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The Concept of Anthropotechnics in the Social and Humanitarian Dimension

Purpose. This research defines the conceptual foundations of anthropotechnics as a science that studies modern processes of interaction between humans and technologies in the socio-humanitarian dimension. **Theoretical basis.** The authors use the method of anthropological analysis, which allows generalizing the approaches of anthropotechnics in the socio-cultural context in the "human-technology" system. **Originality.** Based on the results of the research, the understanding of the essence of anthropotechnics as a science that studies human interaction with technologies and technical systems has been clarified. The idea of implementing anthropotechnical approaches to the management of the educational process gained further development, in particular in the context of practical training of applicants for education, distance learning, and dual education forms. The concept of professional activity and professional self-realization of the individual is taken into account, and promising directions in the development of anthropotechnics in the context of the application of artificial intelligence are determined. **Conclusions.** Considering anthropotechnics in a philosophical and sociocultural dimension is an important approach to understanding the interaction of technologies, people, and society as a whole, where technologies affect human perception of the world and interaction with it. The range of approaches chosen by the authors, the disclosure of their principles and categories allows for considering the object of this research – anthropotechnics as a modern science – in a multifaceted and holistic way, to interpret the results of the research based on the use of the basic categories of approaches: a person, equipment, technology, activity, development, personality, system.

Keywords: a person; management; education; anthropotechnics; technologies; civilization; culture

Introduction

The interaction between a person and equipment is a complex and important aspect of modern life. This relationship covers the spheres of economic, social, and spiritual existence, ensuring the process of reproduction of society in its cultural and civilizational dimensions. The influence of equipment on humans, as well as how humans influence and use equipment, induce to scholarly discussions and the development of new methods for managing such interactions, which have been the subject of research by scientists and philosophers for many years.

Thus, Martin Heidegger, a German philosopher, dealt with the problem of equipment and its influence on human existence. He thought about how equipment changes the way we perceive the world and our understanding of our existence. In his works, especially in the essay "The Question about Equipment" ("Die Frage nach der Technik"), the philosopher raised the question of how equipment changes our attitude to the world, to nature and ourselves, he noted: "*We remain involuntarily chained to technologies, whether we passionately affirm or deny it*" (Heidegger, 1954). Heidegger emphasized that equipment is not just a tool, but also a way of transforming the world, which forms our perception and interaction with it. He argued that equipment involves a special form of relationship with nature that differs from traditional ways of interaction. The philosopher warned against forgetting one's native "earthly" existence in chasing technological progress, understanding oneself in the world.

Lewis Mumford, an American historian and social critic, studied the influence of equipment on culture and society. His works reveal the themes of technological development and its consequences for a person (Ford, 1958). He viewed the process of equipment's influence on the

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lifestyle, cultural values, and human perception of the world. Mumford (1934) studied the evolution and influence of technologies on the development of human civilization, paying attention to the cultural and social consequences of technological progress, since *"…equipment and civilization are one, certain aspects of the machine, such as its relation to architecture, and certain aspects of civilization which may ultimately affect the development of the equipment should be carefully considered in the future*".

Don Ihde, an American philosopher, specialized in the phenomenology of equipment. He researched human interaction with technology and the influence of this interaction on our understanding of the world. He researched the influence of mass media, electronic devices, and technical means of communication on our perception and interaction in the social environment. Carrying out a phenomenological analysis of the interaction in the "person-equipment" system, he introduces the "*techno-scientific visualization*" concept (Ihde, 2009). The research on how a person interacts with high-tech systems (artificial intelligence) and how these systems affect our understanding of reality is considered the most important in the context of the modern philosophy of technology and phenomenology (Ihde, 2019).

