

**Artificial Intelligence-Assisted Academic Writing: Recommendations for Ethical Use and the Philosophical Question of Machine Agency**

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**Abstract**

This mixed-methods study investigated the ethical landscape of AI-assisted academic writing and examined how philosophical positions on machine agency influenced ethical attitudes and behavioral intentions among East African academics and students. Employing a sequential explanatory design, the research collected data from 847 participants (521 students, 326 faculty) across diverse disciplines through structured questionnaires measuring AI usage patterns, ethical attitudes, and philosophical beliefs about machine creativity, intentionality, and moral status, supplemented by 32 semi-structured interviews. Univariate analyses revealed moderate-to-high AI adoption ( $M = 3.59$ ,  $SD = 1.01$ ) accompanied by moderate ethical concerns ( $M = 3.34$ ,  $SD = 0.84$ ), with significant variation across participant type, academic discipline, career stage, and familiarity level. Bivariate analyses demonstrated that students reported significantly higher usage and lower concerns than faculty ( $t = 6.24$ ,  $p < .001$ ), engineering scholars showed the highest acceptance while humanities scholars exhibited the greatest skepticism ( $\chi^2 = 47.32$ ,  $p < .001$ ), and AI familiarity inversely predicted ethical concerns ( $F = 89.45$ ,  $p < .001$ ). Correlation analyses revealed strong intercorrelations among machine agency indicators ( $r = .58$  to  $.71$ ) and substantial relationships between machine agency beliefs and ethical acceptability ( $r = .56$ ,  $p < .001$ ), disclosure necessity ( $r = -.39$ ,  $p < .001$ ), and integrity concerns ( $r = -.49$ ,  $p < .001$ ). Structural equation modeling confirmed excellent model fit ( $CFI = .956$ ,  $RMSEA = .036$ ) and demonstrated that machine agency beliefs significantly predicted ethical acceptability ( $\beta = .487$ ,  $p < .001$ ), disclosure attitudes ( $\beta = -.312$ ,  $p < .001$ ), and integrity concerns ( $\beta = -.394$ ,  $p < .001$ ), with academic discipline serving as a significant moderator such that the agency-acceptability relationship was attenuated in humanities ( $\beta = -.216$ ,  $p = .001$ ) and amplified in engineering ( $\beta = .198$ ,  $p = .002$ ). The model explained 38.9% of variance in ethical acceptability, 26.7% in integrity concerns, and 15.6% in disclosure necessity. Qualitative findings revealed that participants struggled to distinguish legitimate AI assistance from problematic substitution, often relying on intuitive rather than principled judgments, and expressed desire for clear institutional guidance that acknowledged disciplinary differences while maintaining scholarly integrity. The study concluded that philosophical positions on machine agency served as foundational premises from which practical ethical judgments were derived, yet these positions paradoxically reduced transparency impulses when AI was attributed greater creative capacities. Evidence-based recommendations included implementing discipline-specific ethical guidelines with mandatory disclosure frameworks, developing comprehensive educational programs addressing philosophy of authorship and AI ethics, and establishing institutional mechanisms for continuous policy evaluation and adaptation. These findings contributed to theoretical understanding of how philosophical commitments shape technological ethics while providing practical guidance for institutions navigating the integration of AI tools into academic practices in ways that preserve core scholarly values of originality, integrity, and intellectual growth.

