

AI IN HIGHER EDUCATION: ACADEMIC SUPPORT OR ETHICAL DILEMMA? ANALYZING STUDENT USE OF GPT MODELS DURING EXAMS

With the increasing integration of artificial intelligence tools, such as GPT models, in higher education, their impact on learning processes and academic integrity has become a subject of growing research interest. This article presents a qualitative analysis of students' responses to open-ended questions from a broader survey on the use of GPT models specifically during exams, focusing on their declarations regarding AI use and the ways in which they utilized these tools in exam settings. The findings reveal that while some students perceive AI as a learning aid that reduces stress, others exploit it to bypass traditional assessment methods, particularly in subjects they deem less valuable. The analysis underscores the ethically ambiguous role of AI in education, highlighting the need to adapt evaluation strategies, and address the challenges posed by the growing presence of AI (not only) in academia. Future research should focus on disciplinary differences, institutional policies, and the long-term cognitive effects of AI use by students.

AI W EDUKACJI WYŻSZEJ: WSPARCIE AKADEMICKIE CZY DYLEMAT ETYCZNY? ANALIZA KORZYSTANIA Z MODELI GPT PRZEZ STUDENTÓW PODCZAS EGZAMINÓW

Wraz z coraz szerszym wykorzystaniem narzędzi sztucznej inteligencji, takich jak modele GPT, w szkolnictwie wyższym ich wpływ na procesy uczenia się i uczciwość akademicką budzi rosnące zainteresowanie badawcze. Niniejszy artykuł przedstawia analizę jakościową odpowiedzi studentów na pytania otwarte zawarte w szerszej ankiecie dotyczącej wykorzystania modeli GPT podczas egzaminów, koncentrując się na deklaracjach studentów dotyczących użycia AI oraz sposobach korzystania z tych narzędzi w trakcie egzaminów. Wyniki wskazują, że podczas gdy niektórzy studenci postrzegają AI jako narzędzie wspierające naukę i redukujące stres, inni wykorzystują je do omijania reguł tradycyjnych metod oceniania, szczególnie w przypadku przedmiotów uznawanych za mniej wartościowe. Na podstawie analizy można stwierdzić, że rola AI w edukacji jest etycznie niejednoznaczna, co wskazuje na potrzebę dostosowywania strategii oceniania oraz konieczność mierzenia się z wyzwaniami wynikającymi z rosnącej obecności AI w szkolnictwie wyższym (i nie tylko). Przyszłe badania powinny koncentrować się na różnicach między dziedzinami nauki, politykach instytucjonalnych oraz długoterminowych skutkach kognitywnych stosowania AI przez studentów.

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1. INTRODUCTION

1.1. AI DEVELOPMENT AND ITS HISTORICAL MILESTONES

The origins of artificial intelligence (AI) can be traced back to the 1940s, when Warren McCulloch and Walter Pitts [1] proposed a model of artificial neurons, drawing on neuroscience, propositional logic, and Turing’s computation theory [2, p. 16]. This foundational work laid the groundwork for the development of intelligent machines, further advanced by Alan Turing’s seminal paper “Computing Machinery and Intelligence” [3], which introduced the Turing Test – a method for evaluating whether a machine can exhibit human-like intelligence by successfully deceiving a human judge in a text-based interaction.

A major turning point came in the summer of 1956, when a group of pioneering scientists, including Marvin Minsky, Claude Shannon, Herbert Simon, and John Nash, gathered at Dartmouth College in Hanover, New Hampshire, to establish AI as a scientific discipline [2, p. 17]. Their efforts shaped the trajectory of AI research over the next two decades, influencing institutions such as MIT, Carnegie Mellon University (CMU), Stanford, and IBM [2, p. 17]. By the mid-2000s, accumulating successes had demonstrated a crucial lesson: data could surpass theoretical models, leading to a new generation of intelligent machines powered by statistical learning algorithms and vast amounts of data [4]. This shift marked the beginning of modern AI, where machine learning models became increasingly sophisticated, paving the way for the AI-driven innovations of today.

1.2. THE EMERGENCE OF GENERATIVE AI AND CHATGPT

Artificial intelligence (AI) is not a single technology but rather a broad field encompassing machine learning, natural language processing, data mining, neural networks, and algorithms [5]. Within this domain, generative AI represents a category of models designed to produce new data by recognizing and replicating patterns found in existing dataset [6]. While AI research has been ongoing for several decades, ChatGPT is regarded as a breakthrough model in natural language processing (NLP) due to its ability to generate text that is both grammatically and semantically accurate [7]. Trained on an extensive corpus of textual data and fine-tuned for conversational interactions, ChatGPT produces responses that closely resemble human communication, allowing it to process, retrieve, and interpret complex information [6, p. 122].

