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AI in Education: Leveraging Artificial Intelligence to Combat Academic Malpractice in Higher Education

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Abstract

Cheating, plagiarism, biased grading and other academic malpractices remain a chronic problem in higher education globally. As Artificial intelligence (AI) trained to generate text and answer questions becomess more sophisticated, higher institutes of education are taking more interest in adopting technological solutions to ensure academic integrity. The study examines how AI can be used to prevent academic misconduct and promote fairness in assessment and grading, and how education institutions, now, in the face of new challenges being presented with the exploitation of generative AI tools, such as GPT-4 in the context of examinations and assessment, adjusts to the emerging situation. This paper explores the critical complexities and assesses current AI applications in education, their effectiveness at combatting malpractices and the ethical dilemmas surrounding the integration of AI in educational environments. The research shows that while AI technologies can assist in identifying cheating and plagiarism effectively, ensure fair and equitable assessments and strengthen academic integrity, there exists an urgent need for dealing with issues related to privacy, reliance on technology and abuse of AI in examination.

Keywords: Artificial Intelligence, Academic Integrity, Higher Education, Plagiarism Detection, Educational Technology, GPT-4, Automated Assessment, Exam Security

Introduction

In recent years, educational institutions worldwide have faced increased demands for high academic integrity. Not surprisingly, however, the all-time high in academic malpractice in the

form of exam cheating and assignment plagiarism has been worsened by grading malpractice. Biased grading systems used in most institutes of higher education have contributed to erroneous academic results and inflated grades. Harry, (2023) avers that it is important to tackle this menace to maintain and enhance the integrity of academic credentials offered in Higher Education Institutions (HEIs) [1]. Academic dishonesty has gone a notch higher in the digital era, making it easier to cheat and get away with it. This has raised questions about the fairness, consistency, and credibility of educational assessments, as well as the long-term effects of such malpractices on the broader academic community and on individual students.

Academic malpractice has always existed but when the usage of technology, especially Artificial Intelligence (AI), comes into play, it makes the matters worse. As AI tools become more common, new ethical dilemmas and challenges are being faced by students and educators alike. Although AI can significantly improve the learning experience and complement with personalized learning pathways, it also opens new risks, including students using generative AI models such as Open Ai's GPT-4 to generate essays or exam answers that look like their own, but are actually machine-generated [2]. It poses a major threat to academic integrity in examinations and assignments, as conventional plagiarism detection systems alone are ineffective in detecting AI generated text.

Educational institutions are already using AI solutions to combat academic dishonesty. Plagiarism detection software like Turnitin, for example, uses an algorithm-based approach, comparing student submissions to numerous databases for signs of copied or paraphrased content. Furthermore, some universities have started to use automated grading systems, allowing for a better assessment of students and removing human biases from the grading process. Institutions, in addition, are using predictive analytics, collaborating machine learning models to capture behaviors that might suggest cheating — for example, students exhibiting non-normal patterns in exam repertoire or assignment submissions [2].

With the sophistication of AI models growing and these becoming increasingly able to evade traditional detection methods, evidence suggesting that such software is still in its infancy, and the potential for misuse of this technology by academic cheats, it is imperative to assess the ability of these rather new tools to prevent academic malpractice [1]. This paper primarily aims to discuss the utilization of AI for proactive and reactive detection of academic malpractice, maintaining fairness in assessment and overall integrity of academia.

The article further discusses the ethical considerations of using AI in education, especially in relation to terms of privacy, the excessive dependency on technology, and academic misconduct. The paper will therefore cover a thorough study of the current implementations of AI in education and will also include case studies and opinions of experts in the field to examine what benefits AI can bring to improve academic integrity, as well as outlining those uses of AI which might be too small to be feasible to integrate into existing forms of education.

Moreover, this study is important in tackling the emerging challenge of cheating with AI and the specific complexity of AI technologies like GPT-4. This paper reviews the state of the art in AI text detection tools and the ways that institutions are adapting policy to the ethical dilemma of growing AI in academic spaces.

The paper concludes with recommendations on the future of academic integrity in HEIs, emphasizing the possible ways that institutions can be designed, to balance the usage of AI technologies while observing the ethical values in academics. The findings of this study are important for educational policymakers, faculty, and technology designers working to solve the unpredictable and ever-present potential of AI misuse in higher education.

Literature Review

Academic Malpractice: A Recurring Theme in Post-Secondary Education

Academic misconduct such as cheating, plagiarism, biased assessments has bedeviled higher education for generations. Such misconduct not only threatens the integrity of academic institutions but is detrimental to trust between students, educators and society at large. Traditionally, it was not difficult to monitor and prevent academic misconduct through manual surveillance where educators could easily spot plagiarism or cheating in the classroom [1]. But due to the emergence of online learning resources and remote evaluations, the techniques of preventing academic integrity have also advanced.

What used to be clear-cut plagiarism that included copying and pasting text has tremendously changed into a sophisticated activity that involves finding out instances where students copy and paraphrase ideas as a way of avoiding detection. The availability of online essay mills, where students can buy academic work, has also made detection more difficult. The emergence of online platforms, particularly in the post-pandemic world, has given students access to external sources of information, expanding opportunities for dishonest behavior in the absence of supervision. This phenomenon has necessitated the need for using AI and machine learning technologies as effective means to detect and prevent academic dishonesty [3]. To match the sophistication of modern methods of cheating, these technologies will also evolve to develop ways of monitoring student behavior, noticing patterns of academic dishonesty and detecting students cheating in real-time. The new technological development aimed at detecting and combating exam malpractice, however, also has challenges in terms of ensuring fairness, privacy and transparency.

