of AI tools (Attuquayefio & Addo, 2014; Emon et al., 2023). For adult learners balancing multiple responsibilities, tools that deliver efficiency and tangible academic outcomes are especially valued.

Social Influence also emerged as a significant factor, suggesting that peers, instructors, and institutional culture play an important role in shaping learners' intentions. This is consistent with earlier findings that students are more inclined to adopt new technologies when encouraged or endorsed by their learning community (Emon et al., 2023). In the context of adult learners, peer validation may reduce hesitation and strengthen confidence in integrating AI tools into academic tasks.

The positive influence of Facilitating Conditions indicates that access to resources—such as stable internet connections, compatible devices, and institutional support remains a critical enabler of ChatGPT adoption. This supports Lin's (2019) assertion that adequate infrastructure is essential for ensuring sustained technology use in education.

Finally, the path from Behavioral Intention to Use Behavior was found to be significant, confirming the UTAUT assertion that intention is a strong predictor of actual usage. This demonstrates that adult learners who intend to use ChatGPT are likely to incorporate it consistently into their academic writing practices, provided that conditions allow.

RQ2: Which UTAUT constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) significantly predict adult learners' behavioral intention to use ChatGPT in academic writing?

The structural model results show that Performance Expectancy, Social Influence, and Facilitating Conditions significantly predict behavioral intention, whereas Effort Expectancy does not. This finding refines the application of UTAUT in the context of ChatGPT adoption.

The non-significant effect of Effort Expectancy ($t = 0.90$, $p = 0.36$) suggests that perceived ease of use is not a decisive factor for adult learners. This contrasts with early UTAUT findings, where ease of use often influenced adoption, but it aligns with more recent research in educational contexts where students are already digitally literate (Emon et al., 2023). For today's adult learners, who regularly engage with digital tools for work, study, and personal

tasks, the learning curve for ChatGPT is minimal. As such, usefulness, social validation, and resource availability are more decisive in shaping adoption intentions. This suggests that ease of use is not a decisive factor for today's learners, likely because ChatGPT interfaces are already intuitive. Similar observations were made in reviews pointing out that future adoption challenges lie less in usability and more in ethics and reliability (Ray, 2023).

These findings underscore a key implication: institutions seeking to promote responsible and effective use of ChatGPT should focus on highlighting its academic benefits, fostering supportive peer and faculty norms, and ensuring equitable access to technological resources, rather than emphasizing ease of use.

RQ3: How does ethical awareness influence the adoption of ChatGPT in academic writing, and can it be integrated into the UTAUT model as a new construct or moderating variable?

The qualitative phase revealed that ethical awareness plays a central role in shaping how adult learners adopt and use ChatGPT for academic writing. Unlike the purely technical predictors in UTAUT, ethical awareness guided not only whether students chose to use ChatGPT but also how they engaged with it whether responsibly, critically, or uncritically. Informants emphasized issues such as plagiarism, citation, content ownership, and the potential consequences of misuse, showing that adoption decisions were filtered through ethical considerations.

Table 12 presents key informant responses related to Performance Expectancy and Ethical Awareness. Students frequently associated ChatGPT's usefulness with its potential risks, particularly plagiarism and intellectual property violations. They described how directly copying outputs without paraphrasing or citation could undermine learning, violate academic integrity, and result in penalties. At the same time, informants highlighted strategies for responsible use, such as paraphrasing, proper referencing, and maintaining originality. These reflections highlight the theme of Responsible Use, where ethical awareness shaped perceptions of what constituted "effective" adoption.

Table 12.

Formulated Meaning from Key Informant Responses Related to Performance Expectancy

Significant Responses from Key Informants	Formulated Meaning	Theme
"Directly copying the contents… without proper paraphrasing."	Copying ChatGPT outputs without paraphrasing or citation can lead to plagiarism.	Responsible Use
"One of the issues… is plagiarism."	Plagiarism violates intellectual property rights and carries academic consequences.	Responsible Use
"Remain vigilant… ensure that content is original and ethically produced."	Users must paraphrase, cite sources, and ensure originality.	Responsible Use
"ChatGPT can help you with ideas… but you need to make your own."	ChatGPT should be used for inspiration, not as a substitute for original thinking.	Effective Use

These reflections highlight the theme of Responsible Use, where ethical awareness shaped perceptions of what constituted 'effective' adoption. This theme resonates with broader ethical frameworks, where decision-making requires balancing convenience and responsibility (Bonde & Firenze, 2019).

In addition, peer influence was strongly tied to ethical awareness, suggesting that ethics was socially reinforced rather than an isolated judgment. As shown in Table 13, classmates frequently recommended ChatGPT while simultaneously reminding peers about plagiarism and originality. These peer interactions went beyond simple encouragement; they functioned as informal ethical regulators that promoted responsible use. Themes such as Collaboration and Academic/Professional Application emerged, showing that ethical awareness was embedded in collective practices and not just individual attitudes.

Table 13.

