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## BENEFITS AND RISKS OF CHATGPT IN FUTURE EDUCATION\*\*\*

**Abstract:** *Created by OpenAI, ChatGPT is an artificial intelligence (AI) chatbot that makes use of natural language processing (NLP). ChatGPT analyses enormous volumes of data using machine learning (ML) to offer the necessary content and simply respond to queries in a conversational manner. Many industries, including healthcare, education, and finance, employ ChatGPT to increase productivity by automating a variety of language-related processes. In the context of education, ChatGPT helps professors and students cope with mental stress and complete assignments with greater efficiency. Professors can improve their pedagogical skills by creating and incorporating interactive classroom activities using ChatGPT's help. Additionally, ChatGPT assists researchers with data analysis, literature reviews, and grant application writing. Students can learn and develop in a variety of ways with ChatGPT thanks to individualized support, immediate feedback, and an extensive database of knowledge in a variety of areas. The tendency of ChatGPT to be excessively verbose, to provide assertions that are straightforward but incorrect, and to make assumptions about questions that are not quite apparent are some of its drawbacks. A further concern is that the rise of artificial intelligence (AI) chatbots, such as ChatGPT, has raised the possibility of plagiarism and cheating. Programs like GPTZero and CopyLeaks AI Content Detector have recently been created that are capable of effectively identifying these types of scams. Compared to its earlier iterations, the most cutting-edge publicly accessible model, ChatGPT 4, has improved understanding and is able to generate more complex responses with less bias.*

**Keywords:** *ChatGPT, Artificial Intelligence (AI), Education.*

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## 1. INTRODUCTION

In November 2022, OpenAI unveiled Chat Generative Pre-Trained Transformer, also known as ChatGPT. It employs supervised and reinforcement learning strategies and is based on the GPT family of OpenAI language models.<sup>1</sup> The ChatGPT application has a wide range of capabilities, including the ability to write and debug computer programs, write and mimic human speech, compose music, respond to test questions, compose poetry and other lyrics, and play games.<sup>2</sup> When it was launched, ChatGPT reached one million users in five days, and reached 100 million users in less than two months. It is currently used by more than 600 million people every month.<sup>3</sup>

Universities used ChatGPT to streamline their processes in a number of ways, such as by employing the chatbot to help with student tutoring, grant application writing, assignment marking, big data analysis, and more.<sup>4</sup> ChatGPT is merely the most recent development in the increasingly common use of AI technologies in education. AI algorithms are becoming increasingly complex and capable of learning and improving on their own thanks to developments in processing power and data analysis. Given that AI is now widely used at all educational levels, it can be claimed to have had a major early influence on the educational system.<sup>5</sup> In addition to helping with exam design, essay writing, and language translation, ChatGPT allows users to ask and receive a range of questions, summarize readings, and engage with it similarly to peers in educational settings.<sup>6</sup>

The adults who understood the most about ChatGPT were the most educated, especially those with postgraduate degrees. Those with only a high school education or less were much less concerned about the program, which was created by the startup OpenAI.<sup>7</sup> However, many scholars contend that ChatGPT has serious

<sup>1</sup> Roose, K. (2022): The Brilliance and Weirdness of ChatGPT. New York Times. Available at: <https://www.nytimes.com/2022/12/05/technology/chatgpt-ai-twitter.html>

<sup>2</sup> Edwards, B. (2022): No Linux? No problem. Just get AI to hallucinate it for you. Ars Technica. Available at: <https://arstechnica.com/information-technology/2022/12/openais-new-chatbot-can-hallucinate-a-linux-shell-or-calling-a-bbs/>

<sup>3</sup> Perry, C. (2024): ChatGPT in Education: What are the Pros and Cons? Available: <https://undetected.ai/blog/chatgpt-in-education/>

<sup>4</sup> Ortiz, S. (2024): OpenAI's new ChatGPT Edu is for universities. Here's how teachers and students can benefit. Available: <https://www.zdnet.com/article/openais-new-chatgpt-edu-is-for-universities-heres-how-teachers-and-students-can-benefit/>

