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ETHICS IN TIMES OF ADVANCED AI: INVESTIGATING STUDENTS' ATTITUDES TOWARDS CHATGPT AND ACADEMIC INTEGRITY

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Abstract

The rise of Artificial Intelligence (AI) has permanently changed life as we know it. And education has been no exception. Understanding the issues and benefits that may come with the implementation of AI into higher education, in particular, this study examines the impact of advanced AI models, like ChatGPT, on academic integrity. By employing a mixed-methods approach, the study gathers insights from undergraduate students at the University "St. Kliment Ohridski" in Bitola, North Macedonia, exploring their views on AI's role in academic practices.

By identifying the key points through a brief literature review, this study finds that the concerns about the use of AI in education are indeed founded – concerns including potential for cheating and the ethical dilemmas posed by such technologies. Some of these concerns were also confirmed by the data obtained through our survey. A sample of 114 undergraduate students kindly provided their responses for this study, helping further our insights with their perspective. The findings from the survey revealed that students are moderately comfortable with using AI for academic purposes, with a notable portion of them admitting to using ChatGPT without disclosure to professors. The reasons behind the undisclosed use of AI, according to the data collected, include pressures for high grades, time constraints and the accepted belief that cheating is "what everyone is doing".

Despite its limitations, such as reliance on self-reported data and its focus on a specific geographic and academic context, we believe that the study still manages to make a small, yet significant contribution to the ethical challenges posed by AI in education.

Keywords: Artificial Intelligence (AI), ChatGPT, Ethics, Academic Integrity, Higher Education.

1. Introduction

The International Center for Academic Integrity (ICAI), defines academic integrity as "a commitment to honesty, trust, fairness, respect, and responsibility in all academic work" (ICAI, 2019). The essence of academic integrity, as defined above, is paramount in higher education, serving as a cornerstone for upholding values such as honesty, trustworthiness, and fairness. Fostering an atmosphere of intellectual growth and ethical behavior, academic integrity sets the stage for both personal and professional advancement. However important, though, data indicates a troubling decline in its practice. And not just in recent years. In a seminal study featured in the Journal of Academic Ethics, McCabe and Trevino (1993) unveiled alarming statistics indicating that up to two-thirds of college students partake in various forms of academic dishonesty, including cheating and plagiarism. The ICAI's 2020 report shows equally worrisome numbers: 95% of surveyed students in American highschools, i.e. future academia students, admit to participating in some sort of cheating.

With the rise of novel technologies, cheating is now easier than ever. Students have access to numerous tools which can facilitate cheating in a matter of seconds. One such tool is the latest introduction of artificial intelligence models. Artificial Intelligence (AI) is defined as "the capability of computer systems or algorithms to imitate intelligent human behavior" (Merriam-Webster, n.d.). ChatGPT (Conversational Generative Pre-training Transformer), in particular, with its wide availability, has forever transformed not just the field of artificial intelligence (AI) but academic integrity, as well. Susnjak (2022) even goes as far as to claim that such models such as ChatGPT may forever end the, albeit fragile, online exam integrity, especially in tertiary education where online exams are increasingly available.

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This is because models such as ChatGPT can successfully imitate human language: they can produce complex texts, and answer open-ended questions with ease. In addition, they can solve complex math and programming problems, analyze texts, proofread given writings, outline essays and papers, and even interpret data. Using deep learning and unsupervised learning techniques, as well as relying on both large text datasets, and task-specific fine-tuning, OpenAI's model is undoubtedly, the most sophisticated, free AI chatbot to date (Shalevska, 2023). And although the use of AI doesn't necessarily have to be linked with dishonest behavior, one question remains: when does our reliance on AI start to violate the academic integrity and the very gist of learning?

2. Literature review

Within academia and education, in general, the introduction of AI has sparked considerable interest. With its ability to emulate intelligent human behavior, AI holds huge potential for revolutionizing various aspects of education, including teaching, learning, and assessment. However, alongside its promises of innovation and efficiency, the proliferation of AI technologies in educational settings has raised concerns about academic integrity. Currie (2023) argues that ChatGPT poses a risk to professionalism, ethics, and integrity in nuclear medicine and radiology, as it can produce errors and fabrications of information that may not be detected by plagiarism checkers or peer reviewers. The author also suggests some strategies to mitigate the potential harm of ChatGPT, such as educating students and researchers about the limitations and ethical implications of AI. Ying et al. (2023) also study AI-assisted cheating and find that it does pose a serious threat to education quality and academic integrity, in general. According to the authors, addressing AI cheating requires ethical education, academia-industry collaboration, integration into AI ethics, and an international consortium. Livberber et al. (2023) explore academics' perceptions towards ChatGPT and its impact in Turkey. By conducting semi-structured interviews, the authors found that academics view ChatGPT as a useful tool for scientific research and education, but also have ethical concerns such as plagiarism and misinformation.

