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ChatGPT in Educational and Scientific Activities of Grinchenko University: a Diagnostic Section

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***Abstract*— The article describes the state of regulation of artificial intelligence technologies development in the world and Ukraine, highlights the features of the use of AI, in particular large language models such as ChatGPT chatbot in the educational sector, including in higher education institutions, analyses a number of documents that contain recommendations for the use of artificial intelligence technologies in teaching, learning and research. The analysis has been carried out and the results of the research have been summarized by surveying students, lecturers and researchers of Borys Grinchenko Kyiv Metropolitan University regarding the problem and ways of using the digital technology of artificial intelligence chatbot ChatGPT when writing academic texts. The state of use of the specified technology in the educational and scientific activities of Borys Grinchenko Kyiv Metropolitan University has been determined, in particular, the number of respondents who are familiar with the chatbot and technologies that recognize its use in the text, and those who use them when writing academic texts, the frequency of such requests; the opinion of the interviewees has been recorded regarding the fair and ethical use of this technology and the need to indicate this fact in academic texts; the attitude of the survey participants to the need for state regulation of the use of ChatGPT in scientific and educational activities of higher education institutions, as well as normative regulation at Borys Grinchenko Kyiv Metropolitan University, has been clarified; the main risks and challenges of using this artificial intelligence technology in the educational and scientific activities of the higher education institution expressed by the respondents have been summarized; the need to hold events at Grinchenko University regarding familiarization with the digital technology of artificial intelligence of ChatGPT chatbot, the risks and challenges arising from its use in educational and research activities have been determined. A model of using artificial intelligence technologies, in particular ChatGPT chatbot in educational and scientific activities of Grinchenko University, has been proposed and relevant recommendations have been developed.**

Keywords*— *Artificial intelligence technologies; ChatGPT chatbot; academic texts.

I. Introduction

The development of scientific and technological activities, development of research and innovation infrastructure and preservation of scientific potential in Ukraine are taking place in line with European integration processes, as follows:

– the Roadmap for integration into the European Research Area has been approved;

– Ukraine has joined the STIP Compass program of the Organization for Economic Cooperation and Development and the European Commission for Science and Innovation;

– the Agreement on Ukraine's participation in the EU programs “Horizon Europe” and “Euratom” has been ratified;

– Ukraine has become the 39th full member of the COST Association for Financing of Innovation and Research Networks;

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– the national plan for open science has been approved;

– the possibilities of using electronic resources of scientific information by Ukrainian educational and research institutions have been significantly expanded [1].

Common scientific and educational space, communication, open access, operational exchange of research data, educational resources, etc. are coming to the forefront in the development of modern science and education. Artificial intelligence technologies play a significant role in this regard, as they help to optimize and accelerate these processes. Therefore, the issue of building a digital environment using artificial intelligence technologies is becoming increasingly relevant for the development of science and education in Ukraine.

Problem statement. Artificial intelligence technologies are becoming increasingly widespread in domestic science, education, and business. In this regard, the issue of the correct use of these technologies in the Ukrainian educational and scientific space in compliance with the principles of academic ethics and integrity is becoming more acute. In particular, we are talking about the use of digital artificial intelligence technology - ChatGPT chatbot, which has recently rapidly burst into many areas of activity of scientists and educators. Our article will analyse the state of use of this technology in the educational and scientific process of Grinchenko University.

Analysis of recent research and publications. Many countries around the world are implementing national strategies for the development of artificial intelligence, and among the first to do so are: Canada (The Pan-Canadian Artificial Intelligence Strategy, 2017), Great Britain (Digital Strategy, 2017), China (A Next Generation Artificial Intelligence Development Plan, 2017), Italy (Artificial Intelligence: At The Service of Citizens, 2018), Sweden (Nationell inriktning för artificiell intelligens, 2018), India (National Strategy for Artificial Intelligence #AIForAll, 2018), Singapore (National AI Strategy 2.0, 2023), UAE (UAE Strategy for Artificial Intelligence 2031, 2018), USA (National Artificial Intelligence Strategy, 2019), South Korea (National Strategy for Artificial Intelligence: Toward AI World Leader beyond IT, 2019), Denmark (National Strategy for Artificial Intelligence, 2019), Germany (Strategie Künstliche Intelligenz der Bundesregierung, 2020), France (Stratégie Nationale Pour L'intelligence Artificielle – 2e phase, 2021), Austria (Strategie der Bundesregierung für Künstliche Intelligenz, 2021), Japan (AI Strategy 2022) and others.

The intensive development of artificial intelligence technologies has led to the need for their legal regulation both at the state level and at the level of individual institutions. Currently, a number of documents have been developed that provide recommendations for the use of AI in various areas of human activity. Among such documents is the OECD «Council Recommendation on Artificial Intelligence», 2023 [2], European Commission «White Paper on Artificial Intelligence: a European approach to excellence and trust» (2020 p.)) [3], UNESCO «Ethics of Artificial Intelligence», 2022 [4], European Parliament «Report on intellectual property rights for the development of artificial intelligence technologies», 2020 [5] and «European Parliament resolution of 20 January 2021 on artificial intelligence: questions of interpretation and application of international law in so far as the EU is affected in the areas of civil and military uses and of state authority outside the scope of criminal justice», 2021)) [6] and others.