<sup>5</sup> Tan, S. (2020): Artificial intelligence in education: Rise of the Machines. *Journal of Applied Learning and Teaching*, 3(1), 129-133. <https://doi.org/10.37074/jalt.2020.3.1.17>

<sup>6</sup> Sok, S. (2023): Opinion: Benefits and risks of ChatGPT in education. Available at: <https://cambodianess.com/article/opinion-benefits-and-risks-of-chatgpt-in-education>

<sup>7</sup> Thormundsson, B. (2024): Familiarity with ChatGPT in the U.S. 2023, by education. Available at: <https://www.statista.com/statistics/1369168/knowledge-of-chatgpt-by-education-in-us/>

drawbacks in addition to its many potential educational benefits.<sup>8</sup> Rather than being a cause for alarm, the integration of chatbots and AI systems into the educational field can be viewed as a chance for advancement.<sup>9</sup>

More than half of educators have already implemented ChatGPT in their classes, per a recent survey. According to the report, 10% of educators use ChatGPT nearly daily, and 40% use it once a week. But students' adoption of AI isn't happening at the same rate. With just 33% of students using AI for academic support, educators have a chance to boost the usage of AI in the classroom and improve student learning. The discrepancy in how professors and students use AI in the classroom emphasizes ChatGPT's potential to improve instruction and revolutionize the educational process.<sup>10</sup>

## 2. LITERATURE REVIEW

The quest for essential content in conventional media is becoming less common as modern man's habits shift toward efficiency and simplicity. New media has made it possible to communicate more quickly over the world and is becoming a tool that may provide targeted information practically immediately.<sup>11</sup> An intelligent computer application called ChatGPT can communicate with individuals from a variety of fields, including instructors and students. In order to comprehend and react to queries and discussions, it makes use of sophisticated technologies. It can provide brief or in-depth responses to a range of queries and requests.<sup>12</sup>

ChatGPT can generate appropriate responses based on context and have conversations that sound natural.<sup>13</sup> Because ChatGPT's potential uses have the ability to completely transform current teaching and learning methods, its introduction has sparked a range of opinions among educators.<sup>14</sup> Course registration,

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<sup>8</sup> Gordijn, B. & Have, H. T. (2023): ChatGPT: Evolution or revolution? *Medicine, Health Care, and Philosophy*, 1-2. <https://doi.org/10.1007/s11019-023-10136-0>

<sup>9</sup> Kooli, C. (2023): Chatbots in education and research: a critical examination of ethical implications and solutions. *Sustainability* 15. doi: 10.3390/su15075614

<sup>10</sup> Umassglobal (2024): ChatGPT For Educators. Available: <https://www.umassglobal.edu/news-and-events/blog/chatgpt-for-educators>

<sup>11</sup> Baltezarević, I. & Baltezarević, R. (2019): Prikriveno oglašavanje u novim medijima. *Baština*, sv. 48, pp. 171-179. doi: 10.5937/bastina1948171B

<sup>12</sup> Zhang, C., Zhang, C., Li, C., Qiao, Y., Zheng, S., Dam, S. K., ... & Hong, C. S. (2023): One small step for generative ai, one giant leap for agi: A complete survey on chatgpt in aigc era. arXiv preprint arXiv:2304.06488.

<sup>13</sup> Deng, J. & Lin, Y. (2022): The benefits and challenges of ChatGPT: An overview. *Frontiers in Computing and Intelligent Systems*, 2(2), 81-83. <https://doi.org/10.54097/fcis.v2i2.4465>

<sup>14</sup> Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., et al. (2023): What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learn. Environ.*, 10:15. doi: 10.1186/s40561-023-00237-x

admissions procedures, and student inquiries are just a few of the administrative difficulties that higher education institutions deal with. By automating repetitive actions and offering prompt answers to often requested inquiries, ChatGPT can expedite these procedures. Agents have more time to work on other projects or more complicated questions that need more attention when a bot answers these frequently asked questions without the need for human intervention. To maximize administrative efficiency, ChatGPT may also create reports, evaluate data, and support decision-making.<sup>15</sup>

