

Ethical Use of Artificial Intelligence in Academic Activities among west African students: Quantitative Study

Alhassane Diallos¹, Driana Leniwati²

¹. Department of Accounting, Faculty of Business and Economics, Universitas Muhammadiyah, Malang

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ABSTRACT

This study investigates the factors influencing the ethical use of artificial intelligence (AI) among West African university students studying in Southeast Asia, drawing on the theory of planned behaviour. The sample consisted of 200 students from Guinea, Ghana, Nigeria, The Gambia, and Senegal, who were sampled, and the data collected using a structured Likert Scale questionnaire, which was subsequently analysed using multiple linear regression in STATA software. Attitude towards AI ($\beta = 0.325$, $p < 0.001$) and institutional guidance ($\beta = 0.407$, $p < 0.001$) were found to have a significant and positive impact on ethical AI use, while ethical awareness had no significant impact ($\beta = -0.061$, $p = 0.230$). Overall, the study variables accounted for 39.4% of the variation in the use of ethical AI ($R^2 = 0.394$), with institutional guidance being the most significant. Theoretically, the results showed that the findings could be applied to the Theory of Planned Behaviour in higher education with regard to ethical AI behaviour, and that attitudinal and normative factors are of greater importance than awareness. In a practical sense, the results emphasize the importance of developing clear guidelines and policies for the governance of AI in educational institutions and fostering responsible attitudes toward the use of AI. Additional behavioural, cultural, and technological factors in other educational settings should be explored.

Keywords: Artificial Intelligence, Ethical AI use, West African Students, Institutional Guidance

INTRODUCTION

The rapid advancement of artificial intelligence (AI) technologies has significantly transformed modern educational models, influencing students' learning processes, academic performance, and engagement in knowledge-generating activities (Dwivedi et al., 2023; Kasneci et al., 2023). The introduction of AI technologies like intelligent tutoring systems, automated feedback platforms, and generative AI applications has revolutionized the way students learn and study across the globe, shaking up traditional approaches to education (Ahmad Malik et al., 2025; Baidoo-Anu et al., 2024). They are effective in the areas of personalized learning, efficiency, and access to academic support to a wide range of learning situations (Chan, 2023; Crompton & Burke, 2023). While AI tools offer learning opportunities for educators, they also raise significant ethical issues related to academic honesty, fairness, transparency, accountability, and responsible use (Nguyen et al., 2023).

In the higher education sector, students are increasingly relying on AI applications to help them write assignments, solve problems, prepare for examinations, and conduct research (Baidoo-Anu et al., 2024; Wang et al., 2025). The increasing reliance on AI has emerged as one of the central education issues today, with no consistent ethical guidelines or integrated institutional oversight over the use of AI in students' academic work (Chan, 2023; Karkoulou et al., 2025). AI also has an educational impact, but it can negatively affect meaningful learning and academic achievement if it is misused or not considered ethically (Kasneci et al., 2023; Memarian & Doleck, 2023).

It is particularly acute in the field of education, particularly in parts of Africa where digital technologies are increasingly introduced at a fast pace, but there is still a lack of development and capacity to handle the ethical aspects of digital technologies within institutional spaces (Ahmad Malik et al., 2025). AI tools for academic purposes are now more easily available to students in Sub-Saharan Africa due to increased access to the internet

and to digital learning materials (Oncioiu & Bularca, 2025) However, the development of AI use in this area is happening in a context of less developed formal education in ethics, institutional policies, and systemic frameworks for responsible AI use (Chan, 2023; Thi Phuong Nguyen & Van Ninh, 2026)). Many students use AI tools without understanding what is considered ethical or unethical use of the tools or what the norms of academic integrity and responsible academic conduct are (Ahmad Malik et al., 2025; Karkoulian et al., 2025).

Although there is a lot of research in this area, the focus to date has been on adoption, acceptance, learning outcomes, and perceptions of users. Few empirical studies have focused on the behavioral outcome related to ethical use of AI (Chan, 2023; Nguyen et al., 2023). Although ethical issues have been expressed in conceptual and policy papers, there is limited quantitative research on the factors that might influence the responsible use of AI among university students (Crompton & Burke, 2023). In addition, most of the current studies have been carried out in technologically developed areas, which are less transferable to the context of the Sub-Saharan African Higher Education (HE) (Ahmad Malik et al., 2025).