The European Commission has evolved in its search for approaches to regulating the use of AI technologies, starting with recommendations ("Ethics Guidelines for Trustworthy Artificial Intelligence", 2019) [7]; "Policy and investment recommendations for trustworthy artificial intelligence", 2019 [8]) and moving to a legislative approach. Thus, in 2021, the AI Law was introduced (Proposal for a Regulation of the European Parliament and of the Council Laying down Harmonized Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts, European Commission, 2021) [9]. On December 9, 2023, the European Parliament reached a preliminary agreement with the Council of the European Union on the Artificial Intelligence Act. This regulation aims to ensure that fundamental rights, democracy, the rule of law and environmental sustainability are protected from high-risk artificial intelligence, while stimulating innovation and making Europe a leader in this field. The rules establish obligations on AI based on its potential risks and level of impact. On March 13, 2024, the agreed text was officially adopted by the Parliament. The law entered into force on August 1, 2024 [10].

Ukraine is also concerned with the problem of developing artificial intelligence technologies and regulating its use. In particular, the National Strategy for the Development of Artificial Intelligence in Ukraine 2021-2030 [11] has been developed, which at the national level defines the priority areas of fundamental, applied and experimental research, tasks and measures for the implementation of domestic and world artificial intelligence technologies in the interests of national security and defence, economic and social development of Ukraine.

The Law of Ukraine "On Copyright and Related Rights" [12] was supplemented by Article 33 on special property rights to non-original objects generated by a computer program.

Awareness of the risks and challenges that accompany the development of artificial intelligence technologies prompted 28 countries, including the United States, the European Union, China, the United Kingdom, including Ukraine, to sign the Bletchley Declaration on Artificial Intelligence Security on the first day of the Technology Security Summit [13] organized by the British government in November 2023. This is the first agreement in the world

that establishes a common understanding of the opportunities and risks posed by borderline artificial intelligence, as well as the need for governments to work together to address the most significant issues.

Undoubtedly, the rapid development of artificial intelligence technologies cannot but affect the educational policy of higher education institutions in the world. Thus, in 2021, UNESCO prepared the document "AI and education: guidance for policy makers" [14], which offers recommendations for policy makers on the opportunities and overcoming the risks that arise when using artificial intelligence technologies in education. The document states that artificial intelligence has the potential to solve some of the biggest challenges in education today, implement innovative teaching and learning practices, and ultimately help accelerate progress towards Sustainable Development Goal 4, Quality of Education.

The world's leading universities are also developing their own approaches to the use of AI in the educational and scientific process of training future specialists. Among them are:

– Policy on the Use of AI Text Generation (Boston University, 2023 p.) [15];

– Artificial Intelligence Tools at the Hertie School Teaching Guidelines for Faculty and Students (Hertie School 2023) [16];

– Policy and practice guidance around acceptable and responsible use of AI technologies (Monash University, 2023 p.) [17];

– Guidance on AI/ChatGPT (Princetone University, 2023 p.) [18];

– Generative AI Policy Guidance (Stanford University 2023 p.) [19];

– Guidance for students on the use of Generative AI (such as ChatGPT) (The University of Edinburgh 2023 p.) [20];

– ChatGPT and Generative AI in the Classroom (University of Toronto 2023) [21] and others.

These documents, including recommendations, manuals, etc., reflect the policies of higher education institutions on the use of artificial intelligence technologies in the educational and research activities of students and lecturers. The documents have in common the realization that artificial intelligence is rapidly developing and spreading, including in the university environment, so it is necessary to use it reasonably, effectively and honestly, not to prohibit it, and to be aware of the challenges and risks associated with it. This also affects the process of evaluating students' work, developing evaluation criteria and formulating tasks that should develop critical thinking, creativity, research skills, etc.

Recommendations for the use of artificial intelligence in learning, teaching and research are also being developed by companies that provide plagiarism prevention services [22].

In our opinion, the initiative of the California State University system (CSU) together with leading global companies (Adobe, Alphabet (Google), AWS, IBM, Instructure, Intel, LinkedIn, Microsoft, NVIDIA, OpenAI), announced in early February 2025, regarding the widespread introduction of artificial intelligence technologies into the educational process of 23 campuses of the system, which currently has no analogues in the global educational space, is progressive. Under this initiative, more than 460,000 students and 63,000 CSU employees will have free, equal and inclusive access to advanced technologies, including ChatGPT Edu, a version of ChatGPT that offers enhanced educational tools, higher security (data protection and privacy features) and management control for educational institutions to improve learning and teaching efficiency, optimize administration and timing, etc. To implement the initiative, the CSU has created a special platform (AI Commons Hub), which contains AI tools and instructions for students and employees on how to use them, curricula, certificates, etc. To develop the professional competence of CSU teachers, trainings on artificial intelligence have been offered [23].