An inclusive and accessible learning environment can be enhanced via ChatGPT. This AI-powered application can help close the gap between students with different backgrounds and abilities by supporting several languages and meeting different learning needs. Furthermore, its capacity to have lively, context-aware discussions can help create a more dynamic and captivating learning environment, which will improve students' capacity for critical analysis and problem-solving.<sup>16</sup> The usage of ChatGPT in teaching and learning is generally viewed favourably by both instructors and students. The majority of university instructors (41.4%) had favourable opinions about using ChatGPT in their instruction.<sup>17</sup> Additionally, the incorporation of ChatGPT into the classroom is well received by the students. As long as the information produced by ChatGPT can be independently verified, they do not see it as a danger to the educational system.<sup>18</sup>

ChatGPT can boost student involvement in their schoolwork and research by offering timely responses and customized help, per a 2023 study by Kasneci and his colleagues.<sup>19</sup> As a virtual tutoring tool, ChatGPT can be tailored to meet students' urgent needs and give them rapid satisfaction if they're having trouble finding the pertinent information they need. This platform can also be thought of as a round-the-clock virtual instructor where students can receive immediate assistance and feedback. Removing the need to wait for specific solutions offers a certain amount of immediate satisfaction, which can boost students' confidence while they are

<sup>15</sup> Rogerson, K. (2024): ChatGPT and Higher Education – How Can Colleges Benefit from the Tech. Available: <https://www.comm100.com/blog/chatgpt-and-higher-education-how-can-colleges-benefit/>

<sup>16</sup> Zhai, X. (2022): ChatGPT user experience: Implications for education. Available at: SSRN 4312418.

<sup>17</sup> Kiryakova, G., and Angelova, N. (2023): ChatGPT—A challenging tool for the university professors in their teaching practice. *Educ. Sci.*, 13:1056. doi: 10.3390/educsci13101056

<sup>18</sup> Lozano, A. & Blanco, F.C. (2023): Is the education system prepared for the irruption of artificial intelligence? A study on the perceptions of students of primary education degree from a dual perspective: current pupils and future teachers. *Educ. Sci.* 13:733. doi: 10.3390/educsci13070733

<sup>19</sup> Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., ... & Kasneci, G. (2023): ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274.

studying. Additionally, because ChatGPT is skilled at spotting content-related problems, it may offer focused support, eliminating the aggravation associated with figuring out answers to problems or other subjects that require attention.<sup>20</sup>

By using a common framework, teachers might use ChatGPT to develop learning assessment items while saving time and effort and possibly improving the quality of the questions. Teachers could create open-ended question prompts that are in line with the learning objectives and success criteria of the lessons using ChatGPT's capabilities.<sup>21</sup> Educators can improve the entire educational experience by using AI capabilities to give students a variety of pertinent learning resources.<sup>22</sup> A more student-centric approach to achieving personalized learning is made possible by ChatGPT's adaptive features. By examining a student's development and preferences, teachers can modify their lesson plans and content to suit each student's needs. This improves students' motivation and general academic performance in addition to giving them the ability to take charge of their educational path. Moreover, by accommodating a range of learning styles and demands and bridging the gap between teachers and students with different backgrounds and skill levels, the AI-powered model's ability to adjust to learners' capacities promotes inclusive education.<sup>23</sup>

However, there are drawbacks to using Chat GPT in personalized learning, including potential algorithmic biases, the requirement for technical know-how, and privacy and security issues.<sup>24</sup> Cybercriminals have the ability to seriously harm internet users' finances and emotions by exploiting data.<sup>25</sup> According to such viewpoint, enhancing efficiency at the expense of the human element should be avoided in digital transformation and the effective use of technology.<sup>26</sup>

<sup>20</sup> Digitallearninginstitute (2024): The Impact of Chat GPT on Education: The Good and the Bad. Available at: <https://www.digitallearninginstitute.com/blog/the-impact-of-chat-gpt-on-education>

<sup>21</sup> Baidoo-Anu, D., & Owusu Ansah, L. (2023): Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. *SSRN*. <http://dx.doi.org/10.2139/ssrn.4337484>

<sup>22</sup> Jeon, J. & Lee, S. (2023): Large language models in education: a focus on the complementary relationship between human teachers and ChatGPT. *Educ. Inform. Technol.* 28, 15873–15892. doi: 10.1007/s10639-023-11834-1