Marshall McLuhan, a Canadian researcher of media and communications, analyzed the influence of mass media and technologies on human consciousness and culture. McLuhan researched how the media (television, radio, and print) affect people's ability to perceive and interpret information. He developed a concept according to which the media do not just broadcast information, but deeply influence the cultural and social aspects of society, forming an environment that has its characteristics and influence on people's lives. He introduced the concept of a "global village", anticipating the possibilities of global communication and interaction thanks to media and technologies, and noted that *"… electromagnetic discoveries have recreated a simultaneous 'field' in all human affairs so that the human family now exists in the conditions of a 'global village'"* (McLuhan, 1962).

M. McLuhan was the first in the research of interaction between equipment, media, and people, and his works are of great importance in the field of media theory and cultural anthropology.

Purpose

Thus, the problem of interaction between a person and equipment for several decades focused attention on individual aspects, but a holistic view of the interaction of these phenomena has not been given. We believe that "anthropotechnics" itself can provide a new meaning, expand the scope of research in modern cultural and civilizational dimensions.

Statement of basic materials

Modern technologies have a profound and multifaceted influence on the formation and development of human existence, ensure sustainable development, and significantly change our everyday lifestyle. They simplify many aspects of our activities, providing new ways of communication, entertainment, work, and even health care, changing how we interact with nature and the environment.

For example, the use of electronics and transport affects energy consumption and environmental pollution, medical technologies contribute to the improvement of diagnosis and treatment of diseases, prolonging life expectancy and improving the quality of medical care,

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information technologies expand access to knowledge and education, and also create new forms of cultural expression and exchange ideas. Technologies affect the organization of work and create new areas of the economy.

Technologies shape cultural norms and human values, influence the way of communication and solving problems in the organization of society, etc. A person's use of technology significantly affects self-awareness of the world, because they open up new opportunities for realizing one's potential. Technologies affect human nature, and social and individual processes, which is an important aspect of modern technological civilization.

Robert Rosenberger (2022) in his works conditioned the perspectives of studying specific relationships between a person and technologies and based on the post-phenomenological concept of Don Ihde noted *"…the idea that technologies are always open to multiple uses and meanings"* may play a useful role in efforts to combine with the concept of local stabilization of the relationship between a person and equipment.

The interesting question for us is the emergence and development of anthropotechnics, as a field of science that is a branch of anthropology and deals with the study of human interaction with equipment in the context of cultural and civilizational development. It is anthropotechnics that is the intersection of anthropology and technical sciences, and directs us to understand the interaction between a person and technology in the modern world.

Considering that the genesis of anthropotechnics in the human being is based on the development of technologies and their influence on the evolution of human society and the individual himself/herself, we should note some key aspects of its scientific justification.

Let us outline the key stages and events of the Ancient World. Even in ancient times, there were primitive anthropotechnical solutions, such as tools for hunting and gathering food, adapted to human physiology. In the Middle Ages, specialized tools and devices began to appear, such as orthopedic devices and architectural solutions taking into account the convenience of people. In the era of the Industrial Revolution, the development of technology took place, which led to the creation of various devices designed with regard to the anatomical features of a person, as well as tools for medical and engineering practice. The 20th century is the emergence of ergonomics as a science dealing with the adaptation of equipment to people. At this time, increasingly complex anthropotechnical solutions began to be developed and applied. Modernity is the heyday of anthropotechnics with the development of modern technologies. This involves the creation of adaptive technical devices and technologies for people, for example, with disabilities, as well as the development of complex special technical means.

"Never has humanity been as enthused by the prospect of a total and permanent trans-formation as in our age" (Roney & Rossi, 2021).

For our research, we are interested in the works of Peter Sloterdijk, a German philosopher known for his work in the field of social philosophy and cultural theory. In his works, anthropotechnics occupies an important place, he developed the concept of anthropotechnics as a way of anthropological reflection on the interaction of a person with equipment. The philosopher analyzes how technologies affect the formation and development of human existence. We agree with the findings in his research concerning the reflection on how technologies change the ways of human perception, interaction, and self-understanding, especially as it raises questions of ethics and responsibility in the context of anthropotechnics. He analyzes what moral and ethical issues arise in the creation and use of technologies, and how humanity must be responsible for

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the consequences of their technical decisions (Sloterdijk, 2009). His statements, assumptions, concepts, and theories are relevant in the present and the future.