1.3. THE GROWING INFLUENCE OF AI IN SOCIETY AND EDUCATION

The rapid expansion of AI development and investment underscores the growing significance of these technologies, as they continue to reshape industries, education, and daily life. Recognizing the potential of AI, major corporations are making unprecedented investments in its development. For instance, Google has announced a \$75 billion investment in artificial intelligence initiatives for 2025, highlighting the increasing financial commitment to AI infrastructure and innovation [8]. In a collaborative effort, OpenAI, SoftBank, Oracle, and

MGX have launched The Stargate Project, a joint venture aiming to invest up to \$500 billion in AI infrastructure by 2029 [9].

Parallel to these investments, the scientific and academic communities have demonstrated extraordinary interest in AI research, particularly in ChatGPT and generative AI models. As per Google Scholar, by March 2023, more than 3,000 articles, reports, and media pieces had been published across journals, conferences, newspapers, blogs, and other sources [6]. The number of scholarly articles on ChatGPT remained relatively low until 2022, followed by a dramatic surge in 2023, reflecting the growing impact and widespread discussion of generative AI in research and various fields [6]. While these investments and research efforts highlight AI's transformative potential, they also bring pressing ethical challenges that require careful scrutiny.

1.4. ETHICAL AND SOCIETAL RISKS OF GPT MODELS

One of the most significant concerns surrounding AI in education and beyond is the lack of transparency, accountability, and bias in AI decision-making. This raises issues related to academic dishonesty, privacy breaches, environmental impact, and cultural homogenization [10]. Additionally, the dominance of Western-centric, English-language AI models exacerbates inequities in global knowledge access, disproportionately benefiting native English speakers while marginalizing non-Western perspectives [10]. Moreover, GPT models inherit biases from the vast datasets they are trained on, leading to the reinforcement of harmful stereotypes and misinformation [6]. The Mitra et al. [11] study categorizes the risks of generative AI in information access, highlighting concerns such as content pollution, the “game of telephone” effect, search engine manipulation, bias amplification, and the pollution of research artifacts. These risks illustrate how AI-generated content can degrade information quality, spread misleading narratives, and weaken critical discourse in research and education.

To mitigate this issue, OpenAI has implemented training mechanisms that allow GPT models to identify and filter out unethical content, a process that required extensive manual data labeling to recognize and mitigate bias. However, the ethical concerns surrounding AI development extend beyond content moderation, as the labor practices involved in AI training have drawn significant criticism. For instance, Kenyan workers tasked with labeling data for OpenAI were reportedly paid less than \$2 per day, an amount significantly below the minimum hourly wage for a receptionist in Kenya [12]. This highlights the hidden ethical costs of AI development, raising questions about fair labor practices, corporate responsibility, and the socio-economic implications of AI-driven automation.

As AI technologies, particularly GPT models, become more deeply embedded in academic settings, concerns about their role in education, student learning behaviors, and academic integrity continue to grow [7, 13]. Research indicates that while AI tools offer opportunities for personalized learning and academic support, they also present challenges related to plagiarism, cheating, and over-reliance on automated assistance [14]. The aim of this article is to examine how students use GPT models during exams, as well as to explore the reasons for not using these models in their studies and how they perceive their use in an academic context.

2. LITERATURE REVIEW

2.1. AI AND EDUCATION

The application of artificial intelligence (AI) in education has been rapidly expanding, attracting increasing scholarly attention in recent years [15, 16]. Research on AI in education (AIEd) has been ongoing for approximately three decades, marked by the establishment of the International AIEd Society (IAIED) in 1997, which publishes the *International Journal of AI in Education* (IJAIED) and organizes the annual AIEd conference. Despite these long-standing efforts, educators are still in the early stages of exploring AI's full pedagogical potential, particularly in its ability to enhance learning experiences, personalize instruction, and support learners throughout the student life cycle [15]. The integration of AI into educational settings is gaining momentum, with institutions actively experimenting with AI-driven tools to innovate teaching and learning methods. Initiatives such as Harvard Sandbox [17] exemplify how AI is being incorporated into educational frameworks, fostering both technological advancements and discussions on the ethical and pedagogical challenges associated with its use.

Recent research has tested AI's ability to mimic human-like interactions, particularly through the Turing Test, where participants engaged in five-minute conversations with either a human or an AI model. The findings revealed that GPT-4 was identified as human 54% of the time, outperforming GPT-3.5 (50%) and ELIZA (22%), though still falling below the identification rate of actual human participants (67%) [18]. Another study found that ChatGPT-4's behavior was statistically indistinguishable from that of humans, frequently demonstrating cooperative and altruistic tendencies [19]. While these findings underscore the advancements in AI-driven conversation, they also raise critical concerns about AI's growing role in education and student engagement. One of the concerns is that some students may prefer interacting with AI models rather than teachers, driven by a fear of judgment in traditional learning environments. At the same time, ChatGPT can reduce anxiety among students who lack academic support or confidence in seeking help, thereby encouraging help-seeking behaviors and improving overall learning engagement [7]. Additionally, ChatGPT proves particularly beneficial for non-native English speakers, assisting them in producing higher-quality essays and thereby enhancing writing skills and academic performance [20]. However, while GPT appears effective in fostering creativity, problem-solving abilities, and conceptual understanding, positioning it as a valuable "object-to-think-with" that encourages deeper reflection and intellectual engagement [21], concerns remain that its widespread use may diminish critical thinking skills [21]. Over-reliance on ChatGPT for academic tasks may limit students' engagement in meaningful interactions, discussions with peers and instructors, and opportunities to develop independent analytical thinking [14, 21]. It stands out for its ability to answer questions, write essays, and generate creative texts, significantly surpassing the capabilities of earlier language models [14].