<sup>23</sup> Ollivier, M., Pareek, A., Dahmen, J., Kayaalp, M. E., Winkler, P. W., Hirschmann, M. T., et al. (2023): A deeper dive into ChatGPT: history, use and future perspectives for orthopaedic research. *Knee Surg. Sports Traumatol. Arthrosc.* 31, 1190–1192. doi: 10.1007/s00167-023-07372-5

<sup>24</sup> Wang, Q., Chen, W. & Liang, Y. (2021): Personalized Education in the Era of Artificial Intelligence. *Education Sciences*, 11(2), 80. <https://doi.org/10.3390/educsci11020080>.

<sup>25</sup> Baltezarević, I. & Baltezarević, R. (2021): Sajber bezbednost: izgradnja digitalnog poverenja, *Megatrend Revija*, Vol. 18 (4). pp. 269-280. DOI: 10.5937/MegRev2104269B

<sup>26</sup> Papakonstantinidis, S., Kwiatek, P. & Baltezarević, R. (2021): The impact of relationship quality and self-service technology on company performance. *Polish Journal of Management*

Because of the program's ability to efficiently complete tasks like writing articles, answering complex questions, translating languages with near-perfect accuracy, solving scientific mathematical formulas, creating programming code, and summarizing books, academics have started to share their predictions about its potential capabilities and outcomes.<sup>27</sup>

Exams in subjects including law, medicine, and pharmacy have been administered to the program, and overall, the results have outperformed those of an average student. This has raised worries among academics that students can use ChatGPT to pass off generated academic writing as their own, plagiarize, or participate in fraudulent activities in their assignments.<sup>28</sup> To overcome these obstacles, educators must show how to use ChatGPT in research and instruction in an ethical manner.<sup>29</sup>

A Princeton University student created a program named „GPTZero” to calculate the percentage of AI-generated text in any given piece of writing in order to address the possible problem of academic plagiarism made possible by AI writing tools such as ChatGPT.<sup>30</sup> OpenAI was aware that using ChatGPT in the classroom could be troublesome, as well. In order to assist in determining whether a piece of writing was produced using artificial intelligence (AI), the company designed an AI text classifier. Numerous detection algorithms are in the works, and similar technologies like CopyLeaks AI Content Detector have already been released. These programs are easily available and accessible.<sup>31</sup> In response to ChatGPT, several schools have taken drastic measures. For instance, ChatGPT access on school computers and networks was recently restricted by New York City public schools, which cited „concerns regarding the safety and accuracy of content, as well as negative impacts on student learning.”<sup>32</sup>

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*Studies*; 23(1): 315-326.

<sup>27</sup> Jiao, W., Wang, W., Huang, J. T., Wang, X. & Tu, Z. (2023): Is ChatGPT a good translator? A preliminary study. arXiv. <https://doi.org/10.48550/arXiv.2301.08745>

<sup>28</sup> Rudolph, J., Tan, S. & Tan, S. (2023): ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning and Teaching*, 6(1), 342- 363. <https://doi.org/10.37074/jalt.2023.6.1.9>

<sup>29</sup> Wen, J. & Wang, W. (2023): The future of ChatGPT in academic research and publishing: A commentary for clinical and translational medicine. *Clinical and Translational Medicine*, 13(3). <https://doi.org/10.1002/ctm2.1207>

<sup>30</sup> Stern, J. (2022): ChatGPT Wrote My AP English Essay—and I Passed. *The Wall Street Journal*. Available at: <https://www.wsj.com/articles/chatgpt-wrote-my-ap-english-essayand-i-passed-11671628256>

<sup>31</sup> Blose, A. (2023): As ChatGPT Enters the Classroom, Teachers Weigh Pros and Cons. Available at: <https://www.nea.org/nea-today/all-news-articles/chatgpt-enters-classroom-teachers-weigh-pros-and-cons>

<sup>32</sup> Roose, K. (2023): Don't Ban ChatGPT in Schools. *Teach With It*. Available at: <https://www.nytimes.com/2023/01/12/technology/chatgpt-schools-teachers.html>