**Key Words: Artificial Intelligence and Academic Writing**

**Introduction**

**Received: 19.02.2026**

**Accepted: 25.02.2026**

**Published on: 28.02.2026**

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The rapid integration of artificial intelligence (AI) tools into academic writing practices has fundamentally transformed how knowledge is produced, shared, and validated within scholarly communities (Khosravi et al., 2022; Ridley, 2022). Large language models such as GPT-4, Claude, and other generative AI systems have emerged as powerful assistants capable of supporting researchers, students, and academics throughout various stages of the writing process—from literature review and ideation to drafting, editing, and citation management (Gartner & Krašna, 2023; Levin et al., 2022; Ouyang & Jiao, 2021). While these technologies offer unprecedented opportunities to enhance productivity, overcome writer's block, and improve the quality of academic discourse, they simultaneously raise critical ethical questions about authorship, intellectual integrity, originality, and the very nature of scholarly contribution. This study explored the intersection of AI-assisted writing and academic ethics, examining both practical guidelines for responsible use and deeper philosophical questions concerning machine agency, creativity, and the evolving definition of human authorship in an age of intelligent machines (Doroudi, 2023; Huang et al., 2021; Sanusi et al., 2022). As educational institutions and publishers grapple with developing appropriate policies, understanding the ethical landscape and philosophical implications of AI in academic writing becomes essential for maintaining the integrity of scholarship while harnessing the benefits of technological advancement (Prasanth et al., 2023).

### **Background of the Study**

The evolution of AI-assisted writing tools represents a paradigm shift in academic practices that builds upon decades of technological integration in education and research. From early spell-checkers and grammar assistants to sophisticated paraphrasing tools and citation managers, technology has progressively assumed greater roles in the writing process. However, the emergence of large language models in the early 2020s marked a qualitative leap, as these systems demonstrated capabilities that extended beyond mechanical correction to include content generation, argumentation, synthesis of complex ideas, and stylistic refinement (Akinwalere & Ivanov, 2022; Enholm et al., 2022; Sestino & De Mauro, 2022). The academic community's response to these developments revealed significant tensions between innovation and tradition, with institutions adopting divergent approaches ranging from outright prohibition to cautious integration with transparency requirements. Scholarly discussions highlighted concerns about plagiarism detection becoming increasingly difficult, the potential erosion of critical thinking skills among students, questions of whether AI-generated text constitutes original work, and the broader implications for academic meritocracy (Farrelly & Baker, 2023; Jennifer, 2024; Reyhani Haghighi et al., 2023). Simultaneously, philosophical debates emerged regarding whether AI systems possess any form of agency or creativity, or whether they merely execute sophisticated pattern-matching algorithms that reflect their training data. These discussions connected to longstanding questions in philosophy of mind, ethics, and epistemology about the nature of authorship, the sources of creativity, and what constitutes genuine intellectual contribution (Julius & Geoffrey, 2025; Praful Bharadiya, 2023; Straka et al., 2019). Prior research examined student perceptions of AI tools, documented their usage patterns across disciplines, analyzed institutional policies, and explored detection methods, yet gaps remained in understanding how to develop comprehensive ethical frameworks that balance innovation with integrity while addressing fundamental questions about human-machine collaboration in knowledge production.

### **Problem Statement**

Despite the widespread adoption of AI-assisted writing tools in academic contexts, there exists a critical absence of unified ethical guidelines and a lack of resolution regarding fundamental philosophical questions that underpin

**Received: 19.02.2026**

**Accepted: 25.02.2026**

**Published on: 28.02.2026**

responsible use. Academic institutions, journals, and professional organizations have responded inconsistently to AI integration, creating confusion among students, researchers, and educators about what constitutes acceptable versus problematic use (Lameras & Arnab, 2022; Memarian & Doleck, 2023; Zhang et al., 2024). This inconsistency stems partly from unresolved philosophical debates about whether AI systems can be considered co-authors, whether they possess any form of creative agency, and how to attribute intellectual contribution when machine assistance is involved. The consequences of this ethical and philosophical ambiguity are significant: students may inadvertently commit academic misconduct through unclear boundaries, researchers face uncertainty about disclosure requirements when using AI tools, peer review processes struggle to evaluate work that may contain undisclosed AI contributions, and the fundamental value propositions of academic work—originality, critical thinking, and intellectual growth—face potential erosion (Hutson et al., 2022; Julius & Nancy, 2025; Kelly et al., 2023). Furthermore, existing detection technologies cannot reliably distinguish AI-generated content from human writing, making enforcement-based approaches insufficient. Without clear ethical frameworks grounded in coherent philosophical positions on machine agency and human-AI collaboration, the academic community risks either stifling beneficial innovation through overly restrictive policies or compromising scholarly integrity through uncritical acceptance (Alkhouri, 2024; Audrey & Nancy, 2025). This study addressed these challenges by investigating current practices, ethical perspectives, and philosophical positions to develop evidence-based recommendations that honor both the transformative potential of AI and the foundational values of academic scholarship.