2.2. AI AT UNIVERSITY

As AI continues to play an increasingly role in education [13, 15–16], it is crucial to strike a balance between leveraging AI's benefits and ensuring that students remain active, critical participants in the learning process [15] rather than passive consumers of AI-generated

content. A university lecturer in Australia detected AI-generated content in one-fifth of student assessments, raising growing concerns about the impact of AI tools like ChatGPT on academic integrity and exam security [22].

A recent study by [13] in their article *Students' Attitudes Toward ChatGPT in Education* examined the perspectives of 189 university students (aged 17 to 52, mean age: 21.83) using a non-probabilistic sampling method. The study found that STEM students exhibited a significantly more favorable attitude toward ChatGPT compared to students in social sciences and humanities, particularly in recognizing its potential to enhance learning, accelerate problem-solving, and increase efficiency. Additionally, STEM students expressed stronger positive emotions toward ChatGPT, including enthusiasm, joy, and curiosity. The findings further revealed that 65.7% of STEM students had previous experience with ChatGPT, compared to only 16.8% of students in social sciences and humanities. Moreover, STEM students showed a greater willingness to engage with ChatGPT in the future. Statistical analysis identified notable differences between the two groups across most examined aspects, particularly regarding emotions, perceptions of AI, and its role in education [13].

Understanding why students turn to GPT models is crucial for evaluating their impact on education. According to Hasanein and Sobaih [14, p. 2605], the primary motivators for using ChatGPT include quick access to information, personalized learning support, and improved language proficiency. However, these benefits come with significant ethical and academic challenges, such as issues with data reliability [14], the risk of plagiarism [13], and broader concerns regarding academic dishonesty [22]. Despite these concerns, the integration of generative AI into education presents opportunities to enhance the learning experience by offering personalized support [16]. According to [23, p. 1208] AI-driven models can tailor educational content to individual needs, skill levels, and learning styles, significantly improving student engagement and comprehension. ChatGPT, in particular, adapts dynamically by analyzing users' previous interactions and adjusting its responses based on context and individual preferences [24, 25].

The widespread use of AI tools like GPT may lead to a decline in the importance of traditional memorization-based learning, especially given the instant access to AI-generated answers for almost any question. As a result, higher education institutions must adapt their teaching strategies to keep pace with the changing expectations and learning behaviors of students, ensuring that AI is integrated in ways that enhance critical thinking and deep learning rather than replace foundational knowledge acquisition.

3. METHOD

3.1. PROCEDURE

In this study, we first precised the research area, focusing on students' use of GPT models. We then refined our scope to examine their application in completing academic tasks. A comprehensive review of existing literature was conducted to identify key findings, covered aspects, research gaps, and areas requiring further analysis. This study seeks to bridge existing research gaps by addressing the following main research question: How do different groups

of students use GPT models in the learning process? This study was part of a larger investigation into student engagement with GPT models. While the full study included both closed and open-ended survey questions, this article focuses exclusively on the qualitative responses to explore how students describe their experiences with AI in academic tasks.

3.2. RESEARCH DESIGN AND SAMPLE

The questionnaire was created using Google Forms, consisted of 23 questions, including 15 closed-ended questions with predefined answer options, 3 semi-open-ended questions where respondents could choose from given answers or/and provide their own, and 5 open-ended questions allowing for free expression of thoughts and experiences. Data collection took place between December 2024 and January 2025, lasting three weeks, during which we gathered 792 responses. With the approval of the university administration, the survey was distributed via email to all full-time undergraduate and graduate students at AGH University of Krakow, one of Poland’s largest technical universities, reaching a total of 19,123 students. The study was anonymous, and the introduction on the first page of the survey explained the research objective (understanding students’ practices in using GPT models) and outlined the thematic sections of the questionnaire. The survey consisted of several key thematic categories:

1. General experience with GPT models. Whether the respondent had prior exposure to these tools and why they chose (or chose not) to use them. If someone haven’t use them, we asked open ended question- why? And then this person would only fall in demographic section.
2. Use of GPT models for academic tasks. The types of assignments (essays, projects, presentations) for which students use GPT models, as well as the frequency and extent of their use.
3. Support in exam preparation. The degree to which GPT models assist in preparing for assessments and exams, and the specific functions students rely on most.
4. Opinions on the value and impact of GPT models. Students’ perspectives on the benefits and drawbacks of GPT use in terms of academic efficiency, motivation for learning, and task completion.