Inaccurate yet realistic material produced by generative AI models is another issue that needs to be resolved soon. Mechanisms to guarantee the dependability and correctness of created content should be developed, particularly when it is utilized for educational purposes.<sup>33</sup> ChatGPT is unable to comprehend the meaning of the language used in the writings it produces. Similar to a professor's parrot that listens to conversations and „repeats them,” an AI chatbot only interprets and displays the information it's given. And that can cause problems. Examples of ChatGPT texts include those that are factually erroneous yet have language that seems to have been authored by an expert. Therefore, humans are still needed to proofread and edit AI-generated writings, just like with other AI technologies. Future grades at colleges may be based on this editing, which is frequently challenging and calls for actual subject-matter expertise.<sup>34</sup>

In 2023, Foroughi and associates published an intriguing study in which 406 Malaysian students took part in an investigation to find potential factors influencing their inclination to utilize ChatGPT in the classroom. According to the investigation, ChatGPT use is not significantly impacted by elements like habit, facilitating circumstances, or social influence. These factors may, however, influence the desire to use ChatGPT, according to the fuzzy-set qualitative comparative analysis (fsQCA), which implies that there may be many combinations of characteristics that contribute to high ChatGPT use.<sup>35</sup> Choi and his colleagues aimed to evaluate ChatGPT's capacity to produce law school test answers without human intervention. They created answers for four actual exams at the University of Minnesota Law School using ChatGPT. There were twelve essay questions and more than 95 multiple-choice questions on the test. The tests were then scored blindly by the researchers as part of their standard grading procedures. The findings showed that, on average, ChatGPT did as well as a C+ student in each of the four classes. Even though the performance was comparatively poor, ChatGPT passed each of the four tests. The study also provides instructions, such as sample prompts and advice, on how ChatGPT can help with legal writing.<sup>36</sup>

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<sup>33</sup> Susarla, A., Gopal, R., Bennett Thatcher, J. & Sarker, S. (2023): The Janus Effect of Generative AI: Charting the Path for Responsible Conduct of Scholarly Activities in Information Systems. *Information Systems Research* 34(2):399-408. <https://doi.org/10.1287/isre.2023.ed.v34.n2>

<sup>34</sup> Stock, L. (2023): ChatGPT is changing education, AI experts say — but how? Available: <https://www.dw.com/en/chatgpt-is-changing-education-ai-experts-say-but-how/a-64454752>

<sup>35</sup> Foroughi, B., Senali, M. G., Iranmanesh, M., Khanfar, A., Ghobakhloo, M., Annamalai, N. & Naghmeh-Abbaspour, B. (2023): Determinants of intention to use chatgpt for educational purposes: Findings from pls-sem and fsqca. *International Journal of Human-Computer Interaction*, (pp. 1–20).

<sup>36</sup> Choi, J.H., Hickman, K.E., Monahan, A. & Schwarcz, D. (2022): ChatGPT Goes to Law School. 71 *Journal of Legal Education* 387, Available at SSRN: <https://ssrn.com/abstract=4335905> or <http://dx.doi.org/10.2139/ssrn.4335905>

With more than five times the parameters of Version 3, Version 4 of GPT ought to be the more advanced version and might be significantly more accurate and practical than the previous model.<sup>37</sup> In addition to its superior language interpretation, coding, and mathematical skills, GPT 4o provides users with other sophisticated features including data analytics, web browsing, document summarization, vision, and the capacity to create and distribute GPTs inside enterprises. According to OpenAI, the success of ChatGPT Enterprise at colleges across the globe, including Arizona State University, the University of Oxford, and the Wharton School of the University of Pennsylvania, served as the catalyst for the creation of this functionality.<sup>38</sup> The latest version of ChatGPT, GPT 4o (the „o” stands for „omni,” which means „all”), aims to sound more human by having a more realistic voice and a faster verbal response time. This updated version translates languages in real time, simulates additional emotions with its voice, and lets users interrupt it while it’s speaking. Additionally, it has enhanced video capabilities and can comprehend textual and visual directions.<sup>39</sup>

### 3. CONCLUSION

Though it is still too early to tell, ChatGPT is a game-changing invention in education that has the potential to revolutionize colleges and institutions. Every person has a unique learning style, and instructors may find it challenging to meet the needs of every student. Personalized learning experiences are one of the main advantages of AI-powered multimodal language modes like ChatGPT. The ability of ChatGPT to lessen teachers’ workload is one of the greatest benefits of its use in education. Teachers’ time can be better spent on more difficult assignments as ChatGPT can respond to commonly requested inquiries. Additionally, it can aid students who need extra support outside of scheduled class times.

