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Exploring the Impact and Factors to Consider in Higher Education Practice: A Study in Reference to Generative Artificial Intelligence

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Abstract
This study examines the impact of generative artificial intelligence (GAI) on higher education, focusing on the experiences of international students. It highlights the challenges of recognizing AI content and the potential for unfair charges against students. The essay also addresses biases in AI models and the need for justice and equity in AI judgments. It advocates for a well-rounded strategy that addresses both potential and problems, emphasizing AI literacy and ethical considerations. The essay incorporates the AI competency framework to ensure fair use of AI in the classroom.

Keywords: Artificial Intelligence Generation, worldwide student body, conversational AI; integrity in academia, AI competency, AI literacy framework**.**

INTRODUCTION

There's a tendency to use hyperbolic language like "game-changing" or "seismic" when groundbreaking innovations like Generative Artificial Intelligence (GAI) appear, promising to transform many aspects of academic work. Although ChatGPT has been the focus of much of the early talk regarding GAI, it is important to acknowledge that it is but one of several powerful models in a larger field that includes Perplexity.ai, BLOOM, ChatSonic, Claude, Bard, Whisper, Jasper Chat, and others. It is possible to waver between dire forecasts and fervent possibility-seeking due to the immense potential influence of GAI. Given the possibility that GAI will eventually become as commonplace in our daily lives as the internet, the confluence of artificial and real aspects forces us—individually and collectively—to redefine how we live, work, learn, and educate pragmatically.

Thoughtful voices express worries about challenges to academic integrity and the modern understanding of disciplinary knowledge, even as many in higher education embrace the opportunities AI brings. Strongly arguing that GAI is an existential threat to higher education, others support a return to traditional invigilated pen-and-paper exams as the only defense against possible harm. While this alarmist viewpoint is understandable in the wake of such a disruptive change, we contend that going back to earlier, while safer, methods will not effectively prepare students for a future in which Generative AI technologies are integrated into every part of their lives.

In this paper, a method to improve support for students who are not native English speakers and international students exploring the possible effects of Generative AI on these students is proposed. This piece, which is structured as a

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commentary, highlights the author's subject-matter expertise and takes a more targeted approach than a systematic review. By utilizing a search method akin to that of Grassini [3], we focused on books and papers released between September 2023 (GPT-2 release) and 2019 (Google Scholar, EBSCO, and Omni-linked databases) and non-systematically reviewed the literature from these sources. The searches included "AI OR Generative AI AND Higher Education," "AI OR Generative AI AND International Students," and "AI Literacy AND Higher Education," alongside "ChatGPT AND International Students." In an area that is fast developing, the paper seeks to advance the conversation on the relationship between AI and educators' cultural competency by highlighting the particular dangers and difficulties that underprivileged children may face while using these resources.

WHAT IS THE DEFINITION OF GENERATIVE ARTIFICIAL INTELLIGENCE?

The term "generative artificial intelligence" (sometimes known as "generative AI") has become increasingly popular, so it's easy to think that everyone knows what it means. It is important to be clear in identifying our focus in this study because of the field's pervasiveness and dynamic terrain. There are issues with the training and operation of the underlying models of these technologies, hence it is imperative to investigate how Generative AI functions. Text, photos, video, music, code, and other types of data can all be produced by generative AI, an umbrella term for a variety of artificial intelligence systems, to produce results that closely mimic content produced by humans. To recognize and reproduce the patterns, styles, and structures present in the input data that they are trained on, these systems make use of machine learning techniques, including deep learning [4-6].

Due to its reliance on training data quality and model-tuning techniques, artificial intelligence presents several challenges, one of which is its lack of objectivity and neutrality. The personal prejudices of those who designed it could influence this process [7]. While biases can be lessened, human participation exposes people to negative features of the internet, who are frequently vulnerable and underpaid [5,8].

Popular tools such as ChatGPT are based on Generative Pre-trained Transformer (GPT) models, which demonstrate creativity in writing by reading and producing human-like prose in many languages using publicly available digital content data, especially in natural language processing (NLP) [4]. Following the November 2022 launch of ChatGPT and its open API, this paradigm, along with others of a similar nature, has been used to create a plethora of AI-powered tools that can be used to produce digital artworks, music, graphics, video content generation, picture identification, and other new applications. Considerable attention has been paid, particularly in academic circles, to GPT models' text-generating skills that emulate human writing. Concerns regarding these tools' frequently perceived detrimental effects on knowledge creation, academic work, and the general integrity of the academic enterprise have been raised by this focus, leading to feelings of unease, skepticism, and conspiracy theories [9]. Because of these concerns, the industry is vulnerable to claims made by the technology sector, which frequently fall short of expectations while offering to answer these worries.