In our opinion, anthropotechnics of human existence is a field of research dedicated to the adaptation of technologies to various aspects of human life, which involves the development of technical solutions and systems given the physiological, psychological, social and cultural characteristics of a person. Patrick Roney and Andrea Rossi (2021) defined anthropotechnics as *"…the technological, the ascetic and the immunological constitution of humanity"*, where the human being, whose essence is technological, and whose technological essence prompts him/her to ascetically go beyond oneself, is at the same time sub an object that, with the help of practice, should shape the world it inhabits.

Let us take a bold step and define several aspects of anthropotechnics of human existence aimed at creating technical solutions that maximally meet the needs, capabilities and characteristics of a modern person, improving his/her quality of life and comfort in various areas:

– medical anthropotechnics contributes to the development of medical devices adapted to the anatomy and physiology of patients for optimal efficiency and safety;

– anthropotechnics in interior design and architecture creates comfortable and ergonomic devices for life and work, taking into account the needs and characteristics of people;

– technologies for the elderly contribute to the development of adaptive technical solutions to improve the quality of their life, as well as medical devices, simplified interfaces, etc.;

– social anthropotechnics necessitates the development of technical means to improve interaction in society, as well as means of communication, adaptive technologies for people with disabilities, etc.;

– anthropotechnics in sports involves the development of technical means and equipment for athletes, taking into account their physical parameters and requirements;

– the development of adaptive technologies for children involves the creation of educational and developmental devices adapted to the age and physiological characteristics of children.

However, if we consider "anthropotechnics" as a philosophical direction, then we can highlight several main aspects and determine reflection regarding the influence of technologies on man and humanity in general. The philosophy of technology helps to analyze the moral, sociocultural, and philosophical aspects of the use and development of technologies in the context of human existence. Namely, the humanization of technologies involves considering how technologies can be developed and applied given human values and needs, where the reflection of moral and ethical issues related to the development and application of technologies, directs the person’s attitude towards the technological world.

Let us consider the philosophy of anthropotechnics as an area of philosophical thinking devoted to reflection over the influence of technical means and technologies on people, society, and culture as a whole. It is aimed at understanding ethical, moral, sociocultural, and philosophical issues related to the development, use, and influence of technologies on human existence. Let us define some key aspects of the philosophy of anthropotechnics:

– ethics and technologies – analysis of moral dilemmas arising in connection with the creation and use of technical means, examination of questions about the rules, goals, and consequences of the use of technologies;

– a person in a technological world – research of how technologies affect human self-awareness, socio-cultural identity, relationships, as well as the meaning and values of human existence;

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– the phenomenon of technological civilization – a reflection on the nature and essence of modern technological civilization, its influence on culture, society, and human relationships;

– philosophy of artificial intelligence – study of ethical and philosophical issues arising in connection with the development and application of artificial intelligence;

– anthropological aspects of technologies – reflections on how technologies shape our ideas about men, their abilities, and limitations;

– the future and technologies – a reflection on possible scenarios in the development of technologies and their influence on the future of humanity.

Let us define the main place for anthropotechnics in human beings and present the relationship between equipment and a person, as a branch of philosophy, then it should be devoted to thinking about nature, the significance of the influence of equipment on human life, and vice versa. The following aspects can be defined here:

1. Ethical aspects – reflections on how equipment affects moral and ethical norms, as well as how a person should behave in the context of technological progress.

2. The philosophy of artificial intelligence – consideration of issues related to consciousness, ethics, and responsibility in the context of the creation of intelligent systems.

3. An anthropological view of equipment – an analysis of how the use of equipment affects a person's self-determination and self-awareness.

4. Technical consciousness and culture – reflections on what cultural and social changes occur under the influence of technological progress.

