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Factors Associated with the Ethical Use of Generative AI in Academic Content Development while Maintaining Academic Integrity: Evidence from Distance Learning

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Abstract

While the use of generative artificial intelligence (GenAI) in academic work offers benefits such as increased efficiency and improved content development, it has also raised concerns regarding academic integrity, source and content verification, and the ethical use of AI in academic contexts. Empirical evidence examining these factors collectively within distance-learning contexts remains limited. This study examined factors associated with the ethical use of GenAI in academic content development while maintaining academic integrity among distance-learning content developers. A quantitative approach was employed at Allama Iqbal Open University (AIOU), Pakistan. Data were collected from 121 distance-learning content developers using a validated questionnaire. Descriptive statistics, Pearson correlation, and multiple linear regression were used to examine the levels, relationships, and predictors of ethical practice. Participants reported high levels of perceptions toward AI and academic integrity (M = 4.01), knowledge (M = 3.91), and ethical

practice (M = 3.69), while AI capabilities and skills were at a moderate level (M = 3.30). Pearson correlations showed significant positive relationships among all study variables. Multiple regression indicated that knowledge (β = .380, p = .003) and AI capabilities and skills (β = .324, p = .001) significantly predicted ethical practice, whereas perception did not make a significant independent contribution (β = .111, p = .257). The model explained 50.2% of the variance in ethical practice (R^2 = .502). The findings indicate that ethical GenAI use in distance-learning content development is more strongly associated with knowledge of academic integrity and practical AI capabilities and skills than with positive perceptions alone. The study highlights the need for intentional professional development in AI literacy and academic integrity, supported by human oversight, verification, continuous learning, and clear institutional guidance.

Keywords: Academic integrity, AI literacy, Content development, Distance learning, Generative AI, Higher education, Human oversight, Responsible use of AI

1. Introduction

The fast pace of development of generative artificial intelligence (GenAI) technology has reshaped the generation, organization, editing, and dissemination of academic content, redefining the role of students, scholars, and educators in academic writing. Previously, writing-support technologies have primarily targeted grammar correction and proofreading stages, whereas current large language models like ChatGPT are cognitive tools for brainstorming, paraphrasing, summarizing, language refining, exploring literature, and structuring content in the writing process (Abbas & Teyebi, 2025; Ateriya et al., 2025). GenAI has thus become a subject of substantial discussion and brought the debate about its influence on higher education, envisioning it both as a radical and transformative technology which can shape the future of education as well as put demands on how education is conceived (Gulumbe et al., 2025; Sharma & Panja, 2025). GenAI is therefore, a double-edged technology that provides for the opportunity to advance academic content development, as well as concerns for responsible and ethical use.

Though researchers have acknowledged that AI-assisted writing now forms a significant aspect of the academic practices in the modern world, no consensus exists about the ethics of effectively utilizing AI and the institutional measures required to uphold academic integrity for effective use of AI (Daniel et al., 2026; Lund et al., 2025). While the transformative power of AI in learning and

academic tasks is well recognized, opinions vary on the implications for academic integrity. While some researchers see AI as a valuable learning tool, others worry about how AI is furthering the avarice use of generative tools, and the issue of independence with ideas. While some value AI tools as potential aid, researchers have noted that a higher understanding of AI technologies was correlated with a lower ethical stance of the student and that using it more frequently may lead to unethical academic behaviors (Elom et al., 2025). In the same vein, Odongo and Njoroge (2025) proposed that the application of AI tools for paraphrasing, plagiarism, content creation and generation has brought new challenges to plagiarism detection, which may be beyond the limitations of traditional plagiarism detection tools.

Conversely, Lund et al. (2025) discovered that students' ethical attitudes were the most effective predictors of their AI usage and perceptions of academic dishonesty, while institutional policies on the responsible use of AI were not significantly related to ethical attitudes or responsible AI use. The different results imply that ethical application of AI might not only be a function of the existence of AI technologies (or institutional policies), but also of users' perceptions and understanding of the ethical use of the technologies. As AI becomes more commonplace in academic activities, some researchers are now rethinking the definition of academic integrity. Past research on academic dishonesty has focused mainly on plagiarism, cheating, lying, and violation of rules, as well as the importance of building a good academic climate, values, and self-control in order to promote academic dishonesty (Błachnio et al., 2022; Bretag, 2020). However, academic integrity should not be thought of simply as one of the student's obligations to follow the rules, but rather as an institutional responsibility based on the values of honesty, trust, fairness, respect, and responsibility (Bretag, 2020). The principles are further expanded and applied in the context of generative AI to cover responsible behaviors like stating AI involvement, reviewing AI-generated material, maintaining human authorship and intellectual contribution, and critically assessing AI-generated knowledge (Daniel et al., 2026; Ateriya et al., 2025). Therefore, the use of GenAI in content creation should not take the place of regular academic integrity guidelines for students, but rather, should add an extra level of academic integrity to the student's relationships with AI tools.

The goal of this study was to explore distance-learning content developers' ethical use of generative artificial intelligence (GenAI) and their maintenance of academic integrity when creating academic content. While existing research has focused on perceptions of writing with AI,

perceptions of AI literacy, academic integrity and responsible use of AI, there is a lack of empirical evidence on the connections between perceptions toward AI and academic integrity, knowledge of academic integrity in the creation of AI-assisted distance-learning content, capabilities and skills of AI, and ethical uses. Specifically, very few studies have investigated how much knowledge and hands-on competencies and abilities, in addition to perception, facilitate ethical behavior when using GenAI in academic content creation. Otherwise, it is uncertain that there is enough empirical evidence to support the use of open and distance education in developing country settings. Hence a quantitative examination is conducted in the present study on these factors in case of Allama Iqbal Open University (AIOU) Pakistan distance learning content developer.

