PAPER

ChatGPT in Ukrainian Education: Problems and Prospects

Svitlana Fiialka,
Zoia Kornieva(✉),
Tamara Honcharuk

National Technical University of Ukraine, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine

Kornieva.Zoia@lll.kpi.ua

ABSTRACT

This paper highlights the impact of artificial intelligence (AI) and text-generating models such as ChatGPT (GPT-Generative Pretrained Transformer) on Ukrainian education. It has been found that the introduction of this tool is both beneficial and problematic. On the one hand, it saves time for the information search, facilitates the research process for both teachers and students through proposing ideas, and creates education-related content that emulates human writing. On the other hand, ChatGPT sometimes outputs biased or unverified information that causes misunderstanding among the participants in the educational process. Moreover, in the case of inappropriate application, this tool limits the creativity of the students and decreases their critical thinking skills. The research is based on a survey (Google Forms) distributed through Facebook groups and university networks all over Ukraine. 1035 educational and pedagogical practitioners and teachers took part in the study. The results obtained from the respondents indicate that there are opportunities for the successful implementation of ChatGPT in the educational process. A significant majority of 83.6% of the respondents confirmed that the impact of AI depends on its usage. The survey also highlights various areas for ChatGPT improvements, such as "understanding context," "giving more accurate answers," "improving visual capability," etc. However, it is inevitable to understand that combining human intellectual capability and ChatGPT potential goes beyond the boundaries of human possibilities, speeds up the process of innovative idea generation, and enables the educational process to be more meaningful and effective.

KEYWORDS

ChatGPT, artificial intelligence (AI), education, reliability of information, ethics, integrity

1 INTRODUCTION

Due to the rapid development of artificial intelligence (AI) and the increase in the amount of available digital information, the use of machine learning (ML) technologies is becoming increasingly relevant in various spheres of life, including education. One innovative solution in this respect is Generative Pre-Trained Transformer

(ChatGPT), a powerful text generation model based on neural networks developed by OpenAI, an American AI company. ChatGPT is a conversational interface that uses natural language processing, which interacts in a realistic way and "answers follow-up questions, admits its mistakes, challenges incorrect premises, and rejects inappropriate requests" [1].

The advent of the new technology "engenders strong emotions, ranging from doomsday predictions to unbridled euphoria" [2]. Upon its introduction, ChatGPT was praised for being incredibly impressive and enjoyable to interact with [3]. This model undergoes training on extensive textual corpora, resulting in its capability to produce texts that emulate human writing, accurately respond to questions, and produce education-related content, i.e., course syllabi, quizzes, etc., with high levels of accuracy [4] [5]. Thus, ChatGPT helps to save time and can be a valuable resource for improving writing, summarizing information, etc. [6]. It can also identify mistakes in grammar and style, which helps improve the clarity and readability of written content [7] [8]. ChatGPT can assist students in honing their research skills by offering information, resources, and insights into a given topic. It can also help them critically evaluate and absorb the subject matter more comprehensively, thereby facilitating their learning and academic growth [4].

Along with the important possibilities of ChatGPT, there are a lot of potential problems, particularly in the context of ethical aspects of using ChatGPT, such as authorship, plagiarism, and the use of information sources [9] [10] [11]. Several researchers have highlighted that the output from ChatGPT may contain factual errors [12] [13] [14] [15]. So, due to the inherent limitations of ChatGPT, there is a potential risk for both students and teachers to encounter misleading information generated by this innovative application. Questions may also arise regarding the impact of using ChatGPT on the development of students' critical thinking, creative, and problem-solving skills [4] [16] [17]. Consequently, over-reliance on ChatGPT may become an issue, and the use of the application in education requires respect for privacy, fairness, non-discrimination, and transparency [16]. Moreover, besides the existing ethical principles of using AI, in the field of education, pedagogical appropriateness, children's rights, AI literacy, and teacher well-being must be taken into consideration [18].

Due to concerns about potential misuse by students for automatically generating assignments or coursework, some schools have decided to block access to ChatGPT [19]. However, attempts to prevent or ban its use may not be effective in discouraging students from utilizing it [9]. Instead, it is predicted that ChatGPT will likely become an integral part of the writing process, just in the same manner that calculators and computers have transformed the fields of math and science [20] (McMurtrie, 2022).

Therefore, the study of prospects and problems related to the use of ChatGPT in the educational process is an important direction of scientific research. In this article, we will examine various aspects of using ChatGPT in education, identify its prospects and problems, and discuss possible solutions to address these issues to ensure the efficacy and ethical use of ChatGPT in education.