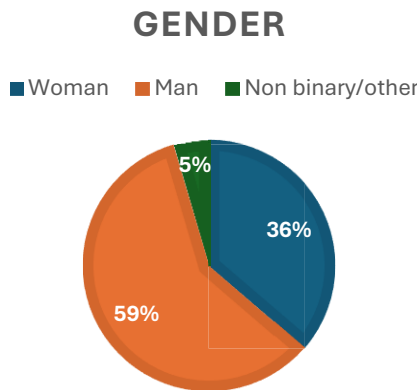


Fig. 1. Respondents gender

Completing the survey took no more than 10 minutes. The number of questions each respondent answered varied depending on their responses. Questionnaire included both open-ended and closed-ended questions. The sample consisted of 792 people: 288 women, 468 men, and 36 individuals identifying as non-binary or other (Fig. 1). Regarding the distribution of study levels, 258 participants (32.6%) were first-year students, 192 (24.2%) were in their second year, 139 (17.6%) in their third year, 109 (13.8%) in their fourth year, and 94 (11.9%) in their fifth year (Fig. 2).

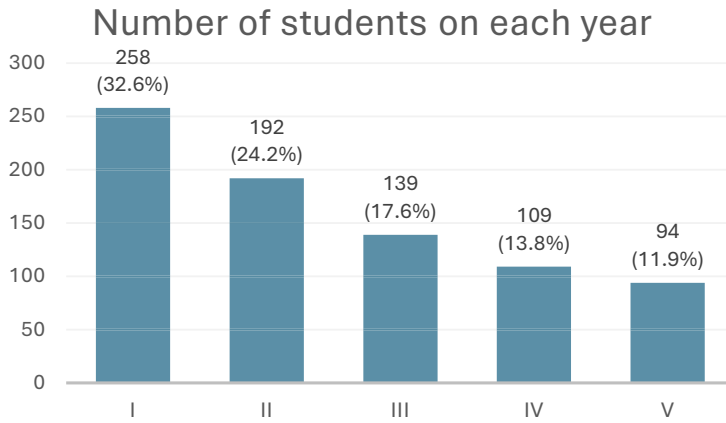


Fig. 2. Respondents year of study

The qualitative component of the study focused on the open-ended responses related to students' use of GPT models during exams. Only students who declared using GPT during exams were included in this analysis, ensuring that the data reflects actual usage patterns. The following questions were examined as part of the analysis:

1. For what purposes did you use GPT models during exams (without the instructor's knowledge)?

A total of 107 responses were collected and categorized into two primary categories: (1) verification of answers and (2) generation of exam responses. Additionally, a separate category labeled "other" ($N = 2$) was created for responses that did not align with the predefined categories.

2. Why did you decide to use GPT models during the exam (without the instructor's knowledge)?

A total of 106 responses were collected and categorized into four primary motivational factors: (1) lack of knowledge or preparation, (2) lack of respect for the course's value, (3) time constraints during the exam, and (4) the use of GPT models for answer verification. An additional category, labeled "other" ($N = 9$), was used for responses that did not fit any of the predefined categories.

It is important to note that some responses were assigned to more than one category; therefore, the sum of responses within categories exceeds the total number of responses collected.

4. RESULTS

4.1. USE OF GPT MODELS IN EXAM SETTINGS

The survey results indicate that more than half of the respondents (58.5%) believe that students use GPT models during exams without the instructor’s knowledge, either frequently (25%) or occasionally (33.5%) (Fig. 3).

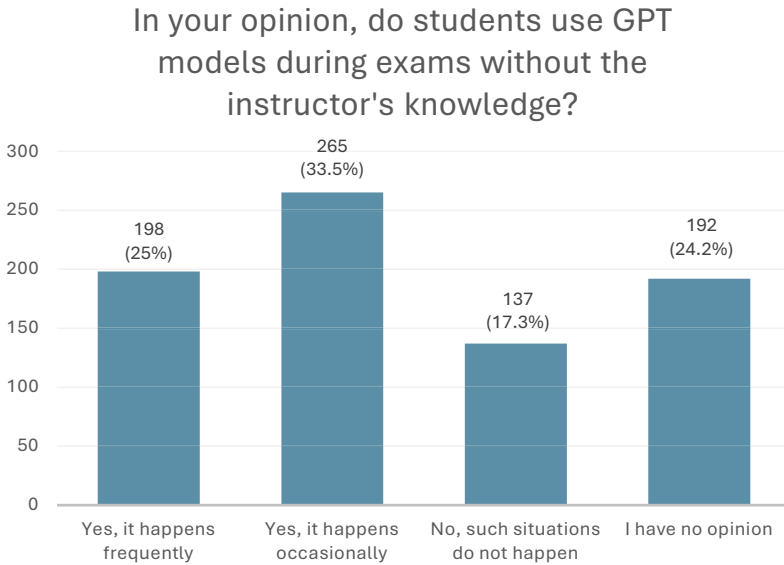


Fig. 3. Student perceptions of unauthorized GPT use during academic exams

These findings provide critical insights into the extent of AI usage in academic assessments, highlighting that while most students abstain from unauthorized AI use, a portion of the student body actively incorporates GPT into their exam strategies. This variation in usage patterns underscores the need for further exploration of students’ motivations and ethical considerations, which are examined in the following sections.