5. Sustainability and ecology – reflection on issues of sustainable development and the influence of technical processes on the environment.

6. The meaning of equipment in human life – consideration of the philosophical aspect of the significance and meaning given to equipment in human life.

The philosophy of human interaction with equipment and technologies helps us to understand and realize how equipment and technologies form the cultural, social, and spiritual aspects of human life, what basic values are formed in a person, which motivates a person to introduce technologies into various spheres of social life.

So, in our opinion, the concept of anthropotechnics in the philosophical and sociocultural aspects should have the following components:

– anthropotechnics seeks to create technologies adapted to the physiological, psychological, and social characteristics of a person to facilitate his/her life and activities;

– anthropotechnics involves the analysis of ethical issues that arise during the development and use of technologies, as well as the assessment of their socio-cultural consequences;

– research in anthropotechnics showed the influence of equipment on the psychophysiological state, habits, and behavior of people;

– anthropotechnics also involves the development of sustainable technological solutions, with regard to the influence on the environment;

– the anthropological aspect, formed in the field of studying how technologies affect self-determination, self-awareness, and the person's way of life;

– social anthropotechnics deals with the research of the influence of technologies on social relations, culture, and organization of society;

– the anthropotechnical approach to education is accompanied by the development of technological solutions that contribute to the improvement of the educational process and support of educational goals.

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Using the concept of anthropotechnics proposed by us, we can carry out our analysis of the interaction between a person and equipment, as well as the influence of technologies on human existence in the conditions of technological progress.

Reflection of anthropotechnics helps a person to understand how technical solutions can be adapted to the physiological, psychological, and socio-cultural characteristics of a person aiming at more efficient and comfortable use. What exact ethical issues arise during the development and application of technologies, and how do they relate to social and cultural norms, how does technology affect health, comfort, and the general condition of a person? We have to assess the influence of technologies on the environment and social relations and realize that it is a person who influences the development of equipment and is responsible for the technical decisions made.

So, we can confidently say that the reflection of anthropotechnics is an important tool for more conscious, responsible human development, the use of equipment, and technological projects. It helps us manage this process, evaluate potential pros and cons, and find a balance between the development of equipment and ensuring the well-being of people and society as a whole. Robert Hughes (2021), researching the philosophy of anthropotechnics, noted that *"…anthropotechnics is properly conceived as a management of the subject's automatic processes to trick or repurpose or redirect them to work in concert or coincidence with the anthropotechnical project"*.

Today, anthropotechnics encompasses many areas: from medical technologies and machinery to the design of interfaces in education, economics, and engineering, – to create a comfortable environment for human life and work. Its goal is to ensure the best compatibility between a person and equipment for maximum efficiency of his/her work, safety, and comfort.

The tools of anthropotechnics include various technical devices, machinery, and technologies, created taking into consideration the characteristics and needs of humans. They are designed to facilitate and improve human interaction with equipment and the environment, namely, ergonomic furniture and accessories – adjustable chairs and tables, special chairs with back support, adjustable stands for monitors; mobility devices – wheelchairs of various types, derivative devices, for example, canes and walkers; technical assistants – modern medical devices, for example, electric wheelchairs with automated functions, specialized prostheses and orthoses; adaptive devices for communication –voice control systems, devices for alternative and additional communication; accessibility technologies in electronic devices – screen readers and programs for audio playback, enlarged fonts and adaptive input systems; specialized vehicles – transport for people with limited mobility, equipped with lifting facilities; special means for education – technical devices and programs for teaching people with special needs.

These tools help to improve the quality of people's lives, in particular, with various physical and cognitive limitations, providing them with greater independence and the possibility of self-realization in society. During life, a person goes through various stages of personal development, which is reflected in society. Therefore, we can confidently say that the realization of one's own potential will take place under the condition of a conscious idea of the best future in the professional sphere.

