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Artificial intelligence in teaching social disciplines: Opportunities and challenges of tools

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Abstract. Based on the analysis of scientific sources and practical experience in teaching social disciplines, the article reveals the role and problems of using AI in the system of higher education. The scientific opinion about the inevitability of using AI, despite its risks, in teaching social disciplines is expressed. A comparative analysis of the subject area, conceptual apparatus, functional purpose and research methods of social disciplines is carried out. Similar features are revealed, the basis of which is their focus on the scientific study of the social and psychological behaviour of individuals, social groups and communities. On the example of didactic methods of teaching social disciplines in higher education, the expediency of using AI tools in the process of teaching is substantiated. Their main capabilities are personalised learning, forecasting and trend analysis, data visualisation, simulations and virtual laboratories, speech, video and voice interfaces, assessment tools, and generation of comments and feedback. Clarification of the principles and main possibilities of using AI tools has revealed the main problems, which include ethics, reliability, transparency, insufficient professional training of teachers and imperfect legal support. We outline prospects for further research on the peculiarities of using AI tools to teach social disciplines in higher education.

Keywords: artificial intelligence, higher education, social disciplines, educational process, didactic methods, tools, ethics, personalised learning

1. Introduction

The current period of development of the educational sector in Ukraine, as well as throughout the world, is marked by radical changes in the processes of training, teaching and learning as the goal and result of students' acquisition of individual educational and professional knowledge, which is primarily associated with the use of the latest information technologies. This also applies to the teaching of social disciplines, the content of which requires the development of logical and critical thinking in higher education seekers. Artificial intelligence (AI) is the most popular information technology in today's environment, and it is the subject of various scientific

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discussions and debates. The analysis of AI applications certifies that scientists working in the field of engineering and natural sciences effectively use AI for scientific experiments and the invention of new approaches to inventing and rationalising production processes. Therefore, the use of AI in teaching maths, nature, and engineering sciences is justified and rational. In the field of social sciences, ChatGPT (which was launched in November 2022) is particularly actively used, offering the questioners text generated as the most likely answer to a query, which allows education seekers to receive a large amount of information on answers to questions of various nature and content, write essays, research papers, etc. Therefore, the initial reaction of most educators was to demand a ban on the use of this technology. Meanwhile, having realised that the informatisation and digitalisation of society cannot be stopped, this opinion has changed over time, namely, the proposal to find a balance between the needs of using AI technologies and the tools to ensure it, innovations and traditions, technological solutions and the context of their application.

Berson and Berson [4], Karakuş [20], Kyrpa et al. [23], Lavidas et al. [24], Nguyen et al. [31], Prieto-Gutierrez, Segado-Boj and Da Silva França [34], Yetişensoy and Rapoport [44] actively research the introduction of AI tools in university education and consider the following to be priority areas:

- the use of AI in reconfiguring teaching practices for a more subtle, humane and balanced approach to higher education;
- transition the focus from investment in technology to the quality of teaching and learning, which is enhanced by appropriate and correct technological solutions;
- transparency of the use of AI and educational technologies in universities and obtaining specific and informed consent of students to the use of AI solutions, especially for collecting and aggregating data about them;
- to overcome social and economic polarisation inequality and achieve the goals of lifelong learning;
- eliminate the risks of "individualisation" in education: AI will be used to select content and topics according to the interests of an individual at a certain moment and will mainly use data generated about him/her.

However, the use of AI in teaching social disciplines, including sociology, social psychology, law, political science, economic theory, history, demography, and social statistics, still needs to be studied more. These disciplines occupy a special status in the system of scientific knowledge and the educational process, as they help education seekers acquire skills of logical and critical thinking and develop the ability to verify speculative operations by empirical research. Therefore, it is no coincidence that there are many opponents of the use of AI in the training of professional specialists among scientists in the social sciences, as they believe it hinders the formation of independent thinking in the process of acquiring knowledge. Is it true? Is it a far-fetched issue or a real one? The search for answers to these questions is crucial for further improvement of social studies teaching.