2. Literature Review

Given recent empirical research, a general finding is that generative AI can be applied as a supportive, rather than replacement, technology, and if so, can enhance writing efficiency and aid academic tasks. Abbas and Teyebi (2025) conducted a study on the use of ChatGPT among doctoral researchers in Algeria and identified that the majority of the respondents relied on ChatGPT, Grammarly, and QuillBot, primarily for idea generation, content paraphrasing, and language enhancement. Most respondents found these tools were useful for improving productivity, the quality of their writing, and that AI tools need to be used alongside their own reasoning. In a comparable vein, Ateeq et al. (2024) demonstrated that AI can facilitate positive impacts on students' performance, personalization, and engagement in the learning process. All these says collectively indicate that when GenAI is not used to replace human intellectual contribution, rather to support them in cognitive and content-development activities then it can help them in solving these. On the other hand, not all the positive aspects of GenAI guarantee that it will be used ethically in academic writing. Development and refinement of academic content therefore, should be done with responsible use with a level of human judgment, critical evaluation, and appropriate guidance.

This paradigm shift can be seen in today's literature when considering AI's use, with a focus on responsible integration and not a ban on the tech. They repeatedly highlight a number of requirements to prevent the wrongful use of AI tools in academic writing and content creation, including transparency, accountability, human oversight, and critical evaluation of AI-generated content (Ateriya et al., 2025; Daniel et al., 2026; Gulumbe et al., 2025). To protect academic

integrity, Ateriya et al. (2025) suggest the use of AI disclosure, AI verification, and ongoing human oversight. Likewise, Daniel et al. (2026) stress the need for AI literacy, fairness, bias, and ethical stewardship in institutional approaches to using AI. Gulumbe et al. (2025) further emphasized that despite the variations in university and academic journal policies on permissible use of AI and disclosure and authorship authors, there is a need to ensure that all such practices are taken with accountability and transparency. In testing the breadth of responses at higher-education institutions, Sharma and Panja (2025) found wide-ranging responses from the most restrictive to the most progressive, including AI-enabled pedagogies, but pointed out that such disjointed institutional policies can hinder the effectiveness of academic-integrity efforts. These studies all together suggest that the use of GenAI is not only a matter of institutional regulation but also involves recognizing, assessing, and using the AI-generated content competently while maintaining the user's accountabilities in academic production. Finally, the literature tends to highlight the importance of a holistic strategy to responsible AI use which includes institutional guidance, education, and professional development and not policy statements alone. Sharma and Panja (2025) and Gulumbe et al. (2025) discussed how institutional structures can help manage the issue of academic integrity in the era of Generative AI, noting, however, that policies are not always enough to shape individuals' ethical actions.

In turn, Mattieh et al. (2024) also observed that personal ethics had no significant effect on student practices with AI, which indicates that the moral understanding acquired during the education process may be a key factor in fostering responsible usage. Meanwhile, the understanding of the responsible use of AI can differ based on educational background, disciplinary background, and cultural influences. Abbas and Teyebi (2025) found that doctoral researchers perceived AI as a tool for assisting their intellectual efforts but also raised concerns about the excessive dependence on AI and the potential for plagiarism. Likewise, Cheng et al. (2025) experienced disciplinary variations in East Africa in the perception of attitudes toward the adoption of AI, with participants in engineering exhibiting higher levels of AAT than those in the humanities. The humanities in turn placed a higher value on themes of authorship, scholarly voice, and originality. This could indicate that attitudes towards AI and academic honesty can play a role in shaping the adoption of GenAI responsibly, and both may differ depending on the context. The differences indicate that they are context specific and therefore results from monodisciplinary and mono-regional studies

must not be understood outside of the traditions of the disciplines, the culture of the educational system, or the culture of the countries.

A shift from identifying ethical issues towards encouraging ethical engagement with AI is coupled with rising demand for AI literacy as a key and trending measure in addressing innovation and academic integrity. Rather than limit or prohibit students from using AI, learning skills assessments need to enable them to assess and audit information that AI generates, as well as validate citations, and identify hallucinated or "AI-only" information in class assignments to ensure that class work reflects actual human intellectual work, Daniel et al., (2026) and Ateriya et al., (2025) propose. Similarly in pedagogy, there are an increasing number of tasks where students are asked to record AI interactions, check output of AI tools, and critically consider the advantages and disadvantages of AI tools during the research process (Daniel et al., 2026). Abbas and Teyebi (2025), too, demonstrate that there is a strong acceptance for formal institutional instruction on how to use AI ethically in writing, and Ateeq et al. (2024) indicate that providing meaningful educational experiences and controlling technologies can be more effective in responsibly integrating the use of AI in writing. There is literature that suggests that engagement of AI in educational settings, such as critical thinking and human oversight, can foster responsible use and academic honesty and not restrict it from being used in this manner.

There are potential insights gained from existing literature on the use of AI for writing and development of academic materials, but there are also important limitations. First, many studies on academic dishonesty have been primarily geared towards explaining academic dishonesty based on self-perceived attitudes, perceptions, behavioral intentions or moral beliefs (Abbas & Teyebi, 2025; Cheng et al., 2025; Elom et al., 2025; Lund et al., 2025). Secondly, there is a lack of consistency in the understanding of the responsible use of AI, as studies focus on various dimensions of ethical responsibility, including plagiarism prevention and ethical aspects of AI in education (Ateriya et al., 2025), awareness of ethical risks (Daniel et al., 2026), disclosure practices (Gulumbe et al., 2025), institutional policies, and AI literacy. The finding indicates that several dimensions and aspects of responsible use can influence how users use AI, raising the potential level of knowledge and practical skills needed for responsible AI usage. Thus, there is a call for more empirical research to explore the relationship between perceptions of AI and academic integrity, awareness of academic integrity in the context of AI-generated content, and the

capabilities and skills related to AI usage and academic integrity with ethical use of AI and upholding academic integrity.

3. Conceptual Framework of the Study

The conceptual framework of the present study was developed through a synthesis of the latest literature, which focused on generative artificial intelligence (GenAI), artificial intelligence literacy, responsible artificial intelligence, and academic integrity. The existing literature implies that for responsible utilization of GenAI within academic endeavors, it is essential to have more than just access to the technology and positive attitudes. Requires understanding of ethical guidelines, hands-on proficiencies with AI technologies, critical thinking and evaluation skills, and adherence to ethical academic practices (Ateriya et al., 2025; Daniel et al., 2026; Lund et al., 2025). Therefore, the present study will explore the perceptions of AI and academic integrity, the level of awareness about academic integrity in AI-generated content, as well as AI capabilities and skills, as factors linked to ethical practices in AI use while preserving academic integrity.