Debby et al. (2023) present similar findings. In their minds, although ChatGPT can provide numerous benefits for assessment in higher education, it also presents several significant challenges such as the risk of plagiarism. AI essay-writing systems operate by generating essays according to predefined parameters or prompts. Thus, students might exploit these systems to cheat on their assignments by submitting essays that are not their original work.

Shalevska (2023) also studies the potential for misuse of ChatGPT by analyzing its scores on standardized ESL tests. The author suggests that students may be aware of the model's test-taking capabilities and this could tempt some of them to exploit it for cheating purposes, jeopardizing the integrity of assessments. Fowler (2023) also recognizes ChatGPT's cheating potential, but suggests a simple solution: "implementing digital literacy programs to equip both students and educators with the necessary skills to navigate AI technologies responsibly" (p. 137)

On the other hand, although Trachtenberg (2023) states that "students who use ChatGPT and similar programs improperly are seeking to gain an unfair advantage, which means they are committing academic dishonesty", he also contends that if instructors permit its use, employing ChatGPT would be no different than utilizing a graphing calculator.

As for AI detection, research shows that currently, it is unreliable at best. In a recent study, Weber-Wulff et al. (2023) analyzed the results from more than 12 publicly available AI detection tools and two commercial systems. They firmly concluded that results are "neither accurate nor reliable", identifying AI-generated text is challenging, and basic paraphrasing is all it takes to slip past detection. A separate study by Weixin L. et al (2023) also confirms such claims. This study also found that AI detectors frequently misclassify non-native English writing (in a corpus of TOEFL essays) as AI generated, with an average false-positive rate of 61.3%.

Although there is a large body of studies that focus on the potential ramifications of AI usage on academic integrity, there are hardly any publicly available research papers that draw upon students' firsthand accounts regarding their engagement (or lack thereof) in dishonest behavior involving AI. This study aims to address this gap by specifically investigating students' perspectives (in this case – undergraduate students!)

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3. Methods

This study explores the ethical implications of advanced AI tools like ChatGPT in academic settings. The methodology employed a mixed-methods approach, incorporating both qualitative and quantitative elements to gather comprehensive insights.

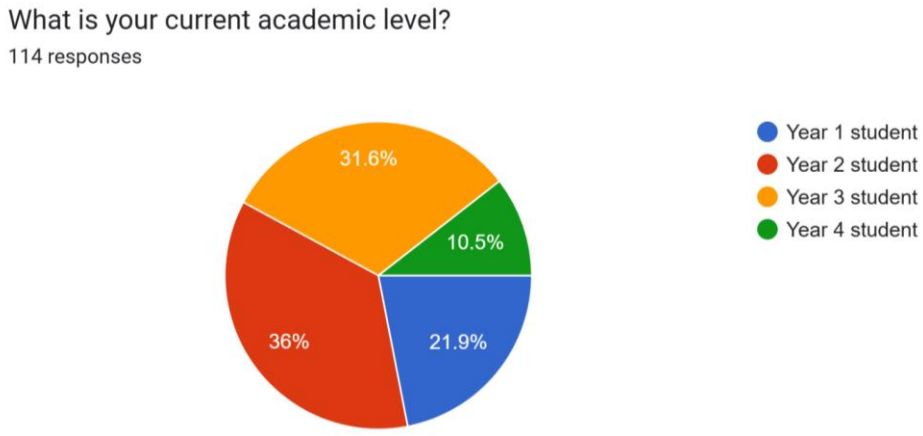
Firstly, a thorough review of existing literature on AI ethics, academic integrity, and the intersection of the two domains was conducted to establish a theoretical framework and identify key themes, challenges, and ethical considerations.

Then, a survey was designed. The survey instrument was developed using Google Forms to collect data from undergraduate students across five units of the University "St. Kliment Ohridski" in Bitola, North Macedonia: The Faculty of Education; The Faculty of Law; The Higher Medical School; The Faculty of Economy; and The Faculty of Tourism and Management. Following the principles outlined by Leslie Kish on survey sampling techniques, a random sampling technique was employed to ensure the representativeness of the sample (Kish, 1965). The survey comprised a mix of multiple choice, open-end and Likert-scale questions designed to assess students' attitudes towards AI and AI-enabled cheating. A random sampling technique was employed. Participation was voluntary, and students were assured of anonymity to encourage candid responses. The professors at said faculties distributed the survey link, accompanied by a brief explanation of the research objectives and assurances regarding data confidentiality. The quantitative data obtained from the survey responses was analyzed using descriptive statistics to identify trends, patterns, and correlations in students' responses. 114 students' answers were considered.