So, the *aim* of the research is to study the tool opportunities and challenges of using AI in teaching social disciplines. To achieve this aim, the following *tasks* need to be solved:

1) to clarify the content and educational possibilities of AI;

2) to clarify the subject field, content and structural components of social disciplines;
3) to substantiate special didactic methods, methodology and principles for the use of AI tools in teaching social disciplines;
4) to clarify the problems of using AI in the educational process, in particular in teaching social disciplines.

2. Methods and techniques of the research

The design of the study of the use of AI in teaching social disciplines was based on the use of a mixed methodology, that is, a combination of general scientific and special, quantitative and qualitative methods, the choice of which was determined by the purpose and objectives of this scientific paper.

The traditional and critical analysis of scientific literature, in particular articles by foreign and Ukrainian researchers, were used in the work to analyse the state and peculiarities of AI development and to highlight key trends and problems arising in the implementation of AI in the educational process of higher education institutions. To clarify the subject field of each social discipline (sociology, social psychology, political science, economics, law, history, demography and social statistics) and to identify common aspects and methods of their research, we used analysis, synthesis, critical and comparative-historical methods, as well as the method of analogy.

To investigate AI's didactic features and practical applications in teaching social disciplines, systemic and structural-functional approaches were used, which allowed for systematising its tools and technologies. The value-normative approach was used to determine the content of the basic principles of implementing AI tools and technologies in the teaching process. Theoretical modelling was used to describe possible scenarios and anticipate future trends and problems of AI implementation in teaching social disciplines in higher education institutions.

3. Research results

3.1. Artificial intelligence and its educational opportunities

Artificial intelligence (AI) is a method by which computer software is developed based on the study and use of human brain patterns and becomes capable of creating an intelligent product in a cognitive way similar to the human brain. Although the history of AI development began not so long ago – in 1956, when Allen Newell and Herbert Simon created the first artificial intelligence program – Logic Theorist, which proved 38 of the first 52 theorems in chapter two of Whitehead and Bertrand Russell's Principia Mathematica, and found new and shorter proofs for some of them [14], and the term 'artificial intelligence' was first used by American computer scientist John McCarthy at the Dartmouth Conference in 1956 [37], it quickly spread and began to be used in various fields: economics, art, education, military and construction, medicine, etc. The interest of people in AI and its possibilities exceeded the expectations of its makers, as in the late 20th and early 21st century centuries, there was a kind of leap in its development, characterised by the development of the first chatbot ELIZA by Weizenbaum [43], the creation of

the first intelligent humanoid robot called WABOT-1 in Japan [42], the emergence of intelligent agents [13], including the IBM Deep Blue computer that beat world chess champion G. Garry Kasparov [29], the Roomba vacuum cleaner [7], and the use of technologies by Facebook, X (Twitter), and Netflix. In the last decade, the development of AI has been characterised by the introduction of deep learning: IBM's Watson won the Jeopardy quiz, where it had to solve complex puzzles [28]; Google launched Google Now in its Android app, which could provide users with information in the form of a forecast [36]; Baidu released the LinearFold AI algorithm for medical and life-science teams developing a vaccine in the early stages of the SARS-CoV-2 (COVID-19) pandemic [26].

Taking into consideration the far-reaching development of the AI system and its global implications, Drach et al. [8] emphasise that persistent efforts to use it should be focused on the following areas:

1) increasing the EU's technological and industrial potential and implementing AI in the economy (private and public sectors);
2) preparing for socio-economic changes due to the emergence of AI by promoting the modernisation of education and training systems, supporting talent, diversity and interdisciplinarity, anticipating changes and ensuring transition processes in the labour market, and adapting social protection systems;
3) providing an appropriate ethical and legal ground based on EU values and in line with the EU Charter of Fundamental Rights, including recommendations for the future on labour, fairness, security, privacy, social inclusion and transparency of algorithms to ensure the fundamental rights to privacy, dignity, consumer protection and non-discrimination.

It is becoming apparent that AI is not only modernising the education system but is also becoming an integral part of the educational process, particularly in higher education. This requires the search for an appropriate theoretical and methodological basis for the development of various intellectual AI tools and the definition of conditions for their successful application in education, in particular in teaching social disciplines. Moreover, it is necessary to identify the tool opportunities and challenges that AI has in education, as it not only enhances and simplifies the process of information search and formation of industry knowledge but also significantly reduces the cognitive capabilities of education seekers by providing ready-made information cases at any request [8].