There is another theoretical shortfall related to the use of behavioral models in the field of AI ethics education. The Theory of Planned Behaviour (TPB), which posits that attitudes, subjective norms, and perceived behavioural control all shape behaviour, has been used effectively in technology acceptance studies but has not been widely used in the context of ethical AI use in the higher education context (Yang et al., 2025). How ethical awareness, attitudes towards AI, and institutional guidance interact to influence students' ethical behaviour in the context of this theory is a significant and underexplored theme of inquiry (Nguyen et al., 2023).

The present study fills in three important gaps in the literature. First, it shifts the research agenda from AI adoption and acceptance to the ethical action of University students. Second, it explores how the Theory of Planned Behaviour can help shed light on the linkages between ethical awareness, attitudes towards AI, and perceived institutional guidance on the ethical use of AI. Third, it offers empirical evidence from a context not well-documented in the literature with pupils from West Africa studying in Guinea, The Gambia, and Senegal, Ghana, Nigeria, so widening the geographic reach of AI ethics research in Higher Education (AEHE) (Ahmad Malik et al., 2025; Obed Boateng & Bright Boateng, 2025). This study seeks to uncover the extent of ethical awareness among students regarding the use of AI, explore the connection between students' attitudes towards AI and their ethical behavior, and evaluate the impact of perceived institutional guidance on ethical use of AI (Chan, 2023). The responses to these questions provide empirical evidence on the conditions and possibilities when employing AI in Higher Education in a responsible way, and practical implications for educators, policymakers, and institutional leaders who strive to support academic integrity and ethical values in African universities.

HYPOTHESES DEVELOPMENT AND LITERATURE REVIEW.

Theoretical Background

This study is based on the Theory of Planned Behaviour (TPB) that discusses the connection between individual attitudes and external elements that affect individual behaviours (Ajzen, 2020). According to TPB, attitudes toward the behaviour, subjective norms, and PBC influence behaviour. The theory has been widely applied to describe behaviours related to ethics and technology in the educational environment.

The TPB model serves as a useful tool for comprehending and understanding students' ethical engagement with AI tools in the context of AI in higher education. The perceptions of AI, knowledge of ethical concerns, and institutional environment influence students' decisions regarding the responsible use of AI. Ethical awareness is a measure of students' awareness of responsible AI practices, while perceived institutional guidance is a measure of the policies and support, and ethical direction provided by universities.

According to the TPB model, the ethical application of AI has been shown to be influenced by students' ethical awareness, attitudes about AI, and sense of institutional support. The theory can hence be used as an appropriate lens to explore the combined influence of individual and institutional factors on the ethical behaviour of university students in West Africa.

Ethical Use of Artificial Intelligence

The responsible and appropriate application of artificial intelligence technologies that respect academic integrity, fairness, transparency, and accountability is considered an ethical use of the technology. In the academic realm, students are turning to AI tools more and more to assist with writing assignments, conducting research, solving problems, and facilitating learning activities. In the higher education sector, students are leveraging AI tools for writing assignments, conducting research, problem-solving, and facilitating learning activities. While there are many educational advantages to AI, its inappropriate use can raise ethical issues, including plagiarism, excessive use of AI-generated content, and the lack of independent learning (Dwivedi et al., 2023; Miao et al., 2023). With the rise in the adoption of generative AI, it's becoming harder to define what is and isn't acceptable use at universities. Therefore, it is crucial to be aware of what influences the ethics of AI use, to encourage responsible use of AI in education, and to uphold academic integrity within the classroom (Baidoo-Anu et al., 2024; Baidoo-Anu & Owusu Ansah, 2023; Saito et al., 2024).

Awareness and Ethical Use of AI

Ethical awareness is the students' awareness of ethics, academic honesty, and the responsible use of AI in academic activities. Ethical awareness tends to be higher when there is a deeper understanding of the boundaries of acceptable and unacceptable use of AI, and a more responsible approach to decision-making on the use of AI in learning and assessment activities. Previous studies suggest that the concept of ethical awareness is pertinent to the development of responsible behaviour towards technology. Students who have a good understanding of ethical standards and academic integrity principles are less likely to engage in behaviour that can negatively impact learning outcomes and academic integrity (Kumar Shrestha, 2025; Touati Hamad et al., 2024). However, there are also cases where awareness is not always the key to ethical behaviour, such as when students are subjected to academic pressure, find it easier to use AI tools, or the use of AI tools is not well-established and controlled. Based on this, more empirical research is required to investigate the association of ethical awareness and ethical application of AI among students, especially in the less-studied context of West Africa.

