

## PROS AND CONS OF CHATGPT LANGUAGE MODEL IN EDUCATIONAL PROCESS

### ПЛЮСИ ТА МІНУСИ ВИКОРИСТАННЯ МОВНОЇ МОДЕЛІ CHATGPT У НАВЧАЛЬНОМУ ПРОЦЕСІ

*At the time being different technologies and tools more or less related to the development of advanced capabilities of artificial intelligence, the language model ChatGPT (Chat Generative Pre-trained Transformer) in particular, are taking the world by storm. ChatGPT being a large language model-based chatbot developed and trained to follow an instruction in a prompt and provide a detailed response, is capable of generating human-like texts based on context and past conversations.*

*The article is aimed at considering and analyzing the main characteristics and issues of using ChatGPT, an AI-powered large language model in different settings, clarifying its most critical pros and cons in general and focusing on its potential relevance in the academic process in particular. The possible application of ChatGPT as one of the advanced educational tools and responsible methodology has been regarded.*

*As far as its advantages are concerned, ChatGPT language model having fully intuitive design as well as being absolutely free and time-saving, provides assistance to educators, improves accessibility to education, and personalizes the process of learning. Its disadvantages include inaccurate information, biased responses, limited knowledge as well as the lack of academic integrity and emotional intelligence.*

*All the findings considered and analyzed in the article have led to the conclusion that the large language model ChatGPT has advantages and serious disadvantages for its use in the academic environment. It has become immensely popular and to stop its implementation into any setting is next to impossible. But we should call for caution when implementing AI technologies like ChatGPT in the classroom since responsible application of the latter requires special academic Policy. Issues requiring further consideration are related to the ethical content of the problem in question including the challenges the model ChatGPT usage can evoke. They should include the thorough and thoughtful analysis of this language model with a focus on the moral issues of human intelligence versus non-human one.*

**Key words:** ChatGPT AI-powered linguistic model, artificial intelligence, academic process, educational technology, methodology.

*Новітні технології та інструменти, пов'язані з передовими можливостями штучного інтелекту, зокрема мовна модель ChatGPT*

*(породжувальний/генеративний попередньо тренований трансформер – чат-бот зі штучним інтелектом), зазнали бурхливого розвитку і глобального поширення. Велика мовна модель ChatGPT, є чат-ботом, розробленим і навченим на величезних масивах даних і заснованим на технології трансформера, що дає можливість запам'ятовувати та використовувати попередні вхідні дані. Це дозволяє виконувати інструкції, самостійно аналізувати отримані запити від користувачів і надавати детальну відповідь, генерувати текст на основі контексту та минулих розмов. Розглянуто можливе використання ChatGPT як одного з передових освітніх інструментів і методики відповідальної підходу до навчання в закладах вищої освіти.*

*Метою статті є розгляд та аналіз основних характеристик і проблем використання ChatGPT, з'ясування її найважливіших плюсів і мінусів загалом і зосередження уваги на доречності її потенційного застосування у науково-педагогічному процесі зокрема.*

*Що стосується переваг мовної моделі ChatGPT, то вона має інтуїтивно зрозумілий дизайн, є безкоштовною, економить час, надає допомогу викладачам, покращує доступність освіти та персоналізує процес навчання. Недоліки включають неточну інформацію, упереджені відповіді, обмежені знання, а також відсутність академічної доброчесності та емоційного інтелекту.*

*Усі питання, розглянуті та проаналізовані в статті, дозволили зробити висновок, що велика мовна модель ChatGPT, набувши надзвичайної популярності, має як значні переваги так і серйозні недоліки. Це зумовлює певні застереження щодо її використання в академічному середовищі. Застосування таких технологій штучного інтелекту, як ChatGPT, у навчальному процесі, вимагає впровадження спеціальних академічних стратегій, інструкцій і норм. Питання, що потребують подальшого розгляду, пов'язані з етичними засадами проблеми. Вони повинні включати ретельний аналіз мовної моделі з акцентом на моральних аспектах людського/штучного інтелекту.*

**Ключові слова:** мовна модель ChatGPT, штучний інтелект, навчальний процес, освітні технології, методологія.

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**The problem being regarded:** At the time being different technologies and tools more or less related to the development of advanced capabilities of artificial intelligence, the linguistic model ChatGPT in particular, are taking the world by storm. More than one million people logged in to join ChatGPT in the first week of November 2022. The development and implementation of ChatGPT needs to be considered, thoroughly analyzed as to the main characteristics of the model in question, its advantages and

disadvantages of being used in different settings, academic environment in particular.