As Drach et al. [8] rightly emphasises, the use of AI in Ukraine, including in the education system, is slowing down due to the following circumstances: "the unsatisfactory level of digital competence of academic staff and the limited capabilities of research e-infrastructures; insufficient implementation of innovative methods and practices, including the use of digital technologies in teaching, research-based learning; failure to take into account neo-industrialisation, the introduction of the Industry 4.0 concept, robotisation, and the development of IT technologies, which will lead to changes in demanded professions; non-compliance with the principles of academic integrity in view of access to a significant number of information sources; outflow of competitive specialists abroad as a result of a large-scale war and insufficient financial support; low public awareness of the results of scientific research and a decrease of public confidence in their quality".

3.2. Social disciplines: subject field, content and structural components

In the context of stated circumstances, there is a particularly acute need to search for, develop and implement innovative tools and methodology that would facilitate the effective use of AI in education, particularly in teaching social disciplines, which would promote the development of critical and analytical thinking of students. To do this, first of all, it is necessary to identify the specifics of social disciplines and AI components that can be most effectively used for their teaching. Social science disciplines include sociology, social psychology, law, political science, economic theory, history, demography and social statistics. What unites these disciplines? Do their objects, subject fields, functions, and methods overlap? How similar are the concepts and categories? What unites these disciplines, and how can AI intelligent tools be used to study them? To answer these questions, we will analyse the subject field, conceptual and categorical apparatus, functional purpose and methods of social disciplines based on the author's experience of teaching them (table 1). We found the methods and approaches that science uses to study a subject: philosophical, general scientific, special scientific (disciplinary), and interdisciplinary.

Table 1: Subject field, conceptual and categorical apparatus, functional purpose and methods of social disciplines.

Social science discipline	**Subject field**	**Basic categories and notions**
Sociology [25]	Features, rules and regularities formation, functioning, development and changes in the social reality created by people and manifested in the diverse human existence: social facts, interactions, relationships, behaviour, activities, events, processes, phenomena, organisations and institutions, and contributes to the construction of social reality on the basis of empirical research	Social relations, social organisation, society, personality, social group, needs, interest, social phenomenon, social process, social law, social regulation
Political science [25]	Study of the political system of society and its various subsystems: political institutions and organisations, political relations, political culture and political methods	Political power, political system of society, political culture, political consciousness, political behaviour, political values, political norms, political socialisation, political process, political phenomenon
Economics [39]	The study of production relations that arise between people in the processes of production, distribution, exchange, and consumption of material goods and services, governed by economic laws of societal development	Property, resources, value, profit, price, costs, income, transactions, labour force, employment, production, distribution, consumption

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Table 1 – continued from previous page

Social science discipline	**Subject field**	**Basic categories and notions**
Social psychology [40]	Interrelation of the social and mental spheres, their interaction, interdependence, mutual influence at the level of an individual and a community, social and psychological phenomena that arise in the process of social interaction and characterise an individual or a group	Personality, group, cognition, thinking, beliefs, attitudes, socio-psychological reality, interaction, socio-psychological type, communication, socio-psychological phenomena, group dynamics, socio-psychological reflection
Law [16]	Theories of the state and law, phenomena and processes that occur in society and are related to law and its implementation	State, civil society, legal relations, democracy, legal behaviour, legal responsibility, socio-political rights and freedoms, social security
History [22]	The study of humanity's past, using written and material evidence of historical events	Civilisation, class, social organisation, society, social structure, generation, ethnicity, urbanisation, mentality, myth, social memory, monarchy, republic, democracy, autocracy, anarchy
Demography [30]	Composition and movement of the population, and patterns of demographic development	Residents, population structure, behaviour, demographic structure, demographic event, demographic phenomenon, demographic status, mortality, fertility, marriage, morbidity, demographic situation, population quality
Social statistics [21]	Quantitative analysis of social processes and phenomena, with a focus on qualitative aspects	Statistical population, observation, monitoring, standard of living, labour force

It should be noted that the methodology of social disciplines is considered as a synthesis of philosophical and general scientific approaches and methods of cognition of social reality, revealing the paradigmatic foundations of the study of social relations at different levels of their manifestation, from micro to meso levels. However, the presence of specialised scientific (disciplinary, local) approaches and methods that reflect the subject area of a particular discipline, its cognitive strategy, and specific standards for setting research tasks and methods of solving them is not excluded. Multi-subject (interdisciplinary) methods involve the use of methods from related disciplines to expand the possibilities of research inquiry. Such a complex structure of social science methodology is determined by the nature of human relations systems that are able to develop independently.