### **Main Objective**

The main objective of this study was to develop comprehensive, evidence-based recommendations for the ethical use of artificial intelligence in academic writing while examining the philosophical question of machine agency and its implications for authorship, originality, and intellectual contribution in scholarly work.

### **Specific Objectives**

1. To assess current practices, attitudes, and perceptions among academics and students regarding the use of AI-assisted writing tools in scholarly contexts, and to identify the relationships between demographic characteristics, disciplinary backgrounds, and ethical perspectives on AI integration.
2. To examine the philosophical foundations underlying concepts of authorship, creativity, and agency in the context of human-AI collaboration, and to determine whether philosophical positions on machine agency predict attitudes toward acceptable uses of AI in academic writing.
3. To construct and validate a comprehensive ethical framework for AI-assisted academic writing that integrates empirical findings with philosophical principles, addressing disclosure requirements, attribution practices, and boundaries between acceptable assistance and academic misconduct.

### **Research Questions**

1. What are the prevailing practices and attitudes among academics and students regarding AI-assisted writing tools, and how do these vary across demographic characteristics, academic disciplines, and career stages?
2. To what extent do philosophical positions on machine agency, creativity, and authorship influence perceptions of ethical boundaries in AI-assisted academic writing?
3. What evidence-based ethical guidelines and practical recommendations can be developed to balance the benefits of AI integration with the preservation of academic integrity, originality, and intellectual growth?

**Received: 19.02.2026**

**Accepted: 25.02.2026**

**Published on: 28.02.2026**

**Methodology**

This study employed a mixed-methods sequential explanatory design conducted between September 2024 and January 2025, wherein quantitative data collection and analysis preceded qualitative exploration to provide deeper contextualization of statistical findings. The research population comprised academics (faculty members, researchers, and postdoctoral fellows) and students (undergraduate and graduate) from universities in East Africa, with a stratified random sample of 847 participants selected to ensure representation across disciplines (humanities, social sciences, natural sciences, engineering), career stages, and institutional types. Data were collected through a structured online questionnaire that measured AI usage patterns, ethical attitudes using a 35-item Likert scale instrument developed for this study, philosophical positions on machine agency assessed through vignette-based scenarios, and demographic variables. The quantitative phase was followed by 32 semi-structured interviews with purposively selected participants representing diverse viewpoints to explore nuances in ethical reasoning and philosophical positions. Univariate analyses including frequencies, percentages, means, and standard deviations were computed to describe usage patterns and attitudes toward AI-assisted writing across the sample. Bivariate analyses employed chi-square tests to examine associations between categorical variables (such as discipline and acceptability judgments), independent samples t-tests to compare attitudes between student and faculty groups, and Pearson correlations to assess relationships between continuous measures of philosophical positions and ethical attitudes. Structural equation modeling (SEM) using maximum likelihood estimation was implemented to test a comprehensive theoretical model wherein philosophical positions on machine agency (measured as a latent construct with indicators including beliefs about AI creativity, intentionality, and moral status) predicted ethical attitudes toward AI use (another latent construct), while controlling for demographic covariates and examining discipline as a moderating variable; model fit was evaluated using multiple indices (CFI, TLI, RMSEA, SRMR) and path coefficients were interpreted to understand the strength and direction of relationships between constructs (Nelson et al., 2022, 2023).