It is based on three interdependent perspectives including AI literacy, responsible AI, and academic integrity. AI literacy encompasses more than just the skills needed to use AI tools; it also involves an understanding of their capabilities, limitations, and appropriate use, as well as the ability to evaluate the results generated by AI. (Daniel et al., 2026; Long & Magerko, 2020; Ng et al., 2021). Responsible AI focuses on key principles like human oversight, transparency, accountability, fairness, and responsible decision-making (Ateriya et al., 2025; Floridi & Cowls, 2022; Gulumbe et al., 2025; OECD, 2024; UNESCO, 2021). Likewise, the principles of academic integrity are based on honesty, trust, fairness, respect, responsibility, and accountability, values that are also crucial when using GenAI in the creation of academic content (Bretag, 2020; Lund et al., 2025). Drawing from the synthesis of these views, the current study views the ethical use of GenAI in the creation of academic content with academic integrity as an outcome variable. The beliefs about AI and academic integrity, knowledge of academic integrity in writing with AI, and AI skills and capabilities are explored as three factors that could predict this ethical practice. Perceptions were seen as content developers' beliefs about AI and its connection to academic integrity, knowledge was seen as content developers' understanding of the requirements and expectations for academic integrity and using AI responsibly, and capabilities and skills were seen as content developers' hands-on expertise and knowledge of working with AI-generated content. Therefore, these factors

are expected to be correlated to the implementation of GenAI on ethics in academic content creation.

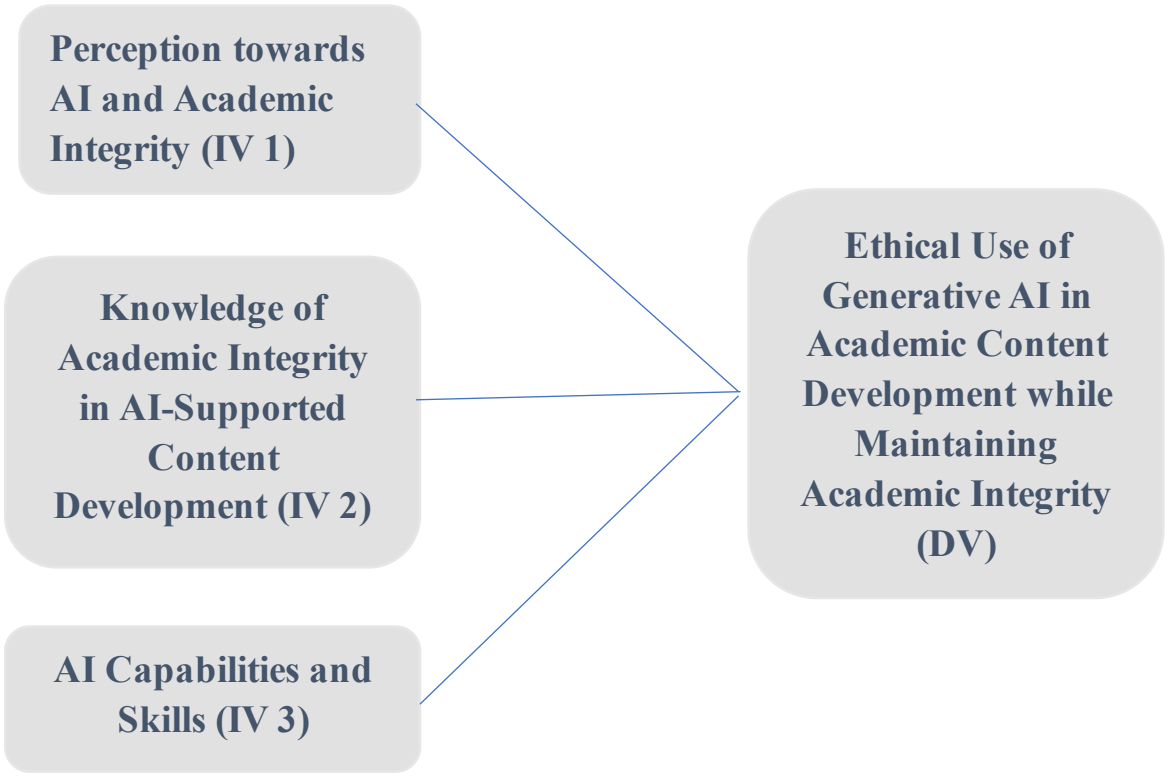

Figure 1: Conceptual framework of factors associated with the Ethical Use of Generative Artificial Intelligence in Academic Content Development while Maintaining Academic Integrity

The conceptual framework of the study is presented on Figure 1. This depicts the hypothesized connections between the three predictor variables and the dependent variable. The framework serves as a foundation for exploring the intersections of the variables at the various levels, how the variables relate to each other, and how variables predict ethical GenAI practices for distance-learning content developers. As shown in Figure 1, this study's conceptual framework is a result of the integration of three complementary perspectives: AI literacy, responsible AI, and academic integrity. These perspectives offer the theoretical underpinning that can be used to understand some potential factors involved in the ethical use of Generative AI in academic content development. In this regard, it is viewed that AI literacy goes beyond just knowing how to use AI tools; it involves an understanding of both the limitations and potential of AI, its secure and effective application, and the critical evaluation of AI generated outputs, all of which are responsibly undertaken in a responsible manner (Daniel et al., 2026; Long & Magerko, 2020; Ng et al., 2021). Therefore,

knowledge and AI capability and skills are understood to be crucial in content developers' decisions on using GenAI in academic content development.

Together these dimensions encompass academics' cognitive, behavioral and ethical agenda for responsibly utilizing generative AI in academic content development. Users' perceptions, ethical awareness, AI literacy, institutional guidance, and reflective judgement are also expected to have an impact on the responsible use of AI, in addition to technological competence, as suggested by previous studies (Abbas & Teyebi, 2025; Cotton et al., 2024; Daniel et al., 2026; Elom et al., 2025; Kasneci et al., 2023; Tlili et al., 2023). Likewise, there have been many studies on the use of AI in academic writing that emphasized the need to protect academic integrity, transparency, critical thinking, and human oversight when using AI tools (Ateriya et al., 2025; Gulumbe et al., 2025; Sharma & Panja, 2025).