The Role of AI in Plagiarism Detection

Over the years, institutions have been using AI-powered tools such as Grammarly, Turnitin and Copyscape to detect and prevent academic malpractices in HEIs. These tools use complex algorithms that check student submissions with extensive databases of academic articles, websites, and past student submissions. Schiff (2022) argues that while these systems are

adept at detecting classical forms of plagiarism, such as code copying and paraphrasing, they are weak in detecting more advanced forms of cheating [4].

The existing solutions used early patterns, mainly based on comparison and keyword matching, which were not efficient for paraphrased text detection. As a solution, more advanced plagiarism detection tools that rely on AI have been developed that take into account the semantic analysis which helps in understanding the true meaning behind the words, placing them in context to detect even subtle differences in wording or meaning even when words are paraphrased [5]. This development represents a more robust way of addressing how to identify academic misconduct, both in its blatant forms and in its more subtle variants, while also allowing students to receive guidance on when their thoughts resemble ideas or arguments from other people, even if expressed differently [6].

The Emergence of Automated Grading Systems

Tahiru (2021) presents a systematic literature review on the role of AI in education, examining various approaches and trends such as automated grading systems [7]. Tahiru (2021) further avers that AI has extensively transformed the grading process for higher education [7]. Historically, grading used to be done manually. However the integration of AI ha automated grading thus eliminating possibilities of potential biases and inconsistencies of assessments. This is indicative of how AI is harnessed in education and its potential to transform both teaching and learning processes [8]. Whereas manual grading may be swayed by an instructor's mood, implicit cultural biases, or the time of day that the grading happens, using AI eliminates such issues thus improving the outcome.

Using AI in grading software like Gradescope and Moodle can alleviate some of these challenges because it allows for objective, consistent, and scalable assessment. Meanwhile, these systems utilize pre-controlled grading rubrics that provide the same set of criteria for each student to enhance transparency and fairness in grading process [9]. These systems perform well especially in grading objective tasks such as multiple-choice and short-answer responses. They however struggle to assess more subjective tasks like essays that require assessing the students' creative and critical thinking [10]. It should also be noted that the capacity of AI to assess complex, open-ended assignments is still limited, and human oversight is necessary for nuanced assessments.

Predictive analytics and artificial intelligence (AI) in detecting cheating patterns

AI has shown to be a remarkable tool for analyzing huge amount of data and identifying trends and patterns. Machine learning models and algorithms analyze student database pattern to discover and find cheating patterns. Such tools use predictive analytics to monitor exam performance, assignment submission patterns, and even online student engagement to discover if any of these activities deviates from the norm. which could signal dishonest behavior.

For example, AI tools can flag a student who may perform well on many assignments but suddenly scores poorly in an exam. AI-led proctoring systems, too, are being used at certain institutions to supervise the conduct of students while taking online exams [9]. These systems employ computer vision algorithms to track eye movement, facial expressions, and body posture of the students as well as observe the student environment through a webcam to detect suspicious activities, such as use of unauthorized materials or devices [11].

These tools make it relatively simple to detect exam cheating but create room for serious questions concerning privacy and the ethics of surveillance. These systems create a situation where students are being under constant surveillance, making critics question if the extent of surveillance in this aspect of their lives is an infringement of their right to privacy [6].

Challenges of AI in Combating Academic Malpractice

Despite the potential AI offers in the war against academic malpractice, several challenges need to be cleared before these technologies can operate at their most effective level in higher education. Much of the concern is around the potential for students to cheat using AI, especially with generative AI models like GPT-4, which can produce human-like text that is nearly indistinguishable from that which is written by students themselves. This development poses a significant threat to the education system as it can potentially allow students to generate essays and assignments using artificial intelligence that are not reflective of their learning journey, hence compromising the reliability of academic assessments [12].

AI detection tools do exist, but no automated system can ever be completely error-proof. As AI writing systems become more sophisticated, detections systems must be updated regularly, too. Many schools, particularly those with low budgets, also do not have access to these tools and struggle to implement sound academic integrity solutions [10].

Furthermore, the growing reliance on these technologies can lead to excessive monitoring of learners as well as biases in AI-powered tests. Without careful design and oversight, these tools could unwittingly incorporate bias that negatively affects some student groups. Finally, heavy reliance on AI to sniff out academic dishonesty and plagiarism threatens to obscure the greater cultural imperative of improving academic integrity through education and engagement with students, faculty, and administrators around the higher education enterprise.

Methodology

This research is a qualitative study comprising of a literature review and a case study of the role of Artificial intelligence (AI) in combating academic malpractice in higher education. The next section describes the research design, data collection methods, and analysis techniques used in this study to evaluate the effectiveness and challenges associated with the use of AI tools in educational settings. This approach, in addition to illustrating how artificial tools are being used in the detection and prevention of academic misconduct, will also allow us to explore some the ethical dilemmas these tools are raising.

Research Design

The research uses a mixed-methods approach to achieve a comprehensive understanding of how AI tools affect academic integrity. The study is structured as follows: *Qualitative Aspect:* This involves semi-structured interviews and case studies that were carried out with members of the faculty, University departmental administrators, and University students from institutions that have adopted AI-driven tools to monitor academic malpractice.

