

Ethical concerns in using of Generative Tools in Higher Education: Cross - Country Study

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Abstract. Even though the historical development of artificial intelligence started in the mid-20th century, since the launching of Chat GPT this concept emerged in the scientific and educational agenda. Different concerns are arising at different education levels, starting from a discussion about whether should it be considered plagiarism, and ending with ethical aspects of the usage of Chat GPT by students and educators.

The research aims to research the main recent scientific findings about generative tools in artificial intelligence and the ethical aspects of its usage in education.

Methods used – analysis of recent scientific findings and statistical analysis of the answers of the respondents on authors created a survey for students of Higher Education Institutions about their attitudes and knowledge towards Generative Tools of Artificial Intelligence. Analysis was performed via SPSS comparing the opinion of students towards ethics of Generative Tools of AI from different countries.

Results of the research show the attitudes of students towards the usage of Generative Tools of Artificial Intelligence from different countries.

Keywords: artificial intelligence, Chat GPT, education, ethics.

I. INTRODUCTION

Artificial intelligence generative tools such as Chat GPT and similar innovations have sparked significant discourse within scientific and academic circles. In the scientific community, researchers are deliberating the ethical use of generative tools in their research endeavors, while in the academic realm, concerns arise regarding the ethicality of students employing AI-driven tools.

Artificial intelligence (AI) has long captured the interest of scholars, but its recent integration into education has garnered heightened attention. Tools like Chat GPT and others are swiftly reshaping the educational landscape for both students and educators. With the ability to complete assignments in mere seconds using generative AI applications, it becomes crucial for Higher Education Institutions (HEIs) to adapt, offering tailored environments equipped with suitable tools and methodologies. These generative tools not only inspire students and foster creativity but are increasingly embraced by students to fulfill academic requirements—a phenomenon that cannot be ignored. Nevertheless, comprehending the nuances and potential of AI tools holds the promise of revolutionizing the educational process, ushering it into a more dynamic and engaging realm. Embracing novel perspectives on learning stands to mutually benefit students and educators, provided these tools are effectively implemented and utilized.

The current paper includes an introduction, an AI Overview section exploring the ethical considerations surrounding AI usage. Sections 4 and 5 elaborate on the methodology utilized in the research. The Results section outlines the findings, and the concluding section provides conclusions and proposes future research avenues.

II. MATERIALS AND METHODS

As Artificial Intelligence (AI), specifically Generative AI (GAI) like ChatGPT and Bard, gains unprecedented traction, the demand for ethical guidelines in higher education institutions (HEIs) worldwide has surged [6],

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[15]. This heightened concern stems from the remarkable ability of these tools to produce human-like texts, challenging even the expertise of discerning professionals [7]. Compounding the issue is the rapid adoption of these technologies by students, with reports indicating widespread usage. For instance, nearly half of Cambridge University students in the United Kingdom admitted to utilizing ChatGPT in their studies [9], while Forbes reported that 20% of college students in the United States confessed to the same [11]. With GAI functionality becoming embedded in everyday tools like word processors and presentation software (e.g., Microsoft Co-Pilot), these figures are poised to escalate.

GAI signifies a revolutionary leap from prior AI models, leveraging deep learning to generate human-like content across various mediums, including audio, code, images, text, simulations, 3D objects, and videos [16]. This transformative technology responds to diverse and intricate prompts, such as languages, instructions, and questions, producing unexpected outputs [16].

A pivotal concern for HEIs revolves around the potential misuse of GAI by students for cheating or plagiarism in written assignments and exams [2]. This not only jeopardizes academic integrity but also poses a threat to the reputation of HEIs. Scholars further caution against students becoming overly reliant on GAI, foreseeing a decline in writing and critical thinking skills [10], potentially impacting the quality of education and student learning outcomes [2].

In an era where technological advancements redefine human existence, artificial intelligence emerges as a revolutionary force. Since the November 2022 release of OpenAI's ChatGPT [OpenAI ChatGPT, 2023], the AI landscape has witnessed an unprecedented transformation. ChatGPT, drawing from a vast language database, generates responses from human-entered text-based inputs [14]. Its rapid ascent to popularity, boasting an estimated 100 million monthly active users [4], spurred other tech giants to introduce their own AI-powered innovations, such as Google's Bard [5] and GitHub's Copilot [4].