4. Objectives of the study

1. To assess the levels of perceptions toward AI and academic integrity, knowledge of academic integrity in AI-supported content development, AI capabilities and skills, and ethical practices in the use of generative AI among distance-learning content developers.
2. To examine the relationships between perceptions toward AI and academic integrity, knowledge of academic integrity in AI-supported content development, AI capabilities and skills, and ethical practices in the use of generative AI.
3. To determine whether perceptions toward AI and academic integrity, knowledge of academic integrity in AI-supported content development, and AI capabilities and skills significantly predict ethical practices in the use of generative AI for academic content development while maintaining academic integrity.

5. Research Questions

1. What are the levels of perceptions toward AI and academic integrity, knowledge of academic integrity in AI-supported content development, AI capabilities and skills, and ethical practices in the use of generative AI among distance-learning content developers?
2. What relationships exist between perceptions toward AI and academic integrity, knowledge of academic integrity in AI-supported content development, AI capabilities and skills, and ethical practices in the use of generative AI?

3. To what extent do perceptions toward AI and academic integrity, knowledge of academic integrity in AI-supported content development, and AI capabilities and skills predict ethical practices in the use of generative AI for academic content development while maintaining academic integrity?

6. Research Methodology

To arrive at the findings the following research methodology was followed:

6.1. Research Design

A quantitative research design was used in this study to examine the factors associated with the ethical use of Generative Artificial Intelligence (GenAI) for academic content development while maintaining academic integrity among distance-learning content developers. The study examined perceptions toward AI and academic integrity, knowledge of academic integrity in AI-supported content development, and AI capabilities and skills as factors associated with ethical practices in the use of GenAI. The quantitative design was selected to obtain measurable evidence regarding the levels and relationships among these variables and to determine their predictive contribution to ethical AI practices in academic content development.

6.2. Population of the Study

his study was carried out in the Allama Iqbal Open University (AIOU) Pakistan. The target group were Distance learning Content Developers engaged in the process of development, coordination, writing and reviewing learning materials. These content developers were selected as the target population because their professional responsibilities involve the development and review of academic content in the distance-learning context, where the use of Generative Artificial Intelligence (GenAI) raises important considerations regarding ethical practice and academic integrity.

6.3. Sample and Sampling Technique

The participants were program coordinators, course coordinators, material development coordinators, unit writers, reviewers, academic writers and other individuals who were involved in content development activities. In the quantitative phase, 121 distance-learning content developers participated in the study and provided responses through a structured questionnaire.

Purposive sampling was used to select participants who were directly involved in the development, coordination, writing, or reviewing of distance-learning learning materials. The participants were selected because their professional involvement in academic content development made them relevant to examining the ethical use of Generative Artificial Intelligence (GenAI) while maintaining academic integrity.

7. Instrumentation

A structured questionnaire was used as the main data collection instrument in the present quantitative study. The questionnaire was developed based on the literature related to generative artificial intelligence, academic integrity, responsible artificial intelligence, and artificial intelligence literacy. The questionnaire comprised five sections: demographic information, perceptions toward AI and academic integrity, knowledge of academic integrity in AI-supported content development, AI capabilities and skills, and ethical practices concerning the responsible use of AI. A five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) was used to measure responses to the close-ended items. The questionnaire was used to obtain quantitative information regarding participants' perceptions, knowledge, capabilities and skills, and ethical practices related to the use of GenAI in academic content development while maintaining academic integrity.

7.1. Validity and Reliability of the Instrument

The questionnaire used in the present study was developed and validated before using in the main study. For content validity, the questionnaire was reviewed by seven experts, and an overall Scale-Level Content Validity Index (S-CVI/Ave) of 0.96 was obtained, indicating excellent content validity. The instrument was subsequently pilot-tested with academic content writers (N = 71). Internal consistency reliability was assessed using Cronbach's alpha and McDonald's omega. Cronbach's alpha values ranged from 0.809 to 0.961, while McDonald's omega values ranged from 0.811 to 0.962, indicating good to excellent internal consistency reliability across the scales.

8. Data Collection

The final form of the questionnaire was given to the content developers at Allama Iqbal Open University (AIOU), Pakistan for validation. Participation was voluntary and informed consent

obtained from all before participation in the study. 121 questionnaires were returned and analyzed. Respondents included people who participated in development, coordination, writing and review of distance-learning academic content. The gathered data were subsequently analyzed to explore participants' perspectives on AI and academic integrity, their awareness of academic integrity in AI-generated content creation, AI capabilities/specialism, and ethical practice in GenAI usage for academic integrity.

8.1. Data Analysis

The data obtained from the validated questionnaire was analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive data were calculated to provide a summary of the perceptions about AI and academic integrity, knowledge of academic integrity aspects for content development using AI, perception of capabilities and skills of AI and ethical practices in the use of GenAI. Pearson product-moment correlation was used to examine the study variables for their relationship. Multiple linear regression analysis was conducted to see how perceptions of AI and academic integrity, knowledge of academic integrity when using AI to create academic content, and AI capabilities and skills predicted ethical practices in using GenAI to create academic content while maintaining academic integrity. Multiple linear regression assumptions were investigated before doing the regression, namely, linearity, normal distribution of residuals, homoscedasticity of the errors, independence of the errors, multicollinearity, and influential observations. Significant level was α (two-tailed) = .05.