This study acknowledges several limitations, including the reliance on self-reported data, which may be subject to biases such as social desirability and recall bias. Additionally, the study's scope is limited to undergraduate students from specific faculties in North Macedonia, which may affect the generalizability of findings to broader populations. However, despite these limitations, this study manages to further the understanding of the ethical implications surrounding the use of advanced AI models such as ChatGPT.

4. Results and discussion

The first set of questions in the Google Forms survey strived to collect demographic data to do with the sample, to ensure that the sample is representative of the target population of undergraduate students. As stated, the sample consisted of a total of 114 undergraduate students in the University "St. Kliment Ohridski", distributed across different academic years. Among the participants, 29 students were in Year 1, 51 in Year 2, 36 in Year 3, and 12 in Year 4. Although there's a notable discrepancy in the number of students across different academic levels, the answers still show a diverse representation of students at various stages of their higher education path, which helps these findings be objective and representative of the population (Graph 1).



Graph 1: Sample distribution – Academic level

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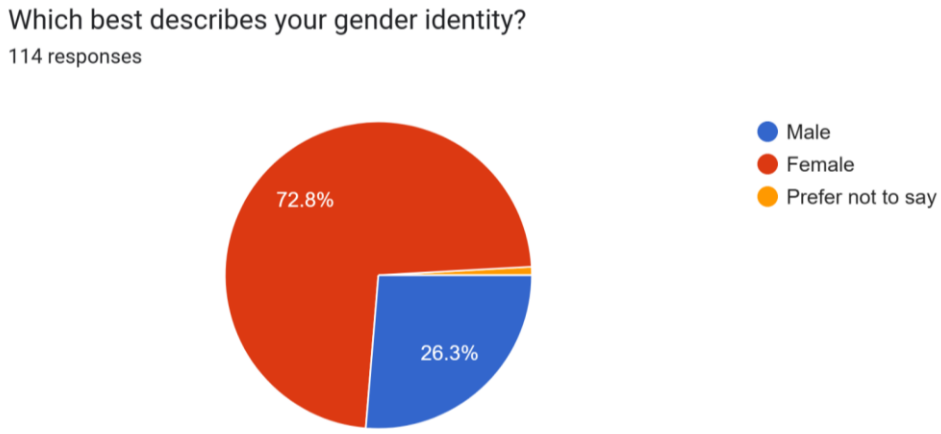
As for the gender distribution of the respondents i.e. participants, the data revealed that 83 out of the 114 participants identified as female, 30 identified as male and 1 participant decided against disclosing their gender. These findings highlight the predominance of female students within the sample, indicating a potential gender disparity, which should be acknowledged (Graph 2).



Graph 2: Sample distribution – Gender

With the gender and academic level data collected, the survey continued with a set of questions aimed to decipher students' perspectives to do with AI use, academic dishonesty and integrity. The first question in this section was a 5-point Linkert-based question: "How comfortable are you with using AI technologies like ChatGPT for academic purposes?". The answers ranged from (1) – Not comfortable at all to (5) Extremely comfortable. The average answer (mean) was 3.447 which means that on average, respondents feel moderately comfortable with using AI technologies like ChatGPT for academic purposes; the mode i.e. the response option with the highest frequency was (4) – Quite comfortable (freq. = 71) which suggests that a large portion of the respondents feel quite comfortable with using AI technologies like ChatGPT for academic purposes. The standard deviation was 1.2317, which suggests variability, albeit not very large.

The following 5-point Likert-question also aimed to investigate students' use of AI, asking: "How often do you use AI technologies like ChatGPT for academic purposes?". 113 out of 114 total participants answered this question. With a mean of 2.99, respondents reported using AI technologies like ChatGPT for academic purposes somewhat regularly, but not extremely frequently. The mode of (3) (freq. = 50) indicates that roughly half of the respondents report using such tools sometimes or more frequently, while the other half report using them less often or never. The standard deviation was 0.8585 which suggests that the responses are closer to the mean, indicating less variability in the reported frequency of usage among the respondents.