2   LITERATURE REVIEW

There are potential ways to improve learning and teaching practices for individuals at all levels of education. The field of AI in education will revolutionize education by transforming classroom management, and teacher collaboration, presenting

a new approach called AI-based learning [21]. Research has shown that AI technology has the potential to improve students' learning and cognitive abilities, as well as enhance teaching and learning efficiency [22]. For elementary school students, ChatGPT can assist in reading and writing skill development, while for middle school students, it can aid in language learning and subject-specific writing styles. For tertiary school students, the model can assist in research tasks. In group and remote learning settings, the language model can facilitate discussions, and collaborative writing. It can also be used to empower learners with disabilities by providing inclusive learning strategies. In professional training, language models can assist in domain-specific language skill development [4].

Abdelghani et al. [23] automated the generation of curiosity-inducing prompts to incentivize students to ask more inquisitive and thoughtful questions. The findings revealed that language models have the potential to greatly facilitate curiosity-driven learning and can be an effective tool in promoting increased expression of curiosity in children.

In recent research, the use of large language models from the perspective of teachers has been explored in terms of adaptive feedback and generating teaching content. For instance, Moore et al. [24] suggested that, when fine-tuned to a specific domain, a language model can be a valuable tool for teachers to assess the quality of students' responses.

Through the application of few-shot learning, Sarsa et al. [25] demonstrated that the OpenAI Codex model has the capability to offer a diverse range of programming tasks accompanied by accurate solutions, automated tests to validate the correctness of the students' solutions, and supplementary explanations of the code. Rudolph et al. [2] proved that ChatGPT can be beneficial in providing conceptual explanations and applications, however, it is less competent with content that requires analytical thinking.

ChatGPT provides a valuable opportunity for students to learn by being actively engaged in experimentation and experience. Through game-based learning facilitated by ChatGPT, students can explore and evaluate different strategies and approaches to problem-solving and goal achievement, allowing them to develop critical thinking skills and practical knowledge in a hands-on, interactive manner [26].

Wollny et al. [27] conducted a systematic review of the current applications of chatbots in education and found that there is still room for improvement for chatbots to reach their full potential. One area identified for improvement is the adaptability of chatbots to different educational contexts.

The **aim** of this article is to review scientific literature and analyze survey results from educational and pedagogical practitioners and teachers in Ukraine to accumulate an unbiased view on the aspects of using chatbots for educational and scientific purposes, as well as to forecast the prospects of their application.

The **hypotheses** of our study are as follows:

1. The experience of using ChatGPT in the educational process can improve the quality of learning and facilitate more effective acquisition of educational material;
2. The experience of using ChatGPT may have limitations and difficulties, such as technical issues or an insufficient level of information literacy among students and teachers;
3. The experience of using ChatGPT may vary depending on the type of educational institution, subject, and teaching methodology, which can influence its efficiency and suitability for different user groups.

3   METHOD

We conducted a Google Scholar search for the most relevant academic articles, conference proceedings, and book chapters related to the use of ChatGPT in education. Additionally, we reviewed the reference lists of selected academic articles and cited references within non-academic articles due to the novelty of ChatGPT and the time lag in peer-reviewing to gather more information on the topic.

Then a questionnaire survey was developed and distributed online and made available in April 2023 on the pages of Facebook groups "Ukrainian Scientists Worldwide," "Higher School and Science of Ukraine: Disintegration or Blossoming?", "Union of Educators of Ukraine," "Primary School and Preschool," "Higher Education News," "Treasure Chest of NUSh Teacher" (NUSh stands for "New Ukrainian School," which is a reform of the education system in Ukraine), "STEM Education in Ukraine"(STEM stands for Science, Technology, Engineering, and Maths), and "Engaging Didactics." The results of the survey were analyzed in May 2023.

Overall, 1035 participants completed the questionnaire. 39.9% of the respondents (413) are educational and pedagogical practitioners, and 60.1% (622) are teachers. 38.7% of the respondents (401) work in higher education institutions, 1.2% (12) work in both higher education institutions and secondary schools, 7.9% (82) – in primary schools (grades 1–4), and 52.2% (540) work in secondary schools (grades 5–11).

4   RESULTS

The survey showed that 83.6% of the respondents (865) believe that AI can have both positive and negative impacts on society and education, depending on how it is used. 12.1% (125) hold the opinion that ChatGPT can have a positive impact on society and education, and only 4.3% (45) are convinced that AI can only have a negative impact. Primary school teachers working with younger children are more conservative and have more concerns about the impact of technology on children's learning and development. On the other hand, higher education instructors working with students are more inclined to have a positive attitude toward AI and its potential. In addition, responses vary depending on how well teachers or lecturers understand and keep up with the latest technological trends. Factors such as level of education, work experience, and overall scientific and technical literacy also influence responses to questions about the impact of AI on society and education.