The results indicate that there is no significant difference in students’ perception of GPT use during exams based on the form of the exam¹. While online exams show a slightly higher reported usage of GPT models ($N = 427, 79.5\%$) compared to stationary exams ($N = 368, 92.2\%$), the gap is not substantial, suggesting that concerns about unauthorized AI use exist in both formats (Fig. 4).

The survey results indicate that the majority of students did not use GPT models during exams (Fig. 5) without the instructor’s knowledge, with $N = 662 (83.5\%)$ stating that they never engaged in such behavior. However, a significant minority admitted to using AI tools during assessments.

¹ The question allowed respondents to choose two options, meaning the percentages do not sum up to 100%.

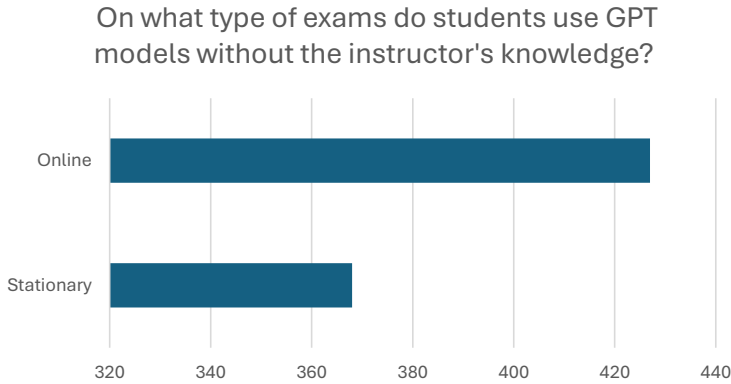


Fig. 4. Use of GPT models during exams without the instructor’s knowledge-type of exam

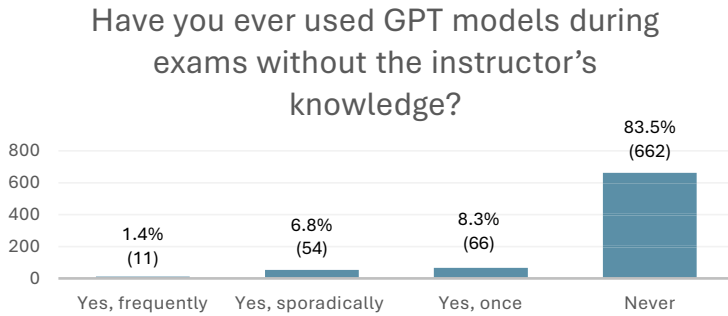


Fig. 5. Use of GPT models during exams without the instructor’s knowledge- frequency

The students’ predictions (see Fig. 4) regarding the use of GPT models are provided alongside their self-reported declarations of using GPT models during different types of exams (Fig. 6). This allows for a comparison between perceived and actual usage, offering insights into potential discrepancies in awareness and behavior. Moreover, this suggests that if a student intends to use GPT models during an exam, they will do so regardless of the exam format.

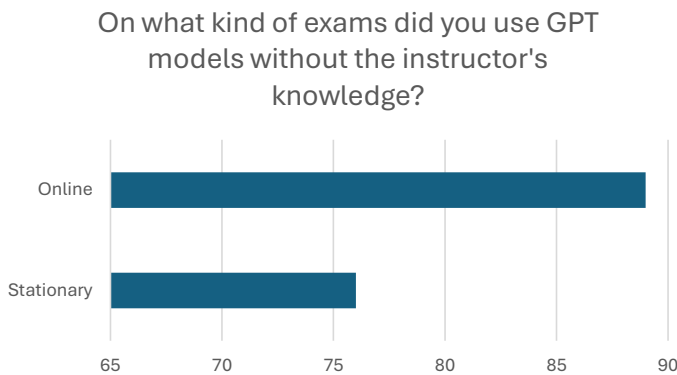


Fig. 6. Use of GPT models during exams without the instructor’s knowledge, declaration-type of exam

4.2. FOR WHAT PURPOSES DID YOU USE GPT MODELS DURING EXAMS (WITHOUT THE INSTRUCTOR'S KNOWLEDGE)?

Generation of exam responses

A significant number of students ($N = 82$) used GPT models to generate entire exam responses, a practice that raises concerns about academic integrity. This category includes: generating responses for multiple-choice and open-ended test questions, solving mathematical problems, and producing programming code. Several students reported using GPT to define concepts or explain differences between given terms, indicating that AI was used for conceptual clarification rather than original problem-solving. Others admitted using GPT to find answers to open-ended questions, complex problems, or computational tasks that they were unable to solve independently. One respondent explained, "The test questions were too difficult, and I was unable to come up with answers, so I used GPT to generate them." This aligns with the findings of [14], who noted that students often turn to AI when faced with academic challenges beyond their skill level or preparation.

Interestingly, some students used AI selectively, stating that they relied on it only for subjects they considered irrelevant or poorly structured. One respondent stated, "I didn't cheat in courses that I respect, but I used ChatGPT to pass those that I consider useless."