The socio-demographic characteristics of the participants were shown as below:

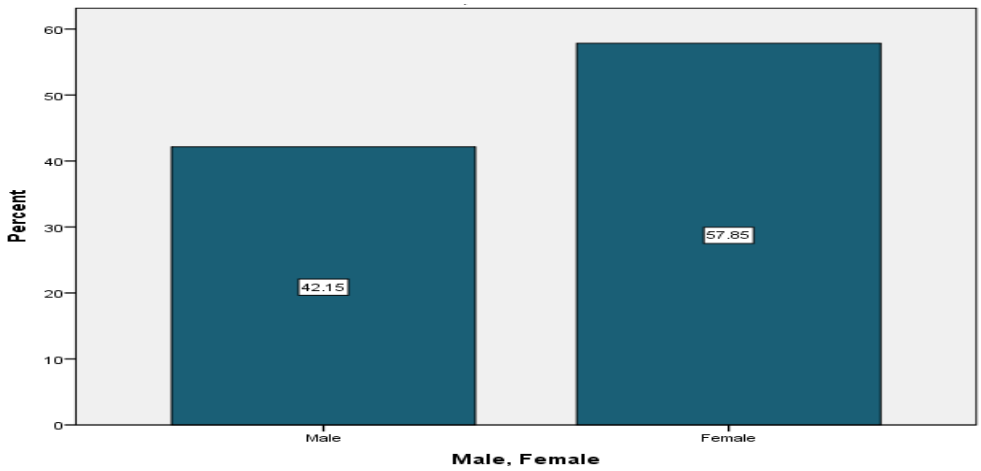

Figure 2: Gender Distribution of the Participants of the study

The gender distribution of the 121 participants for the quantitative study is shown in Figure 2. Analysis of the obtained results indicates that the total number of 51 of the respondents (42.15%) were male and 70 respondents (57.85%) were female. The proportion of male to female participants was thus slightly lower than females. There is an overall distribution that reflects the sample of the study which includes with representation both genders.

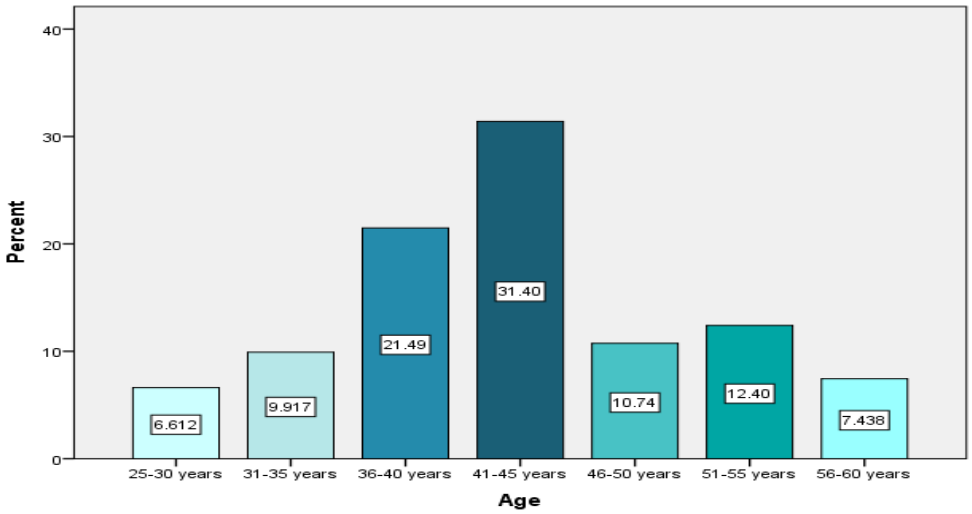

Figure 3: Age distribution of the study participants (N=121)

The age distribution of the person enrolled in the study is presented in Figure 3. The majority of the respondents were in 41-45 years old age group which was 31.40% of the respondents. This was followed by participants aged 36-40 years (21.49%) and 51-55 years (12.40%). There was a smaller proportion of age group 46-50 yrs (10.74%) and in the age group 31-35 yrs (9.92%) and there was the smallest proportion in the age group 56-60 yrs (7.44%) and 25-30 yrs (6.61%). The figure indicates that, overall, there were a variety of age groups in the participants.

Table 1: Professional Roles of the Participants

Role	*n*	% of Participants
Program Coordinator	32	26.4
Course Coordinator	39	32.2
Unit Writer	59	48.8
Reviewer	51	42.1
Academic Writer	50	41.3
Other	52	43.0

Among the various professional roles in the writers' group, the largest group comprised units' writers (48.8%), while other roles (43.0%) included additional role in unit writers group roles in managing and coordinating the content development process, followed by reviewers (42.1%). Of this group 41.3% were academic writers, 32.2% were course coordinators and 26.4% were program coordinators. Table 1 indicates that the participants were distributed across a spectrum of distance education academic product development and management occupations.

Table 2: Descriptive Statistics of the Study Variables

Variable	N	Min	Max	Mean	SD	Skewness	Kurtosis	Interpretation
Perception	121	2.57	5.00	4.01	0.54	-0.341	-0.255	High
Knowledge	121	1.31	5.00	3.91	0.89	-1.534	2.184	High
Capabilities and Skills	121	1.36	5.00	3.30	0.94	-0.272	-0.937	Moderate
Ethical Practice	121	1.69	5.00	3.69	0.88	-0.501	-0.629	High

Descriptive statistics of the 4 study variables from 121 distance-learning content developers' responses are shown in Table 2. The results were interpreted based on the equal interval classification of the five-point Likert scale, with 1.00-2.33 indicating a low level, 2.34-3.66 a moderate level, and 3.67-5.00 a high level, which are similar to the methods used previously in educational research (Gasaymeh & AlMohtadi, 2024; Ibrahim, 2013). The results indicate that there was a high level of perception towards the AI (M = 4.01, SD = 0.54) and perception towards academic integrity in content development supported by AI (M = 3.91, SD = 0.89). Ethical practice also fell in the high end of the spectrum (M = 3.69, SD = 0.88) but not far above the high-end range. Meaningfully, capabilities and skills had the lowest mean (M = 3.30, SD = 0.94) reflecting moderate levels. This trend indicates that while participants had high levels of perceptions and knowledge, they did not necessarily exhibit high levels of practical capabilities and skills in using GenAI, which suggests a gap between the perception and knowledge of responsible AI use, and the ability to do so effectively and ethically. All four variables had negative skewness indicating that the data were generally focused on the higher end of each scale. Knowledge exhibited the highest negative skewness (-1.534) and positive kurtosis (2.184), indicating a higher proportion of

responses that were concentrated towards the higher scores. The overall results show that perception, knowledge, ethical practice were very high while AI skills and capabilities were comparatively moderate, which provides a foundation to explore the connections and predictive qualities in the following correlation and regression analysis.