49.0% of the respondents (507) believe that AI can partially perform human tasks in certain areas and can serve as an assistant; 25.9% (268) are sure that AI can completely replace human work in some fields, while 25.1% (260) hold the opinion that AI is not capable of fully replacing human work in any field. So, 74.9% (775) of the respondents state that AI can partially or fully perform human work. These respondents, having the option of multiple answers, indicated areas of human activity in which AI has prospects. They are the following: education (creating work documentation and tasks) (603 answers); journalism, publishing, PR, and advertising (creating advertising texts, articles, blogs, reviews, annotations and automatic summarization of documents, text checking, and scriptwriting) (578 answers); linguistics (translation) (427 answers); service sector (creating chatbots and virtual assistants for providing assistance and solving user problems) (372 answers); IT (software testing and computer graphics) (312 answers); science (source search and bibliography formatting) (305 answers); financial sector (analysis of market news, trend

forecasting, risk assessment and decision support for investments) (245 answers); litigation (analysis of legislative documents, assistance in contract preparation and legal documents, and automatic analysis of court decisions) (176 answers); engineering (113 answers), and so on as depicted in Figure 1.
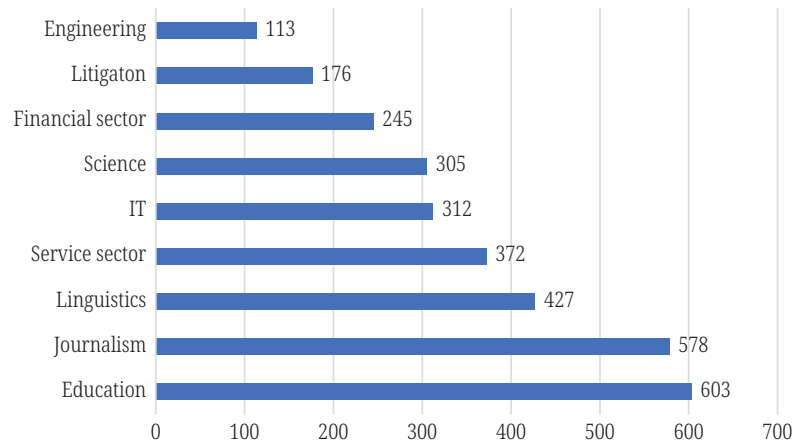

Fig. 1. Areas of human activity in which ChatGPT has prospects

When asked "Do you believe that ChatGPT chat can affect the quality of communication and interpersonal relationships among people?" 42.9% of the respondents (444) answered that the impact of ChatGPT on the quality of communication and relationships depends on how it is used. 43.1% (446) believe that ChatGPT chat does not have a significant impact on the quality of communication and interpersonal relationships among people, while 14.0% (145) believe that ChatGPT can worsen the quality of communication and interpersonal relationships among people.

As the advantages and benefits of using ChatGPT, the respondents identified the following (they were able to select multiple answers): ChatGPT is a fast and convenient way to obtain information, saving time (71.2% – 737); ChatGPT can provide useful information that, with critical thinking, can be used in work or personal life (63.8% – 660); ChatGPT can analyze various types of data: linguistic, logical, capable of generating program codes that require minor corrections, etc. (46.5% – 481); ChatGPT can compress information while retaining its meaning, and conversely, expand it, increasing the volume of the output text (44.2% – 457); ChatGPT can store the history of consultations, allowing for quick access to previously received answers (38.8% – 402). At the same time, 4.4% (46) peremptorily stated that chat does not provide any advantages or benefits.

The following answers were received in response to the question "What are the disadvantages of using ChatGPT?" (respondents could select multiple answer options or provide their own variants of responses): ChatGPT may provide incorrect information, "masks" "incorrect" information as "correct" (83.6% – 865); ChatGPT may "not understand" certain complex questions or require additional clarifying information (64.7% – 670); ChatGPT is limited in the volume and quality of information it provides (44.8% – 464); "delay" in information, obsolescence of the bot's "knowledge" (35.8% – 371); lack of ability to interact with real people (33.6% – 348); overwhelming "morality" of the bot. Some socio-cultural issues cannot be adequately addressed as the bot begins to produce standard phrases on topics such as "inclusion", "equality", "sustainable development" etc. (12.4% – 128).

