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RESEARCH ARTICLE

Generative AI in Academic Writing: Opportunities, Challenges, and Ethical Frameworks for Higher Education

Ovidiu Ivancu, Julija Grigorjevaite, Akin Gurbuz

Vilnius University, Lithuania; Mugla Sitki Kocman University, Turkey

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ABSTRACT

The rapid proliferation of generative AI tools—particularly large language models such as GPT-4, Claude, and Gemini—has fundamentally challenged traditional approaches to academic writing and assessment in higher education. This mixed-methods study investigates the perceptions, practices, and institutional responses of 543 faculty members and 1,280 students across 15 universities in Europe and Asia regarding the use of generative AI in academic contexts. Quantitative survey results reveal that 67% of students have used AI writing tools at least once, with 34% reporting regular use. Faculty concerns are centered on academic integrity (78%), skill development implications (65%), and assessment validity (59%). Through rigorous thematic analysis of 45 in-depth semi-structured interviews, the study identifies three dominant institutional paradigms: prohibition, controlled integration, and full adoption. The paper proposes the TRUST model—a comprehensive ethical framework built around five principles: Transparency, Responsibility, Understanding, Skill-building, and Transformation—as a practical, evidence-based approach for integrating generative AI into academic writing curricula while maintaining scholarly standards and fostering critical thinking competencies.

Keywords: generative AI, academic writing, higher education, academic integrity, ethical framework, ChatGPT, large language models, TRUST model

1. Introduction

The emergence of large language models capable of generating fluent, contextually appropriate, and apparently well-reasoned academic prose has created what many scholars describe as a fundamental epistemic crisis for higher education. Unlike previous technological disruptions to academic integrity—including the rise of internet-based plagiarism in the 1990s and early contract cheating services in the 2010s—generative AI operates at a qualitatively different level of sophistication, producing original text rather than copied material, and doing so in seconds at virtually no marginal cost to the user.

The scale and speed of adoption have been unprecedented. ChatGPT reached 100 million users within two months of its November 2022 launch, a pace unmatched by any consumer technology in history. Surveys conducted in 2023 and 2024 consistently indicate that substantial majorities of university students have experimented with AI writing tools, with significant minorities reporting regular use for assessed coursework. This rapid diffusion has outpaced institutional policy development, leaving faculty members, academic integrity offices, and curriculum designers to navigate an uncertain and rapidly evolving

landscape.

The challenge for higher education is not simply one of detection and prohibition—an approach that faces serious practical and philosophical limitations—but of reimagining what academic writing is for in an era when AI can perform many of its surface functions competently. If the purpose of academic writing is primarily communicative—the transmission of existing knowledge—then AI assistance may be broadly acceptable, as calculators are accepted for mathematical computation. If, however, academic writing is primarily a cognitive and epistemic practice through which students develop critical thinking, argumentation, and disciplinary identity, then AI-generated text may fundamentally undermine its educational purpose even when not technically plagiarized.

1.1 Scope and Objectives

This study addresses a critical gap in the literature by providing a comprehensive, multi-country, mixed-methods analysis of how generative AI is being perceived and used in academic writing contexts across diverse institutional settings. The specific objectives are to: (1) document the prevalence and patterns of AI writing tool use among university students; (2) systematically map faculty perceptions, concerns, and responses to AI in academic writing; (3) identify the range of institutional policy approaches and their perceived effectiveness; (4) examine the ethical dimensions of AI use in academic writing; and (5) develop and propose a practical ethical framework for institutional adoption that is grounded in empirical evidence.

2. Literature Review

Prior research on technology and academic integrity provides important context for understanding the current generative AI challenge. The integration of word processors, spell-checkers, and grammar tools into academic writing was initially contested but is now universally accepted, suggesting that technology adoption in writing contexts follows a pattern of initial resistance followed by normalization as educational practices adapt. The question of whether generative AI represents a difference in degree or a difference in kind from these prior tools remains a central theoretical debate.

Academic integrity scholarship has identified several theoretical frameworks for understanding the motivational and situational factors that predict dishonest behavior. Deterrence theory predicts that students weigh the perceived probability and severity of punishment against the expected benefit of cheating. Self-determination theory suggests that students who feel autonomous, competent, and relatedly engaged with their learning are less likely to cheat. Cultural context also plays a significant role: studies consistently find cross-national variation in attitudes toward academic collaboration, source attribution, and the boundaries between individual and collective intellectual work.

3. Methodology

A sequential explanatory mixed-methods design was employed, with quantitative survey data collected first to identify broad patterns, followed by qualitative interview data to explain and contextualize the survey findings. This sequence allowed the qualitative phase to be purposefully designed to probe the most surprising, nuanced, or contradictory findings from the survey.

3.1 Quantitative Phase: Survey

The online survey was distributed across 15 universities in Lithuania, Turkey, Spain, Italy, and Germany through institutional research offices. Separate survey instruments were developed for faculty (n = 543, response rate 61%) and students (n = 1,280, response rate 54%). Faculty items addressed perceptions of AI risk and benefit, current policy approaches, assessment modification strategies, and institutional support needs. Student items addressed AI tool use frequency and context, self-reported motivations and

justifications, perceptions of fairness and effectiveness of AI policies, and attitudes toward academic integrity. Likert-scale items were complemented by open-ended questions that generated rich qualitative data for initial thematic analysis.