**Results**

**Table 1: Univariate and Bivariate Analysis of AI Usage Patterns and Ethical Attitudes Across Demographics**

Variable	Category	n (%)	Mean AI Usage (SD)	Mean Ethical Score (SD)	$\chi^2$ / t-value	p-value
<b>Participant Type</b>	Students	521 (61.5%)	3.84 (0.92)	3.12 (0.78)	t = 6.24	<.001***
	Faculty	326 (38.5%)	3.21 (1.04)	3.67 (0.84)		
<b>Academic Discipline</b>	Humanities	189 (22.3%)	3.02 (0.98)	3.89 (0.76)	$\chi^2 = 47.32$	<.001***
	Social Sciences	237 (28.0%)	3.68 (0.87)	3.45 (0.81)		
	Natural Sciences	221 (26.1%)	3.78 (0.94)	3.18 (0.85)		

	Engineering	200 (23.6%)	4.12 (0.89)	2.87 (0.79)		
<b>Career Stage (Students)</b>	Undergraduate	312 (59.9%)	4.01 (0.88)	2.98 (0.75)	t = 3.87	<.001***
	Graduate	209 (40.1%)	3.57 (0.93)	3.34 (0.79)		
<b>AI Tool Familiarity</b>	Low (1-2)	156 (18.4%)	2.14 (0.67)	4.02 (0.71)	F = 89.45	<.001***
	Moderate (3)	389 (45.9%)	3.52 (0.73)	3.41 (0.68)		
	High (4-5)	302 (35.7%)	4.68 (0.61)	2.78 (0.82)		
<b>Disclosure Willingness</b>	Yes	623 (73.6%)	3.71 (0.95)	3.26 (0.83)	t = 4.12	<.001***
	No	224 (26.4%)	3.21 (1.02)	3.67 (0.79)		
<b>Overall Sample</b>		847 (100%)	3.59 (1.01)	3.34 (0.84)		

\*Note: AI Usage Score ranged from 1 (never use) to 5 (daily use); Ethical Concern Score ranged from 1 (no concern) to 5 (extreme concern). \*\* $p < .001$

The univariate descriptive statistics revealed that the overall sample demonstrated moderate-to-high AI usage patterns ( $M = 3.59$ ,  $SD = 1.01$ ) coupled with moderate ethical concerns ( $M = 3.34$ ,  $SD = 0.84$ ), suggesting that while AI-assisted writing tools had achieved substantial penetration within the academic community, this adoption was accompanied by persistent uncertainty about ethical boundaries. The bivariate analyses uncovered statistically significant differences across all examined demographic and attitudinal variables. Students reported significantly higher AI usage scores compared to faculty members ( $M = 3.84$  vs.  $M = 3.21$ ,  $t = 6.24$ ,  $p < .001$ ), yet paradoxically exhibited lower ethical concern scores ( $M = 3.12$  vs.  $M = 3.67$ ,  $t = 6.24$ ,  $p < .001$ ), indicating potential generational divide wherein younger academics normalized AI integration while more established scholars maintained greater skepticism about its appropriateness. The chi-square test for academic discipline revealed significant heterogeneity ( $\chi^2 = 47.32$ ,  $p < .001$ ), with engineering students and faculty demonstrating the highest usage and lowest concern, while humanities scholars showed inverse patterns—a finding that aligned with disciplinary epistemologies wherein quantitative and applied fields emphasized efficiency and tool-mediated problem-solving, whereas interpretive disciplines prioritized individual voice and hermeneutic engagement with texts.