At the same time, the widespread adoption of artificial intelligence technologies, in addition to its benefits, also carries risks associated with ethical issues such as threats to human rights, racial and gender discrimination, the impact of AI on decision-making, employment, the labour market, human interaction in society, access to information, digital inequality, security, protection and confidentiality of personal data, copyright, data analysis and manipulation, AI as a source of bias based on gender, ethnicity, age, etc. This is stated in such documents as 'AI and education: guidance for policy-makers' [14], 'Recommendation on the Ethics of Artificial Intelligence' [24] and 'UNESCO's Recommendation on the Ethics of Artificial Intelligence: key facts' [25]. There are also still unresolved issues related to the impact of artificial intelligence technologies on the development of intelligence and critical thinking, research skills, the level of education and competence of students, dependence on these technologies, etc.

Ukrainian universities are also creating recommendations on the use of AI in the training of higher education students. In particular, Kherson State University has developed a document called "General Policy on the Use of Artificial Intelligence in Learning, Teaching and Research at Kherson State University" [26]. This document regulates the main directions, ways and means of effective use of information technologies related to artificial intelligence for participants in the educational process in learning, teaching, research and publication activities. In particular, it proposes specific AI technologies, provides instructions on how to interact with these technologies, outlines the possibilities and methods of their application in the listed activities, and regulates those activities where it is not desirable to use these technologies. In our opinion, this document does not fully cover the aspects related to ethics and compliance with the

principles of academic integrity in the use of artificial intelligence technologies.

As noted in the works of O. Hrytsenchuk, the concept of artificial intelligence technology is the ability of digital technologies to perform tasks for which a person uses his or her intelligence [27].

In turn, M. Marienko and V. Kovalenko claim in their works that artificial intelligence technology and open science in education is the use of technology and cloud services of open science, which significantly diversifies and improves the visualization of materials and is based on a methodological component [28].

Having analysed the use of AI in the context of Bloom's taxonomy [29], which consists of six main levels (knowledge, understanding, application, analysis, evaluation and synthesis), we observe the feasibility of its implementation in the educational process:

– Knowledge: AI technology allows effectively memorise information by personalising content for a specific participant in the educational process and provides an opportunity to develop tests that help improve memory and information retrieval (Quizlet application);

– Understanding: AI technology allows to: understand complex concepts of the educational process, explaining them in different ways and adapting them to the individual needs of the educational process participant; create chatbots or virtual assistants that can explain/answer questions (Siri or Google Assistant applications);

– Application: AI technology makes it possible to apply knowledge in the educational process in real conditions through simulations of real scientific processes/curricula (virtual laboratories);

– Analysis: AI technology promotes the development of critical thinking and analysis skills in the educational process, helping to break down complex problems into simpler components (analysis of large data sets);

– Evaluation: AI technology allows to assess challenges in the educational process and provides objective and efficient assessment for process automation (argumentation and logical sequence of the educational process);

– Synthesis: AI technology allows to stimulate creative thinking in the educational process by synthesising new ideas or solutions from the knowledge gained (automated content creation systems, audio generation).

Consideration of AI technology in the context of the SAMR model (The Substitution Augmentation Modification Redefinition Model) [30] in combination with the above-mentioned Bloom's taxonomy makes it possible to assess the degree of positive impact of AI on the educational process. The SAMR model defines the following stages: innovations in the implementation of AI technology to perform traditional tasks in the educational process (levels of 'substitution' and 'improvement'); fundamental transformations of the educational process (levels of 'modification' and 'transformation'). In addition, it allows to identify the purpose and results of the integration of AI technology.

– Substitution: AI technology acts as an optimiser, replacing the existing traditional tools in the educational process with the digital technology of today. This makes it possible to reduce the processing time of relevant requests in the educational process.

– Improvement: AI technology improves the efficiency of each participant in the educational process by personalising content for each individual.

– Modification: AI technology is changing the way we perform tasks, creating new forms of interaction (interactive and practical) in the educational process.

– Transformation: AI technology creates new methods of work in the educational process that were previously impossible.

Therefore, in view the above, we can state that AI technology helps to optimise and improve the processes of memorising, understanding, applying, analysing, evaluating and synthesising knowledge, which in turn optimises, enhances, modifies and creates new methods of work in the educational process.

Among the artificial intelligence technologies that can have a significant impact on higher education, scientists call generative technologies - large language models, such as ChatGPT chatbot [31]. ChatGPT is a generative technology developed by OpenAI, an American company engaged in the research and implementation of artificial intelligence. Generative artificial intelligence generates new results based on the data it has been trained on and uses deep learning to create completely new content [32].

According to scientists, these and similar generative models for producing and processing text, images, audio, video, etc. can change the educational landscape in the training of future professionals, transform approaches, principles of form and methods of learning and teaching in higher education institutions [31, p.3].

Given the rapid spread of ChatGPT chatbot in many areas of human activity, including the educational process of higher education institutions, international organizations are developing recommendations and guidelines for using this technology. Among them are the UNESCO manual "ChatGPT and Artificial Intelligence in higher education: Quick start guide" [4], the manual "Unlocking the Power of Generative AI Models and Systems such as GPT-4 and ChatGPT for Higher Education: A Guide for Students and Lecturers" [34], Guide with ChatGPT Prompts for Teachers [33], etc. [34].