After establishing the usage pattern and level of ease of using tools such as ChatGPT, the survey set to investigate students' academic integrity, by inquiring: "How often do you utilize ChatGPT for academic purposes without disclosing it to your professor?"All 114 respondents answered this question, with answers ranging from 1 – Never to 5 – Always. With the mean of approximately 2.99, on average, respondents reported using ChatGPT for academic purposes without disclosing it to their professors closer to "Quite often" (3) than "Sometimes" (2). This would mean that about three times out of five, or approximately 60% of the time students use this AI tool without disclosing its use. The mode for this question was (4) – Quite often (freq. = 38). This suggests that a significant portion of respondents reported using ChatGPT quite often without informing their professors. The relatively low standard deviation of approximately 0.8293 suggests that the obtained responses were clustered closely around the mean value. The distribution of data can also be seen in Graph 3 below.

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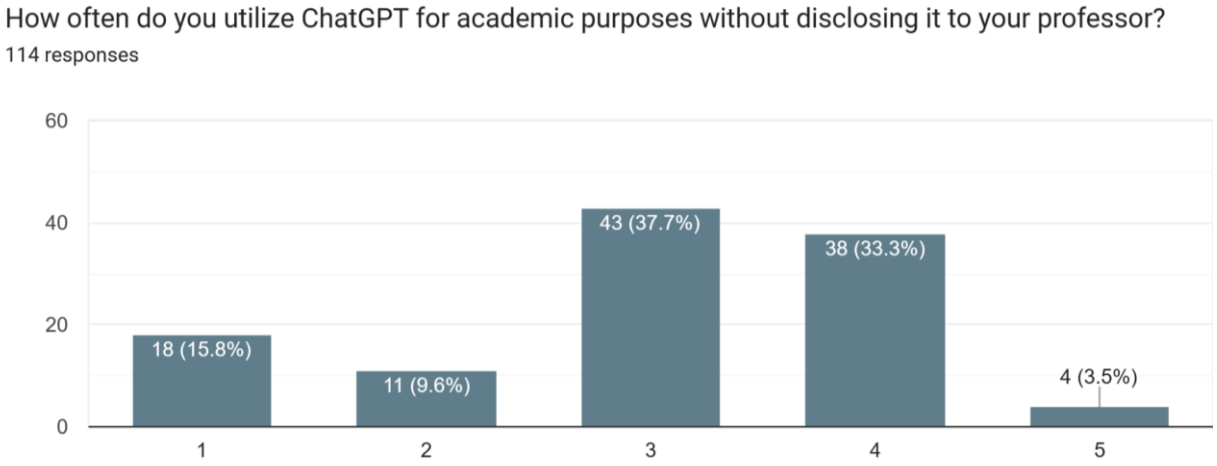

Graph 3 – Using ChatGPT for academic purposes without disclosing such use

101 responses were obtained on the next choose-all-that-apply question (response rate of approximately 88.6%): "For what purposes have you used AI without disclosing it to your professor? (Select all that apply). If you don't use ChatGPT or similar models, skip this question." Most students (no. = 81) claimed that they have used AI for **writing essays or reports**. This aligns with the innate capabilities of AI models like ChatGPT, which can generate excellent text. 71 respondents (approximately 70.3%) indicated using AI for **completing assignments or homework**. Similar to writing essays, this also suggests that many students use AI for text-based academic tasks that are done individually, yet still contribute to their overall grade. The problem with this is that such AI-generated texts can contain errors, although they seem perfectly accurate to the untrained eye. This relates back to Currie's insights that paint ChatGPT as a "writer" who produces "scientifically convincing text with inaccurate or misinterpreted information" (Currie, 2023: 729).

Only 13 responses (approximately 12.9%) indicated using AI for **creating presentations or slides**. It is important to note that there were a few responses under the "Other" category, indicating additional ways students use AI. These responses included getting key points for presentations or homework, receiving guidance through work, and generating ideas for essay topics or seminar papers and presentations.

113 out of the 114 respondents also answered the following question: "How likely are you to report instances of academic dishonesty involving AI technologies?". With (1) – Not likely at all and (2) Not likely having a total of 99 responses, one can confidently state that the vast majority of students would not report a dishonest use of AI in academia (Graph 4). This further confirms initial apprehensions on AI-related dishonesty posed by several authors (Debby et al., 2023; Ying et al., 2023; Shalevska, 2023).