Thus, philosophical methods include dialectics and metaphysics, general scientific methods include theoretical (analysis, synthesis, induction, deduction, analogy, modelling, abstraction,

systematisation, analogy, concretisation, etc.) and empirical (observation, description, measurement, comparison), the specialised scientific methods include surveys, sociometry, testing, periodisation method, historical and genetic methods, etc., interdisciplinary ones include content analysis, surveys, expert evaluation, social experiment, oral history, modelling, linguistic, historical and ethnographic, demographic, statistical, mathematical methods, etc. Among the philosophical approaches, the study of society includes idealistic/materialistic, general scientific approaches include systemic, historical, activity, structural-functional, humanitarian, information, cultural, axiological, civilisational, and others, and the particular scientific approaches include positivist, phenomenological, interactionist, spatial, etc. Summing up, we note that at the present stage of the development of social science, all social disciplines are significantly interconnected. Sociology plays an integrative role in the system of social disciplines, developing a scientifically based theory of society and its structural components, techniques of study and methods of measuring human activity in various spheres of social life.

The analysis of the data in table 1 makes it possible to identify common features of social disciplines that allow us to generalise approaches to the use of AI tools in their teaching.

The first feature is that all social disciplines have a common object of research and study, namely social subjects, which include individuals, social groups (professional, demographic), social communities (historical and cultural, ethnic), and societies; their behaviour and activities, as well as social processes that occur at the micro, meso and macro levels.

The second feature is based on the similarity of categories and notions of social disciplines (table 1). It certifies that they are aimed at studying human behaviour and society, in particular, at studying social structures, institutions and processes that affect people's lives. Through these disciplines, researchers find out how people interact with each other, how groups and communities are formed, and how social norms and values are developed and enacted.

Thirdly, methodological approaches are common in social disciplines, as almost all of them use philosophical, general scientific, special scientific (disciplinary), and interdisciplinary, such as qualitative and quantitative research methods. These can include surveys, interviews, observations, document analysis, statistical methods, etc.

Fourth, a common feature of social disciplines is interdisciplinarity, which means that all social disciplines interact and complement each other. For example, sociologists can use economic theories to explain social inequality, while economists use sociological theories to explain the features of the functioning and management of labour collectives; political scientists can use sociological data to analyse political activity and psychological methods to explain the behaviour of politicians; historians use statistical data to study past events and phenomena, while demographers focus on the social and psychological aspects of population processes and virtually all scientists studying social processes focus on the legal aspects of their passing.

Fifthly, all social disciplines have a similar functional purpose, which is related to the study of social processes and social factors to identify problems that exist in the political, social, economic, legal, demographic, psychological, and historical spheres based on particular, on socio-statistical and empirical data. They also share the common goal of improving the lives of society and its social groups through legal norms, political and economic reforms, educational programs, demographic or social changes, as well as processes such as inequality, poverty, discrimination, conflict, deviation and change in society, and contribute to finding their solutions.

3.3. Discussion on tool capabilities, AI principles and problems of their use in teaching social disciplines

On the basis of common methodological and subject peculiarities of social disciplines, it is possible to identify those special didactic methods that should be used to improve the learning process and increase students' interest in social disciplines (table 2).

Table 2
Special didactic methods in teaching social disciplines.