**Research and publications review:** Since the time of coining the term artificial intelligence (AI) by an American computer scientist John McCarthy in 1956 the phenomenon of AI started its rapid development. The pioneer in the field of artificial intelligence was the British polymath Alan Turing who explored the mathematical possibility of AI. His highly-valued contribution to computer science

beginning with success of the project Enigma during the WWII, the Turing test and his genius insights into the computer investigations are reflected in the books by A. Hodge "Alan Turing: The Enigma" [7], by C. Bernhardt "Turing's vision: The Birth of Computer Science" [2], by Ottaviani J. "The Imitation Game" [10] and some others. To understand better the term AI B. Copeland gives a coherent definition of the notion 'intelligence' in his work 'Artificial Intelligence', "Research in AI has focused chiefly on the following components of intelligence: learning, reasoning, problem solving, perception, and using language" [3, p. 121]. Then the author proceeds to the definition of the concept 'artificial intelligence' as "the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings" [3, p. 122].

In his work B. Copeland also speaks about the use of language models. He says, "One popular language model was GPT-3, released by OpenAI in June 2020. One of the first large language models, GPT-3 could solve high-school-level math problems as well as create computer programs. GPT-3 was the foundation of ChatGPT software, released in November 2022. ChatGPT almost immediately disturbed academics, journalists, and others because of concern that it was impossible to distinguish human writing from ChatGPT-generated writing. One issue with probability-based language models is "hallucinations": rather than communicating to a user that it does not know something, the model responds with probable but factually inaccurate text based on the user's prompts" [3, p. 167]. Hence, we can define ChatGPT (Generative Pre-trained Transformer) in such a way: it is a natural language processing technique that uses deep learning to generate human-like conversations. It is based on a type of neural network called a transformer [1, p. 36].

**Issues requiring further consideration.** Issues related to the ethical content of the problem in question including the challenges the model ChatGPT usage can evoke should include the thorough and thoughtful analysis of this language model with a focus on the moral issues of human intelligence versus non-human one.

**The aim of the article.** The article is aimed at considering and analyzing the main characteristics and issues of using the AI-powered large language model called ChatGPT in different settings, clarifying its most critical pros and cons in general and focusing on its implementation into the academic process in particular.

**The main body.** Since the mid-20<sup>th</sup> century, the idea of AI development was on the mind of the computer researchers, but it somehow was a distant perspective.

For a human mind it is very difficult to comprehend the new capabilities of the tools and programs such

as GPT-3, GPT-4 or ChatGPT. But most of the skills of those instruments are focused on one thing i.e. the ability to generate and manipulate the language. The famous scholars Y. Harari, T. Harris and A. Raskin, the founders of the Centre of Humane Technologies expressing their opinion on the subject in question in the article "You Can Have the Blue Pill or the Red Pill, and We're Out of Blue Pills" (the title hints at the famous film 'Matrix') published in the 'New York Times' newspaper speak about the risks of a new mastery of language that can hack and manipulate it transforming into the new kind of operating system of civilization. They say that these linguistic programs indeed can help us fight cancer, find life saving medicine and have solutions for the climate and energy problems. The authors warn to be very cautious while applying these tools. Humankind has to learn how to master AI before it masters us [6].

Let us consider pros and cons of the language model ChatGPT while applying it to higher education from the theoretical point of view investigated by S. Neendoor.

Advantages of ChatGPT language model:

1. Improves accessibility to education
2. Helps with home task
3. Provides assistance to educators
4. Personalizes learning
5. Helps with exam preparation

Disadvantages of ChatGPT language model:

1. Lacks academic integrity
2. Provides inaccurate information
3. Formulates Biased responses
4. Gives Limited knowledge
5. Provides inability to create multitasks and understand context
6. Lacks Emotional Intelligence

The author comes to the conclusion that despite all pros and cons ChatGPT is to stay in higher education as it has grown too popular in different settings with the revenue increase by one billion dollars for 2024 [9].