Certainly, we shouldn’t be blinded by this perspective on learning through a conversational process between students and ChatGPT. Social engagement, whether with professors or other students, is what fosters the acquisition of new knowledge. Even though ChatGPT is a revolutionary tool for colleges and universities, there are still a lot of possible risks. It makes room for bias, false information, and even data breaches. It’s important to remember that, even with GPT-4o’s

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<sup>37</sup> Lieberman, M. (2023): What Is ChatGPT and How Is It Used in Education? Available at: <https://www.edweek.org/technology/what-is-chatgpt-and-how-is-it-used-in-education/2023/01>

<sup>38</sup> Ortiz, S. (2024): OpenAI's new ChatGPT Edu is for universities. Here's how teachers and students can benefit. Available: <https://www.zdnet.com/article/openais-new-chatgpt-edu-is-for-universities-heres-how-teachers-and-students-can-benefit/> (Accessed: 08.11.2024).

<sup>39</sup> Coffey, L. (2024): AI's New Conversation Skills Eyed for Education. Available: <https://www.insidehighered.com/news/tech-innovation/artificial-intelligence/2024/05/17/new-chatgpt-eyed-better-learning> (Accessed: 08.11.2024).



advancements, GenAI technologies should complement traditional learning methods rather than take their place.

It's vital to remember that chatbots, like ChatGPT, are not people and cannot take the role of interpersonal communication. Chatbots with AI capabilities can help with learning, but they shouldn't take the place of human instructors, who are essential in helping students with emotional support and direction. Therefore, we must welcome technological advancements when they occur while keeping in mind how they might affect society as a whole.

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## PREDNOSTI I RIZICI CHATGPT-A U BUDUĆEM OBRAZOVANJU

**Sažetak:** Kreiran od strane OpenAI, ChatGPT je četbot sa veštačkom inteligencijom (AI) koji koristi obradu prirodnog jezika (NLP). ChatGPT analizira ogromne količine podataka koristeći mašinsko učenje (ML) kako bi ponudio neophodan sadržaj i jednostavno odgovorio na upite u razgovoru. Mnoge industrije, uključujući zdravstvo, obrazovanje i finansije, koriste ChatGPT za povećanje produktivnosti automatizacijom različitih procesa vezanih za jezik. U kontekstu obrazovanja, ChatGPT pomaže profesorima i studentima da se nose sa mentalnim stresom i efikasnije završe zadatke. Profesori mogu da unaprede svoje pedagoške veštine kreiranjem i uključivanjem interaktivnih aktivnosti u učionici uz pomoć ChatGPT-a. Pored toga, ChatGPT pomaže istraživačima u analizi podataka, pregledima literature i pisanju aplikacija za grantove. Studenti mogu da uče i razvijaju se na različite načine uz ChatGPT zahvaljujući individualizovanoj podršci, trenutnim povratnim informacijama i opsežnoj bazi podataka znanja u različitim oblastima. Tendencija ChatGPT-a da bude preterano opsežan, da daje tvrdnje koje su jasne, ali netačne, i da pravi pretpostavke o pitanjima koja nisu sasvim očigledna su neki od njegovih nedostataka. Dodatna zabrinutost je ta da je porast četbotova sa veštačkom inteligencijom (AI), kao što je ChatGPT, povećao mogućnost plagijata i varanja. Nedavno su kreirani programi poput GPTZero i CopyLeaks AI Content Detector koji su u stanju da efikasno identifikuju ove vrste prevara. U poređenju sa svojim ranijim iteracijama, najsavremeniji javno dostupan model, ChatGPT 4, ima poboljšano razumevanje i može da generiše složenije odgovore sa manje pristrasnosti.

**Ključne reči:** ChatGPT, Veštačka inteligencija (AI), Obrazovanje.