Table 3: Pearson Correlation Matrix of the Study Variables

Variable	1	2	3	4
1. Perception	1	.696**	.260**	.460**
2. Knowledge	.696**	1	.660**	.672**
3. Capabilities and Skills	.260**	.660**	1	.604**
4. Ethical Practice	.460**	.672**	.604**	1

Table 3 displays the Pearson correlation matrix of the relationship between the perception towards AI and academic integrity, knowledge of academic integrity in the AI-supported process of content development, AI capabilities and skills, and ethical practice regarding AI in the process of creating content among the 121 participants. Correlations were all positive with statistical significance set at .01 level, meaning that an increase in score on one variable was related to an increase in score on another variable. The highest correlation was found between perceptions and knowledge ($r = .696$), between knowledge and ethical practice ($r = .672$) and between knowledge and capabilities and skills ($r = .660$). The capabilities/skills also positively correlated with ethical performance ($r = .604$). It was noted, however, that in contrast perception was moderately positively correlated with ethical practice ($r = .460$), and less positively, but still statistically significantly, correlated with capabilities and skills ($r = .260$). Overall, the analysis showed that the knowledge and practical capability and skill to use AI are more highly correlated with ethical practice than is perception by itself. The findings thus offer preliminary empirical evidence to consider these as potential explanatory constructs of ethical GenAI use. Correlation, however, does not imply causality and these relationships must not be considered as evidence that any of these factors causes a change in ethical practice. Thus, the following multiple regression analyses are needed to ascertain the unique contribution of perceptions, knowledge, and capabilities/skills to ethical practice.

Some diagnostic statistics for the multiple linear regression model were first considered in helping interpret the model. Tolerance values were between .270 and .488 and VIF values were between 2.049 and 3.703, thus suggesting acceptable levels of multicollinearity. Used the maximum condition index of 29.979. The Durbin-Watson statistic was also reasonably close to 2 designating reasonably independent errors. Cook's Distance values ranged between 0.000 and 0.152, indicating that none of the individual observations was having an undue influence on the regression model. Standardized Residuals were between -2.851 and 1.965; none of the residuals were greater than ±3. The diagnostic analysis did not reveal any significant evidence of problematic multicollinearity, non-independence or highly influential observations overall.

Table 4: Multiple Linear Regression Predicting Ethical practice

Predictor	B	SE	β	*t*	*p*
Constant	0.491	0.478	-	1.029	.306
Perception	0.182	0.160	.111	1.138	.257
Knowledge	0.374	0.123	.380	3.031	.003
Capabilities and Skills	0.305	0.088	.324	3.471	.001

Model Statistics: $R = .709$, $R^2 = .502$, Adjusted $R^2 = .489$, $F\ (3, 117) = 39.359$, $p < .001$, Durbin-Watson = 2.286.

A total of three multiple linear regression models were used to see whether the perception towards AI, academic integrity in AI-supported content development, and AI capabilities and skills significantly contributed to predicting ethical practices in using GenAI for Academic Content Development. The overall regression model was statistically significant, $F\ (3, 117) = 39.359$, $p < .001$ as seen in Table 4. The model resulted in an R of .709 and explained 50.2% of the variance in ethical practice ($R^2 = .502$), and had an Adjusted R^2 of .489. Therefore, the three predictors as a group statistically explained a significant amount of variance in the reported ethical practices. The Durbin-Watson value was 2.286 which was visually observed to be near 2, suggesting that the residuals were reasonably independent.

Analysis of the individual regression coefficients revealed that the knowledge of academic integrity in the development of contents with the aid of AI is a significant positive predictor ($\beta = .380$, $t = 3.031$, $p = .003$). This means that as knowledge levels increased, so did the ethical practice

levels with GenAI, net of perception and GenAI capabilities and skills. The factors of AI capabilities and skills also significantly positively affected ethical practice ($\beta = .324$, $t = 3.471$, $p = .001$), which demonstrated that the better the capabilities and skills in AI, the more ethical practice.

Perception of AI and academic integrity, on the other hand, did not independently contribute statistically significantly to the ethical practice ($\beta = .111$, $t = 1.138$, $p = .257$). This is significant because in the previous analysis, there was a positive bivariate correlation between perception and ethical practice with a value of $r = .460$, $p < .01$. However, when knowledge, and capabilities and skills were put into the regression at the same time, Perception was no longer significant in predicting ethical practice. This indicates that the relationship between perception and ethical use could be related to participants' knowledge and actual use of AI, not necessarily an additive predictive effect.

Backed by standardized coefficients, knowledge proved to be the most powerful distinct predictor of ethical practice ($\beta = .380$), followed by AI capabilities and skills ($\beta = .324$); with no significant contribution from perception. The results indicate that in this sample, actual AI skills, capabilities, and knowledge mattered as predictors of participants' perception of, and likelihood of, engaging in ethical conduct at academic institutions more than perception of, and knowledge about, academic integrity. The explanatory power of the model (50.2%) also suggests that all these factors together take into account a significant proportion of the variation in ethical practice, since nearly half of the variation is not explained by the factors included in the model. The findings listed are simply correlation and predictive relationships and do not imply that reductions or increases in levels of knowledge or skills necessarily lead to greater or less ethical practice.

9. Findings

Results were grouped, according to the three research questions, using data from distance learning content developers. Descriptive results indicated that the mean difference for perception towards AI and academic integrity achieved the highest mean difference ($M = 4.01$, $SD = 0.54$) while knowledge had the second highest mean difference ($M = 3.91$, $SD = 0.89$) which indicated high level. Ethical practice was also high ($M = 3.69$, $SD = 0.88$), whereas AI capabilities and skills were moderate ($M = 3.30$, $SD = 0.94$). Hence, Perceptions and Knowledge were more noticeable than

the actual capabilities and skills of AI. All variables were negatively skewed where the index of responses were generally higher. Results of Pearson correlation analysis revealed that all the study variables had positive and significant correlation ($P<0.01$) with each other. Knowledge was correlated with ethical practice with the highest correlation ($r = .672$, $p < .01$), followed by AI capabilities and skills ($r = .604$, $p < .01$) and perception ($r = .460$, $p < .01$). The highest correlation across the board was between perception and knowledge ($r = .696$, $p< .01$). The results in this study suggest that supporting evidence of the relationship between higher knowledge, capabilities and skills, and positive perceptions that accompanied higher levels of ethical practice. The overall model was also statistically significant, $F (3, 117) = 39.359$, $p < .001$, explaining 50.2% of the variance in ethical practice ($R^2 = .502$; Adjusted $R^2 = .489$), by multiple linear regression. Durbin-Watson: 2.286, which was reasonably close to the Watson value of 2. Knowledge was the strongest significant predictor of ethical practice ($\beta = .380$, $t = 3.031$, $p = .003$), followed by AI capabilities and skills ($\beta = .324$, $t = 3.471$, $p = .001$). But perception in itself contributed minimally ($\beta = .111$, $t = 1.138$, $p = .257$). Overall, the results suggest that while all three factors positively correlated with ethical practice, knowledge and AI capability and skills emerged as the unique predictors and perception emerged as a non-significant predictor when the other factors were considered. The findings indicated that a distance-learning content developers' ethical intentional use of GenAI is more associated with what they know about GenAI and their actual capability for GenAI use rather than their positive perceptions. These results are correlational, indicating association and likelihood of prediction.