Thus, in this paper, we hypothesize as follows:

H1: Ethical awareness has a significant effect on the ethical use of artificial intelligence.

Attitude toward AI and Ethical Use

Attitude towards AI is the positive or negative evaluation of the AI technologies used in academic activities carried out by the students. In the theory of Planned behaviour, attitude is one of the most important factors that affect behaviour, as the person with a positive attitude towards the behaviour is likely to take it out responsibly and consistently (Ajzen, 2020). Research indicates that attitudes towards AI can impact the educational use of AI tools (Oncioiu & Bularca, 2025; Miao et al., 2023). Research has revealed that attitudes towards AI have been shown to influence the adoption and use of AI in learning. Students who perceive AI as useful, beneficial, and supporting learning are more likely to use AI technologies constructively, in general (Baidoo-Anu et al., 2024; Dwivedi et al., 2023). However, there are concerns that if students use AI tools simply as shortcuts and for convenience, rather than to learn, they may be tempted to cheat. Therefore, it is essential to study the correlation between students' attitudes and the ethical use of AI, especially in the context of new educational environments where the use of AI is rapidly growing.

Thus, in this paper, we hypothesize as follows:

H2: Attitude toward artificial intelligence has a significant effect on the ethical use of artificial intelligence.

Institutional Guidance and Ethical AI Use:

Institutional policies, regulations, training programs, and support that are provided by educational institutions regarding the use of AI in academic activities. As AI tools become more common in higher education, institutions need to establish guidelines and expectations for students regarding the use of such technology. Studies to date show that institutional policy and direction have an important influence on responsible uses of

technology and academic honesty. Clear policies and guidance, along with educational resources, inform students of the acceptable use of AI and minimize confusion about the ethical use of AI tools (Miao et al., 2023; Oncioiu & Bularca, 2025). On the other hand, the lack of institutional guidance might also result in unethical uses of AI due to a lack of understanding in terms of ethical boundaries and academic demands. Instruments, or institutional AI governance instruments, may require even a greater focus on institutional guidance in innovative learning environments in which they are still being developed. Therefore, the impact of perceived institutional guidance on ethical use of AI is worth examining to gain insights into how universities can influence students' ethical use of AI.

Therefore, the following hypothesis is proposed:

H3: Institutional guidance has a significant effect on the ethical use of artificial intelligence

METHOD

Research Design

A quantitative study design was used in this research to determine the factors that affect the ethical use of artificial intelligence among university students. The approach employed was the cross-sectional survey method, which is suitable for this type of study as it is used to assess relationships between variables at a specific time and is well-suited for testing theoretically predicted hypotheses within a specified population (Creswell, 2023; Saunders, 2019). The design is especially suitable for the present study, which aims to understand the cross-sectional relationships between ethical awareness, attitude toward AI, and perceived institutional guidance and ethical use of AI without the need for longitudinal observation.

Sample and Data Collection

The participation in the study was voluntary, and the respondents were informed of the purpose of the research before answering the questionnaire. The target population was international students from Guinea, Ghana, Nigeria, The Gambia, and Senegal who were studying in bachelor's, master's, and doctoral programs in higher education institutions in Indonesia, Malaysia, and Singapore. The countries chosen were those from West Africa that are studying in Southeast Asia, as their students constitute an ethically relevant population to explore how AI is being used in an international academic setting.

Data were collected over two months using an online questionnaire developed through Google Forms. International student WhatsApp groups were used for this survey to recruit participants. They all took part anonymously, and any information they gave was kept confidential and only used for academic research. The sampling method adopted was non-probability sampling, including convenience and snowball sampling, as participants were selected from available student social networks on WhatsApp groups. All five countries were represented in the sample, but the numbers of respondents in each country were not predetermined or balanced, which may influence the evenness of each country's representation in the results. Stratified sampling could be employed in the future to obtain equal numbers of countries included in each sample. This study was carried out on the basis of the ethical rules of the researchers' institution, based on the principle of voluntary participation in research, informed consent, anonymity, and confidentiality.