Verification of answers

The second dominant way students used GPT models was for verifying their answers before submitting them ($N = 28$). This category includes: checking multiple-choice (ABCD) responses, confirming calculations and problem-solving steps, validating programming code correctness, summarizing/rechecking theoretical concepts. This category pertains to verifying the correctness of answers, using GPT as an assistant rather than a tool to solve the entire exam.

Students described this use as a way to ensure accuracy rather than to generate answers from scratch. One respondent explained, "Even if I was sure about my answer, I would paste it into the chat to confirm whether my thinking was correct." Another stated, "It was faster to check an answer with ChatGPT than to search for it manually online." However, some students acknowledged the risks of AI errors, with one noting, "I usually used ChatGPT to confirm my answers, but a few times I ended up changing my correct answer to an incorrect one suggested by the chatbot."

4.3. WHY DID YOU DECIDE TO USE GPT MODELS DURING THE EXAM (WITHOUT THE INSTRUCTOR'S KNOWLEDGE)?

Lack of knowledge or preparation

A significant number ($N = 65$) of students reported using GPT models during exams due to insufficient preparation or a lack of subject knowledge. Many respondents admitted that they had not studied adequately and turned to AI as a last resort to avoid failing. The responses indicate that students perceive AI as a safety net, allowing them to attempt answering exam questions even when they lack the necessary knowledge. One student stated "I didn't study

for the test and I didn't want to fail" while another admitted "I had no idea how to solve the task so I used ChatGPT". These statements highlight that AI is often employed as an emergency measure, particularly among students who feel underprepared or lack confidence in their ability to complete the exam on their own. The reliance on AI in such cases suggests that students view GPT models as a way to bridge knowledge gaps in real time, rather than as a tool for deep learning or conceptual understanding. Additionally, some students expressed a sense of resignation regarding their lack of preparation, indicating that AI provided them with the only feasible option to complete their exams.

Lack of respect for the course's value

Some ($N = 13$) reported using GPT models during exams only for subjects they perceived as unimportant or irrelevant to their academic and professional goals. These students viewed AI as a shortcut to passing courses that they believed held little educational value. One student stated „I used AI only in elective courses that don't contribute to my main area of study" while another remarked „Some courses are just a waste of time so I don't see the problem with using GPT to pass them". A similar sentiment was reflected in the response „I only used GPT for subjects that are just fillers in my curriculum and don't contribute to my skills". These statements suggest that students rationalize their AI use by assessing the perceived usefulness of a course, choosing to rely on GPT models not because of academic difficulties but due to a lack of engagement or interest in certain subjects.

Further qualitative analysis reveals that students who exhibited this pattern of AI use often justified their behavior based on how they viewed the structure of their curriculum. Several respondents criticized their programs for including courses that they believed were irrelevant to their future careers, leading them to deprioritize these subjects and seek AI-generated assistance instead. This raises concerns regarding student motivation and engagement in multi-disciplinary curricula, as it suggests that some students may disengage from courses outside their primary academic focus and rely on AI to complete coursework with minimal effort.

Time constraints during the exam

Some of students ($N = 10$) indicated that strict exam time constraints were a primary factor in their decision to use GPT models. Many respondents struggled to fully process and analyze complex questions under timed conditions, leading them to rely on AI-generated responses to keep up with the pace of the assessment. One respondent explained, "The exam was too short for me to properly analyze the questions, so I used GPT." Another student shared, "The test had very little time allocated for problem-solving, so AI helped me keep up." Similarly, another stated, "I wouldn't have used AI if the exam allowed enough time for proper thinking." These responses suggest that students view AI as a compensatory mechanism to mitigate the limitations of traditional timed assessments, rather than as a means of dishonesty.

Verification of answers

Students reported ($N = 9$) also using GPT models as a tool for verification rather than outright cheating, emphasizing that AI-assisted checks provided them with a sense of confidence in their responses. One student explained, "Checking my answers with GPT made me feel more

confident that I wouldn't fail." Another respondent stated, "I just needed reassurance that my response was correct before submitting it." Similarly, another student noted, "I didn't want to risk losing points for a minor mistake, so I checked my answers in GPT." These responses suggest that students do not always use AI to generate answers but rather to validate their own knowledge, reflecting a more nuanced approach to AI-assisted learning.

5. CONCLUSIONS

The findings of this study underscore the complex role of GPT models in academic settings, revealing that students use AI both as a support tool for learning and as a shortcut to bypass academic effort. While some students leverage AI for answer verification and confidence-building, others employ it to circumvent traditional assessment methods, particularly in subjects they perceive as less relevant to their academic or professional goals. This reinforces the long-standing divide between students who are committed to deep learning and those who seek to minimize effort through external aids [7, 13].