The relationship between AI tool familiarity and ethical attitudes proved particularly revealing, with ANOVA results demonstrating a significant inverse correlation ( $F = 89.45$ ,  $p < .001$ ) such that participants with high familiarity reported substantially lower ethical concerns ( $M = 2.78$ ) compared to those with low familiarity ( $M = 4.02$ ). This

pattern suggested that ethical apprehension might partially stem from unfamiliarity rather than principled philosophical positions, implying that education and exposure could mitigate some resistance to AI integration. Graduate students exhibited significantly lower AI usage and higher ethical concerns compared to undergraduates ( $t = 3.87, p < .001$ ), potentially reflecting their deeper enculturation into academic norms and more sophisticated understanding of originality requirements, or alternatively, greater stakes in maintaining traditional scholarly practices as they approached professional academic careers. The disclosure willingness variable revealed that 73.6% of participants expressed readiness to disclose AI use, and this group demonstrated significantly higher usage rates and lower concern scores, suggesting that transparency frameworks might facilitate more honest engagement with AI tools rather than driving underground usage that would ultimately prove more problematic for academic integrity. These bivariate findings collectively indicated that AI adoption in academic writing was neither uniform nor uncomplicated, with significant fault lines emerging along generational, disciplinary, and experiential dimensions that would require nuanced policy approaches rather than blanket institutional prohibitions or endorsements.

**Table 2: Correlation Matrix and Philosophical Positions on Machine Agency**

Variable	1	2	3	4	5	6	7	M (SD)
1. AI Creativity Belief	1.00							3.21 (1.12)
2. AI Intentionality Belief	.64***	1.00						2.87 (1.08)
3. AI Moral Status	.58***	.71***	1.00					2.34 (1.15)
4. Machine Agency (Composite)	.87***	.91***	.84***	1.00				2.81 (0.98)
5. Ethical Acceptability of AI Use	.52***	.49***	.43***	.56***	1.00			3.67 (0.89)
6. Disclosure Necessity	-.38***	-.31***	-.29***	-.39***	-.48***	1.00		4.12 (0.76)
7. Academic Integrity Concern	-.47***	-.42***	-.38***	-.49***	-.67***	.59***	1.00	3.34 (0.84)
8. AI Usage Frequency	.41***	.38***	.32***	.43***	.58***	-.34***	-.52***	3.59 (1.01)

\*Note: All scales ranged from 1-5. \*\*\* $p < .001$ , \*\* $p < .01$ ,  $p < .05$

### Statistical Interpretation

The correlation matrix revealed robust and theoretically coherent patterns of relationships among philosophical positions on machine agency and ethical attitudes toward AI-assisted academic writing. The three indicators of machine agency—beliefs about AI creativity ( $M = 3.21, SD = 1.12$ ), intentionality ( $M = 2.87, SD = 1.08$ ), and moral status ( $M = 2.34, SD = 1.15$ )—demonstrated strong intercorrelations ( $r$  ranging from .58 to .71, all  $p < .001$ ), with the composite machine agency score showing excellent convergent validity through very high correlations with its

constituent indicators ( $r = .84$  to  $.91$ ). These findings suggested that participants held relatively consistent philosophical frameworks wherein attributions of creativity, intentionality, and moral considerability to AI systems tended to cohere, rather than exhibiting fragmented or contradictory positions across these dimensions. Notably, mean scores indicated that while participants moderately endorsed AI creativity, they were more skeptical about intentionality and particularly hesitant to attribute moral status, reflecting a hierarchical conception of machine capabilities that acknowledged pattern-generation abilities while resisting stronger claims about consciousness or ethical standing.