Education purpose	Didactic methods	Content and results of the application of the didactic method
Development of critical thinking	Analysis of scientific sources	Use of various sources of information to form a complete picture of social events or phenomena
	Debates and discussions	Organisation of discussions of current issues, ability to express opinions and listen to the arguments of others
Developing the ability to apply scientific research methods for social problems	Sociological surveys (interviews, questionnaires), observations	Research of public opinion through questionnaires and polls
	Experimental studies	Performing small experiments to study behaviour and social phenomena
Developing skills to work with digital technologies	Multimedia presentations	Use of video, audio, graphs and other media to illustrate theoretical concepts
	Online platforms and resources	Use of platforms such as Moodle and Google Classroom to organise the learning process and communicate with students
Development of project activity skills	Group projects	Work on joint projects where students research a specific topic and present the results of their research
	Case study	Analysis of real cases or situations to apply theoretical knowledge in practice
Development of communication skills and interactive approaches	Role-playing games	Simulation of social situations or historical events for better understanding of the material
	Gaming methods	Use of educational games to learn the material in an interactive way
Use of analytical methods	SWOT analysis	Analysis of the strengths, weaknesses, opportunities and threats of a particular social phenomenon or policy
	PEST analysis	Assessment of the political, economic, social and technological factors that influence a particular issue
Development of skills to visualise data	Diagrams and charts	Use of different types of diagrams to present and analyse data
	Maps and infographics	Visual representation of information for better understanding of complex social processes

The use of AI should enhance the distinguished special didactic methods in teaching social disciplines in the following aspects and directions.

1. *Personalised learning for which machine learning algorithms are appropriate.* In 2019, a study by Jiang et al. [18] showed how algorithms personalise content and found that AI systems with the highest personalisation accuracy create a "degenerate feedback loop". Through the use of AI, it is possible to analyse data at the level of intellectual development and knowledge of students and recommend individualised materials and tasks according to their needs, interests and level of effort. According to Fadieieva [9], each student has his or her own unique needs, abilities, and learning pace, and AI is able to adapt to these individual characteristics by analysing the academic achievements of a particular person, his or her weaknesses, and interests. At the same time, the active use of artificial intelligence by students in the educational process threatens traditional methods of knowledge control, such as tests, essays, quizzes and presentations, which are losing their relevance.
   Individual learning through the use of AI is advisable in teaching all social disciplines without exception since, in modern conditions, the need for specialists seeking an individual trajectory of mastering educational programmes is growing significantly, as their intellectual efforts are much higher than the average inherent in the student group.
2. *Forecasting and trend analysis, which is carried out through the use of data analytic and forecasting methods based on artificial intelligence.* Analytical methods, as shown in table 2, include SWOT and PEST analysis. Through the use of these tools, it is possible to analyse and predict the peculiarities of the development of any socio-demographic, political and economic phenomena and processes to assess the legal, technological, and psychological factors that influence the causes of the problems they face. Teaching social disciplines, especially political science, sociology, economics, and demography, is impossible without taking into account the AI mentioned above tools.
3. *Data visualisation*, which is an integral didactic method of teaching social disciplines, can be carried out on the basis of artificial intelligence tools, which will help students better understand information and the relationships between different phenomena. Visualisation skills are developed using graphs, diagrams, maps, and infographics. It is most appropriate to use data visualisation processes when teaching such social disciplines as economics, social statistics, and sociology.
4. *Simulations and virtual laboratories that allow students to experiment with different scenarios and observe the consequences of their actions in controlled socio-economic, historical, political, legal or other conditions.* Due to intelligent tutors and virtual assistants that AI can create, students can get answers to problematic questions, get explanations of complex topics, and find additional resources. Conversational agents, including chatbots and virtual assistants, can help students solve practical problems and conduct debates and discussions, which will help improve critical thinking skills. Simulation of social situations or historical events to better understand the material, which can be done through simulations and virtual laboratories, can help to develop communication skills and interactive approaches to specific social and psychological processes in human behaviour. This aspect of AI use is also highlighted by Popenici et al. [33], who notes that it can be used to develop students'

interests, curiosity and imagination, creating unexpected paths through knowledge and new provocative approaches to original human solutions. Artificial intelligence is already the domain of distortions, prejudices, deepfakes and other challenges that only an active, inquisitive and critical mind can handle. Thinking skills will always be more important than technological skills, and universities have new incentives to refocus on higher education. Involvement of university research students from all fields of study in projects aimed at restoring university control over their technological solutions. Protecting institutional and individual autonomy is a major project for 21st-century universities.