The research purpose. To identify the state, risks and challenges of using digital artificial intelligence technology ChatGPT chatbot in writing academic texts by academic staff and students of Grinchenko University and to develop a model for the use of artificial intelligence technologies, in particular ChatGPT chatbot in educational and scientific activities and provide relevant recommendations.

II. MATERIALS AND METHODS

In 2024, in order to clarify the need for rationing the use of ChatGPT chatbot in educational and scientific activities, the research was conducted at Borys Grinchenko Kyiv Metropolitan University on the problem and methods of using this digital artificial intelligence technology when writing academic texts by academic staff and students.

The research was conducted by means of a survey (Google Workspace service) on predefined questions among students of all levels, lecturers and researchers of the University. The survey results for each question are presented in the form of graphs, diagrams and tables. During the survey, a number of questions were asked regarding the use of digital artificial intelligence technology ChatGPT chatbot in writing academic texts.

1801 respondents provided the answers, including: 336 college students, 723 bachelor's students, 124 master's students, 54 PhD students, 525 lecturers and 39 researchers.

To the question *"Are you familiar with the digital artificial intelligence technology ChatGPT?"* 52% of the total number of respondents answered "Yes," 31% - "Partially," and 17% - "No" "Fig. 1".

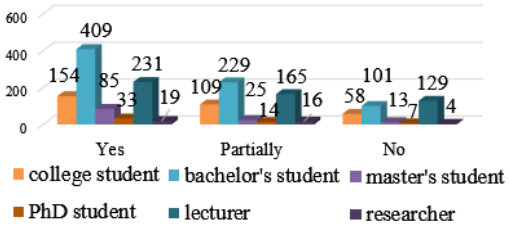

Fig. 1. Respondents' answers.

The analysis of the responses indicates a generally high percentage of familiarity of the surveyed students, lecturers and researchers of the University with the digital artificial intelligence technology ChatGPT. This is also undoubtedly evidence of the rapid development and rapid spread of artificial intelligence technologies, in particular ChatGPT chatbot, which has gained wide popularity in the academic environment in a short period of time.

The following answers were received to the question *"Have you used the digital artificial intelligence technology ChatGPT chatbot when writing academic texts?"*: 76% of all respondents answered "No," 21% - "Partially," and 3% - "Yes" "Fig. 2".

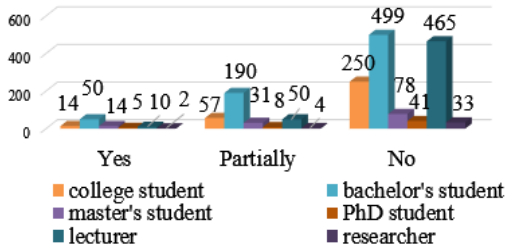

Fig. 2. Respondents' answers.

In general, the analysis of responses shows a low percentage of students, lecturers and researchers using the digital artificial intelligence technology ChatGPT chatbot when writing academic texts.

The respondents answered the question *"How do you use the digital artificial intelligence technology ChatGPT chatbot when writing academic texts?"* as follows "Fig. 3":

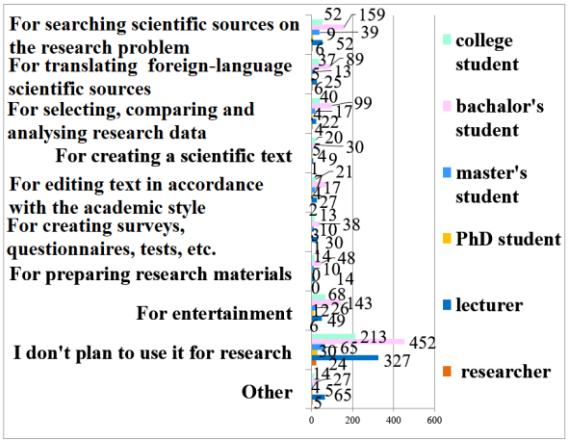

Fig. 3. Respondents' answers.

Having summarized the responses by categories "college student," "bachelor's student," "master's student," "PhD student," "lecturer," and "researcher," we have the following results:

college students indicated that they use chatbots when writing academic texts to search for scientific sources on the research problem (11%), select, compare and analyse research data (8%), translate foreign language scientific sources (7%), create a scientific text (4%), edit the text in accordance with the academic style (4%), create surveys, questionnaires, tests, etc. (3%), and design research materials (3%). 43% of respondents do not plan to use ChatGPT for academic work, 14% use the chatbot for entertainment and 3% use it for other purposes, including finding creative ideas for practice, creating tests and presentations, and pursuing personal purposes not related to education and research;

bachelor's students responded that they used chatbot to search for scientific sources on the research problem (14%), translate foreign-language scientific sources (8%), select, compare and analyse research data (9%), create a scientific text (3%), edit the text in accordance with the academic style (6%), design research materials (4%), create surveys, questionnaires, tests, etc. (3%). 39% of respondents do not plan to use chatbot for research, 12% use it for entertainment, and 2% use it for other purposes, such as searching for information, preparing for seminars and practical assignments, essays, etc;

for *master's students*, the chatbot was useful for searching scientific sources on the research problem (19%), selecting, comparing and analysing research data (8%), editing text in accordance with the academic style (8%), translating foreign language scientific sources (6%), creating surveys, questionnaires, tests, etc. (5%),

designing research materials (5%), creating a scientific text (2%). 32% of applicants do not plan to use the chatbot for research, 13% communicate with ChatGPT for entertainment, and 2% use the chatbot for personal needs;