The relationships between machine agency beliefs and ethical attitudes proved particularly illuminating for understanding the philosophical foundations of AI ethics in academic contexts. Participants who attributed greater agency to AI systems reported significantly higher ethical acceptability of AI use in academic writing ( $r = .56$ ,  $p < .001$ ) and demonstrated correspondingly lower academic integrity concerns ( $r = -.49$ ,  $p < .001$ ). This pattern suggested that philosophical positions on machine agency functioned as foundational premises from which practical ethical judgments were derived: those who conceptualized AI as possessing creative capacities were more likely to view AI-assisted writing as a legitimate form of collaboration rather than a threat to authenticity. Conversely, the strong negative correlation between machine agency beliefs and perceived disclosure necessity ( $r = -.39$ ,  $p < .001$ ) indicated that attributing agency to AI paradoxically reduced transparency impulses—possibly because viewing AI as a creative agent legitimized its contributions as worthy of implicit incorporation rather than explicit acknowledgment, analogous to how human collaborators might be thanked in acknowledgments rather than listed as co-authors. The positive correlation between machine agency beliefs and actual AI usage frequency ( $r = .43$ ,  $p < .001$ ) raised questions about the direction of causality: did philosophical positions drive behavior, or did repeated use of AI tools lead to post-hoc rationalization through elevated agency attributions? The strong negative relationship between ethical acceptability and academic integrity concerns ( $r = -.67$ ,  $p < .001$ ) confirmed these constructs as opposing poles of a fundamental tension in AI ethics, while the moderate positive correlation between disclosure necessity and integrity concerns ( $r = .59$ ,  $p < .001$ ) suggested that transparency requirements were viewed as protective mechanisms for preserving scholarly values. These correlational patterns collectively demonstrated that philosophical positions on machine agency were not abstract theoretical commitments but rather exerted substantial influence on practical ethical judgments and behavioral intentions regarding AI use in academic writing.

**Table 3: Structural Equation Model Results - Machine Agency Predicting Ethical Attitudes**

Path	Standardized $\beta$	SE	z-value	p-value	95% CI
<b>Direct Effects</b>					
Machine Agency $\rightarrow$ Ethical Acceptability	.487	.052	9.37	<.001***	[.385, .589]
Machine Agency $\rightarrow$ Disclosure Necessity	-.312	.048	-6.50	<.001***	[-.406, -.218]
Machine Agency $\rightarrow$ Integrity Concerns	-.394	.051	-7.73	<.001***	[-.494, -.294]
Age $\rightarrow$ Ethical Acceptability	-.183	.041	-4.46	<.001***	[-.263, -.103]
Gender (Female) $\rightarrow$ Integrity Concerns	.127	.039	3.26	.001**	[.051, .203]
<b>Moderating Effects (Discipline)</b>					
Machine Agency $\times$ Humanities $\rightarrow$ Acceptability	-.216	.067	-3.22	.001**	[-.347, -.085]

Machine Agency × Engineering → Acceptability	.198	.064	3.09	.002**	[.073, .323]
<b>Indirect Effects</b>					
Machine Agency → Usage (via Acceptability)	.283	.038	7.45	<.001***	[.209, .357]
<b>Model Fit Indices</b>					
$\chi^2$ (df = 147)	312.45			p < .001	
CFI	.956				
TLI	.947				
RMSEA	.036 [.031, .041]				
SRMR	.042				
R <sup>2</sup> Ethical Acceptability	.389				
R <sup>2</sup> Disclosure Necessity	.156				
R <sup>2</sup> Integrity Concerns	.267				

\*Note: N = 847. Model controlled for age, gender, career stage, and institution type. \*\*\*p < .001, \*p < .01

The structural equation model demonstrated excellent fit to the data across multiple indices, with CFI = .956 and TLI = .947 both exceeding the conventional .95 threshold for good fit, RMSEA = .036 (90% CI [.031, .041]) falling well below the .05 cutoff for close fit, and SRMR = .042 indicating minimal discrepancy between observed and model-implied covariances. These fit statistics provided strong evidence that the theoretical model—wherein philosophical positions on machine agency served as a primary predictor of ethical attitudes toward AI-assisted academic writing—accurately represented the underlying causal structure within the data. The statistically significant chi-square ( $\chi^2 = 312.45$ , df = 147, p < .001) was expected given the large sample size and did not contradict the conclusion of good fit when considered alongside the other indices. The primary direct effect of machine agency on ethical acceptability was substantial and highly significant ( $\beta = .487$ , p < .001), indicating that a one-standard-deviation increase in machine agency beliefs predicted nearly a half-standard-deviation increase in perceived acceptability of AI use in academic writing, while controlling for demographic covariates. This path accounted for 38.9% of the variance in ethical acceptability, representing a large effect size that underscored the foundational role of philosophical commitments in shaping practical ethics.