10. Conclusion

The findings indicate that positive attitudes toward AI and academic integrity, along with developers' competence and skills in AI applications to distance-learning content creation, are crucial factors to consider in the ethical implementation of generative AI in learning material development for distance learning. Although most of the participants had positive perceptions, high knowledge and ethical practices, AI capabilities and skills of participants were somewhat lower, presenting another significant area for professional development. The results indicate that the practice of responsible GenAI usage be seen as a competency-based practice where knowledge, practical skills, critical evaluation and human responsibility all play a role to safeguard academic integrity. However, it is important for institutions to shift from merely pro-scripting or reveling AI

usage and attend to cultivating GenAI literacy in critical, transparent, and responsible ways in academic content development.

11. Discussion on Findings

This current study aimed to investigate ethical considerations in distance-learning content development with GenAI, and the factors that relate to this development. It can be concluded that while positive perceptions are important, the ability and skills to implement AI solutions seem to be more crucial for ethical practice.

The perceptions, knowledge, and ethical practices levels were high and the capability levels and skills were moderate in the case of first research question. The positive perceptions align with those of Abbas and Teyebi (2025) and Ateeq et al. (2024), who found that perceptions of AI were mostly positive due to its value for tasks such as productivity, writing, learning and content. Yet, the relatively low level of capabilities and skills observed in this current study indicates that there is a disconnect between understanding the impact of AI tools like GenAI and acquiring enough practical expertise to use them effectively. This aligns with the findings of Daniel et al., (2026) and Ateriya et al., (2025) that highlighted aspects such as AI literacy, verification, critical evaluation, and human supervision.

All three variables in the second research question were positively and significantly related with the ethical practice. Among them, the closest correlation was with Knowledge, followed by Capabilities, skills and Perception. This discovery aligns with the suggestions by Daniel et al. (2026) and Ateriya et al. (2025) that responsible AI utilization involves grasping the boundaries of AI, critically assessing its output, confirming information, and exercising human judgment. The limited connection between perception and ethics in use nonetheless suggests that positive attitudes are not necessarily enough to guarantee ethical use of AI. This finding is also aligned with Mattieh et al. (2024) where it is observed that personal ethics was not a significant predictor for AI-related behaviors and the need for ethical awareness through education.

All the knowledge-based component, for the third research question noted that knowledge and AI capabilities and skills were significant whilst perception is non-significant in independent prediction of ethical practice. This discovery corroborates and builds upon existing literature. Naturally, perceived and attitudes towards AIs need to be considered as in Abbas and Teyebi (2025)

and Cheng et al. (2025); however, the current results indicate that the effects of perceived and attitudes may be lower when knowledge and practical capabilities are both used at the same time. The significant correlation between perception and knowledge could explain in part the non-continuity of perception as independent predictor. So, what content developers know and what they know to practically apply to GenAI can be more valuable to apply ethically than having good perception about it.

The results also aligned with literature regarding institutions governance, and responsible policies relating to AI. Policies are not sufficient to support responsible AI usage if users are not educated, the implementation is lacking, and their competence is limited, as pointed out by Gulumbe et al. (2025), Sharma and Panja (2025), and Elom et al. (2025). This study, like others, argues that we need to shift from allowing or banning GenAI to building knowledge and competencies in how to produce responsible content. The overall results expand on previous studies, indicating that ethical use of GenAI as a tool in distance-learning content creation is more appropriately viewed as an activity that demonstrates competency. An understanding of academic integrity, along with a practical understanding of AI functionality, seems to be of particular significance in bridging the gap between good intentions and acceptable conduct, underscoring the need for institutions to enhance AI literacy, evaluate, verify and oversee academic content development.

12. Limitations of the Study

These findings and conclusions of this study are subject to a number of limitations. The findings may not be generalizable to other institutions, disciplines and distance-learning settings due to the use of a purposive sampling and the data collected at one institution. Self-reported questionnaire data were also used, and there may be a response or social-desirability bias, especially when self-reporting ethical practices. Moreover, cross sectional quantitative design in particular only focuses on the relationship and statistical predispositions and not causal relationships between the study variables. The regression model did not incorporate other factors including the institutional support, policy clarity, professional development, and disciplinary context. Future research should aim to overcome these constraints by incorporating larger and diverse samples across institutions, exploring longitudinal or observational studies, and considering a wider range of contextual factors to gain a deeper understanding of the context of ethical GenAI use in academic content creation.

13. Recommendations

Based on the results of the study, the following recommendations were proposed:

1. **Academic-integrity Training:** Distance-learning institutions must conduct regular and consistent training with tips and principles on academic-integrity, disclosure of use of AI, citations, checks, and responsible writing.
2. **Develop practical AI capabilities and skills:** There is clear indication that AI capacities and skills strongly predicted ethical practice; as such professional development should provide hands-on activities that focus on evaluating AI-generated content, spotting inaccuracies and hallucinations, verifying sources, and critically reviewing AI outputs.
3. **Establish clear institutional GenAI guidelines:** Institutions should develop clear and practical guidelines specifying acceptable and unacceptable uses of GenAI in academic content development, including expectations for disclosure, verification, human review, and accountability.
4. **Ensure human oversight and verification:** Content developers need to keep human responsibility for the accuracy, originality, quality, and academic integrity of AI-generated content. Professional and academic judgment should be used as a complement to GenAI, not a replacement.
5. **Encourage continuous professional development and further research:** AI tools and the ethical issues surrounding them are continually changing; institutions should continue to offer opportunities for content developers to improve their knowledge and skills around AI. Future studies should explore these in larger, more diverse samples and other factors such as institutional support, policy clarity, professional development and disciplinary context.