5. *Speech, video, and voice interfaces formed on the basis of AI can be used to teach the process of conducting sociological surveys (interviews, questionnaires), observation, and experiments that study public opinion, analyse socio-psychological, economic, and legal behaviour, and investigate socio-economic, political, legal, and demographic processes and phenomena.* As a result, the ability to apply scientific methods to research social problems is formed, making the learning process more accessible and interactive for students. According to Spasić and Janković [41], applications that can generate audio, video, photo, and text content not only create texts and pictures but even combine them. In addition, some applications synchronise photos, voice, and video, generate search results with links to various resources, create program codes, and optimise people's working interaction. However, the teacher must teach students how to formulate a precise query (prompt engineering) when using AI resources to achieve the best possible response from the system.
6. *Tools of evaluation, generation of personalised comments and feedback are based on artificial intelligence and can help organise the educational process, create and coordinate schedules, check and evaluate student work, including term papers and qualification papers, analyse large amounts of data, or create tests to check the level of knowledge in social disciplines.* According to Popenici et al. [33], chatbots are increasingly being used in education to enhance learning as virtual tutors or to solve organisational problems, which has become standard practice at the administrative level. The concept of robot-estimator, or artificial intelligence systems for assessing students' work, is increasingly being proposed as an effective option for the future. For example, the use of text recognition or automatic answer generation programs can simplify the process of taking tests or writing essays in sociology, history, political science, social psychology, and law. Students may try to use AI to circumvent testing rules, for example, by using programs to search for correct answers automatically. AI also allows students to quickly access a large amount of information and resources, which in turn can reduce the need to memorise information or analyse it independently, etc.

As Farooq, Buzdar and Muhammad [10] emphasises, the most revolutionary changes concern research paradigms, techniques and methods used to analyse large amounts of information to identify the features of interaction between humans and machines in many areas. Data digitisation also contributes to the preservation of socio-historical heritage. It is interesting to note the possibility of virtual reconstructions using AI to immerse oneself in the historical context of a particular era, such as a comparative analysis of types of societies and their structures. An equally interesting area is advanced diagnostics and mental health support using

AI. We are talking about therapeutic chatbots and virtual counselling, emotion recognition, and mood analysis for interfaces.

Therefore, we can agree with scientists who believe that the opportunities of AI implementation (primarily LLMs [15]) are most significantly manifested in the teaching and learning processes during: generating alternative ways of expressing ideas; opposition (additional argumentation) in discussions; studying and solving problems (coaching); creating content for classes (e.g., identifying discussion questions); student support and personalised feedback in real time based on information from students and teachers; improvement of curricula and programmes; studying and interpreting data; dynamic assessment of learning achievements, etc.; as a separate tool or integrated into other systems and platforms used in higher education institutions [38]; self-improvement, expanding access to information, promoting personalised and comprehensive training; reducing the workload of teachers, which will contribute to the productivity of key processes and tasks [8, 11].

In the considered areas of using AI tools, new services are implemented such as Synthesia (converting textual content into a video), Trint (transforming audio and video files into text with the ability to search for elements and edit), Otter (transcription of audio files), Durable (generation of web resources with a ready-made structure and textual content) have been actively introduced recently, Compose AI (writing texts, chatting, correspondence), Bhuman (communication with the target audience, generation of personalised messages), Tome AI (creation of presentations), DALL-E and Stable Diffusion 2 (converting texts into images), MarketMuse (website content), Copy.ai (generation of SEO-optimised texts for blogs, advertising messages with product descriptions and emphasis on its strengths), Classify (systematisation and moderation of existing content), Embed (text content analytic), Article Forge (article writing), Jasper (text creation based on the analysis of source words), etc. [1, 27].

The basic techniques that underpin the use of AI tools in teaching social sciences are:

1) machine learning, which is used for image and speech recognition, natural language processing, and predictive analytics [35];
2) deep learning is a neural networks that detect specific patterns in data and improves the accuracy of information by learning from mistakes [3];
3) natural language processing is learning that allows a machine to understand and interpret human speech and generate answers based on previously learned data [12];
4) computer vision is AI that has become popular after the emergence of neural network applications that generate images on demand [6].