Out of the respondents (98), approximately 9.5% indicated that they primarily use the chat for personal purposes in response to the question "How do you use the

chat?"; 19.0% (197) do not use; 12.9% (134) – mainly for entertainment, 24.1% (249) only for professional activities; 23.3% (241) for both personal and professional purposes; 11.2% (116) – for professional activities, for personal purposes, and for entertainment. When asked "How often do you use ChatGPT in your work?" we received the following responses: occasionally 37.1% (384), very rarely 24.2% (251), never used it for work but plan to use 15.5% (160), quite often 12.0% (124), daily 4.3% (45), never going to use 6.9% (71).

Among the potential benefits of using ChatGPT tools in the educational process by students the respondents noted the following (they could choose several options): saving time (69.6% – 720); improving the quality of education and increasing the success of students (12.7% – 131); increasing students' interest in the subject/discipline (48.2% – 499); improving the level of individualization of education and adaptation to the needs of students (35.5% – 367); development of creative thinking skills (37.2% – 385); development of the ability to solve complex problems (16.4% – 170); development of the ability to formulate correct requests (82.7% – 856); favoring the development of students' critical thinking (38.2% – 395) and independence (29.7% – 307); reducing the level of stress and anxiety of students (23.6% – 244). According to 7.8% of the respondents (81), students' imitation of ChatGPT answers in a synthetic form can show them a deeper connection between different disciplines, contributes to the formation of a holistic picture of knowledge and society (for example: to a question from sociology, properly formulated, they can get a comprehensive answer, which will include, in addition to the sociological phenomenon itself, a mathematical model of this process, the code of the program that visualizes this process, data from physiology and population biology, examples of such a sociological phenomenon from history, etc.). It will contribute to the formation of a more comprehensive view on knowledge, science, and society. However, 7.4% of the respondents (77) do not see any advantages in using ChatGPT for their students (Figure 2).
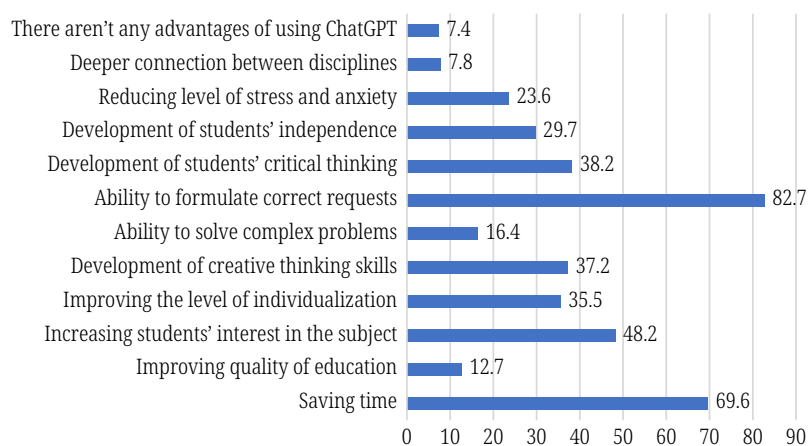

Fig. 2. The potential benefits of using ChatGPT tools in educational process, %

To the question "If you notice and (or) see potential negative consequences of the use of ChatGPT by your students, then indicate them," the respondents answered as follows (several answer options were possible): insufficient development of communicative skills (29.8% – 308); loss of creativity skills (30.7% – 318) (however, at the same time, 21.0% of respondents (217) noted that if a student does not demonstrate creativity or independence while working with ChatGPT technology, it is not because of the technology, but because he did not have such skills and did not seek to acquire them even before he started using ChatGPT); dependence on the bot and

a decrease in independence (60.5% – 626); lack of understanding and comprehension of the information received by students from the bot (50.0% – 518); the risk of using the bot to perform work instead of the student (71.9% – 744); an increase in the number of errors due to the inability to distinguish truth from fiction (53.5% – 554); problems with student privacy and data confidentiality (14.9% – 154); the possibility of using a bot to cheat during tests and other monitoring measures (51.8% – 536). Meanwhile, 6.9% of the respondents (71) noted that negative phenomena in education do not depend on the use of ChatGPT at all (Figure 3).
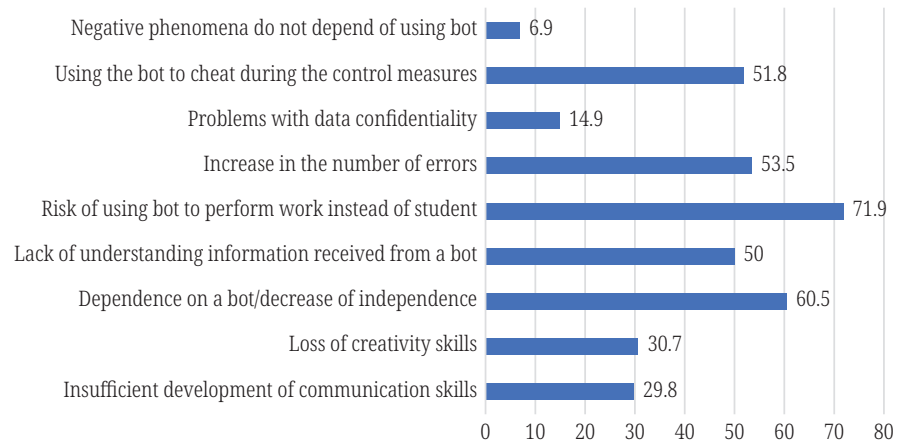