If we consider the professional component of an individual's life path, priority is given to the initial phase, which is important in a person's life, the line of development – choosing a profession. Moreover, the emphasis, as a rule, is formed on the importance of the "right" choice as opposed to the "wrong" one. However, today there is an urgent issue of a person's further

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construction of a professional path, where the psychological mechanisms of growth and success, as well as anthropotechnical means in education, remain without the attention of researchers.

For our research, it was interesting to consider the anthropotechnics of education in the conditions of universities, colleges, and professional (vocational-technical) educational institutions in Ukraine, where the application of the principles of this science contributes to the creation of an environment that best meets the needs and characteristics of applicants for education regarding the development of their abilities and professional skills.

We will define some aspects of anthropotechnics that, in our opinion, can be applied to the educational environment: the distribution of education seekers by categories and their accounting – the development of methods and materials that take into account different forms of education, interests and needs of students; convenience and efficiency of the educational environment – development of teaching methods that take into account ergonomic principles for optimal comfort of students; technological adaptation – providing access to modern technologies, software and equipment in view of the technical needs of students; development of adaptive programs – creation of courses, programs and materials that provide additional support for students with special needs; assessment and feedback – using assessment methods to objectively assess students' knowledge and skills, as well as providing constructive feedback; development of communication skills and social adaptation – creation of conditions for the development of communication skills and interaction with fellow students and teachers; information management and availability of educational content – creation of educational materials and software tools taking into concideration the principles of convenience and accessibility for all students; support for teaching staff – training teachers in anthropotechnical methods and supporting them in creating an adaptive educational environment.

Anthropotechnics in the education system contributes to the creation of an inclusive, accessible, effective, and comfortable educational environment, giving the individual needs and characteristics of each student.

Let us pay attention to the educational environment, which provides practical training for applicants due to the appropriate methods and techniques of practical training provided by educational programs.

The process of practical training is associated with the use of certain technologies, machinery, and tools, thanks to which students acquire new knowledge, develop intellectually and develop personal qualities necessary for cognitive activity.

Anthropotechnics in the context of practical training of students is considered by us as a set of principles of this science applied to ensure the comfort of participants in the educational process and the efficiency of using the educational infrastructure. This involves the use of technical means and methods that take into account the peculiarities of students and facilitate the learning process.

We will define several anthropotechnical approaches in the practical training of students: ergonomic teaching aids – adjustable tables and chairs, so that each student can adjust the height and angle for an optimal position during work; technical means of accessibility – the use of software with the functions of demonstrating the performance of certain exercises, voice input and other means of adaptation; audio recording and visualization systems – providing recordings of lectures or materials in audio and video formats for repetition and study; adaptive technologies for different needs – use of specialized devices and programs for students with special needs, such as hearing or visual prostheses; information management – organization of

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materials and courses taking into account the principles of convenience and accessibility; educational programs and pedagogical methods – the use of methods that contribute to the active participation of all students, regardless of their characteristics; special educational materials – development and provision of educational aids that meet the various needs of students.

Understanding the role of anthropotechnics in the educational process helps us determine the place of the head of an educational institution in conditions where a student should learn and develop as effectively as possible.

Let us consider the head of an educational institution, who acts within his/her managerial competencies, like a technician who possesses knowledge and skills, and has a set of tools and mechanisms that affect the production of certain products. As in education management, the head of an educational institution has a certain set of management tools – methods, and techniques, with the help of which s/he influences the educational process, where the object of study is a student who develops as a person and is formed as a specialist. In fact, the head of an educational institution can be called an anthropotechnician, which directly affects the management process, and the development of a student as an individual.