J. Wald gives her vision of pros and cons of the ChatGPT program approaching the issue from the academic process perspective both in high and higher education.

Advantages of ChatGPT:

1. It is absolutely free.
2. It is time-saving.
3. The design of the ChatGPT model is fully intuitive.

Disadvantages of ChatGPT:

1. Lack of creativity. That means the content of the language model is often bland.
2. It can be easily detected. It can be detected by AI detectors such as GPTZero, for example.
3. The quality is often poor.
4. It is not able to check facts.
5. It is not able to cope with complex writing tasks.

6. The tool fails when it is necessary to conduct significant research [11].

The author of the article gives a comparative characteristic presented by the Assignment Writing Services whether it is *Eassypro legit* platform or any other.

Advantages of an assignment writing service include:

1. The writing is customizable.
2. It is unique.
3. It is private and confidential.
4. It is supplied with various services.
5. The content is written by a real professional.
6. Deep knowledge.

This option has a few disadvantages such as:

1. It requires time, not less than 6 hours.
2. Revision may be needed.
3. It is not free.

Judging from the comparative characteristics of the analyzed writing tools J. Wald does not recommend AI writing tools, such as ChatGPT implemented into the high and higher education process, because they do not perform well when it comes to academic writing. That is why you may end up with more issues [11].

The same opinion is expressed by the editorial desk analysts of the journal *Tech Business News* in the article "ChatGPT May Lead to the Downfall of Education and Critical Thinking". Their main concern is related to the fact that ChatGPT usage facilitates cheating among university and school students without being detected. According to a recent survey 51% of students using ChatGPT complete assignments and exams in a form of cheating. They say that there is a visible danger of the education downfall as well as of critical thinking. To prevent cheating and plagiarism, at least five Australian states have prohibited the use of tools like ChatGPT in public schools. The authors of the article also point at the notion of 'cognitive offloading', the process of reducing cognitive effort by using external aids, such as writing lists or utilizing AI technologies. That means that the students experience greater success in completing tasks, but it is fulfilled at the cost of memory retention.

Mohanad Halaweh proposes and gives a full coverage of essential strategies and techniques for responsible ChatGPT implementation ensuring transparency, creditability, academic honesty, and authentic learning. The developed Policy for ChatGPT is aimed at supporting ChatGPT application in education. Taking into account the fact that students will be expected to demonstrate more critical thinking skills in their evaluation of information, and generate new ideas of their own the author states that "presentation/viva and defending one's work will become standard assessments in the educational environment, in order to verify the learning specially when assessments are

done in collaboration with ChatGPT" [5, p. 9].

The paper 'Shaping the Future of Education: Exploring the Potential and Consequences of AI and ChatGPT in Educational Settings' by Simone Grassini contributes to understanding how advanced AI models reshape educational norms in the "new AI gold rush" era in terms of teaching and learning activities [4]. The issue has been regarded taking into account challenges and threats posed by ChatGPT as well as possible actions and mitigation strategies in response to ChatGPT impact. The author argues that 'the advanced features offered by ChatGPT present compelling opportunities for educators to enhance pedagogical practices' aimed at improving 'students' learning performance for the skills and challenges of the future'. In conclusion it is stated that because of the current ChatGPT shortcomings 'a multifaceted approach, incorporating improved plagiarism detection tools and enhanced education around academic integrity' is required 'to ensure fairness and accuracy in evaluating student learning'. According to the author, successful ChatGPT application in educational settings depends on the collective endeavor of educators, policymakers, technology experts and researchers.

'ChatGPT has the potential to be a valuable educational tool. <...> ChatGPT has a strong command of the English language and can pick up new knowledge, making it a valuable tool for teachers and students' as an effective technology enhancing language proficiency, and facilitating research [8].

**Conclusion.** All the findings considered and analyzed in the article have led to the conclusion that the large language model ChatGPT has advantages and serious disadvantages for its use in the academic environment. It has become immensely popular and to stop its implementation into any setting is next to impossible. But we should call for caution when implementing AI technologies like ChatGPT in the classroom since responsible application of the latter requires special academic Policy.

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