Fig. 3. The potential negative consequences of using ChatGPT by students, %

The responses to the question "What is your evaluation of the potential benefits and drawbacks of utilizing ChatGPT in education?" were categorized as follows: 39.0% (404) of the participants believed that the potential advantages and disadvantages of using ChatGPT are approximately equal; 26.3% (272) of the respondents believed that the potential advantages of using ChatGPT significantly outweighed the disadvantages; 19.4% (201) had no opinion, and 15.3% (158) of the participants believed that there are significantly more potential disadvantages than advantages. Meanwhile, 46.6% (482) of the respondents confessed that they lack knowledge about the technology.

To the question "If you are ready to recommend using ChatGPT to students, then for what educational purposes?" the answers (several options could be chosen) were distributed as follows: to receive more detailed answers about the material being studied (32.2% – 333); to complete tasks, including writing papers (11.3% – 117); to receive additional recommendations and ideas for writing papers (58.3% – 603); to prepare for tests and exams (17.4% – 180); to get answers to the questions that the students do not want to ask openly (36.5% – 378); for translation (31.3% – 324); to change the style of texts, paraphrasing (21.7% – 225); to receive personalized recommendations and advice (14.8% – 153); to receive automatic feedback on their work (17.8% – 184); to compress or expand the original text (26.1% – 269); for entertainment (31.3% – 324); to compare the correct information and the received in a bot (7.1% – 73); for learning foreign languages (5.4% – 56); for searching for additional information (11.3% – 117). It is interesting that only 6.1% of the respondents (63) answered that they are not ready to provide such recommendations, that is, during the process of filling out the questionnaire, some respondents learned more about the technology and became more loyal to its use in the educational process (Figure 4).
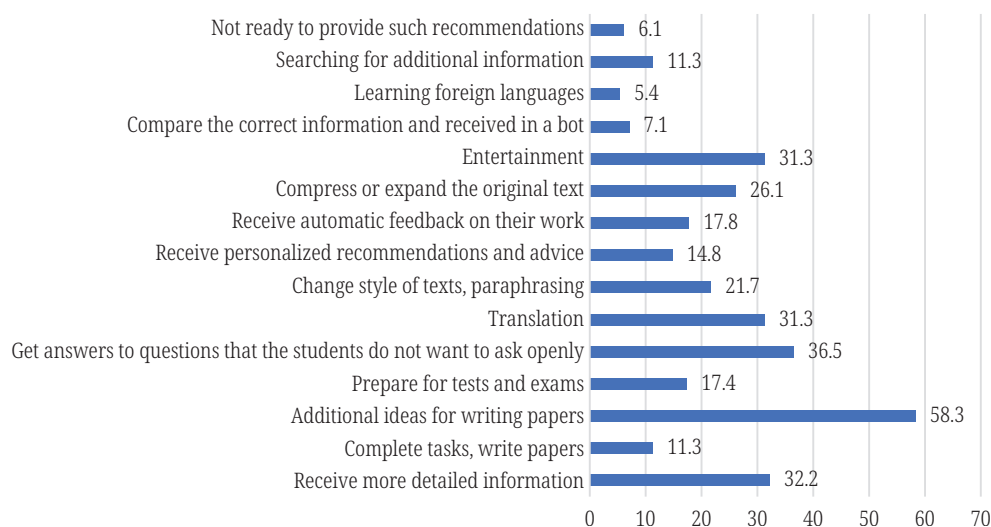
Fig. 4. The educational purposes of using ChatGPT as recommended by respondents, %

Answering the question "How can you use ChatGPT in teaching?" the following answers were received (several options can be chosen): to assess works (13.4% – 139); to prepare and improve documentation (42.0% – 435); to create tasks (56.3% – 583); to improve the quality of lectures (33.6% – 348); to create glossaries (42.9% – 444); to create answers to questions asked by students (16.8% – 174); to create personalized recommendations for students (19.3% – 200). However, 13.3% of the respondents (138) believe that it is not worth using ChatGPT in teaching work, and 17.6% (182) did not answer this question.