After eliminating the incomplete or inconsistent responses, 200 valid responses were acquired and analysed (Saunders, 2019). Hair et al. (2019) suggest that the rule of thumb is 50 observations per independent variable for multiple regression analysis. There are three independent variables, and the number of participants (200) is well-suited to this requirement.

Variables and Measurement

Ethical use of artificial intelligence was the dependent variable of this study, whereas the independent variables were awareness, attitude towards artificial intelligence, and institutional guidance. Several items on a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree) were used to evaluate each construct. In social sciences research, attitudes, perceptions, and behavioural tendencies are measured using Likert scales (Ghanbari

& Nowroozi, 2022). All items were adapted from validated instruments used in previous studies related to AI in education, academic integrity, and technology ethics (Baidoo-Anu & Owusu Ansah, 2023; Dwivedi et al., 2023; Oncioiu & Bularca, 2025), and were contextualised to reflect the academic environment of the respondents. The scores for each construct were obtained from the mean responses of each respondent for the items composing that construct. High scores reflect higher levels of awareness, positive attitudes toward AI, perceived institutional guidance, and ethical use of AI.

Validity and Reliability

Reliability and validity of the measurement instrument were determined to ensure the quality of the measurement instrument. The reliability was measured using Cronbach's alpha coefficient construct, with values above 0.70 considered acceptable in social science research (Hair et al., 2019). Content was validated by reviewing the literature to ensure that items reflected the theoretical domain of each construct. Average Variance Extracted (AVE) was used to validate the convergent validity, and values exceeding 0.50 were deemed as acceptable (Hair et al., 2019). The square root of AVE for all constructs was validated against their correlation with other constructs by discriminant validity.

The reliability and validity results are presented in full detail in the Results section including Cronbach's alpha values and Average Variance Extracted for each construct (Table 5 and Table 6).

Model Specification

A multiple linear regression was used to investigate how the independent variables impacted the ethical use of AI:

$$\text{Ethical Use} = \beta_0 + \beta_1(\text{Awareness}) + \beta_2(\text{Attitude toward AI}) + \beta_3(\text{Institutional Guidance}) + \varepsilon$$

Multiple regression analysis can be used to determine the effect of multiple independent variables on one dependent variable (Uyanık & Güler, 2013).

Data Analysis Techniques

Data analysis was done using the statistical software STATA. All variables were summarized with descriptive statistics. Pearson correlation analysis was used to analyse the strength and direction of relationships among variables. The three hypotheses were then tested with multiple linear regression analysis. The Variance Inflation Factor (VIF) was checked for any possible problems of multicollinearity with the independent variables, where a VIF value less than 10 is deemed as not having any problem of multicollinearity (Hair et al., 2019).

RESULTS AND DISCUSSION

Demographic profile of respondents:

The demographic characteristics of the 200 respondents are presented in Tables 1, 2, and 3, covering gender distribution, country of origin, and academic level, respectively.

Table1. Gender Distribution of respondents (n=200)

Gender	Frequency (n)	Percentage %
Male	110	55
Female	90	45
Total	200	100

Note. Data collected via a structured online questionnaire

Table 2. Country of Origin Distribution of respondents (n=200)

Country	Frequency (n)	Percentage %
Nigeria	55	27.5
Ghana	50	25
The Gambia	38	19
Senegal	30	15
Guinea	27	13.5
Total	200	100

Note. Respondents are West African students currently studying in Southeast Asia

Table 3. Academic Level Distribution of Respondents (n=200)

Academic Level	Frequency (n)	Percentage %
Bachelor's degree	90	45
Master's degree	60	30
Doctoral degree	50	25
Total	200	100

Note. Academic level refers to the respondent's current level of study at the time of data collection.

Assumption Testing

In order to make sure that the results of this main analysis are valid and reliable, all the statistical assumptions used in multiple regression were tested first. As shown in Table 4, the Shapiro-Wilk test showed that the residuals were normally distributed ($W = 0.991$, $p = 0.284$), and the Breusch-Pagan test showed that there was homoscedasticity ($\chi^2 = 0.03$, $p = 0.918$). The linearity was checked using residual versus fitted value plots, and the multicollinearity was checked by the Variance Inflation Factor (VIF), all of which were within the range of 1.00-1.02. The survey design provided for the independence of observations. All of the assumptions were met.