Aspect	Details
Definition of Generative AI	- "Generative artificial intelligence" or "generative AI" refers to a category of artificial intelligence systems capable of producing various types of content such as text, photos, video, music, code, etc., mimicking human-like production.
Importance of Understanding Generative AI	- Crucial due to its pervasiveness and dynamic nature in the field.
Issues with Generative AI	- Challenges exist in training and operating underlying models, requiring investigation into its functioning.
Functionality of Generative AI	- Utilizes machine learning techniques, including deep learning, to recognize and replicate patterns, styles, and structures present in input data.
Challenges in AI	- Challenges include reliance on training data quality and model-tuning techniques, along with the potential biases introduced by human designers.

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Aspect	Details
Concerns about AI Biases	- Bias in AI can stem from the personal prejudices of designers, potentially perpetuating negative internet features.
Role of Popular Tools like ChatGPT	- ChatGPT, based on Generative Pre-trained Transformer (GPT) models, demonstrates creativity in writing, particularly in natural language processing (NLP), using publicly available digital content data.
Impact of ChatGPT and Similar Models	- November 2022 saw the launch of ChatGPT and its open API, leading to the creation of various AI-powered tools for digital content generation across multiple domains.
Academic Focus on Text-Generating Skills of GPT Models	- GPT models' text-generating capabilities have garnered attention in academic circles, raising concerns about their effects on knowledge creation and academic integrity.
Industry Vulnerability to Claims by Technology Sector	- Industry susceptibility to promises from the technology sector to address concerns about AI's impacts, sometimes falling short of expectations.

THE POINT WHERE ACADEMIC INTEGRITY AND GENERATIVE AI COLLIDE

As ChatGPT and other quickly developing Generative AI models get more precise, accurate, and efficient, worries regarding possible academic dishonesty have been raised. Concern centers on how these technologies might be abused to subvert academic standards that support traditional higher education methods, such as originality in written work and thought. These worries are legitimate in light of the long-standing academic traditions, but they also point to a bias in favor of written text—especially in English—over alternative mediums for representing knowledge.

Higher education institutions have responded to this concern in a variety of ways. Some have banned ChatGPT altogether, while others have welcomed it and offered advice to students on how to engage with AI morally and productively. As a result, several established tech companies and ed-tech startups have redirected their efforts toward creating instruments that purport to identify text generated by artificial intelligence (AI), purportedly to preserve academic integrity.

OpenAI first developed a detection tool in January 2023 in response to industry demands, but it was canceled in July of the same year because of its low efficacy and possible harm. Even the well-known academic integrity tech business Turnitin experienced difficulties with its AI text detection technology and had to backtrack on its early claims of high accuracy rates.

It is now impractical to effectively detect AI-generated content, according to research on the efficacy of various Generative AI detection technologies that is beginning to emerge. It is considered inappropriate to utilize these instruments' false positive and negative rates as evidence in situations of academic misconduct. Originality.ai, the most effective tool, even advises against utilizing its results for disciplinary actions.

Students shouldn't rely solely on AI-generated text as proof of academic dishonesty because it can be challenging to identify such content. But there are moral questions because it is certain that some pupils would be accused based on information from these systems. Studies suggesting the possible ineffectiveness of proprietary plagiarism detection software raise doubts about the reliability of such programs.

Turnitin distinguished artificial intelligence (AI)-generated work as extremely unique in a noteworthy experiment, highlighting the shortcomings of similarity-checking techniques in identifying such content. Furthermore, in most instances, ChatGPT properly identified its writing when asked if the material had been written by a chatbot. This highlights the difficulty of identifying Generative AI text with ChatGPT since it frequently claims authorship over a variety of original materials, including passages from well-known books.

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Examples such as the Texas A & M instructor who mistakenly ascribed all essays to ChatGPT illustrate the risk that instructors face when they blindly rely on technological solutions like ChatGPT. This can have unintended effects on students. Concerns concerning the possible harm to marginalized kids' educational experiences are raised by the past pattern of unfair treatment brought about by reliance on technology.