To the question "How would you rate the accuracy of ChatGPT's responses?" the answers were the following: low level of response accuracy, as ChatGPT's responses are often inaccurate or incomplete, and I am not satisfied with its performance 32.6% (337); moderate level of response accuracy: responses are not always accurate, but overall, I am satisfied with its performance 38.3% (396); high level of response accuracy: I find responses to be mostly accurate 5.3% (55). At the same time, 23.8% of the respondents (246) indicated that they did not have sufficient information to assess the accuracy of the answers.

The following answers were received in response to the question, "How do you assess the ethical issues related to the use of ChatGPT?": ethical issues should be taken into account in all aspects of using chat – 57.1% (591); I am not very familiar with the ethical issues related to the use of ChatGPT chat – 28.6% (296); I do not see any ethical issues with using ChatGPT – 14.3% (148).

31.1% of respondents (322) provided feedback on how they intend to utilize ChatGPT for scientific purposes when asked, "If you are a scientist, how do you plan to use ChatGPT for scientific work?" They could choose several options: to get ideas about the research topic 23.6% (76); to find sources of information 59.3% (191); to create questionnaires 21.4% (69); to analyze data 41.3% (133); to obtain advice on data analysis methods 27.3% (88); for editing material 42.2% (136); for writing scientific publications 30.4% (98); for translation 27.0%, (87); for writing abstracts, selecting keywords 16.8% (54); for generation of program codes for solving scientific problems 9.6% (31).

In response to the question, "What negative impact can the use of ChatGPT have on science?" 50.6% of the respondents (524 people) provided their answers, with the option of selecting multiple choices. The answers were

distributed as follows: generation of unreliable information, additional risk of errors (73.7% – 386); dependence on technology and decrease in the level of competence of scientists (55.3% – 290); decrease in interpersonal interaction between scientists (29.4% – 154); imitation of scientific activity (68.9% – 361). Only 9.9% (52) did not notice any potential negative effects on science.

Respondents also indicated features they would like to see in ChatGPT in the future (the question was answered by all respondents and had multiple choice answers): speech recognition: I would like ChatGPT to be able to recognize and respond to speech 37.0% (383); better accuracy of answers: I would like ChatGPT to provide more accurate and adequate answers to questions 65.6% (379); understanding of context: I would like ChatGPT to better understand the context of questions and provide answers taking this context into account 47.1% (487); personalized experience: I would like ChatGPT to be able to provide personalized recommendations and answers according to interests and needs 18.5% (191); improved visual capabilities: the ability to display answers in an interactive visual format, such as video or graphics 40.3% (417); the ability to save answers and information to access it in the future 31.9% (330); the ability to correct errors in answers or misunderstandings of users' questions 37.8% (391); the analysis of multimedia information 9.4% (97). At the same time, 7.5% (78) of the respondents indicated that they have no wishes for new functions (Figure 5).
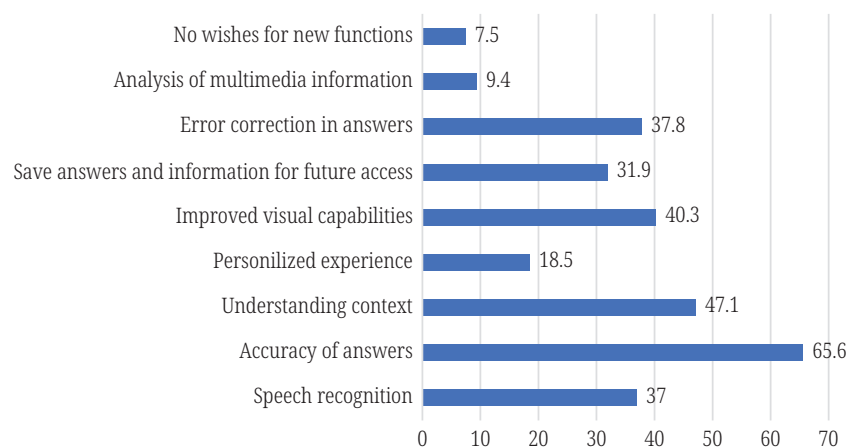

Fig. 5. Predictions of using ChatGPT in the future, %

To the question "Do you have an interesting positive experience with the use of chat?" responses were received from 40.0% of respondents (414 people). As a positive experience, the following was indicated: speeding up the time of checking information, different options for answers to the same questions of students, generating syllabi, documents for self-analysis, revising manuals, translation, finding sources of information, getting ideas for applicants' projects, preparing assignments and tests, writing abstracts, news, for brainstorming, creation of scientific and cognitive content, and literary works.