The impact of AI extends far and wide, triggering discussions on diverse topics, from its potential to transform learning and teaching methods [13] to its role in research and the imperative considerations of ethics and academic integrity [8].

As this article unravels the ethical dimensions of integrating Generative Artificial Intelligence in higher education, it not only underscores the promising advancements but also critically examines the ethical considerations intrinsic to its application. Drawing from these insights, the paper delineates a roadmap for future research, aiming to propel the field of Generative AI in educational contexts. The outlined directions encompass transparency enhancement, bias mitigation, collaborative AI exploration, longitudinal studies, privacy measures, long-term impact assessment, ethical considerations, student acceptance research, interdisciplinary collaborations, and inclusivity initiatives. Through a global exploration, this article aims to foster responsible and ethical integration of Generative Tools in higher education.

The questionnaire crafted by the authors was uploaded onto QuestionPro and disseminated to students via email. Participants from Latvia, Lithuania, Uzbekistan, Ukraine, and Bulgaria joined in the survey, with a total of 414 students responding. The survey was conducted in the initial semester of the academic year 2023/2024, running from January 1st to January 20th, 2024. Table 1 outlines the survey's structure.

TABLE 1 STRUCTURE OF THE SURVEY (SOURCE:CREATED BY AUTHORS)

Part of the survey	Description		
	Types of the questions	Evaluation scale	Codes
A: Respondent profile (gender, age, location, field of education, level of education, country of residence)	Open/Closed	Multiple-choice	A_1- A_6
B: Attitude and Knowledge of Chat GPT (8 statements to assess knowledge and attitude)	Closed	Multiple-choice	B_1- B_8

First part of the questionnaire includes questions related to the respondent profile.

Distribution of respondents by countries is represented in Table 2.

TABLE 1 DISTRIBUTION OF RESPONDENTS BY COUNTRY OF STUDY (SOURCE:CREATED BY AUTHORS)

Country	Distribution of respondents
Latvia	40%
Lithuania	32%
Ukraine	14%
Uzbekistan	4%
Bulgaria	7%
Other	3%

As depicted in Table 2, 377 participants indicated their country of study. The majority of respondents identified studying in Latvia, comprising 40% of the total, while Lithuania followed closely with 32%. Other countries were each represented by less than 20% of the overall respondents.

The gender distribution among survey participants was fairly even, with 51% identifying as female and 49% as male.

Table 3 represents age of the respondents, level of education and field of education.

As depicted in Table 3, the majority of respondents, comprising 83% of the total, are students enrolled in bachelor-level programs, totaling 173 individuals. A smaller portion, 10%, are pursuing short cycle programs, while 5% are engaged in master's degree studies. The smallest fraction, accounting for 2% of respondents, are enrolled in PhD programs.

TABLE 3. AGE OF THE RESPONDENTS, LEVEL OF EDUCATION AND FIELD OF EDUCATION (SOURCE:CREATED BY AUTHORS)

Age	Amount of respondents	Level of Studies	Amount of respondents	Field of education	Amount of respondents
<20	88	Short Cycle	21	Education	20
21-25	158	Bachelor	173	Economics	14
26-30	47	Masters	10	Finance	30
31-45	49	PhD	5	Management	24
36-40	10			Information Technologies	10
>40	28			Mathematics	0
				Engineering	24
				Manufacturing	2
				Medicine	34

Regarding their fields of education, the largest contingent, constituting 17% or 34 students, are pursuing medicine. This is followed by finance, with 15% of respondents, and management and entrepreneurship, each comprising 12% of the total. Engineering also accounts for 12% of respondents. Other fields of study each represent less than 10% of respondents, while 23% of participants mentioned pursuing studies in different fields.

III.RESULTS AND DISCUSSION

In general, students consider usage of Chat GPT ethical, as 278 of students who participated in research answered, but 132 students noted that usage of it in education is unethical.