Aspect	Details
Concerns about Academic Dishonesty with Generative AI	- Worries arise regarding the potential abuse of precise, accurate, and efficient Generative AI models like ChatGPT to subvert academic standards, particularly in maintaining originality in written work and thought.
Response of Higher Education Institutions	- Responses vary, with some institutions banning ChatGPT, while others offer guidance to students on ethical and productive AI engagement.
Development of AI Text Detection Tools	- Tech companies and ed-tech startups redirect efforts to create tools for identifying AI-generated text to preserve academic integrity.
Challenges with AI Detection Tools	- Initial detection tools, including one by OpenAI and Turnitin, face challenges with low efficacy and accuracy rates, leading to cancellations and retractions.
Ineffectiveness of AI Detection Technologies	- Research indicates the impracticality of effectively detecting AI-generated content, with caution against using false positive and negative rates as evidence in academic misconduct cases.
Moral Questions and Student Accusations	- Moral dilemmas arise as some students may face accusations based on information from AI detection systems, highlighting doubts about the reliability of proprietary plagiarism detection software.
Limitations of Similarity-Checking Techniques	- Turnitin's experiment distinguishes AI-generated work as extremely unique, exposing the limitations of similarity-checking techniques in identifying such content.
Difficulty in Identifying Generative AI Text	- ChatGPT's claim of authorship over various original materials, including well-known book passages, underscores the challenge in identifying Generative AI text, as it frequently asserts its writing as original.
Risks of Blind Reliance on Technological Solutions	- Instances like the Texas A & M instructor's misattribution of all essays to ChatGPT highlight the risk instructors face when blindly relying on technological solutions, potentially affecting students adversely, especially marginalized groups, due to past patterns of unfair treatment stemming from technology reliance.

This table summarizes the concerns, responses, and challenges related to academic integrity and the use of Generative AI in higher education:

Aspect	Details
Concerns about Academic Dishonesty with Generative AI	- Worries arise regarding the potential abuse of precise, accurate, and efficient Generative AI models like ChatGPT to subvert academic standards, particularly in maintaining originality in written work and thought.
Response of Higher Education Institutions	- Responses vary, with some institutions banning ChatGPT, while others offer guidance to students on ethical and productive AI engagement.

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EXPLORING THE IMPACT OF GENERATIVE AI ON INTERNATIONAL STUDENTS: ADDRESSING ACADEMIC INTEGRITY CHALLENGES AND PERSONAL TUTORSHIP.

Due to a lack of public funding, the higher education system around the world, especially in nations like Australia, the US, the UK, and Canada, mainly depends on income from international students. One of the problems brought about by this financial reliance is the stigmatization of overseas students. They are occasionally seen with animosity for taking up spaces in universities, adding to the housing crisis, and supporting inadequately supported educational systems. A lot of people have unfounded concerns about their objectives, which include looking for immigration routes, which exacerbates the bad opinions.

These difficulties are exacerbated by problems with academic integrity, and prejudice and bias are visible in the way accusations against overseas students are handled. There are instances when the term "international students" is used disparagingly with racial and ethnic overtones, as evidenced by the disproportionate accusations made against students of color. Faculty bias exacerbates this problem since it is based on false assumptions that members of particular minority groups are more likely to cheat.

More issues arise with the incorporation of AI detection techniques. Widely deployed AI detectors may have biases that cause misclassifications, which disproportionately affect writers of non-native English. This bias feeds into preconceived notions already held about foreign students and could lead to unfounded allegations of improper usage of generative AI techniques. In addition, the dynamic nature of AI models poses a challenge to digital equity, favoring those who have access to the most recent models. This benefit stems from both better outputs and a decreased likelihood of detection by techniques meant for older devices. Because this scenario maintains disparities, AI systems must be developed or acquired by institutions to guarantee equitable access for all students.

POTENTIAL ADVANTAGES FOR STUDENTS

It's important to acknowledge the positive view that these technologies can benefit a variety of student groups, despite worries about the possible exploitation of General Artificial Intelligence (GAI) against students, particularly foreign and

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non-native English speakers. One noteworthy advantage of AI is its potential application as a customized language tutor. AI bots that utilize Large Language Models (LLMs) for conversational purposes can serve as low-risk, adaptive language instructors for foreign students, helping them improve both their written and spoken English. These developments provide flexibility and reinforcement not usually seen in traditional, in-person modes of English language training, even if they are thought to complement rather than replace traditional ways.

Though the advantages of tailored instruction and feedback are well-established, their actual application has recently become increasingly apparent, particularly in light of the increasing workload of educators and the casualization of academic roles. Although educational chatbots have been around since the early 2010s, dependable and reasonably priced non-human real-time service is now a reality because of the growing capabilities of AI technologies and extensive datasets. Research showing the beneficial effects of responsive chatbots on lowering feelings of isolation highlights how important this is in mitigating learning delays and improving student engagement.

The real promise is in AI solutions customized for certain knowledge corpora, like course-specific apps or textbooks, rather than generic chatbot tutors. These resources serve as individual study partners by breaking down ideas, creating original tests or questions, and offering feedback. Additionally, they have the potential to lessen learners' cognitive load by translating and clarifying English concepts into a variety of languages.