The use of AI in teaching social disciplines requires adherence to certain principles that ensure the effectiveness and ethics of the educational process, including:

- adaptability of AI tools to the individual needs and learning styles of students;
- availability of individual feedback from teachers to students based on the analysis of data on students' academic achievements;
- confidentiality, which is the protection of students' data;
- ethic, as AI tools should be used with consideration for fairness, transparency, and lack of bias in teaching materials and assessment;

- teacher support, i.e. AI should help, not replace, teachers by providing them with tools to improve teaching efficiency and reduce administrative burden;
- professional development of teachers, who should be able to learn how to use AI technologies to improve their teaching practices;
- interactivity and involvement that promote active learning, creating interactive learning environments that encourage active participation of students;
- collaborative learning, which is implemented through teamwork and cooperation between students using AI tools;
- accessibility, which means ensuring equal access to AI tools for all students, regardless of their socio-economic status or physical abilities;
- inclusivity, i.e., the development of learning materials and platforms that take into account the different needs and capabilities of students;
- transparency and explainability, which consists of the use of understandable AI algorithms to collect data on students, evaluate their work and make recommendations;
- innovation, that is, the active introduction of new technologies and methods in the educational process to improve the quality of education;
- monitoring and evaluation of the effectiveness of AI tools and their improvement are based on user feedback.

Despite the active widespread use of AI tools in education and other areas of human activity, there are many problems and risks with this information application. According to the results of a sociological survey conducted by Kantar in October 2023, 50% of respondents have a positive attitude towards AI in general, 43% of polled Ukrainians do not see threats to its development, while 57% of respondents are somewhat aware of AI development [19].

The serious problem with the use of artificial intelligence is the question of ethics, trust, and reliability, which is reflected in key documents from the European Union and other international organisations. For example, the Recommendation of the Council on Artificial Intelligence from the Organization of Economic Cooperation and Development [32] and Ethics guidelines for trustworthy AI from the High-Level Expert Group on Artificial Intelligence [17].

As Baleis et al. [2] emphasise, the opportunities and challenges of introducing AI should be considered, especially in the field of education, in direct relation to the ethical, pedagogical and technical restrictions of technology, despite the excitement and temporary enthusiasm for the progress of a particular technology or application; these factors should always be carefully weighed and considered.

The reliability of the use of AI tools in teaching social disciplines requires special attention since the study of social processes in the economic, social, historical, legal, psychological and demographic planes has certain specific features related to the behaviour of individuals and social groups. The main principles of reliability in the use of AI, according to Drach et al. [8], are "compliance with fundamental human rights, which include: respect for human dignity – AI systems should be developed with respect and protection of physical and mental health, personal and cultural sense of identity, satisfaction of urgent human needs; individual freedom – ensuring equal access to the benefits and opportunities of AI; respect for democracy, justice and the rule of law – AI systems should serve to support and develop democratic processes,

respect the plurality of values and life choices of people, etc.; equality, non-discrimination and solidarity – respect for the moral worth and dignity of all people; civil rights – AI systems have significant potential to improve the provision of public goods and services to society. At the same time, it is necessary to protect against the negative impact of AI systems".

Ethics and the reliable use of AI in the process of teaching social disciplines contribute to the formulation of fundamental principles that have become a priority for the development of international and national regulatory documents. These principles cover a wide range of areas, such as human rights, consumer and personal data protection, intellectual property rights, responsible business conduct and competition [8].

The use of AI in higher education not only opens many new opportunities but also brings a number of challenges and disadvantages, including the fact that AI can provide answers to questions without a complete understanding of the context or background, which can lead to misinterpretation of information or recommendations.

Assessing the quality of AI-generated responses can be difficult, as AI algorithms are not always able to take into account the context and level of argumentation. AI algorithms can also reflect or amplify prejudice present in the original data entered for analysis, which can lead to defective decisions or recommendations, especially in areas where adhering to the principles of fairness and equality is essential.