To achieve the goal of the research, authors designed hypothesis:

H: There is statistically significant difference between perception of is using Generative AI tool in education is ethical or not within the respondents from different countries.

Respondents were asked to answer the question “In your opinion, is usage of generative Tools of AI in study process by students ethical”, by offering them two options – yes or no.

To the the Hypothesis authors used Kruscal-Wallis non-parametric test. Results of the test showed that there is statistically significant difference between perception if usage of Generative Tools of AI is ethical or not within the countries of respondents study in, as Asym.Sig. is 0.15(the standard alpha level is 0.05). Mean rank of the answers of students from Bulgaria is higher than of students from other countries, what shows that students from Bulgaria stastically consider usage of Chat GPT more unethical than sudents from other countries.

CONCLUSIONS

Shedding light on the promising advancements facilitated by the integration of Generative Artificial Intelligence (GAI) in educational settings, this comprehensive review meticulously scrutinizes the ethical considerations inherent in its application. Navigating through the intricate landscape of ethical implications, responsible GAI usage, the imperative need for data privacy safeguards, potential biases, and the preservation of academic integrity, this article critically examines the assimilation of GAI within higher education.

Drawing insights from this exhaustive review, the paper puts forth several avenues for future research, seeking to propel the field of GAI in educational contexts:

Enhancing Transparency: Future research endeavors should focus on augmenting the transparency of GAI models. Gaining a comprehensive understanding of how AI-generated outputs manifest and providing transparent explanations to end-users can cultivate trust and foster acceptance of GAI tools within educational environments.

Mitigating Biases and Ensuring Fairness: As GAI models inherently learn from existing data, there is a risk of perpetuating biases present in the data. Future research should prioritize identifying and mitigating biases in GAI tools, especially within educational settings, to prevent the reinforcement of stereotypes or discrimination against specific groups of learners.

GAI in Teacher Professional Development: Research initiatives can delve into the transformative role of GAI tools in assisting educators to refine their teaching methodologies, craft tailored instructional materials, and receive real-time feedback on their performance.

Collaborative AI in Education: Exploring the potential of collaborative AI systems in education, wherein human and AI entities collaborate synergistically to achieve common educational objectives.

Longitudinal Studies: Conducting comprehensive longitudinal studies to track the enduring effects of GAI integration in education. Such studies can furnish valuable insights into the sustained impact of GAI on learning outcomes, retention rates, and academic performance over prolonged durations.

Privacy and Data Security: Research initiatives should concentrate on formulating robust data protection measures, ensuring responsible and secure handling of student data in the realm of GAI integration in education.

Long-term Impact on Learning Outcomes: Investigating the enduring influence of GAI integration on learning outcomes, academic achievements, and the development of students' problem-solving skills.

Ethical Considerations and Responsible AI: Delving deeper into the ethical implications of deploying GAI in education, particularly addressing concerns related to plagiarism, academic integrity, and potential impacts on students' critical thinking skills. Developing guidelines and policies to uphold the responsible and ethical use of GAI technologies in educational settings.

Student Acceptance and Adoption: Conducting research to comprehend students' attitudes toward and acceptance of GAI technology in the learning process. Identifying factors influencing their perceptions and formulating strategies to augment student engagement and acceptance.

Interdisciplinary Collaborations: Fostering collaborative endeavors between educators, AI researchers, and policymakers to formulate comprehensive frameworks for the seamless integration of GAI into education.

Inclusivity and Accessibility: Exploring avenues to enhance the accessibility of GAI-powered educational tools for diverse learners, including those with disabilities or language barriers.

In general, students consider usage of Chat GPT ethical, as 278 of students who participated in research answered, but 132 students noted that usage of it in education is unethical.

Hypothesis of the research is approved, as there is statistically significant difference between perception is usage of generative tools like Chat GPT is ethical within the students of different countries, as students from Bulgaria noted that it is unethical statistically more than students from other countries.

Authors believe that future research would help to establish strong understanding for universities the need of creation guidelines for usage of generative tools of Chat GPT in order to help students and educators to understand for what exactly this tool can be used, and for what not.

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