Let us determine the approaches used by the anthropotechnician in the management of the educational process and how s/he affects the interaction of the participants in the educational process thanks to technologies and technical systems and define their effectiveness. Thus, an anthropotechnician-head develops and implements technological solutions that take into account the peculiarities of the human factor. The anthropotechnician-head conducts analysis and assessment of ergonomic aspects in the educational processes and environment, introduces innovations and technological solutions into the educational process, considering the needs and characteristics of education seekers, ensures the training of employees in the correct use of educational techniques and equipment in the aspect of anthropotechnics. In this way, s/he creates more convenient and safe conditions for the implementation of the educational process and contributes to the improvement of the daily activities of the teaching staff.

For example, today a complicating factor in managing the educational process in educational institutions of Ukraine is the quarantine restrictions and the martial law in the country. In such a period, the education system must be adapted to the special conditions of existence and the needs of applicants for education. A concept must be applied that has a special management toolkit. Flexible techniques and accessible methods are used, where the issue of the safety of participants in the educational process comes first, namely safety – development of evacuation plans, provision of shelter and security measures to protect participants in the educational process; organization of the learning process – the creation of flexible schedules, distance educational platforms and alternative methods of using educational material, introduction of dual form of education, etc. Psychological support also be applied in providing help to students and teachers to cope with emotional stress caused by military actions, etc.; training, survival, and first aid – introduction to educational programs of disciplines that teach basic survival skills and first aid, especially in crises; access to information – providing communication with students and their parents, as well as providing up-to-date information about events and preventive measures; assistance to persons with reduced mobility – development and application of adaptive methods for students with physical limitations or psychological injuries; organization of evacuation and shelters – planning and preparation for evacuation in case of need, as well as creation of safe shelters for temporarily displaced persons; social support – assisting in obtaining material and psychological support for students and their families who may have suffered from military actions.

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One of the forms of organizing continuous education in crisis conditions is a distance one, which actually allows you to continue the educational process despite restrictions on access to education, lack of constant communication and electricity, etc. Anthropotechnics of distance learning involves the application of the principles of this science to improve the accessibility, convenience and efficiency of the educational process in the online environment.

Here are a few aspects that can be included in the anthropotechnical approach to distance learning:

– accessibility of web platforms and applications – ensuring that platforms for distance learning provide access to educational content to all students, even those with significant territorial limitations, and special educational needs;

– convenient interface and navigation – using existing ones or developing new ones and introducing a convenient, intuitive interface for students with different levels of training;

– modern means of communication – use of means for video and audio conferences, chats, and other tools that ensure effective interaction between participants in the educational process;

– adaptive technologies – provision of alternative options for access to educational materials, for example, audio recordings of lectures, notes, methodical guides, etc.;

– opportunities for interactivity – implementation of interactive elements, tasks, and tests to support the active participation of applicants for education;

– technical compatibility support – analysis of differences in students' technical equipment and provision of alternative options, if necessary;

– feedback and support – providing an effective feedback mechanism between teachers and students, as well as providing support on technical issues;

– educational materials – creation of educational resources taking into account the diversity of students' needs and teaching methods.

Therefore, the anthropotechnics of distance learning forms the conditions of accessibility to education, which allows all students to obtain quality education in the online environment, regardless of their characteristics and shortcomings.

Let us define artificial intelligence (AI) as a promising direction in anthropotechnics. Human interaction with AI and its application in various fields have significant potential to improve the quality of life and complex tasks associated with the creation of machines that can reason, understand, and learn like humans. We offer several aspects that demonstrate the prospects of AI in anthropotechnics:

– automation and optimization of tasks, where AI can automate many everyday and professional tasks, freeing up human time for more creative activities;

– medicine and health care – AI can improve the diagnosis and treatment of diseases, helping doctors make more accurate decisions based on the analysis of large volumes of medical data;

– personalization of education – the use of AI allows creating the individualized educational programs and approaches, taking into account the level of knowledge, learning styles, and interests of each student, and improving users' interfaces can significantly improve the usability of technical devices, programs and applications, making them more intuitive and adaptable to the needs of users;

– scientific research – artificial intelligence can solve complex problems and process large volumes of data, carry out complex analyses in the field of science, technology, etc.;

– autonomous systems and robotics – artificial intelligence is the basis for the development of autonomous systems and robots capable of performing various tasks in environments where it is difficult or dangerous for a person to work;

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– management and decision-making systems – artificial intelligence can analyze data and offer optimal solutions in various fields, from business to urban infrastructure management.