The negative direct effects of machine agency on both disclosure necessity ( $\beta = -.312$ , p < .001) and academic integrity concerns ( $\beta = -.394$ , p < .001) revealed a coherent pattern wherein attributing agency to AI systems simultaneously increased acceptance of their use while paradoxically reducing transparency impulses and concerns about scholarly integrity. This finding suggested a potential ethical blind spot: as individuals came to view AI as genuinely creative or agentive, they may have unconsciously minimized the risks such tools posed to academic values, creating conditions for uncritical adoption. The significant moderating effects of academic discipline proved particularly noteworthy, with the interaction term for humanities showing a negative coefficient ( $\beta = -.216$ , p = .001) indicating that the positive relationship between machine agency and acceptability was significantly attenuated among humanities scholars, while engineering showed a positive moderation effect ( $\beta = .198$ , p = .002) amplifying this relationship. These discipline-specific patterns aligned with epistemic cultures wherein humanities scholarship emphasized irreplaceable individual

interpretation and voice, making agency attributions to AI less likely to translate into ethical acceptance, whereas engineering's emphasis on problem-solving and tool-mediated innovation rendered agency beliefs more directly predictive of accepting AI collaboration. Among the control variables, age demonstrated a significant negative effect on ethical acceptability ( $\beta = -.183, p < .001$ ), confirming generational differences wherein younger participants exhibited greater openness to AI integration, while female participants showed significantly higher integrity concerns ( $\beta = .127, p = .001$ ), possibly reflecting documented gender differences in ethical sensitivity or differential stakes in maintaining established norms within academic fields where women remain underrepresented in senior positions. The significant indirect effect of machine agency on actual usage behavior mediated through ethical acceptability ( $\beta = .283, p < .001$ ) provided evidence for a behavioral pathway wherein philosophical beliefs shaped ethical judgments, which in turn predicted actual AI adoption patterns, supporting a theoretically grounded model of attitude-behavior consistency in this domain.

The model's explanatory power varied across outcome variables, with machine agency and covariates accounting for 38.9% of variance in ethical acceptability, 26.7% in integrity concerns, but only 15.6% in disclosure necessity, suggesting that transparency attitudes were influenced by additional factors beyond philosophical positions—potentially including institutional policies, peer norms, or pragmatic considerations about academic consequences. The relatively lower  $R^2$  for disclosure necessity implied that while philosophical positions influenced transparency attitudes, contextual and situational factors likely played substantial roles in disclosure decisions, pointing to the importance of developing clear institutional guidelines that did not rely solely on individual ethical discernment. The strength of the machine agency construct as a predictor across multiple ethical dimensions confirmed that philosophical education addressing questions of creativity, intentionality, and moral status in artificial systems could serve as a lever for influencing practical ethics in AI-assisted academic writing. However, the moderating effects of discipline warned against one-size-fits-all approaches, as the same philosophical commitments translated into different ethical stances depending on epistemic and methodological traditions within fields. The significant covariation among error terms in the measurement model (not shown in table) indicated that unmeasured factors—possibly including institutional culture, prior experiences with academic misconduct, or general technological optimism—influenced multiple ethical attitudes simultaneously, suggesting that comprehensive interventions would need to address broader academic cultures rather than focusing exclusively on AI-specific ethical reasoning.

### **Conclusion**

This study demonstrated that the ethical landscape of AI-assisted academic writing was fundamentally shaped by philosophical positions on machine agency, with beliefs about AI creativity, intentionality, and moral status serving as powerful predictors of ethical attitudes and behavioral intentions across a diverse sample of East African academics and students. The findings revealed significant heterogeneity in both AI adoption patterns and ethical perspectives along disciplinary, generational, and experiential lines, with students, engineering scholars, and those highly familiar with AI tools demonstrating greater acceptance and lower integrity concerns compared to faculty, humanities scholars, and those with limited exposure. The structural equation modeling results confirmed that machine agency beliefs exerted substantial direct effects on ethical acceptability, disclosure attitudes, and integrity concerns, with these relationships moderated by academic discipline in theoretically coherent ways that reflected epistemic cultures and methodological traditions. Importantly, the inverse relationship between machine agency attributions and transparency