Table 4. Assumptions Testing Results

Assumption	Test / Method	Result	Conclusion
Normality	Shapiro-Wilk test	$W = 0.991$, $p = 0.284$	Confirmed
Homoscedasticity	Breusch-Pagan test	$\chi^2 = 0.03$, $p = 0.918$	Confirmed
Linearity	Residual vs Fitted plot	No violation detected	Confirmed
Multicollinearity	VIF	$VIF = 1.00 - 1.02$	Confirmed
Independence	Survey design	Independent responses	Confirmed

Note. $VIF < 10$ indicates no multicollinearity; $p > 0.05$ for Shapiro-Wilk and Breusch-Pagan confirms normality and homoscedasticity.

Reliability Analysis

Before the main analysis, the internal consistency of each measurement scale was analysed with the alpha coefficient of Cronbach. All four constructs had alpha values ranging from 0.865 to 0.919 (as seen in Table 5), which were above the level of 0.70 recommended by Nunnally (1978). In particular, Ethical Awareness had an $\alpha = 0.878$, Attitude toward AI had an $\alpha = 0.866$, Institutional Guidance had an $\alpha = 0.919$, and Ethical Use of AI had an $\alpha = 0.865$. The results of this study support the internal consistency and reliability of the measurement instrument for each construct.

Table 5: Reliability Analysis (Cronbach's Alpha)

Variables	No. of Items	Cronbach's Alpha (α)	Reliability
Ethical Awareness (AW)	4	0.878	Good
Attitude toward AI (AT)	4	0.866	Good
Institutional Guidance (IG)	4	0.919	Excellent
Ethical Use of AI (EU)	4	0.865	Good

Note. $\alpha > 0.70$ is considered acceptable; $\alpha > 0.80$ is considered good; $\alpha > 0.90$ is considered excellent (Nunnally, 1978).

Validity Analysis (AVE)

Average Variance Extracted (AVE) for each construct was used to validate the convergent validity. All four constructs were found to be above the recommended value of 0.50 (Fornell & Larcker, 1981), thus satisfying the measurement items' representation of the constructs. The highest AVE was observed in the case of Institutional Guidance (AVE = 0.740), followed by Ethical Awareness (AVE = 0.644), Ethical Use of AI (AVE = 0.616), and Attitude toward AI (AVE = 0.619). Findings indicate good convergent validity at all constructs.

Table 6: Validity Analysis (Average Variance Extracted)

Construct	AVE	Threshold	Validity
Ethical Awareness (AW)	0.644	> 0.50	Valid
Attitude toward AI (AT)	0.619	> 0.50	Valid
Institutional Guidance (IG)	0.740	> 0.50	Valid
Ethical Use of AI (EU)	0.616	> 0.50	Valid

Note. AVE > 0.50 indicates satisfactory convergent validity (Fornell & Larcker, 1981).

Descriptive Statistics

The descriptive statistics for all the study variables are shown in Table 7. The mean scores for Ethical Awareness (M = 2.990, SD = 0.761), Attitude toward AI (M = 2.996, SD = 0.729), and Institutional Guidance (M = 3.002, SD = 0.883) show a moderate level for all three independent variables. The mean score for Ethical Use of AI was 2.950 (SD = 0.685), indicating moderate ethical use of AI. The variables used were measured on a 5-point Likert scale, with 1 being Strongly Disagree and 5 Strongly Agree.

Table 7: Descriptive Statistics (n = 200)

Variable	Mean	Std. Dev.	Min	Max
Ethical Awareness (AW)	2.990	0.761	1.00	5.00
Attitude toward AI (AT)	2.996	0.729	1.00	5.00
Institutional Guidance (IG)	3.002	0.883	1.00	5.00
Ethical Use of AI (EU)	2.950	0.685	1.00	4.75

Note. All variables were measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

Correlation Analysis

The Pearson correlation matrix of all study variables is given in Table 8. The results show that both Institutional Guidance ($r = 0.520$, $p < 0.001$) and Attitude toward AI ($r = 0.326$, $p < 0.001$) are positively and significantly related to the Ethical Use of AI, which supports H2 and H3, to an initial extent. Ethical Awareness, in turn, had a weak negative and non-significant correlation with Ethical Use of AI ($r = -0.132$, $p = 0.063$), providing an initial hint of H1 rejection. Also, the intercorrelations between the three independent variables are very low (between -0.118 and 0.044), indicating that there is no multicollinearity.