The increasing diversity of linguistic origins among international students and the globalization of higher education indicate that artificial intelligence (AI) tools, including polyglot models that provide real-time translation, can help students from different backgrounds adjust more easily. Furthermore, AI solutions have the potential to help international students with impairments by addressing issues of discrimination and difficulties specific to their circumstances. Using AI as an assistive tool for all learners through the Universal Design for Learning (UDL) approach could help level the playing field and lower or remove obstacles for students with impairments.

The usage of artificial intelligence (AI) tools, like Grammarly and those included in office productivity suites, is becoming more widespread, and a lack of AI literacy shouldn't be a barrier to using them. Fair access to these resources is essential to enhancing the lives of those who encounter obstacles to their full engagement in society.

THE VALUE OF AI LITERACY DEVELOPMENT IN HIGHER EDUCATION

Given the fear and ethical reservations voiced by some members of the education community, it is critical to recognize that general artificial intelligence (GAI) has already permeated our reality, however subtly. Our everyday lives are about to get more and more integrated with its integration. A reevaluation of the fundamental skills required of people in the modern day has been spurred by this changing environment. In the AI era, comprehension of AI is increasingly regarded as crucial, much like how individual rights were connected to classical reading abilities [28].

The widespread utilization of artificial intelligence (AI) in diverse domains of society has generated a need for not only proficiency in using AI, occasionally unintentionally, but also a more profound comprehension of its extensive uses, benefits, constraints, and innate prejudices. [30]. AI has the potential to become one of the most important skills of the twenty-first century, according to Ng et al. [29] amid this changing technological landscape. Thus, academic institutions must quickly integrate AI literacy and competency across disciplines to provide students with the knowledge, abilities, and skills necessary for success in the twenty-first century. Literacy in AI applications within their respective domains is a prerequisite for university faculty and personnel.

Beyond digital or ICT literacy, AI literacy includes special talents and critical thinking abilities that transcend conventional technological literacy. Along with functional literacy, social literacy is also involved [44]. According to Kong et al. (p. 1, [45]), the AI revolution has advanced past its early stages, and society must now educate its people about AI. Understanding fundamental AI ideas, employing these concepts for autonomous assessment, and applying them to problem-solving to comprehend the real world are the three components of their proposed framework for AI literacy (p. 2, [45]). According to this conception, AI literacy is positioned along a continuum that advances from the acquisition of basic knowledge to more complex understanding and application. There are emerging frameworks for AI competency and literacy in education [46–49]. Although acknowledging the ever-changing nature of artificial intelligence, frameworks like those suggested by Ng et al. [43] and Hillier [46] provide a useful way to evaluate the state of AI knowledge and practice today and pinpoint areas that still require improvement.

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A. The Hillier Framework

The framework for AI literacy developed by Matthew Hillier, as described in [46], offers faculty, staff, and students a great place to start when they want to become more adept and comfortable using AI tools. From our vantage point, this framework is valuable because it is user-centric and prioritizes the demands of those who belong to the user category over those of developers, which is in line with the needs of most students [42]. There are five core components of the framework:

B. Appropriate Use of AI Technologies

While acknowledging that legal and ethical issues surrounding AI are still being resolved, he advises users to familiarize themselves with issues about algorithm transparency, data ownership, privacy, hidden labor, embedded bias, and undisclosed plagiarism.

C. Recognizing AI's Capabilities

It is nearly impossible to have a thorough understanding of any AI technology available, given their wide variety. However, users need to familiarize themselves with the features, restrictions, main dangers, and advantages of the particular tools they are using.

D. Using AI Tools to Improve Collaboration

This feature suggests a change from a "user-as-developer" mindset to one of a passive user. It exhorts teachers to use freely available Internet materials and work with students to create discipline-specific examples. Moreover, it suggests facilitating conversations on the efficient use of instruments in the framework of the subject, unit, or evaluation assignment [42].

E. Evaluation of AI Outcomes

Developing the ability to examine and evaluate data critically is an essential talent for graduates in the twenty-first century. It's important to understand that, as was previously mentioned, generative AI tends to produce false information, including phony references. Thus, while using AI tools, the capacity to assess the caliber of output provided by AI is crucial [46].

CONCLUSIONS

Although artificial intelligence (AI) has been around for a while, the new wave of AI technologies that use large language models has the potential to have a greater impact on society and higher education than any of its predecessors. Notably, students who identify as minority or marginalized—especially those with international backgrounds—are more likely to be accused of violating academic integrity when they use artificial intelligence (AI) to help with assessments, which exacerbates already-existing discrepancies.

On the other hand, these technologies have a lot of potential advantages, particularly for students from abroad and those with impairments who can use assistive technology to greatly improve their success and learning opportunities. Education stakeholders must prioritize ethical AI usage, cultivate AI literacy, and create frameworks that enable educators and students to securely utilize these technologies to the fullest extent possible as they wrestle with the consequences of Generative AI (GAI).

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