References

[1] Abbas, C., & Teyebi, S. (2025). From Grammarly to GPT: Exploring the use of AI-assisted academic writing tools among doctoral researchers. *Journal of Languages & Translation, Special Issue*, 134–150. https://asjp.cerist.dz/en/article/281755

[2] Ateeq, A., Alzoraiki, M., Milhem, M., & Ateeq, R. A. (2024). Artificial intelligence in education: Implications for academic integrity and the shift toward holistic assessment. *Frontiers in Education, 9*, Article 1470979. https://doi.org/10.3389/feduc.2024.1470979

[3] Ateriya, N., Sonwani, N. S., Thakur, K. S., Kumar, A., & Verma, S. K. (2025). Exploring the ethical landscape of AI in academic writing. *Egyptian Journal of Forensic Sciences, 15*(36). https://doi.org/10.1186/s41935-025-00439-5

[4] Błachnio, A., Cudo, A., Kot, P., Torój, M., Oppong Asante, K., Enea, V., ... & Wright, M. F. (2022). Cultural and psychological variables predicting academic dishonesty: a cross-sectional study in nine countries. *Ethics & Behavior, 32*(1), 44–89. https://www.tandfonline.com/doi/abs/10.1080/10508422.2021.1910826

[5] Bretag, T. (2020). Introduction to a research agenda for academic integrity. In T. Bretag (Ed.), *A research agenda for academic integrity* (pp. 1–12). Edward Elgar Publishing. https://www.elgaronline.com/downloadpdf/edcollchap/edcoll/9781789903768/9781789903768.00007.pdf

[6] Cheng, A., Calhoun, A., & Reedy, G. (2025). Artificial intelligence-assisted academic writing: recommendations for ethical use. *Advances in Simulation, 10*(1), 22. https://doi.org/10.1186/s41077-025-00350-6

[7] Clarke, V., & Braun, V. (2017). Thematic analysis. *The journal of positive psychology, 12*(3), 297–298. https://www.tandfonline.com/doi/full/10.1080/17439760.2016.1262613

[8] Cotton, D. R., Cotton, P. A., & Shipway, J. R. (2024). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in education and teaching international, 61*(2), 228–239. https://www.tandfonline.com/doi/abs/10.1080/14703297.2023.2190148

[9] Daniel, B. K., Sheridan, L., & Wierdak, N. (Eds.). (2026). *Artificial intelligence and academic integrity: Navigating ethical challenges of AI in education*. Springer.

https://ourarchive.otago.ac.nz/esploro/outputs/editedBook/Artificial-Intelligence-and-Academic-Integrity-Navigating/9926848932901891?institution=64OTAGO_INST

[10] Elom, C. O., Ayanwale, M. A., Ukeje, I. O., Offiah, G. A., Umoke, C. C., & Ogbonnaya, C. E. (2025). Does AI knowledge encourage cheating? Investigating student perceptions, ethical engagement, and academic integrity in the digital age. *International Journal of Learning, Teaching and Educational Research, 24*(4), 708–729. https://doi.org/10.26803/ijlter.24.4.33

[11] Floridi, L., & Cowls, J. (2022). A unified framework of five principles for AI in society. *Machine learning and the city: Applications in architecture and urban design*, 535–545. https://onlinelibrary.wiley.com/doi/abs/10.1002/9781119815075.ch45

[12] Gasaymeh, A., & AlMohtadi, R. (2024). College of education students' perceptions of their computational thinking proficiency. In *Frontiers in Education* (Vol. 9, p. 1478666). Frontiers Media SA. https://www.frontiersin.org/journals/education/articles/10.3389/feduc.2024.1478666/full

[13] Gulumbe, B. H., Audu, S. M., & Hashim, A. M. (2025). Balancing AI and academic integrity: What are the positions of academic publishers and universities? *AI & Society, 40*, 1775–1784. https://doi.org/10.1007/s00146-025-02276-8

[14] Ibrahim, M. S. B. (2013). Students' generic skills at the National University of Malaysia and the National University of Indonesia. *Procedia-Social and Behavioral Sciences, 83*, 71–82. https://www.sciencedirect.com/science/article/pii/S1877042813010458

[15] Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., ... & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and individual differences, 103*, 102274. https://www.sciencedirect.com/science/article/pii/S1041608023000195

[16] Long, D., & Magerko, B. (2020, April). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI conference on human factors in computing systems* (pp. 1–16). https://dl.acm.org/doi/abs/10.1145/3313831.3376727

[17] Lund, B., Mannuru, N. R., Teel, Z. A., Lee, T. H., Ortega, N. J., Simmons, S., & Ward, E. (2025). Student perceptions of AI-assisted writing and academic integrity: Ethical concerns, academic misconduct, and use of generative AI in higher education. *AI in Education, 1*(1), 2. https://doi.org/10.3390/aieduc1010002

[18] Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence, 2*, 100041. https://www.sciencedirect.com/science/article/pii/S2666920X21000357

[19] Odongo, S. O., & Njoroge, G. (2025). Digital Disruption of Academic Integrity: How Information Technology mediates the relationship between plagiarism awareness, practice, and Academic Integrity among postgraduate students. *KLISC Journal of Information Science & Knowledge Management*, 13–26. https://journals.klisc.or.ke/jiskm/article/view/27

[20] OECD. (2024). *Artificial intelligence and the future of education and skills*. OECD Publishing. https://www.oecd.org/en/about/projects/artificial-intelligence-and-future-of-skills.html

[21] Sharma, R. C., & Panja, S. K. (2025). Addressing academic dishonesty in higher education: A systematic review of generative AI's impact. *Open Praxis, 17*(2), 251–269. https://doi.org/10.55982/openpraxis.17.2.802

[22] Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart learning environments, 10*(1), 15. https://link.springer.com/article/10.1186/s40561-023-00237-x

[23] United Nations Educational, Scientific and Cultural Organization. (2021). *Recommendation on the ethics of artificial intelligence.* UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000381137