The study also highlights disciplinary differences in AI adoption, with some students rationalizing their AI use based on the perceived value of a course. This aligns with [13], who observed that students often justify GPT use in subjects they deem unrelated to their future careers. The findings suggest that students are less likely to engage with subjects they perceive as irrelevant to their future careers or personal interests. A common concern among respondents was the excessive volume of material, which many felt exceeded their ability to effectively absorb and retain information. This frustration with being required to study topics they deem unnecessary indicates that student motivation is closely tied to the perceived utility of a course. These findings align with prior research showing that students are more engaged when coursework is directly linked to their professional [15]. Moreover, the recurring issue of curriculum overload raises questions about the effectiveness of traditional higher education structures. If students consistently report being overwhelmed by the volume of required material, it may signal a need for curricular reforms that emphasize depth over breadth. To address these concerns, universities should consider revising assessment models and instructional strategies to ensure that learning remains both meaningful and manageable.

Another key motivation for AI use was time constraints during exams, with students citing limited time to process complex questions as a primary factor in turning to GPT models. This finding supports research by [20], who emphasized that AI is increasingly used as a time-management tool by students under academic pressure. Furthermore, [14] found that students often resort to AI when overwhelmed by time constraints, rather than content difficulty itself. These findings suggest that universities should re-evaluate assessment formats, shifting from traditional time-pressured exams to AI-integrated assessments that promote critical thinking and deeper engagement rather than reinforcing surface-level recall.

In terms of academic integrity, this study echoes the concerns raised by [7], who noted that while AI has the potential to support learning, its unregulated use in assessments poses challenges for institutions. Although some students reported using GPT models for self-verification rather than direct cheating, others admitted to passive reliance on AI-generated

answers. The findings align with [11], who emphasized that AI-generated content is not always reliable, leading some students to inadvertently submit incorrect information. These results highlight the broader need for institutional policies that balance AI's potential with academic integrity concerns. Universities should focus not only on AI detection and plagiarism prevention but also on student motivation, engagement strategies, and responsible AI use.

Limitations

While this study provides valuable insights into student use of GPT models during exams, certain limitations should be acknowledged. Although the study is based on $N = 792$ responses, it is not fully representative of the broader student population. The research was conducted within a single institution, which limits the generalizability of the findings to other universities, disciplines, and cultural contexts. Future research should seek to expand the sample size and include participants from a broader range of institutions and educational backgrounds. This study relies on self-reported data, which may introduce response bias, as students may underreport or exaggerate their use of AI due to concerns about academic integrity or personal perceptions of AI ethics. Future studies could incorporate direct observational methods or AI usage tracking to provide a more objective assessment. While this study focuses on GPT usage during exams and assignments, it does not comprehensively address the impact of AI on overall academic performance, long-term learning outcomes, or faculty perspectives. Additional research should investigate the broader effects of AI on student success, faculty grading practices, and institutional AI policies.

6. FUTURE RESEARCH DIRECTIONS

Given the rapid integration of AI into higher education, further research is necessary to better understand its implications for student learning, academic integrity, and institutional policies. One critical area requiring exploration is qualitative research through focus groups, as the present study provides a broad quantitative overview but does not fully capture the motivations, ethical considerations, and decision-making processes behind students' AI use. Prior research suggests that students engage with AI in various ways, ranging from passive reliance to active engagement, yet the underlying reasons for these differences remain underexplored [14]. In-depth qualitative studies could provide more granular insights into how students justify their AI use, particularly in high-stakes academic settings. Another important direction for future research is comparative studies across disciplines to investigate how AI adoption varies between STEM and humanities fields. Previous studies have indicated that students in STEM disciplines tend to exhibit a more favorable attitude toward AI tools, particularly for problem-solving tasks and technical applications, whereas students in social sciences and humanities often approach AI with greater skepticism due to concerns about originality and ethical considerations [13]. However, little is known about how these differences translate into actual AI usage patterns during assessments. Future studies should analyze whether specific academic disciplines are more susceptible to AI reliance and how different assessment formats influence student behavior.