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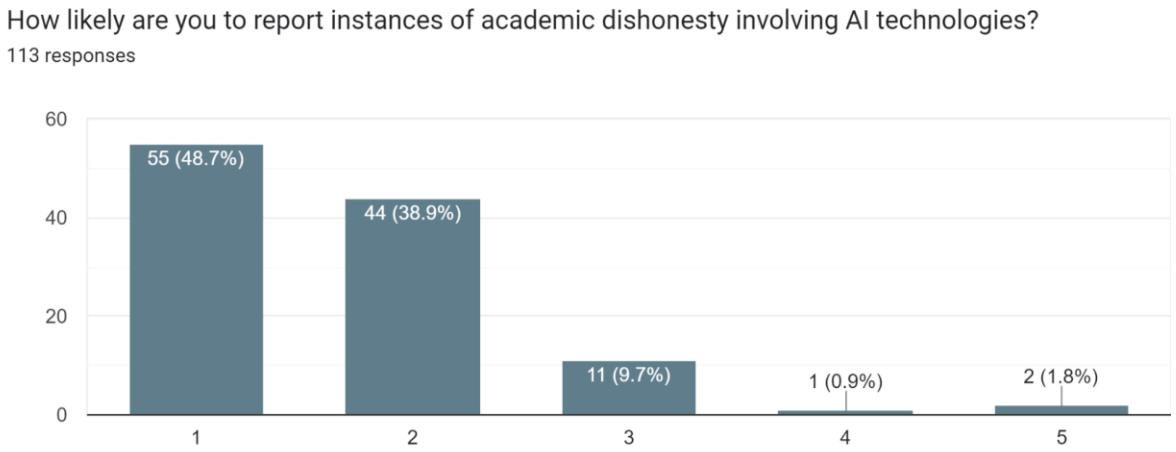

Graph 4 – Likelihood of reporting AI-based academic dishonesty

All 114 respondents provided their thoughts on being adequately informed about the ethical implications of using AI in education, on a Linkert-based question with answers ranging from (1) – Not informed at all to (5) Extremely well informed. The mean score of approximately 2.82 suggests that, on average, students feel moderately informed about the ethical implications of using AI in education. The mode of (3) (freq. = 39) indicates that the most common response was "Moderately informed," reflecting a central tendency. The standard deviation of approximately 0.8865 indicate a moderate level of variability in responses around the mean. Overall, these results suggest that while there is a general sense of students being moderately informed about the ethical implications of (mis)using AI, there is variability in the extent of information and awareness among different students that may be due to differences in exposure to information, backgrounds, and personal interest in AI and its (mis)use. The mixed results obtained through this question seem to highlight Fowler's (2023) point that educating students about the ethics of using AI should be a top priority.

93 students (response rate of approximately 81.58%) also provided information as to why they may choose to use AI tools for academic purposes without disclosing it to their professor, in a choose-all-that-apply, close-ended question. 62 answered that they may use it because they feel "pressured to achieve high grades or maintain a certain GPA", 51 – because they "lack time to do all tasks"; 36 – because they believe "it's what everyone else is doing", and 17 because they "know they can't be caught". These results further emphasize the competitive nature of higher education and the importance placed on academic performance. They also show the need for better and more efficient time management strategies and support systems to help students manage their academic workload effectively.

At the end of the survey, students were given the opportunity to answer an open-ended question and list other AI tools they use. 13 students chose to do so, listing Grammarly, Microsoft Copilot, Paraphrasing tool and QuillBot AI. This shows that a (albeit small) number of students can successfully use other AI tools, and not just ChatGPT.

5. Conclusion

Though more robust research and data are needed to make any bold claims, the findings of this particular study do show that AI could pose a challenge to maintaining ethical standards in higher education. The results also show that a significant number of students have accepted (to a certain extent) and can use different AI tools in academic settings. This shows that students seem to be open to integrating these new technologies into the learning process. And although that might seem like a great opportunity to incorporate AI in education, doing so must be done carefully. Taking in mind the data that shows that a significant portion of students reported using ChatGPT for academic purposes without disclosing it to their professors, such integration must be approached rigorously and thoughtfully. Additionally, the overwhelming majority of students in this sample indicated they were unlikely to report dishonest uses of AI. This could reflect a systemic issue within higher education institutions regarding the normalization of dishonesty in general, and a potential lack of fear of consequences for

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being unethical. This can be remedied only through education. Academia might need to consider developing comprehensive educational courses or course elements that cover the ethical use of AI and the issues with academic dishonesty, as a whole. This could include mandatory modules or training focusing on the implications of AI misuse and strategies for ethical decision-making in higher education. The underlying issues for cheating should also be addressed – academic pressure, time management challenges, social norms, and perceptions of risk. This multi-layered approach would hopefully promote a culture of academic integrity and ethical use of technology for all students.

Ultimately, as AI continues to evolve moving forward, more research is going to be needed to detail and propose solutions for the issues with AI-related academic dishonesty in higher education and in education, in general.

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