Quantitative Aspect: Statistical assessment of information regarding the efficiency of AI-oriented tools in educational settings. This includes collecting statistics related to accuracy rates of plagiarism detecting tools, grading accuracy of automated grading systems, and effectiveness of proctoring systems in minimizing cheating during exams

Plagiarism Detection Accuracy: AI vs Manual

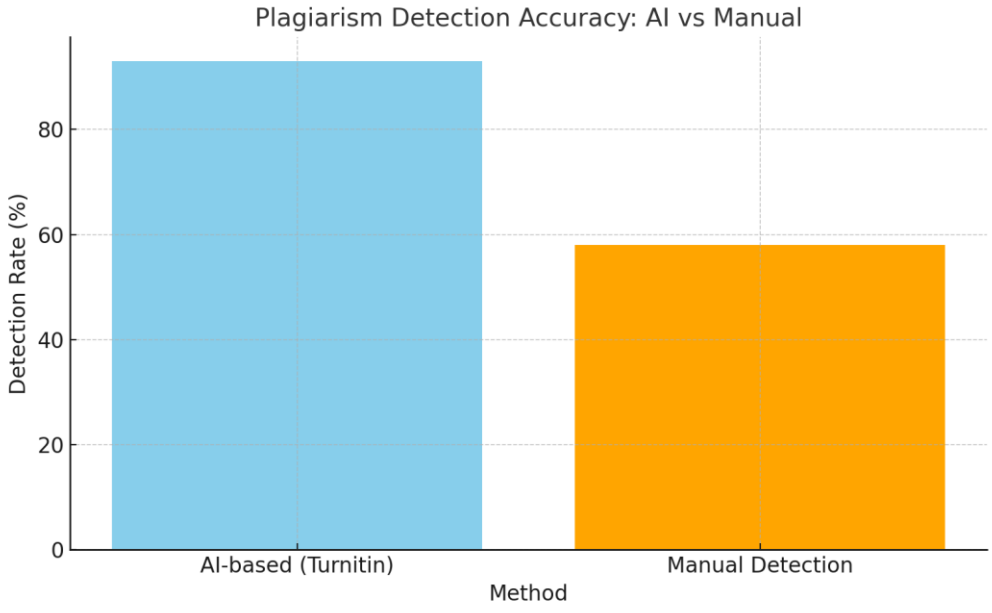

Figure 1: Comparison of Plagiarism Detection Accuracy between AI-based (Turnitin) and Manual Detection Methods

Grading Accuracy: Automated vs Human

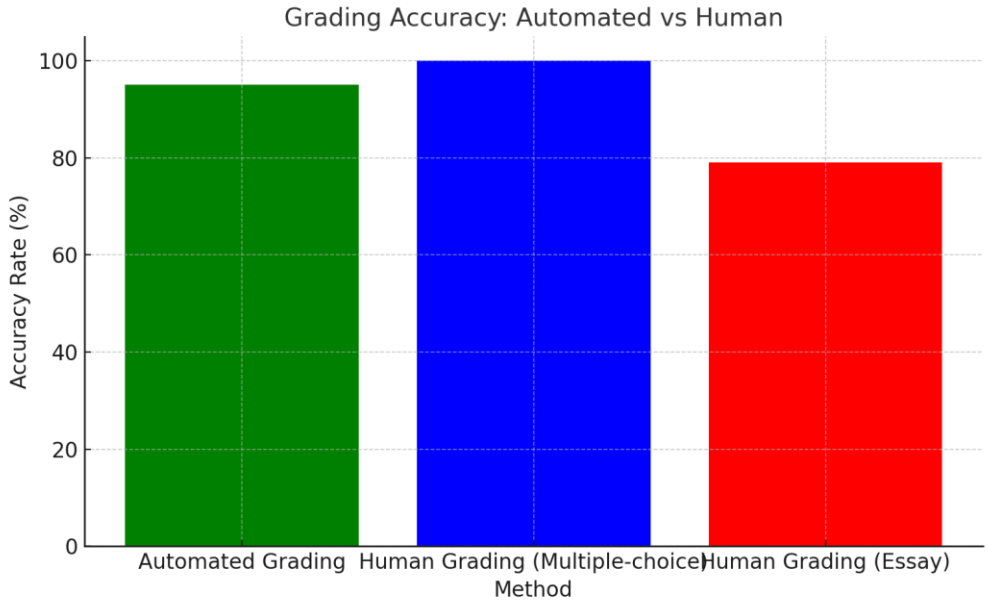

Figure 2: Comparison of Grading Accuracy between Automated Grading and Human Grading

AI Proctoring Effectiveness: Cheating Incidents Before and After AI Implementation