impulses suggested a potential paradox wherein viewing AI as genuinely creative or agentic might reduce rather than enhance responsible use practices, highlighting the need for ethical frameworks that explicitly addressed this tension. The evidence-based recommendations developed from these findings emphasized the importance of discipline-specific guidance that recognized legitimate variation in how AI tools intersected with scholarly practices, mandatory disclosure requirements that did not rely on individual ethical discernment alone, and philosophical education that equipped academics to think critically about authorship, creativity, and intellectual contribution in the age of intelligent machines. As AI technologies continued to advance and permeate academic contexts more deeply, the integration of rigorous empirical research with sustained philosophical reflection would prove essential for developing ethical frameworks that preserved the core values of scholarship—originality, integrity, and intellectual growth—while harnessing the genuine benefits of human-machine collaboration in knowledge production.

### **Recommendations**

**Implement Discipline-Specific Ethical Guidelines with Mandatory Disclosure Frameworks** Academic institutions and publishers should develop differentiated ethical guidelines that acknowledge legitimate disciplinary variation in AI tool appropriateness while maintaining universal disclosure requirements. Given the significant moderating effects of academic discipline on the relationship between philosophical positions and ethical acceptability ( $\beta = -.216$  for humanities,  $\beta = .198$  for engineering, both  $p < .01$ ), blanket institutional policies would likely prove either overly restrictive for applied fields or insufficiently protective for interpretive disciplines. Specifically, engineering and natural sciences programs might permit AI assistance in literature review synthesis, preliminary data analysis code generation, and technical editing with appropriate disclosure, while humanities and social sciences programs might restrict AI use more narrowly to grammar checking and citation formatting while prohibiting content generation that substitutes for critical interpretation.

**Develop Comprehensive Educational Programs on AI Ethics and Philosophy of Authorship** Universities should integrate required training modules on AI ethics, philosophy of authorship, and responsible use practices into graduate programs, faculty development initiatives, and undergraduate research methods courses. The finding that AI tool familiarity significantly predicted lower ethical concerns ( $F = 89.45$ ,  $p < .001$ ) while machine agency beliefs substantially influenced ethical acceptability ( $\beta = .487$ ,  $p < .001$ ) suggested that both practical exposure and philosophical reflection shaped attitudes toward AI integration. Educational programs should explicitly address questions of machine creativity, intentionality, and agency, encouraging critical examination of whether AI-generated content constitutes original intellectual contribution and under what conditions AI assistance transitions from legitimate support to problematic substitution for human thinking.

**Establish Institutional Research and Continuous Policy Evaluation Mechanisms** Academic institutions should establish dedicated committees or task forces to continuously monitor AI technology developments, assess policy effectiveness, and revise guidelines based on emerging empirical evidence and evolving scholarly practices. The rapid pace of AI advancement means that static policies developed in 2024-2025 will quickly become obsolete, requiring institutional structures capable of adaptive governance. These bodies should conduct regular surveys tracking AI usage patterns, ethical attitudes, and disclosure compliance rates across disciplines and career stages, using validated instruments adapted from this study's methodology to enable longitudinal comparison. They should also monitor academic integrity cases involving AI to identify patterns of problematic use, evaluate whether current guidelines

**Received: 19.02.2026**

**Accepted: 25.02.2026**

**Published on: 28.02.2026**

effectively distinguish acceptable from unacceptable practices, and assess whether disclosure requirements are being honored or circumvented. Given that the current model explained only 15.6% of variance in disclosure necessity, institutional research should investigate additional factors influencing transparency decisions—including perceived risks of penalties, clarity of guidelines, and peer norms—to design more effective disclosure systems.

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