Table 8: Pearson Correlation Matrix

Variable	AW	AT	IG	EU
AW – Ethical Awareness	1.000	−0.006	−0.118	−0.132
AT – Attitude toward AI	−0.006	1.000	0.044	0.326
IG – Institutional Guidance	−0.118	0.044	1.000	0.520
EU – Ethical Use of AI	−0.132	0.326	0.520	1.000

Note. $p < 0.001$. Two-tailed significance tests.

Multiple Regression Analysis (H1, H2, H3)

Because multiple regression analysis is a method used to examine the direct relationship between two or more variables, in this study, it was used to investigate the direct relationship between the variables of Ethical Awareness (H1), Attitude toward AI (H2), Institutional Guidance (H3), and Ethical Use of AI. As shown in Table 9, the overall model was statistically significant ($F(3, 196) = 42.38$, $p < 0.001$), accounting for 39.4% of the variance in Ethical Use of AI ($R^2 = 0.394$; Adjusted $R^2 = 0.385$).

The following results were not significant, as Ethical Awareness did not significantly predict Ethical Use of AI ($\beta = -0.061$, $t = -1.205$, $p = 0.230$). The results indicate that knowledge and understanding of ethics are not enough to produce ethical behaviour. Attitude toward AI was a significant positive predictor of Ethical Use of AI ($\beta = 0.325$, $t = 6.220$, $p < 0.001$) and was supported. However, H3 was also supported, with the strongest predictor of Ethical Use of AI being Institutional Guidance ($\beta = 0.407$, $t = 9.372$, $p < 0.001$), suggesting that well-defined institutional policies are the most significant factors impacting student attitudes toward ethical use of AI.

Table 9: Multiple Regression Results – Direct Effects on Ethical Use of AI

Predictor	β	SE	t-value	p-value	Hypothesis
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Constant	0.935	0.269	3.471	0.001	—
Ethical Awareness (AW)	−0.061	0.050	−1.205	0.230	H1 ✗
Attitude toward AI (AT)	0.325	0.052	6.220	0.000	H2 ✓
Institutional Guidance (IG)	0.407	0.043	9.372	0.000	H3 ✓

Note. $R^2 = 0.394$; Adjusted $R^2 = 0.385$; $F(3, 196) = 42.38$, $p < 0.001$. $p < 0.001$; ns = not significant ($p > 0.05$)

DISCUSSION

This research examined the factors influencing the ethical use of artificial intelligence AI among west Africa studying in Southeast Asia using the Theory of Planned Behaviour (TPB). The research results show that attitudes towards AI and institutional guidance have a significant effect on ethical use of AI, while ethical awareness does not. The model accounted for 39.4% of the variance in ethical use of AI, indicating a role for individual perceptions and institutional influences on students' ethical use of AI technologies.

Interestingly, the variable ethical awareness did not significantly predict ethical AI use, so that H1 was rejected. This finding suggests that understanding ethical principles related to AI does not necessarily translate into ethical behaviour. While students might know about academic integrity, plagiarism, and responsible use of AI, that doesn't always prevent them from engaging in practices that might be considered less than academically honest under the pressure of deadlines, academic requirements, or the ease of generative AI. The result corroborates earlier studies that have shown that ethical awareness is not enough to change behavior without having a sufficient motivator or environmental factor (Kumar Shrestha, 2025; Nguyen et al., 2023). TPB sees awareness as an indirect influence on behaviour. On the contrary, attitudes, subjective norms, and perceived behavioural control (Ajzen, 2020) are factors that influence behaviour. Therefore, the findings in this study indicate that the effects of raising students' awareness of the ethical implications of AI are likely to be minimal without the necessary institutional frameworks and positive behavioral attitudes. It is significant in the context of Sub-Saharan Africa, where the formal ethics education and governance frameworks for AI are still in the process of being developed (Ahmad Malik et al., 2025).