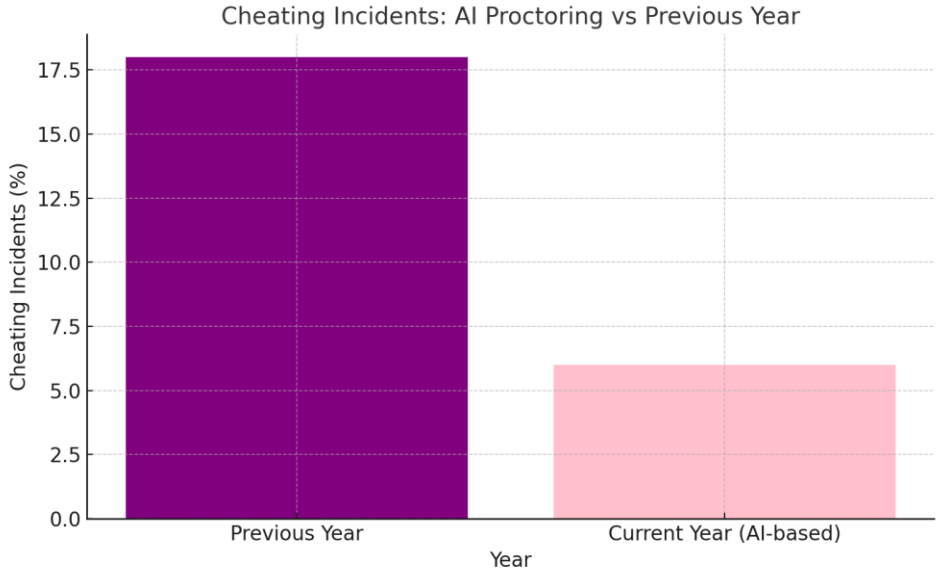

Figure 3: Reduction in Cheating Incidents with AI-based Proctoring Systems

Data Collection Methods

The data for this study was collected through a combination of literature review, case studies, and semi-structured interviews with key stakeholders in higher education. Each data source contributed to a comprehensive understanding of the role of AI in academic integrity.

Case Studies

Besides the literature review, case studies were chosen from universities that have adopted AI tools in their academic environments. These case studies made it possible to explore how AI technologies are being used to tackle academic malpractice.

The case studies involved universities that had adopted one or more of the following AI systems:

- Plagiarism formulas (e.g., Turnitin, Grammarly)
- Automated grading system (Gradescope, Moodle, etc.)
- AI-based proctoring systems (ProctorU, Examity.)
- AI driven predictive analytics to help ascertain potential cheating occurrence.

These case studies were drawn from a range of institutions in order to capture a wide diversity of examples. The institutions selected either had publicly available statements or reports on their usage of AI in education and offered accessible data or case studies for analysis in the research.

Semi-Structured Interview

This section discusses the approach used for conducting semi-structured interviews with key participants when collecting data for this research. Conducting these interviews with the key stakeholders was important because it helped in capturing quantitative data about the participants; perceptions ad experiences when using AI for learning ad combating cheating in exams.

Participant Selection

The selection of participants was done following the purposive sampling method based on various perspectives. The following15 people were interviewed.

- 5 members of the faculty that had integrated AI tools in their pedagogical approaches and assessment
- 5 university administrators in charge of using and managing AI-based systems in their HEIs
- 5 learners with experience in doing tests through online proctoring or other AI-based assessments.

Interview Format

Interviews were semi-structured to allow flexibility and to cover the primary aim of the study. The initial rounds of interviews consisted of open-ended questions, but participants were invited to offer any further insight based on their lived experience. All interviews took place digitally and lasted for 40 to 60 minutes.

Data Collection and Coding

Data from the interviews were transcribed and analyzed via the manual coding process. Using this methodology, ethical concerns, effectiveness, and its impact on the academic experience were among the key issues identified with respect to usage of AI in education.

Data Sources

This part outlines the major primary and secondary sources of data that were utilized to collect information for this study. These reputable sources aided in creating a well-rounded perspective on the impact of AI on academic integrity.

Academic Literature

These included various databases such as JSTOR, ERIC and Google Scholar to find articles from peer-reviewed journals, conference proceedings and books. This encompassed various established theories, frameworks, and findings within the literature surrounding AI-related tools within the educational context; more specifically through the detection of plagiarism or the use of automated proctoring tools. A special focus began with studies addressing the effectiveness and ethical issues related to AI technologies, which helped to create the theoretical framework for the analysis.

Institutional and Case Studies

Case studies of universities and educational institutions that embraced AI tools were examined. These consisted of institutional reports and internal assessments of AI-powered plagiarism detection software (such as Turnitin); and AI-based proctoring solutions (e.g., ProctorU). By elucidating these case studies, valuable insights can be acquired about the practical implications and pros and cons of AI tools in the actual context of academia.

Interviews with Stakeholders

This involved conducting semi-structured interviews with key stakeholders, such as educators, administrators, and students. Interviews were held on virtual platforms (Zoom, Microsoft Teams.) to collect multiple perspectives on AI implementation within educational contexts.

By incorporating multiple viewpoints, triangulation was achieved between findings in the published literature and the outputs of the case studies to improve the understanding of the challenges and opportunities that AI tools bring to the issue of academic malpractice.

Data Analysis

Data obtained from the literature review, case studies and interviews were analyzed thematically. We selected this method because it allowed us to identify and describe recurring patterns and themes across data types and relate them to the research questions.

Literature Thematic Analysis

We began by performing a thematic review of the academic literature. The articles were coded using several overarching themes related to the research.

- AI Plagiarism Detection effectiveness: Examining the accuracy, reliability, and limitations of AI-powered plagiarism detection tools and effectiveness. The ability of these tools to identify subtle varieties of plagiarism, including paraphrasing and AI-produced content, was examined with skepticism.
- Ethical Considerations: We examined literature discussing student privacy, the transparency of A.I. algorithms, and the potential for misuse of A.I. technologies. Some of these concerns are key when thinking about the implications of AI in education. A lot has to do with the issue of trust and fairness, for instance.
- AI Misuse as Cheating: Students are likely to abuse AI technologies to commit academic misconduct especially GPT-4 and other generative models during evaluation and assessment This pointed to weaknesses in existing detection systems, and the need for more development of AI tools to counter such abuse.

