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METHODOLOGY OF USING ARTIFICIAL INTELLIGENCE IN SCHOOL GEOGRAPHY EDUCATION

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Abstract. The rapid expansion of online learning in higher education, accelerated by the COVID-19 pandemic, has intensified concerns about academic integrity in online examinations. The emergence of advanced large language models, particularly ChatGPT, introduces a new challenge, as these systems can generate coherent, context-aware, and analytically sophisticated academic responses that are difficult to detect. This study presents an exploratory qualitative analysis of ChatGPT's academic capabilities across four disciplines: Machine Learning, Marketing, History, and Education. Using a three-stage evaluation framework, ChatGPT generated critical-thinking questions, produced extended responses, and critically evaluated its own outputs. The findings indicate that ChatGPT can produce high-quality, discipline-appropriate academic work, posing a significant threat to the validity of online assessments and highlighting the need to redesign assessment strategies in the age of generative AI.

Keywords: Academic integrity, online examinations, ChatGPT, large language models, higher education, assessment design

Introduction. Online learning has become an integral component of higher education worldwide, offering increased accessibility, flexibility, and scalability. This transformation was dramatically accelerated by the COVID-19 pandemic, during which universities were compelled to transition rapidly to fully online instructional and assessment models [1, 3]. While this shift enabled institutional continuity, it also intensified concerns surrounding academic integrity, particularly in the context of online examinations.

Existing literature consistently reports higher levels of academic misconduct in online assessments compared to traditional in-person exams, attributing this trend to limited supervision, student anonymity, and unrestricted access to external resources. Studies by Fask et al., Corrigan-Gibbs et al., Alessio et al., and Noorbehbahani et al. provide strong empirical evidence that cheating is significantly more prevalent in online examination environments [7]. In response, universities have implemented a range of countermeasures, including online proctoring systems, secure browsers, plagiarism detection software, and honor codes. However, the effectiveness of these interventions remains contested, and many raise ethical, legal, and psychological concerns related to privacy, surveillance, and student well-being. In recent years, educators have increasingly relied on so-called "cheat-resistant" assessment formats, such as short-answer questions, essays, and critical-thinking tasks, under the assumption that such formats are less susceptible to dishonest practices. The emergence of ChatGPT in late 2022 challenges this assumption. As a large language model trained on vast corpora of text, ChatGPT demonstrates advanced reasoning, contextual understanding, and the ability to generate high-quality academic prose across disciplines [2, 12]. Its capacity to produce original, non-repetitive responses further complicates detection efforts and raises fundamental questions about the long-term reliability of online examinations. This study aims to provide early empirical insight into ChatGPT's academic capabilities and to examine its potential implications for academic integrity in higher education.

Literature Review. Prior research on academic integrity in online education has identified several persistent challenges. Online examinations lack standardized implementation practices

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and often exacerbate accessibility and equity concerns. Documented cheating methods include unauthorized internet searches, collaboration through social media platforms, and the use of remote desktop technologies. Although online proctoring systems have been widely adopted, studies indicate that such tools are frequently perceived by students as intrusive and stressful, while their deterrent effect remains limited [4, 8].

Recent scholarship has emphasized assessment redesign as a more pedagogically sound response to academic misconduct. Critical-thinking questions, open-ended essays, and authentic assessments have been promoted as alternatives to objective testing formats. However, these recommendations largely predate the emergence of advanced generative AI systems. As a result, existing literature offers limited insight into how LLMs fundamentally alter the risk landscape of online assessments [8, 10].

This study addresses this gap by systematically examining ChatGPT's capacity to perform tasks traditionally considered resistant to cheating, thereby contributing to the growing body of research on AI and educational integrity.

Methodology. This study employs an exploratory qualitative research design aimed at assessing the higher-order academic reasoning capabilities of ChatGPT. Rather than evaluating student behavior directly, the analysis focuses on the performance of the AI model itself as a potential academic agent.

The evaluation followed a three-stage process:

- ChatGPT generated discipline-specific critical-thinking examination questions.
- ChatGPT produced approximately 500-word essay responses to each question.
- ChatGPT critically evaluated its own responses, identifying strengths, weaknesses, and areas for improvement.

Four academic disciplines were selected to ensure breadth: Machine Learning, Marketing, History, and Education. Responses were evaluated using universal intellectual standards, including clarity, accuracy, relevance, precision, depth, breadth, logic, persuasiveness, and originality [11].

The study relies primarily on expert judgment for evaluation, with external validation conducted only in the Machine Learning domain. The absence of multiple independent evaluators and real student data limits generalizability.

Results. Across all disciplines, ChatGPT demonstrated a high level of academic competence. The generated examination questions were appropriately aligned with disciplinary learning objectives and required higher-order cognitive engagement. Essay responses were coherent, logically structured, and rich in relevant examples.

In terms of clarity and organization, responses exhibited grammatical accuracy and strong internal coherence. Accuracy was generally high, particularly in technical domains, although the potential for subtle factual errors remains. Depth and breadth were evident in the consideration of multiple perspectives and contextual factors. ChatGPT's self-critiques were notably reflective, identifying limitations and proposing improvements consistent with academic evaluation norms [6, 9]. Originality emerged as a complex dimension: while responses were not plagiarized, the recombination of existing knowledge occasionally produced statements that appeared novel but lacked empirical grounding.

Discussion. The findings provide compelling evidence that ChatGPT is capable of performing tasks traditionally associated with advanced academic reasoning. This challenges the prevailing

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assumption that critical-thinking and essay-based assessments are inherently resistant to cheating. The model's ability to generate unique, high-quality responses undermines the effectiveness of plagiarism detection systems and complicates AI-based detection efforts. While ChatGPT itself suggests mitigation strategies such as proctoring, AI detectors, and ethical education, the study highlights the limitations of each approach. Proctoring tools remain costly and controversial, detection systems are unreliable, and ethical instruction alone is insufficient to deter misconduct. At the same time, the results suggest that generative AI should not be viewed solely as a threat. When responsibly integrated, such tools may support learning, feedback, and academic skill development. The central challenge lies in balancing these opportunities with the need to preserve assessment integrity.

Conclusion. This study demonstrates that advanced large language models such as ChatGPT represent a critical turning point in the evolution of online assessment in higher education. The model's ability to generate, answer, and critically evaluate complex academic tasks poses a serious challenge to the validity of online examinations. As AI technologies continue to evolve toward greater multimodality and sophistication, existing assessment and integrity frameworks will become increasingly inadequate. Higher education institutions must therefore move beyond reactive measures and engage in proactive, systemic redesign of assessment practices. This includes developing tasks that emphasize personalized reasoning, integrating oral and interactive assessment formats, and establishing ethical and pedagogical frameworks for AI use. Without such efforts, the credibility of online education and the qualifications it awards may be fundamentally compromised.

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