PhD students used the chatbot to search for scientific sources on the research problem (12%), translate foreign-language scientific sources (7%), select, compare and analyse research data (5%), create a scientific text (5%), edit the text in accordance with the academic style (5%), create surveys, questionnaires, tests, etc. (4%), design research materials (0%). 39% of respondents do not plan to use the chatbot for research, 16% use it for entertainment and 7% find other use, such as preparing presentations, creating lists of references, etc;

lecturers used ChatGPT to search for scientific sources on the research problem (11%), translate foreign-language scientific sources (11%), select, compare and analyse research data (7%), edit text in accordance with the academic style (4%), create a scientific text (2%), create surveys, questionnaires, tests, etc. (2%), design research materials (0%). 53% of the respondents do not plan to use the technology for research, 11% use it for entertainment, 11% provided answers regarding the use of the chatbot in the "Other" category, in particular, it was useful for preparing lectures and practical classes, searching for sources and checking student papers, etc.;

researchers used the chatbot to search for scientific sources on the research problem (11%), translate foreign language scientific sources (0%), select, compare and analyse research data (5%), create a scientific text (0%), edit text in accordance with the academic style (0%), create surveys, questionnaires, tests, etc. (0%), design research materials (0%). 43% of respondents do not plan to use the chatbot for research, 16% use it for entertainment, 9% use it for other activities, such as comparing information with search queries on the Internet, checking written papers for plagiarism, or usage of artificial intelligence.

Analysis of the responses shows that 42% of respondents in all these categories chose the answer "I do not plan to use it for research." 37% of respondents use ChatGPT to optimize and speed up the processing of information and sources when writing academic texts, designing materials, working, conducting empirical research, etc. 19% use the chatbot for entertainment. Only 2% used the chatbot to create a scientific text. Such results demonstrate a sufficiently high level of formation of academic integrity culture among students and employees of Grinchenko University.

To the question *"In your opinion, can the use of digital artificial intelligence technology ChatGPT chatbot violate the principles of academic integrity?"* 30% of respondents answered "Yes," 43% - "Partially," and 27% - "No" "Fig. 4".

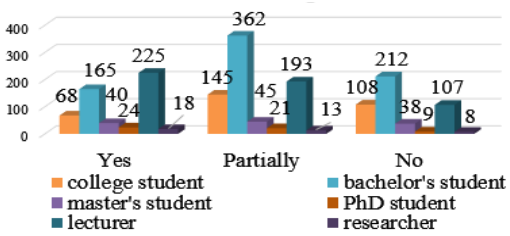

Fig. 4. Respondents' answers.

Analysis of the responses shows that the majority of respondents believe that the use of digital artificial intelligence technology ChatGPT chatbot violates the principles of academic integrity.

In the survey, to the question *"Do you indicate the use of artificial intelligence technologies in the materials and/or methods of academic texts?"* 2% of respondents answered "Yes", 12% - "Partially", 86% - "No" (did not use ChatGPT) "Fig. 5".

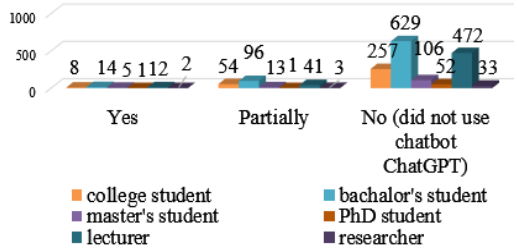

Fig. 5. Respondents' answers.

Analysis of the responses showed that respondents mention the use of artificial intelligence technologies in the materials and/or methods of academic texts. However, the percentage of such users is low, as most respondents do not use artificial intelligence technology for their educational and research activities. Doubts and conflicting opinions of respondents on this issue prompt the preparation of a document on the use of artificial intelligence technologies in educational and scientific activities and a series of trainings and workshops on mastering the basics of their use.

To the question *"In your opinion, does the use of digital artificial intelligence technology ChatGPT require state regulation in scientific and educational activities of higher education institutions?"* 33% of respondents answered "Yes," 30% - "Partially," and 37% - "No" "Fig. 6".

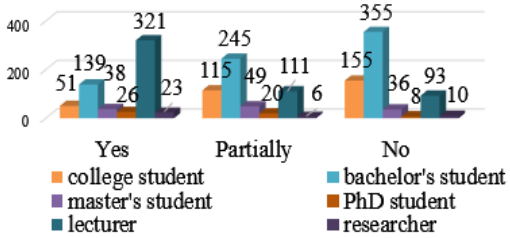

Fig. 6. Respondents' answers.