A synthesized literature review revealed gaps that highlighted areas for further investigation, including the integration of AI with traditional educational frameworks and the development of ethical use guidelines.

Case Study Analysis

Phase two of the data analysis involved a comparative case study approach. For instance, studied several case studies of universities that adopted Ai tools particularly for plagiarism check and proctoring were studied. This analysis investigated the current state-of-the-art AI technologies used in a real-world context within a university-based educational setting.

- Case Study Selection: Participating institutions were chosen based on geographic representation, size of institution, existing technology infrastructure, and experience experimenting with AI tools in the academic environment. This provided the basis for an understanding of how well the AI implementations work in different environments.
- Quality of AI Performance: Data collected were analyzed to evaluate the use of AI tools in each case study. This comparison included important metrics like:
- Plagiarism detection rates across Institutions

- Reduced cases of exam cheating because of AI-based proctoring and its role in decreasing cheating. By measuring these attributes, we could assess how well AI tools perform in real educational environments.

Concrete Effects and Constraints

- Incorporating AI solutions results in good outcomes like higher plagiarism (cheating) detection and greater monitoring by deploying AI-based proctoring systems.
- Some of the challenges included things like false signals around automated grading or proctoring systems flagging legitimate student activity, as potentially plagiarized.

The findings led to recommendations to mitigate the drawbacks of A.I. in higher education, including improved A.I. detection algorithms and the reduction of false signals in A.I. systems deployed in automated ways.

Interview Data Coding

In this regard, data of transcripts from semi-structured interviews conducted with key stakeholders were analyzed using manual coding.

Prior to analysis, transcripts for each interview were read and manually coded to identify common themes related to stakeholders' perceptions of AI tools in education. The data offered a qualitative lens for participant narrative that highlighted shared concerns and key takeaways most relevant to AI in practice, such as efficacy and ethics.

Identified Themes

- **Perceived Effectiveness of AI Tools:** Several educators and administrators highlighted the benefits of AI tools, such as plagiarism detection systems, in maintaining academic integrity. But they said they were skeptical that these systems were effective in addressing more sophisticated forms of academic cheating, especially those involving generative AI.
- **Ethical Concerns:** One of the bigger themes seemed to be concern about student privacy. Interviewees frequently expressed concerns that, due to the nature of AI systems, especially those that involve proctoring and monitoring; such characteristics might come at the cost of students' privacy and independence, leading to certain ethical dilemmas about this type of surveillance.
- **Impact on the Academic Experience:** Participants described the double-edged nature of AI in the academic experience. Some saw AI potential to enhance educational practices while others pointed out that its effectiveness would vary based on factors like the way the system is put in place and the way it is transparent. The question of how the use of AI could affect others' and students' learning lives deserves to be carefully considered, responses indicated.

Data Collation

Following data coding, emergent themes were then organized into three umbrella categories: technological efficiency, ethical considerations, and impact on academic practices. The conversation framed around these themes was then used to approach the study's research questions, identifying significant conclusions about the role of AI in academic integrity in the higher education environment.

Ethical Considerations

Because the research was exploratory in its nature, the ethical considerations outlined were the elements of study. This is especially due to the ethical standards surrounding data collection and the validity of data collected from human subjects. Informed consent was obtained from all interviewees before interviews, and participants were informed of the purpose of the research, the nature of confidentiality and their right to withdraw at any point from the study without penalization.

Moreover, the organizational study was performed according to the institutional privacy policies, particularly regarding the organizational regulations and data management structures. Universities that were able to provide data or case studies did so anonymously to protect the identities of the institutions involved.

Results

AI in Plagiarism Detection

Machine-learning systems, such as Turnitin, Grammarly, and Copyscape, are now a key necessity of higher education for detecting plagiarism. While such AI-based apps have an automated method to find potential plagiarism, they present a scalable tool to academic institutes enabling them to uphold their integrity. As the research shows, these systems are designed to detect direct types of plagiarism which includes verbatim copying from a publicly available source [12]. Nonetheless, several faculty members and administrators have noted that these tools struggle with more subtle forms of academic dishonesty, like rearranging sentences or creatively paraphrasing someone else's ideas.

While these tools are effective at spotting outright matches or heavily paraphrased content, they still have trouble spotting more subtle types of plagiarism, such as semantic rewording. According to literature, even more complex semantic analysis is needed for AI tools to be capable of accurate paraphrase detection, and this is still an area under development [6]. In one interview, a faculty member shared an example of a student who had paraphrased text from an academic article within the response that they had submitted. Turnitin had shown a red flag about possible plagiarism, However it failed flag the specific text from the paraphrased text [10].

To better navigate these limitations, a handful of institutions are investigating AI systems that incorporate semantic analysis that searches beyond simple keyword matches.

These systems analyze words based on the surrounding text, allowing for a more nuanced understanding of what makes up a case of cheating. Though still in early adoption, these tools have the potential to detect cases of academic malpractice that traditional systems may overlook [11].

Automated Grading Systems and Bias Reduction

Grading systems based on artificial intelligence like Gradescope and Moodle are used more and more in higher education as they allow objective and consistent feedback. These frameworks are based on predetermined assessment criteria, ensuring that each submission from the learner has the same assessment criteria. Their use has been reported by faculty of several institutions to help address grading bias, which can be influenced by instructor fatigue or implicit cultural biases [10].