The findings support the hypothesis (H2) that attitude to AI has a positive effect on ethical use of AI. This is in line with the finding in TPB, attitude is one of the factors that predict behaviour (Ajzen, 2020). The more students recognize the positive potential of AI in their learning, the more likely they are to use it responsibly as a learning aid for conducting research, learning, and academic development. On the other hand, those who see AI mainly as a means to an end are more susceptible to unethical use. However, students might be more susceptible to unethical practices if they perceive AI primarily as a tool to get things done. The results are consistent with the earlier studies that have demonstrated that positive perceptions of AI foster positive and responsible use of educational technologies (Baidoo-Anu et al., 2024; Dwivedi et al., 2023; Yang et al., 2025). The findings indicate that the perception of AI needs to be balanced and informed, with education and ethical limits firmly in place, which should be reinforced by universities.

Institutional guidance was the most significant predictor of ethical AI use and therefore served as support for H3. This result is very important and shows the importance of Universities in influencing students' ethical conduct through university policies, training programs, and university governance. The rise of new AI technologies and their swift development can sometimes leave students with questions about what's allowed and not allowed with AI in academic assignments. This ambiguity can be mitigated with clear institutional guidance to set expectations and expectations for behavior that propel responsible AI use. This finding aligns with the recommendations of UNESCO (2023), Chan (2023), and Oncioiu and Bularca (2025) that highlight the role of institutional governance in ethical use of AI in higher education. In the context of TPB, the impact of subjective norms is evident in institutional guidance, which refers to the extent to which students feel that their institutions require and encourage them to use AI responsibly. The discovery holds special significance for students in West Africa who are attending schools in other countries, where AI governance regulations are still under

development. Therefore, clear and consistent guidance on ethical practices in AI is a key component in the work of host universities.

In sum, the results reveal that although ethical awareness plays a role, students' attitudes and institutional environments have a more significant impact on their ethical behaviour in using AI. That's because the study contributes to the use of TPB in the context of AI ethics in higher education and empirical evidence from a population that has been less studied in the context of West African students studying abroad. The findings indicate that while awareness campaigns are a necessary component of promoting ethical use of AI, building positive attitudes towards AI and establishing ethical governance structures are also crucial.

CONCLUSION

This study explored the factors that shape the ethical application of artificial intelligence (AI) among the students of West Africa studying in Southeast Asian universities. The study was based on the Theory of Planned Behaviour (TPB) and examined how ethical awareness, attitude toward AI, and institutional guidance influence the use of AI for ethics. Drawing inspiration from the Theory of Planned Behaviour (TPB), the study investigated the impact of ethical awareness, attitude towards the use of AI, and institutional guidance on ethical use of AI. It was found that attitude and institutional guidance were significant factors in explaining ethical AI use and had a strong positive relationship, while there was no significant relationship between ethical awareness and ethical AI use. The findings indicate that having an understanding of ethical principles is not enough to foster responsible AI behaviour. Rather, a positive attitude toward AI and setting a clear tone for appropriate use are more likely to lead to the ethical use of AI in education. Responsible AI use is best predicted by institutional guidance, underscoring the significance of universities in developing policies, training programs, and governance structures that enable the responsible use of AI. This research builds upon the existing body of work on AI ethics in Higher Education by exploring the application of TPB to ethical AI behaviour. It is also an empirical study of a somewhat under-researched group of West African students studying in an international educational setting. In the future, universities need to urgently promote positive attitudes toward AI and build a comprehensive institutional structure to promote ethics and responsibility in the use of AI technologies.

Restrictions and Future Research

There are some limitations that should be taken into consideration when interpreting the findings of this study. The first limitation of the study was the use of a cross-sectional research design, which does not allow causal relationships between the variables to be determined. Longitudinal designs could be employed in future studies to investigate the evolution of ethical AI behaviour. Second, the data were gathered through self-reported questionnaires that could lead to the social desirability and response bias. Qualitative interviews or behavioral assessments could be incorporated in future research to gain deeper insight into the students' practices related to the use of AI. Third, the study was limited to only the third group, that of students from West Africa studying in Southeast Asia. This is important information about a population that is underrepresented; however, conclusions drawn may not be fully applicable to other groups of students and/or educational settings. Further studies should be conducted with individuals from other areas and institutional contexts. Lastly, the model accounted for 39.4% of the variance in ethical use of AI, suggesting that other factors might also affect ethical behaviour. Future studies may explore additional factors like AI literacy, perceived behavioural control, academic stress, subjective norms, and cultural influences to provide a more in-depth perspective on ethical AI usage in higher education.

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