The use of AI may lead to the decline of higher-level thinking skills in students, such as analysis, critical thinking and creativity, as students may rely on technology to solve problems. The use of AI may raise questions about data security, privacy and ethics, particularly in the areas of collection and processing of personal information [11].

The use of AI can create a fear of replacing humans with machines in the learning process, which can affect the motivation and self-esteem of both teachers and education seekers. Thus, as Cacioppo and Patrick [5] rightly emphasises, AI can be designed to put students and teachers at the centre of the educational process, avoiding the trap of using technology as a means towards this end. The need for direct and indirect human interaction is evident to any education professional and well documented.

Taking into consideration these risks, it is important to continue studying and discussing issues related to the development and use of AI in the education system, in particular in the teaching social disciplines, and to develop strategies to ensure security, privacy and ethical issues in this area.

4. Conclusions

Artificial intelligence is the result of the intensive development of the information society, which can no longer be ignored, especially in the higher education system. It is the higher education system that has always been and remains an experimental platform for introducing various innovative methods and approaches. AI is no exception, and particularly competent teachers and students are already using its tools. Meanwhile, in our opinion, there is an inequality in the application of AI systems in higher education: they are more actively used in teaching technical and natural sciences but not enough in teaching social disciplines, including sociology, social psychology, law, political science, economic theory, history, demography and social statistics.

The novelty of this scientific work lies, first of all, in the fact that on the basis of analytical understanding of the subject field, content and structural components, and functional purpose of social disciplines, the work reveals their peculiarities:

1) a common object of research and study, namely, social subjects, which include individuals, social groups (professional, demographic), social communities (historical and cultural, ethnic), societies; their behaviour and activities, as well as social processes occurring at the micro, meso and macro levels;
2) similar conceptual and categorical apparatuses;
3) the same methodology, which includes philosophical, general scientific, special scientific (disciplinary), interdisciplinary, qualitative and quantitative research methods;
4) interdisciplinary nature;
5) social functional purpose is associated with the study of various aspects (political, economic, social, historical, legal, psychological, and demographic) of social processes and social units. In other words, social disciplines study the social behaviour of people and the mechanisms of society's functioning.

Secondly, on the basis of analytical and critical analysis, the paper substantiates the scientific position that the specificity of teaching social disciplines in higher education in modern conditions requires the use of such special didactic methods as analysis of scientific sources, debates and discussions, sociological surveys (interviews, questionnaires), observations, experimental research, multimedia presentations, online platforms and resources, group projects, case studies, role-playing games, game methods, SWOT-analysis, PEST-analysis, graphs and diagrams, etc. The paper is based on the analytical and critical analysis.

In teaching social sciences, AI tools are appropriate in the following areas: personalised learning, forecasting and trend analysis, data visualisation, simulations and virtual laboratories, speech, video and voice interfaces, assessment tools, and generation of personalised comments and feedback.

The main principles of using AI tools in teaching social disciplines in higher education are to adhere to certain principles that ensure the effectiveness and ethics of the educational process, which include the adaptability of AI tools to individual needs and learning styles of students, availability of individual feedback from teachers to students; confidentiality, ethics, teacher support, professional development of teachers, interactivity and engagement, collaborative learning, accessibility, inclusiveness, transparency and explainability, innovation, monitoring and evaluation of the effectiveness of AI tools and their improvement based on user feedback.

As researchers emphasise, advances in artificial intelligence contribute to the development of social sciences, as they allow for a deeper understanding of human behaviour and social rules. The use of AI to analyse social networks and online communities allows for the identification of hidden rules and dynamics, predicting social progress and trends to develop proactive measures to minimise the adverse effects of growing social challenges. Implementation of socio-communication research through the use of AI will ensure compliance with information security and cyber security of rules and regulations and increase the efficiency of IT resource allocation and network management.

The main problems with the use of artificial intelligence in education are the issues of ethics, trust and reliability, as defined by European legal documents, as well as the need for more

highly qualified teachers of social disciplines who are professionally proficient in AI tools. The solution to these problems lies within the competence of the Ministry of Education and Science of Ukraine and higher education institutions.

Therefore, promising areas for further research in the field of AI tools in higher education are the development of the latest technologies, legal norms and training of highly qualified teachers.

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