Artificial intelligence has significant potential to transform the educational process. Thus, in the field of individualized learning, AI can analyze data about each student, determine his/her level of knowledge and advantages in learning, offer personalized materials and tasks. Adaptive learning platforms can be involved here, by which the difficulty level of tasks can be controlled depending on the success of the applicant for education, providing more effective learning. Artificial intelligence can serve as a virtual assistant, helping students with assignments by providing hints and explanations, and can help in learning foreign languages by providing an opportunity to practice conversational skills.

It is important to note that the implementation of AI in education can help with the automation of administrative processes, freeing up teachers' time for better interaction with students.

The issue about the widespread use of AI contains a proviso about the danger of AI itself for humanity and requires careful consideration, during which it is necessary to take into account the possibility of creating a powerful AI that will surpass human intelligence in all aspects of human existence. New security threats may emerge, including the possibility of using AI in cyber attacks, the creation of autonomous military systems, and other potentially dangerous scenarios. The introduction of AI into the economy can influence the labor market, creating new jobs, but also excluding some traditional professions. The development of AI may raise questions about how it will interact with humanity in the ethical sphere. For example, how to ensure fairness and impartiality in AI algorithms, and how to resolve ethical dilemmas that arise in AI decision-making which are important, especially when decisions relate to health, safety, and other critical areas.

So, although AI represents a huge potential for positive changes in many areas of life, it also causes several serious problems and potential threats. Partha Pratim Ray and Pradip Kumar Das (2023) in their research point out the *"necessity for a multidisciplinary, collaborative approach to chart an ethical, beneficial, and sustainable AI future, enabling society to harness the potential of AI responsibly while mitigating the associated risks"*. Therefore, it is important to consider mechanisms of control and transparency in the development and application of AI to avoid the unauthorized use of such a tool as AI by humanity.

The synthesis of anthropotechnical concepts and approaches in education determined in our research allowed us to combine technical and human resources to formulate optimal technological solutions that take into account the needs and characteristics of the human subject.

So, the main step here is the analysis of human needs, which requires a thorough study of one's needs and requirements. This may involve observation, surveys, analysis of human behavior, etc. When developing technologies, it is important to take into account the individual characteristics of the human body and mentality, where the generalization of anthropotechnical approaches determines the process of creating convenient and ergonomic interfaces for interaction between people and technology. In our opinion, the process of developing modern technologies should contain ethical norms and cultural features in order to avoid a negative influence on society because of the rapid changes in technology and social needs.

Therefore, the synthesis of anthropotechnical approaches as a complex process allows us to take into account various aspects of human existence under the influence of technological progress, the main goal of which is to create technologies that best meet people's needs.

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Based on our research of anthropotechnics as a science, we will define several key problems and challenges facing contemporary society.

1. Ethical issues – advances in technologies require careful attention to ethical aspects, in particular in the areas of privacy, security, and moral standards.

2. Security – protecting against malicious use of equipment and technology is important, especially in the context of cybersecurity and cybercrime.

3. Environmental aspects – the development of technologies can be accompanied by a negative influence on the environment, which requires careful attention to the problems of ecology and sustainable development.

4. Social inequality – inequality in access to technologies can arise if some groups of the population are given more opportunities while others remain underdeveloped.

5. Job displacement – the development of automation and robotics may lead to job losses in some areas.

6. Influence on health and well-being – technologies can have an influence on physical and mental health, especially if used incorrectly.

7. Data privacy and security – with the growing volume of personal data, it is important to ensure its confidentiality and protection from illegal use.

8. Legality and regulation – it is necessary to create effective legal and regulatory mechanisms to control technological development and its influence on society.