Formulated Meaning from Key Informant Responses Related to Social Influence

Significant Responses from Key Informants	Formulated Meaning	Theme
"My classmates recommend specific use cases…"	Peer recommendations influence adoption and guide ethical use.	Collaboration
"Peers remind me not to copy-paste…"	Peers act as ethical regulators, reinforcing academic integrity.	Responsible Use
"They told me to use ChatGPT in academic writing and programming."	ChatGPT is promoted in academic contexts, particularly writing and research.	Academic & Professional Application

These peer interactions went beyond simple encouragement; they functioned as informal ethical regulators that promoted responsible use. Such peer regulation reflects recent recommendations that ethical guidelines for generative AI must be embedded in educational communities (Forrester & Boothe, 2023).

Finally, Table 14 highlights how students weighed the positive and negative consequences of ChatGPT adoption. On the positive side, responsible usage promoted academic integrity, accountability, and collaboration. On the negative side, plagiarism, over-reliance, and lack of critical evaluation were seen as major risks. This evaluative awareness indicates that students consciously balanced convenience against ethical implications, demonstrating that adoption was not merely a technical decision but also a moral and academic one.

Table 14.

Positive and Negative Consequences of ChatGPT in academic writing, based on Key Informant Responses

Positive Consequences	Negative Consequences
Responsible usage promotes academic integrity.	Plagiarism may lead to academic penalties.
Peer education fosters accountability.	Over-reliance undermines critical thinking.
Taking ownership shows responsibility.	Lack of citation violates intellectual property.
Collaboration enhances effectiveness.	Blind acceptance risks misinformation.

Taken together, these findings suggest that ethical awareness can be integrated into the UTAUT framework either as an additional construct or as a moderating variable. Specifically, ethical awareness appears to (1) influence Performance Expectancy by shaping what students consider "effective use," and (2) moderate the relationship between Social Influence and Behavioral Intention, since peer recommendations are filtered through ethical reminders about plagiarism and originality. This integration would make UTAUT more contextually relevant in educational environments where academic integrity is central.

Thus, the results confirm that ethical awareness is not peripheral but a core determinant of responsible adoption. It extends the explanatory power of UTAUT by introducing a moral and academic dimension, ensuring that adoption models reflect not only technical acceptance but also responsible usage practices in higher education.

Summary

This study examined the responsible use of ChatGPT in academic writing by integrating technology acceptance and ethical awareness among adult learners in higher education. Using a sequential explanatory mixed-methods design, quantitative data from 285 respondents were analyzed through the UTAUT framework, and qualitative interviews with eight frequent users provided interpretive depth. The structural model showed that performance expectancy, social influence, and facilitating conditions significantly predict behavioral intention, while effort expectancy does not; behavioral intention, in turn, significantly predicts actual use behavior.

The interviews revealed that ethical awareness—centered on plagiarism, citation, originality, content ownership, and critical evaluation shapes how students adopt and use ChatGPT, with peer interactions functioning as informal regulators that reinforce responsible practices. Together, the findings indicate that adult learners' adoption is driven by perceived academic value, social endorsement, and resource availability, and is filtered through socially constructed ethical norms.

Conclusion

The findings confirm the explanatory power of UTAUT for predicting ChatGPT adoption in academic writing, particularly the roles of performance expectancy, social influence, and facilitating conditions, and the intention-to-use path to actual behavior. At the same time, the results demonstrate that UTAUT alone does not fully capture the ethical dimensions central to academic contexts. Ethical awareness emerged as a critical determinant of responsible use, influencing perceptions of usefulness, shaping how social recommendations are enacted, and guiding the balance between efficiency and academic integrity. Incorporating ethical awareness into UTAUT either as an additional construct affecting intention or as a moderator (e.g., between social influence and behavioral intention)—offers a more complete account of AI adoption in higher education.

Limitations

This study is limited by its sample and design. Participants were adult learners from higher education institutions in the Philippines, which may constrain generalizability to other age groups, academic levels, or cultural contexts. The reliance on self-reported survey and interview data introduces potential recall and social desirability biases. The cross-sectional nature of the data prevents observation of changes in perceptions and behaviors over time as AI tools and institutional policies evolve. Finally, the focus on academic writing us a generic term which could narrow down on academic uses of ChatGPT (e.g., research methods support, programming, exam preparation), which may involve different acceptance and ethical dynamics.

Recommendations

Institutions should embed explicit guidelines for ethical AI use covering citation, paraphrasing, originality, and content ownership into academic integrity policies, and offer training that strengthens students' critical evaluation of AI outputs while ensuring equitable access to the necessary infrastructure. Faculty can cultivate peer-supported communities of practice that normalize both effective and ethical use through modeling and feedback. Policymakers should develop clear standards for AI integration in education that align access, fairness, and accountability. For future research, extending UTAUT to include ethical awareness as an independent or moderating construct is warranted; additional constructs such as trust in AI systems, critical-thinking competence, and broader digital literacy should also be investigated, ideally with longitudinal designs to track how adoption and ethics co-evolve as technologies and norms mature.

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