For instance, one professor from a large public university mentioned that using automated grading for multiple choice tests and short-answer questions reduced errors and discrepancies in grading. Before the advent of AI, students regularly complained that essay-form examination scores can be decided by subjective means, and that favoritism is sometimes involved [11]. With the introduction of AI-based grading tools, the institute offered a more uniform and transparent method of grading, ultimately leading to fewer complaints and improved trust in the evaluation process.

However, AI grading is not without challenges. Some faculty members have expressed concerns about AI's ability to reliably grade complex essay responses, particularly in disciplines where critical thinking and creative arguments are essential. While AI systems excel in subjects such as mathematics and science, where answers are definitive, they struggle in humanities and social sciences, where responses often lack clear right or wrong answers [13]. The potential for AI to exacerbate existing biases in grading, especially if algorithms are trained on biased datasets, is another concern. Unless regularly updated and carefully designed, AI systems could inadvertently contribute to discrimination against certain student groups [6].

AI in Proctoring and Surveillance: Efficacy and Ethical Concerns

AI-based proctoring systems like ProctorU, Examity and Respondus are being used extensively to proctor students who take online exams. They use computer vision algorithms that track students' eye movements, facial expressions and body language, while also recording the physical surroundings through webcams to identify cheating behavior. The goal of these tools is to increase the security of the examination centers by limiting students' ability to retrieve outside resources, print notes or engage in any kind of cheating during exams.

In interviews, administrators said the systems have proven effective at reducing cheating in online exams. Professors who are part of universities that have piloted some form of an AI-based proctoring system saw a marked decrease in instances of cheating, particularly in high-stakes courses. According to one administrator, these systems enabled the institution

to conduct examinations at scale, remotely, yet with academic integrity during the COVID-19 pandemic, when in-person examinations were not possible [6].

Yet from the start, ethical questions around privacy and students' trust received a lot of attention. Many students were uncomfortable with the near-constant surveillance that AI proctoring systems required. The intrusive nature of monitoring where every minute movement is tracked during an exam led some students to feel as if they were being treated as suspects. Others reflected this sentiment in interviews, with one student saying it was creepy and they were unsure if prevention of cheating justified personal invasion. Additionally, there have been concerns regarding false positives in many cases, where students are flagged for exhibiting suspicious behavior despite not engaging in cheating, which results in panic amongst students and raises doubts about potential biases and transparency in the proctoring process [10].

There are valid concerns over the long-term effects that AI surveillance may have on digital footprints as well, and speculation of how often personal data will be used without user consent. The use of facial recognition technology has alarmed protectors of data privacy and those concerned with the impact of data breaches. In response to these issues, some institutions, such as the University of California, have adopted more stringent data protection requirements, while institutions employing AI-based proctoring systems must also adhere to data protection laws like the General Data Protection Regulation (GDPR) [6].

AI Misuse and the Rise of Generative Models (e.g., GPT-4)

The rise of models like GPT-4 has presented new challenges in combating academic dishonesty. Unlike traditional plagiarism, in which students copy text from published sources, generative AI models, including OpenAI's ChatGPT, generate content that closely resembles human-written text, making it indistinguishable from something written by student work. This has led to a new type of cheating wherein students can utilize AI tools to create essays, respond to examination queries, or finish assignments while being able to avoid the actual learning part.

Interviews with faculty members and administrators uncovered a high level of concern about the misuse of generative AI in academic contexts. Many expressed frustration that traditional plagiarism detection tools are unable to detect AI-generated text. At a university where staff had recently adopted GPT-4 detection tools, one faculty member explained that, though the tools could accurately spot at least GPT-4-generated text, they were far from foolproof. Students had gotten good at masking AI-generated material, so it seemed less detectable. Moreover, AI classifiers like OpenAI's AI Text Classifier and GPTZero are still in their infancy and not perfect. One interviewee indicated that these tools occasionally mistaken legitimate student work for AI-generated work and unjustly accused students of cheating [11].

As a response to this challenge, several universities have decided to modify their assessment approaches, implementing a greater focus on critical thinking and creative design,

two fields in which generative AI models such as GPT-4 are still inferior. Moreover, some online examination systems have implemented AI web proctoring of AI usage during system use, enabling them to track students' screen activity and determine if they use AI tools during the examination [13].

Summary of Key Findings

These findings demonstrate that AI technologies have great potential when addressing academic misconduct in higher education. Plagiarism detection systems, automated grading tools, and AI-assisted proctoring, for instance, have been successful in curtailing the rate of academic misconduct and streamlining the assessment process. Generative AI models, like GPT-4, introduced new concerns in the era of exams, especially with regards to cheating. Conventional tools have been successful in identifying traditional forms of cheating, like plagiarism and biased grading, but to detect and identify the output created by AI, systems that are more advanced are essential. In addition, levels of privacy, surveillance, and the likelihood of the abusive use of AI are other ethical concerns that must be considered, to ensure that AI technologies are applied in a fair and transparent manner [6,11,13].

Discussion

Interpretation of Findings

Meaning of Results

This study investigates the potential of Artificial Intelligence (AI) to combat academic malpractice in higher education. The review highlights technologies particularly found effective for deterring cheating and improving the integrity of the academic environment (i.e. plagiarism detection tools, automatic grading and AI proctoring software). The recent advancements of advanced generative AI systems such as GPT-4 create increased difficulties in identifying AI-written texts while reducing students' motivation to use these technologies during exams and assignment sittings [12].