A negative experience with the use of chat responses was reported by 29.2% of participants (302). Among the negative ones are the generation of non-existent publications, invented biographical facts, students' violations of academic integrity, students' performance of tasks without understanding them, and mistakes in mathematical tasks.

Towards the end, the interviewees indicated the ethical norms of using ChatGPT: integrity (ChatGPT should not perform certain work for a person, for example, write

the texts of diploma theses, and articles); protection of confidential information and state, military, and other secrets; protection of personal data; norms should be prescribed regarding specific context. Additionally, users must clearly indicate when the chat is being used to generate responses, articles, or other content. Some scientists (3.2% – 33) believe that it will be necessary to completely change the format of knowledge assessment – only face-to-face conversation remains objective, requiring answers in real time without preparation.

5 DISCUSSION

This study, based on the results of a survey among scientific and pedagogical workers and teachers, demonstrates various perspectives on the prospects of using ChatGPT in the educational process. The results revealed that ChatGPT has the potential to revolutionize education in different ways, but like any other technological innovation, it has both positive and negative aspects. Following Kuhail [28], we consider user interaction style with a chatbot as integral to their effective use.

We fully agree with Kasneci et al. [4], who identified that users should be encouraged to experiment and develop their understanding of how the model works and its limitations. Language models can be used to generate hypotheses and explore different perspectives, rather than relying solely on them for answers, promoting a more critical approach to information. Encouraging the use of other educational resources, such as books and articles, as well as authoritative sources, to verify the accuracy of the information generated by the model can foster a habit of questioning and fact-checking. Incorporating critical thinking and problem-solving activities into the curriculum can help students develop essential skills for evaluating and analyzing information from ChatGPT. A responsible approach to mitigating the limitations of large language models and AI systems includes raising awareness, promoting critical thinking, incorporating other resources, and involving human expertise to ensure informed and thoughtful engagement with the generated content. Teachers and students should use ChatGPT as an auxiliary tool. A comprehensive approach is crucial to ensure the appropriate and effective use of ChatGPT in education.

Assessing the needs of teachers and students is important in ensuring the proper and safe use of large language models in education. This includes understanding potential risks and concerns related to data confidentiality, biases, and ethical considerations, as well as providing recommendations and best practices to minimize them, as well as training to promote critical thinking, problem-solving skills, and other relevant competencies using these technologies. It is also necessary to conduct reviews to better understand the challenges and opportunities of integrating ChatGPT into educational contexts. Unlike Yeadon et al. [29], who consider ChatGPT to be a serious threat to the credibility of short-form essays as an assessment method, we, based on the results of our survey, align with [30] [31] [32] [33] in believing that chatbots have the potential for a positive impact on education.

Educators can utilize ChatGPT to lessen their workload, gain valuable insights from their students, and foster innovation in the classroom, as highlighted by Baker and Smith [34]. In contrast to traditional assessment methods that use specific and unusual artifacts for selecting and providing retrospective, summative tests, AI-powered assessment systems have the potential to integrate continuous feedback into the learning process by utilizing unique and unconventional artifacts [2].

The survey results confirm that one of the common concerns associated with the use of ChatGPT is its potential impact on traditional essay-based assessment

methods. Educators worry that students may rely on ChatGPT to generate written assignments, as it can quickly produce coherent prose without triggering plagiarism detectors. However, these concerns may arise from teachers' reluctance to adapt to changes in assessment methods, as traditional written assignments are often criticized for being uninteresting and ineffective in evaluating students' learning [20].

A more significant issue is ChatGPT's lack of accuracy in the generated content [35]. In related work, Illia et al. [36] examine different approaches to the ethical considerations associated with the use of AIagents. Apart from producing biased information and an inadequate understanding of how outputs are produced and who is responsible for the unacceptable results, the authors claim other controversial aspects exist, i.e. forming fake agendas, spreading misinformation, and creating low quality, but credible content that leads to the so-called "lowest denomination problem."

However, the utilization of ChatGPT as an educational tool can create opportunities for students to collaborate in generating diverse scenarios, working together to solve problems, and achieving shared goals. This collaborative approach fosters a sense of community among students, encouraging them to learn from each other, provide mutual support, and develop valuable teamwork skills in a collaborative and interactive learning environment.