Analysis of the responses shows that, according to the respondents, the use of digital artificial intelligence

technology ChatGPT requires state regulation in the scientific and educational activities of higher education institutions. This opinion is shared by the majority of PhD students, lecturers and researchers, as they realize the complexity and urgent need to resolve this issue. However, it should be noted that almost half of the respondents in the categories "college students" (48%) and "bachelor's students" (48%) indicated that "it does not require". This position may be explained by insufficient awareness of this technology, ignorance of state legal norms and mechanisms, misunderstanding of the connection between the use of chatbot and compliance with the principles of academic integrity, copyright, etc.

To the question *"In your opinion, does the use of digital artificial intelligence technology ChatGPT require normative regulation at Grinchenko University?"* 31% of respondents answered "Yes," 29% - "Partially," and 40% - "No" "Fig. 7".

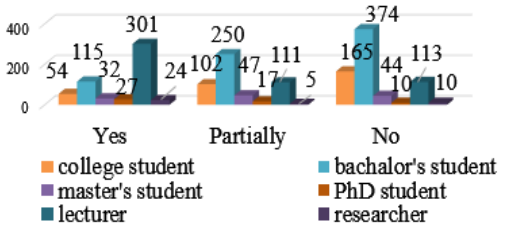

Fig. 7. Respondents' answers.

Analysis of the answers showed that, in the respondents' opinion, the use of digital artificial intelligence technology ChatGPT requires normative regulation at Grinchenko University. As in the answers to the previous question, most PhD students, lecturers and researchers consider such regulation relevant and desirable.

And a significant number of respondents in the categories "college students" (51%), "bachelor's students" (51%), "master's students" (36%) indicated "it does not require". The answers to this question from these categories correlate with the answers to the previous question and confirm our assumption about the reasons for this reaction.

To the question *"Please describe how the use of digital artificial intelligence technology ChatGPT should be regulated at Grinchenko University,"* the respondents gave the following answers:

23% of *college students* noted that there is no need to regulate the use of the chatbot at Grinchenko University, the reason for this decision is the following: it is convenient for searching information, the same information as from the Internet, it is impossible to regulate, provides inaccurate data, etc. 21% of respondents believe that it is necessary to conduct explanatory and educational work in the form of conversations, lectures, workshops, trainings, etc. among students to familiarize them with the positive and negative aspects of using ChatGPT. 16% - emphasize that in order to prevent violations of the principles of academic integrity, it is necessary to check all types of educational and scientific activities of students with services that recognize the use of artificial intelligence, including ChatGPT in academic texts. 14% - suggest allowing the chatbot, provided that the purpose of the work, the fact of its use and the limits of its use are specified in the work. 14% - cannot answer this question because they feel insufficiently competent in this area. 6% of respondents recommend developing rules for using the chatbot or amending the Regulation on academic integrity of scientific-pedagogical, research, teaching staff and students of Borys Grinchenko Kyiv Metropolitan University. 6% - put forward a proposal to prohibit or restrict the use of ChatGPT in the educational and scientific process of the University. 2% of applicants provided answers that do not relate to the specified problem.

27% of *bachalor's students* believe that Grinchenko University should regulate the use of the digital technology of artificial intelligence chatbot ChatGPT, through clear policies and ethical standards by: providing appropriate training and supervision by faculty and administration to ensure that the chatbot is used in accordance with the University's standards; defining specific areas of application of the chatbot in the educational and scientific process; providing students with the necessary support for the correct use of the chatbot and avoiding its misuse; developing or supplementing existing regulatory documents, publicly disclosing ethical principles that regulate the use of artificial intelligence in the university environment; ensuring openness in the use of the chatbot, including its capabilities and limitations, for all stakeholders, including students, teachers and the public; there were also proposals to improve the tasks themselves (they should be creative), revise the criteria for evaluating student work, establish reasonable volumes of processing the given material, etc. 19% of respondents did not answer this question due to lack of awareness, fear of the complexity of this problem, "because I am a philologist, not a computer scientist." 17% insist that there is no need to regulate this process, since its prohibition or restriction will cause a backlash from potential users, and permission is not needed because everyone uses chatbots anyway. 16% suggest that materials created with the help of a chatbot should be subjected to verification through relevant services or by teachers who, through oral questioning or other forms of control, can detect the fact of ChatGPT use. 10% recommend organizing various events to educate and understand the ethical implications of using artificial intelligence technologies. According to 9% of respondents, it is necessary to ban or restrict the use of the chatbot in research, qualification and dissertation works, given the threat to the development of intellectual and creative abilities of the individual, the uniqueness of research and academic integrity at the University. 2% in their responses shifted the responsibility for solving this problem to the administration and emphasized that this is

not an urgent problem at the moment, noted that teachers should make sure that students do not use the chatbot, etc.