REFERENCES

- [1] McCulloch W.S., Pitts W., *A logical calculus of the ideas immanent in nervous activity*, Bulletin of Mathematical Biophysics, vol. 52, 1990, pp. 115–133.
- [2] Russell S.J., Norvig P., *Artificial intelligence: A modern approach*, Pearson, 2016.
- [3] Turing A.M., *Computing Machinery and Intelligence*, Mind, vol. 59(236), 1950, pp. 433–460.
- [4] Cristianini N., *Intelligence reinvented*, New Scientist, vol. 232(3097), pp. 37–41, [https://doi.org/10.1016/S0262-4079\(16\)31992-3](https://doi.org/10.1016/S0262-4079(16)31992-3).
- [5] Baker T., Smith L., *Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges*, 2019, Retrieved from Nesta Foundation website: https://media.nesta.org.uk/documents/Future_of_AI_and_education_v5_WEB.pdf [accessed: 5.03.2025].
- [6] Ray P.P., *ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations and future scope*, Internet of Things and Cyber-Physical Systems, vol. 3, 2023, pp. 121–154, <https://doi.org/10.1016/j.iotcps.2023.04.003>.
- [7] Sullivan M., Kelly A., McLaughlan P., *ChatGPT in higher education: Considerations for academic integrity and student learning*, Journal of Applied Learning and Teaching, vol. 6(1), 2023, pp. 31–40, <https://doi.org/10.37074/jalt.2023.6.1.17>.
- [8] *Alphabet's \$75 billion AI expansion: Cloud revenue slows, investors react*, TechInformed, 6 February 2025, <https://techinformed.com/google-75b-ai-investment-2025/> [accessed: 5.03.2025].
- [9] OpenAI, *Announcing The Stargate Project*, 21 January 2025, <https://openai.com/index/announcing-the-stargate-project/> [accessed: 5.03.2025].
- [10] Stahl B.C., Eke D., *The ethics of ChatGPT – Exploring the ethical issues of an emerging technology*, International Journal of Information Management, vol. 74, 102700, <https://doi.org/10.1016/j.ijinfomgt.2023.102700>.
- [11] Mitra B., Cramer H., Gurevich O., *Sociotechnical implications of generative artificial intelligence for information access*, arXiv:2405.11612, <https://doi.org/10.48550/arXiv.2405.11612>.
- [12] Perrigo B., *Exclusive: OpenAI used Kenyan workers on less than \$2 per hour to make ChatGPT less toxic*, <https://time.com/6247678/openai-chatgpt-kenya-workers/> [accessed: 5.03.2025].
- [13] Franczyk A., Rajchel A., *Postawy studentów wobec ChatGPT w edukacji*, Horyzonty Wychowania, vol. 23(65), 2024, pp. 89–101, <https://doi.org/10.35765/hw.2024.2365.10>.
- [14] Hasanein A.M., Sobaih A.E.E., *Drivers and consequences of ChatGPT use in higher education: Key stakeholder perspectives*, European Journal of Investigation in Health, Psychology and Education, vol. 13(11), 2023, pp. 2599–2614, <https://doi.org/10.3390/ejihpe13110181>.
- [15] Zawacki-Richter O., Marín V.I., Bond M., Gouverneur F., *Systematic review of research on artificial intelligence applications in higher education – where are the educators?*, International Journal of Educational Technology in Higher Education, vol. 16(1), 39, <https://doi.org/10.1186/s41239-019-0171-0>.

- [16] Chu H.C., Hwang G.H., Tu Y. F., Yang K.H., *Roles and research trends of artificial intelligence in higher education: A systematic review of the top 50 most-cited articles*, Australasian Journal of Educational Technology, vol. 38(3), 2022, pp. 22–42, <https://doi.org/10.14742/ajet.7526>.
- [17] Harvard University Information Technology (HUIT), *AI Sandbox*, n.d., <https://www.huit.harvard.edu/ai-sandbox> [accessed: 5.03.2025].
- [18] Jones C.R., Bergen B.K., *People cannot distinguish GPT-4 from a human in a Turing test*, arXiv:2405.08007, <https://doi.org/10.48550/arXiv.2405.08007>.
- [19] Mei Q., Xie Y., Yuan W., Jackson M.O., *A Turing test of whether AI chatbots are behaviorally similar to humans*, [in:] Proceedings of the National Academy of Sciences, vol. 121(9), e2313925121, <https://doi.org/10.1073/pnas.2313925121>.
- [20] Niloy A.C., Bari M.A., Sultana J., Chowdhury R., Raisa F.M., Islam A., Mahmud S. et al., *Why do students use ChatGPT? Answering through a triangulation approach*, Computers and Education: Artificial Intelligence, vol. 6, 2024, 100208, <https://doi.org/10.1016/j.caeai.2024.100208>.
- [21] Sandu R., Gide E., Elkhodr M., *The role and impact of ChatGPT in educational practices: insights from an Australian higher education case study*, Discover Education, vol. 3(1), 2024, 71, <https://doi.org/10.1007/s44217-024-00126-6>.
- [22] Cassidy C., *Lecturer detects bot-use in one fifth of assessments as concerns mount over AI in exams*, The Guardian 16 January 2023, <https://www.theguardian.com/australia-news/2023/jan/17/lecturer-detects-bot-use-in-one-fifth-of-assessments-as-concerns-mount-over-ai-in-exams> [accessed: 5.03.2025].
- [23] Albdrani R.N., Al-Shargabi A.A., *Investigating the effectiveness of ChatGPT for providing personalized learning experience: A case study*, International Journal of Advanced Computer Science and Applications (IJACSA), vol. 14(11), 2023, s. 1208–1213, <https://doi.org/10.14569/IJACSA.2023.01411122>.
- [24] Przegalinska A., Triantoro T., *Converging minds. The creative potential of collaborative AI*, 1st ed., CRC Press, Boca Raton 2024, <https://doi.org/10.1201/9781032656618>.
- [25] Rospigliosi P. ‘asher’, *Artificial intelligence in teaching and learning: What questions should we ask of ChatGPT?*, Interactive Learning Environments, vol. 31(1), 2023, pp. 1–3, <https://doi.org/10.1080/10494820.2023.2180191>.