Plagiarism Detection

Academic integrity is maintained through detection tools such as Turnitin and Grammarly. These systems have been effective in detecting direct plagiarism and paraphrasing. More recent systems include some kind of semantic analysis, which is a step up from string matching alone. However, given the ability of Generative AI to synthesize all forms of media, the success of these systems in identifying AI content is quite limited. As generative AI tools become more sophisticated, institutions will need adaptive plagiarism detection systems to detect the novel forms academic dishonesty is likely to take [6].

Although semantic analysis holds promise in the realm of plagiarism detection, it is still a difficult domain for AI. Natural language is sufficiently complex that even the best algorithms may not be able to spot instances of paraphrased ideas. This remains a challenge for the

developers of AI tools who want those systems to be responsive to the growing nuance in student work that might take advantage of AI [10]. While the proliferation of AI-generated material signals the emergence of a new arena through which academic integrity can be compromised, researchers of detection tools will need to develop robust progressive measures to meet these new challenges [11].

Automated Grading Systems

Grading continues to be revolutionized by AI-powered systems like Gradescope and Moodle, which have introduced high levels of automation to the grading process that has had a dramatic impact on reducing grading inconsistencies and bias. Early adopters of AI-based grading tools reported increased transparency, consistency, and speed in grading, leading to a more equitable grading process for students. These tools allow to scale assessments based on standard measures, reducing the potential for human bias and increasing trustworthiness in the grading process [13].

But AI grading systems perform best at objective measures, like the multiple-choice questions or short-answer formats. They falter on subjective grading — categorical work, like an essay or creative work. With subjects namely the humanities and social sciences, process and sample evaluation based on similar criteria would be difficult with the current strength of AI systems to evaluate human nuance, argumentation and creativity [10]. There is also a risk of AI amplifying existing biases in grading systems, particularly if algorithms are trained on biased data sets. These systems would need constant monitoring and tweaking to ensure they stay fair and unbiased over time (especially because in such assessments, this is the case in nature) [6].

AI in Proctoring and Surveillance

Some software powered by AI, like ProctorU, Examity and Respondus, have managed to reduce cheating on certain exams. There are students' behaviors, eye movements and environment conditions being monitored by these systems to detect suspicious activities. The case studies presented in this study show that AI-based proctoring systems have been effective at reducing incidents of cheating in particular high-stakes, online exam settings [14]. These tools were considered crucial in maintaining the integrity of online assessments during the COVID-19 pandemic (Afrogha, 2025) when in-person exams were no longer feasible But many have raised ethical issues about privacy and student trust [6]. Discomfort with being under constant surveillance was a common concern expressed by many students regarding AI proctoring systems and that they are being treated like suspects. The ethical question is how to balance safety with students' right to privacy. Students were concerned about facial recognition technology and the potential risk of a data breach or misuse of their personal data. Data protection regulations such as GDPR should be adhered to by institutions where personal

surveillance data regarding technologies are concerned, as well as an explanation of how the uses for this data work in practice and can be regulated [10].

Figure 1 below illustrates the concerns raised by students regarding AI proctoring systems. As shown in the figure, privacy concerns were the most frequently mentioned issue in the interviews with students.

Concern	Percentage of Students (n=15)
Surveillance and Monitoring	67%
Facial Recognition Technology	53%
Data Security Risks	47%
Trust in Proctoring Systems	40%

Figure 1: **Privacy Concerns Regarding AI Proctoring Systems**

Source: Interview Data, 2025

AI Misuse and Generative Models (GPT-4)

The study identifies one of the greatest threats to academic integrity as the potential misuse of the generative AI models such as GPT-4. Differing from the traditional form of plagiarism where students copy-pasted texts from a published source, generative AI models generate unique content that cannot be distinguished from human-written content. These developments raise fresh questions about authorship, originality and academic integrity. Although some tools, including GPTZero (Zhang, 2023) and OpenAI's AI Text Classifier have been developed to notify educators of potentially AI-generated content, their progress is in the initial phase and has produced unreliable outcomes [11].

With the growth of generative AI improving, common plagiarism-detection tools are unable to track AI-generated content [14]. As a result, in part, some institutions are reforming and adapting their approaches to assessment to focus on critical thought, creativity, and personal investment in the subject area. While generative AI tools such as GPT-4 can compose words, they can never fully duplicate the critical thought and uniqueness that students inject into their academic efforts [13]. Academic institutions have more control and responsibility for limiting the use and misuse of AI by writing assessments that encourage individual or collective reflection and creative engagement with the subject

Recommendations

Drawing on the findings of the study, the following strategic actionable recommendations for effective integration of Artificial Intelligence (AI) tools in higher education are proposed.

- They need to have AI-based plagiarism detection systems in place that can spot content generated by AI such as GPT-4. Such tools need to be constantly updated to reflect the changing dynamics of academic misconduct [6,12].

- Higher education institutions should abandon traditional examination methods based on rote memorization in favor of assessments that prioritize critical thinking, creativity, and real-world application. There will be, to some degree, a decreased overdependence on AI tools by students in completing their tasks [10,13].
- These systems must also comply with data protection laws (such as the GDPR) and provide transparency in how the resulting surveillance data is used. Establish clear ethical guidelines for use of AI tools to protect students' privacy and maintain trust (Isbell et al., 2023) [6].
- Academic integrity education, specifically the ethical implications of using AI, should be prioritized by any institution. A Responsible Use Policy will contribute to creating an atmosphere of ownership and respect for academic processes as students navigate the ethical use of AI [11,15].