48% of *master's students* answered that this issue should be regulated at the University level by developing standards, norms, rules, guidelines for using ChatGPT chatbot to prevent violations of academic integrity, through the system of internal quality assurance of education, at the level of developing curricula for academic disciplines in the formulation of search-heuristic and creative tasks in the optimal amount for students, which encourage independence in solving these tasks, etc. 15% of respondents noted that the use of this technology does not require regulation at the University. 11% believe that to resolve this problem, it is necessary to check academic texts for the presence of the text generated by the chatbot using special software, moreover, to develop a special application for this purpose. 9% of applicants suggest holding certain events and developing training modules for mastering the skills of using ChatGPT. According to 5% of respondents, it is necessary to prohibit or limit the use of this technology in the activities of applicants and scientists by developing an appropriate document.

57% of PhD students noted that to resolve this issue, it is necessary to develop a policy for the use of artificial intelligence technologies at the University level, guidelines for their ethical use, methodological recommendations and control mechanisms for their application, and to supplement the Regulation on academic integrity with relevant points. Some respondents believe that the problem cannot be solved at the level of a higher education institution by delegating such powers to state bodies, in particular the Ministry of Education and Science of Ukraine. 18% – are not ready to answer this question. 14% – believe that it is necessary to strengthen the mechanisms for checking academic texts for the presence of chatbot-generated content, to introduce additional checks in addition to the usual plagiarism checks. According to 7% of respondents, there is no need to regulate this issue at the University level. 2% – recommend limiting the use of ChatGPT. 2% – suggest familiarizing participants in the educational process with artificial intelligence technologies.

43% of teachers believe that regulating the use of the chatbot in educational and scientific activities of participants in the educational process at the University level involves the creation of an appropriate regulation, recommendations, instructions, a code of ethics, the establishment of clear rules for its application, improving the content of existing regulatory documents on academic integrity, the educational process, etc., among them 4% emphasize that this issue should first be regulated at the state level (MES, legal state bodies, IT sphere, etc.), and then implemented in the work of the University. 25% of respondents cannot answer due to lack of awareness of this technology, emphasizing that this issue should be resolved by the vice-rector for research or other responsible persons, etc. 10% are convinced that all the work of students and teachers should be subject to various forms of control and be checked by specialized tools to detect ChatGPT-generated text. 8% of respondents propose to prohibit chatbots completely or only when writing qualification and dissertation papers, research papers, semester and final control tasks, as well as to restrict access to it completely or partially. 7% feel the need to learn how to use the chatbot correctly to avoid problems with violations of academic integrity, etc. 6% of the teaching staff noted that there is no need to regulate this issue at the University level, as it is impossible, restricts personal freedom, does not comply with "new digital laws adopted by 2019," does not make sense, etc. 1% did not provide clear and adequate answers to the questionnaire.

38% of researchers responded that in order to resolve the issue of regulating the use of the chatbot at the University level, it is necessary to create appropriate documents, regulate the use of certain types of works and supplement the existing Regulation on academic integrity of scientific-pedagogical, research, teaching staff of Borys Grinchenko Kyiv Metropolitan University. According to 18% of respondents, it is necessary to check works for the presence of the text produced by the chatbot, to put an automatic marking that will be indicated when copying the text from the chat and which will not be possible to delete. 13% believe that there is no need to regulate the use of ChatGPT, since there are more pressing issues and tasks at the moment. 13% suggest discussing this issue through conducting a survey. 6% of respondents do not know the answer to the question because they do not feel competent enough to do so. 6% said that it is necessary to conduct explanatory work on the consequences of using this technology in academic texts. 6% are in favour of banning the chatbot.

To the question *"Is it necessary to hold events at the University to familiarize with the digital technology of artificial intelligence ChatGPT, the risks and challenges that arise when using it in research activities?"* 59% of respondents answered "Yes", 22% - "Partially", 19% - "No" "Fig. 8".

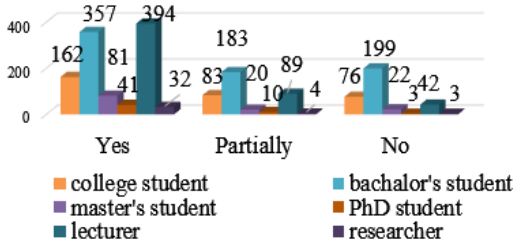

Fig. 8. Respondents' answers.

Analysis of the answers showed that most respondents need to familiarize themselves with the digital artificial intelligence technology of ChatGPT chatbot, the risks and challenges that arise when using it in research activities.

III. RESULTS AND DISCUSSION

The results of the survey prompted us to develop a model for the use of artificial intelligence technologies, in particular ChatGPT chatbot, in the educational and research activities of Grinchenko University "Fig. 9", which will serve as a basis for:

– taking into account the functionality of ChatGPT when preparing educational material for its quality assimilation by students (different levels);

– ensuring the possibility of applying the acquired theoretical knowledge, practical skills and abilities by students (different levels) to solve certain intellectual tasks and work with intellectual systems in educational and scientific activities;

– studying and developing the regulatory framework of Grinchenko University to standardize and regulate the use of ChatGPT in the scientific and educational activities of participants in the educational process;

– using ChatGPT when teaching academic subjects to students (various levels);

– improving ethical and digital competencies of participants in the educational process;

– developing and implementing advanced training programs for scientific-pedagogical, research and teaching staff on the implementation and proper use of ChatGPT in educational and scientific activities.