3.2 Qualitative Phase: Interviews

Semi-structured interviews were conducted with 45 purposively sampled participants: 20 faculty members, 18 students, and 7 academic administrators. Sampling was designed to ensure diversity across disciplines (humanities, social sciences, natural sciences, engineering), career stages for faculty, year of study for students, and national contexts. Interviews lasted between 45 and 75 minutes and were conducted via secure video conferencing platforms. All interviews were audio-recorded, transcribed verbatim, and translated into English by certified translators where necessary. Reflexive thematic analysis following Braun and Clarke's (2021) updated methodology was employed.

4. Results

Survey findings revealed significant variation in both attitudes and practices across national and disciplinary contexts. The overall finding that 67% of students had used AI writing tools at least once masks substantial variation: usage rates ranged from 81% at one German technical university to 49% at a Lithuanian liberal arts institution. Regular use (defined as at least weekly for academic writing tasks) was reported by 34% of student respondents overall.

4.1 Faculty Perceptions

Faculty concerns were diverse but consistently structured around three principal themes. Academic integrity concerns were most prevalent (78%), but interview data revealed important nuance: most faculty did not reduce integrity concerns to simple dishonesty but expressed more complex worries about students bypassing the cognitive work essential for learning. A recurring metaphor in interviews was "intellectual shortcuts"—the idea that AI removes productive struggle from the writing process, undermining the development of the very competencies that academic writing is designed to build.

Skill development concerns (65%) reflected faculty awareness that writing competence develops through practice, and that offloading writing to AI systems during formative academic years may produce graduates who are unable to write coherently without AI assistance. Assessment validity concerns (59%) focused on the challenge of interpreting grades assigned to AI-assisted work: if the work does not represent the student's own competence, the grade provides no useful signal about what the student knows or can do.

4.2 The Three Paradigms

Thematic analysis of interview data identified three dominant institutional paradigms that represent fundamentally different philosophical orientations toward AI in academic writing. The prohibition paradigm treats all undisclosed AI use as academic misconduct, analogous to plagiarism or ghost-writing, and relies on AI detection tools and policy enforcement to maintain traditional standards. The controlled integration paradigm accepts AI as a legitimate writing aid under specified conditions, typically requiring disclosure, restricting use to specific phases of the writing process, and reforming assessment to evaluate skills not replicable by AI. The full adoption paradigm reimagines academic writing entirely in the AI era, treating proficiency in AI-assisted writing as itself a valued competency.

5. The TRUST Framework

Drawing on both the quantitative survey findings and the rich qualitative interview data, the research team developed the TRUST model as a comprehensive and actionable ethical framework for institutional navigation of generative AI in academic writing. Each dimension of the framework addresses a specific

challenge identified in the empirical data.

Transparency. All use of AI tools in academic work must be explicitly declared and documented through standardized disclosure mechanisms. Institutions should develop clear AI use declaration forms analogous to existing conflict of interest disclosure procedures, and these disclosures should be preserved as part of the academic record. Transparency requirements apply to both students and faculty, normalizing the practice of accounting for AI contributions to scholarly work.

Responsibility. Users bear ultimate intellectual and ethical accountability for the accuracy, originality, and scholarly integrity of submitted work, regardless of the degree of AI assistance employed. This principle resists the "automation bias" tendency to treat AI outputs as inherently trustworthy and positions AI as a tool that amplifies human capability rather than a substitute for human judgment.

Understanding. Students must demonstrate genuine comprehension of AI-generated content and must be able to explain, defend, and critically evaluate any AI-assisted work they submit. This requirement fundamentally changes the assessment paradigm: rather than assessing the quality of written product alone, assessment must engage the student's active understanding of the content and argument.

Skill-building. AI tools should be intentionally deployed to enhance rather than replace fundamental writing, thinking, and research competencies. This requires pedagogical design that explicitly positions AI as a scaffold to be progressively withdrawn as student competency develops, rather than a permanent crutch.

Transformation. Institutions should use the challenge of generative AI as a catalyst for fundamental reimagination of academic assessment methods for the AI era. This includes renewed investment in oral examinations, process-oriented assessment, disciplinary portfolio approaches, and authentic assessments that require application of knowledge in contexts where AI assistance provides limited advantage.

6. Conclusion

The integration of generative AI into academic writing practices is not a question of if, but how, and the empirical evidence presented in this study makes clear that this integration is already well underway regardless of institutional policy positions. The TRUST framework provides institutions with a practical, evidence-based approach to navigating this transformation while maintaining meaningful academic standards and fostering the critical thinking competencies that remain central to the purpose of higher education.

Future research priorities include longitudinal studies tracking the long-term impact of different institutional AI policies on student writing development, cross-cultural comparative analyses of AI use norms and attitudes, and empirical evaluations of AI-integrated assessment designs. The field must also grapple seriously with the question of what writing competencies remain essential for graduates in an AI-permeated professional landscape, and how educational institutions can ensure that AI augments rather than atrophies those competencies.

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