Limitations of the Study

This study offers great insight into the function of AI in fighting academic malpractice, but there are a couple limitations to keep in mind: The first limitation was the number of participants the (15) in the interviews. We wonder if a wider pool of subjects might give us better insight into what various stakeholders have gone through and believed.

Second, it is worth noting that the majority of the universities participating in the study do not represent HEIs in the entire world. Information on AI-based solutions to academic malpractice across institutions from even wider regions could help to assess their global applicability; therefore, this approach should be implemented in future studies focusing on this topic.

Lastly, it is worth noting that the fast pace of AI revolution means that some of the tools outlined in this study will become obsolete or be superseded by improved systems in the coming short term. Research is still needed into the upper-level technology of AI systems and their consequences for higher education.

Conclusion

This study explored the integration of Artificial Intelligence (AI) technologies in higher education and examined how such technologies could be integrated into existing higher education infrastructure to mitigate academic malpractice such as cheating, plagiarism, and biased grading. The advent of models that can generate text, like GPT-4, has raised new challenges to academic integrity, creating a greater challenge to identifying AI-generated articles and limiting the efficacy of traditional methods of identifying academic malpractice. The results emphasize the need for continued technological improvements to mitigate the abuses AI poses to academic honesty.

Summary of Key Findings

The study emphasizes that conventional plagiarism detection tools such as Turnitin and Grammarly have good accuracy in terms of identifying direct plagiarism, copying, and paraphrasing [6]. But these tools struggle with AI-generated content, an increasing concern in academia. While some systems with semantic analysis capabilities are under development, these technologies remain a work in progress and have yet to mature to an extent that they can fully mitigate AI-aided cheating [12].

AI enabled grading systems such as Gradescope and Moodle have been able to help improve grading consistency as well as reduce time for completion, especially for objective assessments. But their performance in subjective assessments, such as essays needing cleverness and creativity, is still limited [13]. Therefore, these systems deserve further research and development in order to be able to deal with more complicated assessments.

To address this issue, AI-based proctoring systems such as ProctorU and Examity have been implemented which have largely succeeded in reducing cheating during online examinations through surveillance of students' behavior and environment. Yet, privacy worries and the morality of unceasing monitoring remain major obstacles to their widespread acceptance [6]. These systems become a myopic balance between upholding the integrity of the institution and the privacy of students.

Finally, with the emergence of generative AI models like GPT-4, new threats to academic integrity arise. This is because they generate texts that look like human-simulated texts, and it is therefore hard to spot by traditional plagiarism detection tools. Additionally, institutions will need to address this by installing AI specifically detection systems and by redesigning their exam forms away from memory and recall and towards critical thinking and originality [11].

Implications for Educational Institutions

AI tools have great potential but must be placed within the context of a whole school approach that brings together all elements of strong academic integrity practice. AI technologies have a role to play in low-stakes, formative assessments. However, to ensure fairness, transparency and ethical accountability in high-stakes evaluations, human judgment remains irreplaceable [16].

Academic institutions thus ought to keep their plagiarism detection software, grading tools and proctoring technology constantly updated and in a state of continuing improvement to catch up with ever-emerging methods of academic fraud. With the increasing use of AI tools in the surveillance of students, it is imperative that institutions comply with data protection legislation (such as GDPR) and provide their students with clear information regarding their data collection, use, storage policies (Isbell et al., 2023).

Moving to assessments that value critical thinking, creativity, and personalized responses will mitigate students using AI tools and will encourage students to engage more

deeply with course content. Institutions must also center assessment design on the application of original thought, typified by personal reflection, that is more resistant to AI misuse.

Recommendations for Future Research

Although this study offers a comprehensive exploration of AI's contributions towards tackling academic malpractice, many opportunities for future research remain. One area of investigation is the impact of AI on long-term student academic outcomes, including performance and academic integrity. More research needs to be done on whether AI technologies make the learning experience better or worse, and whether they work in an effective manner across disciplines.

More research is also needed in the effectiveness of AI detection tools, particularly in the detection of AI-generated content. However, the development of tools that can identify imitation and consequently an alert mechanism to restrain them has become an urgent priority for upcoming research (Kumar, 2025). It may also need research on the ethics and privacy impacts of proctoring and surveillance systems powered by AI. Research should address reconciliation between academic integrity and privacy, as well as the possibility of non-surveillance-based systems such as open-book exams or behavior-based assessments [17]. Finally, insights into how students perceive, and trust AI tools will help institutions formulate policies that align with the principles of transparency, fairness and responsible use of AI technologies in education.

Conclusion and Final Thoughts

In conclusion, AI technologies can significantly boost the capability of higher education to fight academic malpractice. The contemporary architectural ideas, powered by AI innovations, would hopefully help in the approach for plagiarism detection and grading automation. But as more highly developed AI technologies emerge, educational institutions must embrace these tools both smartly and ethically so that they provide more benefits than harm and that they should help, not hinder, students' learning.

With challenges such as these arising that previously did not exist due to the emergence of models like GPT-4, members of the educational community must adapt and constantly iterate on their assessment approaches. AI should be used to enhance learning and innovation in higher education, promoting ethical practices and academic honesty. With proper planning, cooperation with institutions utilizing AI, and a commitment to ethical guidelines, AI has the potential to revolutionize education, making its most common practices more equitable, transparent, and trustworthy to students and educators alike.

Declarations

Availability of Data and Materials

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request. Data access will be provided in accordance with the respective institution's policies on data sharing.

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