Fig. 9. Model of using artificial intelligence technologies, in particular ChatGPT chatbot, in educational and scientific activities at Grinchenko University

To implement this model in the educational and scientific activities of Grinchenko University, we offer the following recommendations:

– to update the text of the Regulation on academic integrity of scientific-pedagogical, research, teaching staff and students of Borys Grinchenko Kyiv Metropolitan University in Part 2. Compliance with the principles of academic integrity and Part 4. Violation of the requirements of academic integrity;

– to supplement the editorial policies of the University's scientific publications with a section "Policy on AI support tools", where it is noted that Large Language Models (LLMs), such as ChatGPT from OpenAI, do not qualify for authorship status. The use of LLMs in the study should be properly documented in the "Methods" section or in an appropriate alternative section if the "Methods" section is not available;

– to amend the Requirements for preparation and defense of qualification theses of students of the first (bachelor's) and second (master's) level of higher education in Part 4. Requirements for the design of qualification work;

– to develop a Policy for the use of artificial intelligence in various areas of the University's activities;

– in order to familiarize with artificial intelligence technologies, to supplement the Plan of scientific events on academic integrity with round tables, a series of webinars, workshops, online trainings devoted to theoretical and practical aspects of the use of artificial intelligence technologies in the scientific and educational activities of participants in the educational process, risks and challenges of its use in terms of academic integrity and intellectual property, legal grounds for its use, the impact of machine intelligence on society and humans, etc.;

– develop and conduct a series of introductory trainings for employees on "Artificial intelligence in teaching" as part of the digital module for professional development of University employees and a series of webinars on the "Fair use of artificial intelligence technologies in educational and scientific space of higher education institutions".

IV. CONCLUSIONS

The article analyses the state of regulation of development of artificial intelligence technologies in the world and Ukraine, highlights the peculiarities of using AI, in particular, large language models such as ChatGPT chatbot in the educational sector, including in higher education institutions, and analyses a number of documents containing recommendations on the use of artificial intelligence technologies in teaching, learning and research.

Based on the above survey data and summarizing the responses of college students, bachelor's, master's, PhD students, lecturers and researchers of the University, we can draw the following conclusions:

– more than half of the respondents are familiar with the artificial intelligence technology ChatGPT;

– only about a quarter of respondents use the chatbot to prepare for writing various types of academic texts, in particular, to search for scientific sources on the research problem, select, compare and analyse research data, translate foreign-language scientific sources, edit text in accordance with academic style, create surveys, questionnaires, tests, etc., design research materials, create scientific text. Some of them use ChatGPT for educational purposes and entertainment;

– use of the chatbot by higher education institution students, teachers and researchers is not systematic;

– according to the vast majority of survey participants, use of the chatbot in scientific and educational activities may violate the principles of academic integrity and copyright;

– vast majority of respondents consider it necessary to indicate in a scientific paper how the digital artificial intelligence technology ChatGPT was used, but only a small percentage of higher education institution students, lecturers and researchers note this fact in the materials and/or methods of academic texts;

– more than half of the respondents said that the use of digital artificial intelligence technology ChatGPT chatbot requires full or partial state regulation in the scientific and educational activities of higher education institutions, as well as normative regulation at Grinchenko University;

– about half of the survey participants suggest developing separate documents at the university level or supplementing the current Regulation on academic integrity of scientific- pedagogical, research, teaching staff and students of Borys Grinchenko Kyiv Metropolitan University to regulate the use of artificial intelligence technologies in the educational and scientific activities of participants in the educational process, as well as subject academic texts to verification for the presence of a chatbot product;

– about 80% of the survey participants are convinced that it is necessary to hold events at the University to familiarize them with the digital artificial intelligence technology of ChatGPT chatbot, the risks and challenges that arise when using it in research activities.

Thus, the aggregate and analysis of the respondents' answers to the questions made it possible to analyse the level and scope of the use of digital artificial intelligence technology of ChatGPT chatbot in writing academic texts. The respondents' answers showed the need to regulate the use of ChatGPT at the University and to clarify the specifics of the use of digital artificial intelligence technology of ChatGPT chatbot in writing academic texts by academic staff and students through round tables, webinars, lectures, trainings, workshops and other events to improve the development of academic integrity culture at Grinchenko University.

Based on the results of the survey, a model has been developed and recommendations have been given for the use of artificial intelligence technologies, in particular, ChatGPT chatbot in the educational and scientific activities of Grinchenko University. It is planned to develop a Policy for the use of artificial intelligence in various areas of the University's activities. When the Ministry of Education and Science of Ukraine develops recommendations for the use of AI in educational institutions, Grinchenko University will provide proposals based on the results of our research.

The next stage of our research will be to conduct the second diagnostic cross-section to test the effectiveness of the proposed model of using artificial intelligence technologies, in particular ChatGPT chatbot, in the educational and scientific activities of Grinchenko University.

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