We concur with Mills [37] that challenges related to text generation in ChatGPT can be addressed through tasks that involve image and video analysis, incorporating class discussions, analyzing longer texts that do not fit within prompts, and writing about recent events not present in the training data. Another approach is to mandate students include personal experiences or perspectives in their writing, which are challenging for AI systems to replicate, as suggested by Nowik [38].

We also agree with Halaweh [6] that educators should promote the use of human-AI tool augmentation for tasks such as research and editing. By combining ChatGPT with human authors, the output can be superior in terms of creativity, originality, and efficiency compared to working individually. While AI-generated texts may lack originality and violate academic honesty standards, and traditional human-authored texts may not always be efficient and original, ChatGPT can help identify existing ideas from databases, enabling humans to determine if their ideas are original or build upon existing ones in a faster and more convenient way. Thus, AI can enhance human capabilities through hybrid human-AI collaboration in a learning context. For example, in the field of editorial education, texts generated by ChatGPT can be utilized as valuable resources for practical training in various critical editorial skills. These may include identifying factual errors, and inconsistencies, and evaluating the reliability of information sources after reverse searching. Additionally, generated texts can also serve as material for exercises involving analytical and synthetic processing, as well as stylistic refinement of written content. Such utilization of AI-generated texts can provide students with opportunities to hone their editorial and analytical abilities.

It should be noted that this study has some limitations that should be acknowledged and further researched. For instance, this study mainly focused on early adopters of ChatGPT in education when understanding the implications of its use in education is purely hypothetical. We cannot ignore such limitations as possible violations of academic integrity, generating wrong information, biases in data training that may augment existing biases, privacy issues, etc. Following Pavlic [39], it is crucial to acknowledge the limitations of ChatGPT and utilize it solely as a supplementary tool for supporting and enhancing learning, rather than relying on it as a substitute for human expertise and other authoritative sources.

6 CONCLUSIONS

We are just starting to witness the far-reaching impact that ChatGPT can have on various aspects of society. As this technology continues to evolve and be integrated into educational settings, we are likely to see significant changes in how teaching and learning are tackled, with potentially transformative effects on education. One of the main opportunities of ChatGPT for education is its ability to facilitate personalized learning. If one has one's own intelligence, the artificial one will only strengthen it. But in the hands of the ignorant and people who violate ethical norms, AI will contribute to the reverse process of personality development.

The results of the survey show that ChatGPT has the potential to revolutionize teaching by providing personalized learning experiences, assisting with lesson planning and content creation, aiding in language learning, supporting research, and writing tasks, facilitating professional development, and automating assessment and evaluation. However, teachers and students should handle it sensibly, addressing challenges related to bias, human oversight, and potential misuse, while leveraging its benefits for improved education outcomes.

While ChatGPT has the capability to generate multiple-choice questions, create text from bullet points, and provide support in the learning process, it is important to note that it is designed to be an assistive tool for human learners and educators, and not meant to replace the role of a teacher. The role of a teacher goes beyond the capabilities of a language model, as it involves a wide range of skills, such as understanding the unique needs of individual learners, providing personalized guidance, offering contextual explanations, facilitating discussions, and fostering critical thinking skills. Moreover, teachers play a crucial role in creating a positive learning environment, building relationships, motivating and inspiring students, and providing emotional support.

To fully harness the capabilities of ChatGPT and other large language models, it is crucial to take into account not only the technical aspects, but also the broader ethical, legal, and social implications. This means considering the ethical implications of using AI in education, such as ensuring fairness, transparency, and accountability in decision-making processes. It also involves being aware of the legal implications, such as data privacy and intellectual property rights, when using these models in educational settings. Lastly, it is crucial to be mindful of the social implications of relying on AI in education, such as addressing issues of accessibility, equity, and human biases.

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8   AUTHORS

Svitlana Fiialka is currently working as an Associate Professor in the Department of Publishing and Editing at the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute." Her scientific interests include editing educational literature, editing children's publications, scientific communication, mass communication, and scientific journals (E-mail: fiyalka@i.ua).

Zoia Kornieva is a Doctor of Pedagogy, Full Professor at the Department of Theory, Practice and Translation of English, and Dean of the Faculty of Linguistics at the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute." Her professional and research interests lie in the areas of immersion, BE, and EFL teaching, as well as modern trends in English lexicology and lexicography, as well as translation (E-mail: Kornieva.Zoia@lll.kpi.ua).

Tamara Honcharuk is a 3rd year student majoring in Journalism at the Institute of Publishing and Printing, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute," Her scientific interests include the research of the world's experience in educating editors, mass communication, and the impact of modern technologies in the media field (E-mail: tamaratoma11@gmail.com).