Eliminating these problems requires the joint efforts of scientists, engineers, educators, legislators, and society as a whole. This will allow the creation of more harmonious and mutually beneficial interaction between a person and equipment in an anthropotechnical context, where the priority should be understanding and feeling the needs, emotions, and experiences of people in the process of using the equipment. This is an important component in the development and implementation of technical solutions since they often affect the quality of life and well-being of people.

Originality

Based on the results of the research, we clarified the understanding of the essence of anthropotechnics, as a science that studies human interaction with technologies and technical systems. The ideas of implementing anthropotechnical approaches and aspects of educational process management gained further development, in particular, in the context of practical training of applicants for education, distance learning, and dual education. The role of the head of the educational institution as anthropotechnics, which directly affects the individual, is determined. The concept of anthropotechnics of education in the conditions of martial law has been developed. The concept of professional activity and professional self-realization of the individual is taken into account. Prospective directions for the development of anthropotechnics in the context of artificial intelligence are determined.

Conclusions

The study of modern technologies and their influence on society, psychology, and human physiology is an important part of finding a person’s place in the modern world, where it is the analysis of the technologies’ influence on social structures and relationships helps us understand how they shape our society. An important part of the search for patterns in the existence of

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anthropotechnics is to study the moral issues associated with the use of technologies. It helps to define what is right and fair in the context of anthropotechnics. The consideration of anthropotechnics from a philosophical viewpoint highlights the basic principles and values underlying the interaction between equipment and a person, where people themselves create equipment and technologies, which allows them to better understand the meaning of their existence. The development of anthropotechnics is dynamic since technologies are constantly evolving, and their influence on society and the individual is constantly changing.

So, we defined the philosophical and socio-cultural dimension of anthropotechnics, which is an important approach for understanding the interaction of technologies, people, and society as a whole, where technologies affect the very existence of people, their perception of the world, and their interaction with it. The range of approaches we have chosen, and the disclosure of their principles and categories allows us to consider the object of our research – anthropotechnics as modern science – in a multifaceted and holistic way, to interpret the research results based on the use of the basic categories of these approaches: a person, equipment, technology, activity, development, personality, system. The essential characteristics of these categories are understood by us in their interconnection and interaction, which arise in the process of implementing the basic principles of human-technology interaction.

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Концепція антропотехніки в соціально-гуманітарному вимірі

Мета. У цьому дослідженні передбачено визначити концептуальні засади антропотехніки як науки, що вивчає сучасні процеси взаємодії людини і технологій у соціально-гуманітарному вимірі. **Теоретичний базис.** Автори застосовують метод антропологічного аналізу, який дозволяє здійснити узагальнення підходів антропотехніки в соціокультурному контексті в системі "людина – технології". **Наукова новизна.** За результатами дослідження уточнено розуміння сутності антропотехніки як науки про взаємодію людини з технологіями та технічними системами. Подальшого розвитку набули ідеї реалізації антропотехнічних підходів до організації управління освітнім процесом, зокрема в контексті практичної підготовки здобувачів освіти, дистанційного навчання та дуальної освіти. Враховано концепцію професійної активності та професійної самореалізації особистості, визначено перспективні напрями розвитку антропотехніки в контексті застосування штучного інтелекту. **Висновки.** Розгляд антропотехніки у філософському та соціокультурному вимірі є важливим підходом для розуміння взаємодії технологій, людей і суспільства в цілому, де технології впливають на сприйняття людиною світу та взаємодію з ним. Обраний авторами комплекс підходів, розкриття їх принципів і категорій дозволяє багатоаспектно й цілісно розглядати об'єкт цього дослідження – антропотехніку – як сучасну науку, інтерпретувати результати дослідження на основі використання базових категорій цих підходів: людина, техніка, технології, діяльність, розвиток, особистість, система.

Ключові слова: людина; управління; освіта; антропотехніка; технології; цивілізація; культура

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