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A. Hafiiak[1], S. Yastreba[2], O. Nosach[1], E. Borodina[1]

[1] Poltava National Technical Yuriy Kondratyuk University, Poltava, Ukraine
[2] Poltava National University of Food Technologies branch, Poltava, Ukraine

INFORMATION TECHNOLOGY AS A COMPONENT OF IMPROVING THE TRAINING QUALITY FUTURE SPECIALISTS IN HIGHER EDUCATION INSTITUTIONS

The study and solution of the problem of informatization of higher education, which is that as a result, global rationalization of intellectual activity in education through the use of artificial intelligence should be achieved in order to increase the efficiency and quality of training specialists to the level of information culture. Ability to use artificial intelligence systems in the learning process allows you to have an idea of the object of knowledge, and helps to master all the diversity and complexity of relationships characteristic of real processes, trace the dynamics of these relationships when changing external and internal factors. The article analyzes the use of information technologies as a factor for improving the quality of training of future specialists in higher education institutions and the actual problems of professional training of specialists and ways of their solution. The types of innovative teaching methods in higher educational institutions are investigated and the role of information and social technologies in education is considered. The peculiarities of the programmed educational facilities are revealed and the directions of use of information technologies in the educational environment are substantiated. The stated goal set the task: to analyze the possibilities of modern information educational technologies and to investigate the development of the concept of pedagogical innovation as an innovation in the field of pedagogy; to determine the possibilities of using artificial intelligence systems in order to implement a differentiated approach to students with different levels of training; to identify promising directions in the field of application of information technologies in the process of training future specialists in higher education institutions.

Keywords: information society, artificial intelligence systems, information system, information technologies, institution of higher education.

Introduction

Today, in the era of the process of transforming society into the global information space, the focus of which is based on the development of competences of future specialists, on the other hand, it is possible to analyze the problem of considering contemporary approaches to the organization of educational processes. Among the main characteristics of the information society, they consider first of all the growth of the role of information in modern life, an increase in specialists employed in the field of information technology.

Also noteworthy is the problem of improving the global information space, with the possibility of access to the information resources of the world and the constant updating of the processes of informatization and the place of information technologies in public relations.

It is clear that the information society significantly influenced the methodology of modern education. Today there are additional requirements for the education system in the process of preparing future specialists, which leads to the permanent solution of non-standard tasks. So, in such a system, the first place is occupied by innovative methods of preparing students in the system of higher education, which today is impossible without the use of modern information technologies [1–12].

Exploring the development of the information society, it should be noted that this process is based on a constant increase in the volume of information and knowledge, intellectual information technologies, and is supported by the constant growth of the professional skills of future specialists [12–21]. The results of these and other studies require new technologies and types of education, professional and other competencies, supports the process of continuous improvement of knowledge and skills of industry professionals.

In this regard, the study of information technology as a factor in improving the quality of training future specialists in higher education institutions is absolutely relevant.

Main part

Today, during the comprehensive development of information technologies, it is impossible to imagine the educational process without using IT forms, methods and means of training, new types of educational activities and interaction of subjects of the educational process. The main task of a higher educational institution in the process of preparing future specialists at the present stage is to train specialists who are able to respond in a timely and mobile manner to the changes occurring in the world and be able to use knowledge in their own professional activities. That is why innovative methods of training are widely used to prepare students for professional activities, the basis of which is resource-oriented training. Such methods should include creative learning, problem-based learning, learning through collaboration, interactive learning, the project method, and the like.

Information technologies in higher education institutions in the process of preparing future specialists are most often used for: efficient use of information resources; optimization and automation of information processes; development of production technologies for use in electronic telecommunications systems; increase the intellectual potential of society;

use of information modeling methods in research works, which allows to carry out and analyze difficult or dangerous situations; use of information modeling methods, global processes, space information monitoring.

Today, the educational system has introduced new technologies for the presentation of educational material, types of educational activities, which allows us to consider and analyze the theoretical and methodological foundations of this problem. Very promising is the use of artificial intelligence in education. In many foreign countries, studying the discipline "Systems of artificial intelligence" in secondary school is optional or as part of the school curriculum. Immediately after the theoretical study, they conduct practical exercises aimed at better understanding and mastering the program. This is done in order to give young people not only the necessary basic knowledge of the subject, but also to maximize their creative abilities and imagination.

Considering the possibility of using artificial intelligence, it should be noted research on the replacement of the teacher with a robot. Indeed, the idea of teachers with artificial intelligence, powerful knowledge, the ability to quickly respond to the constant change of information and other high-quality technical and technological indicators deserves attention, but, according to many researchers, for the effectiveness of student-centered learning, the present requires many human qualities.

Analysis of various aspects of the problem allows identifying innovations in the field of pedagogy, such as purposeful, progressive improvement, introducing certain innovations in the educational environment, both technical and technological, improving the characteristics of its individual components and the educational system as a whole. The dissemination and use of information technology, in its principle and method of perception, is closest to the traditionally existing one: the user knows exactly what he gets, but he doesn't know if he needs it in such a volume. Accelerating the development of modern information technologies contributes to the transition to the information society and is the main factor informatization of all spheres of human activity, and above all education [2, 3].

Analysis of recent research allows to identify promising areas in the field of application of artificial intelligence systems in the educational process: modern methods and strategies for selecting content, methods and organizational forms of education; the creation of the newest methodical training systems oriented towards the development of the students' intellectual potential; the formation of skills quickly, mobile, independently acquire knowledge, to carry out information and training activities; modern education management mechanism based on the use of information and teaching materials; creation of a single information space using artificial intelligence; self-education, in particular advanced training using information technologies; distance education, cloud technologies in education, etc. [5, p. 75].

Additional requirements for teachers put forward the current comprehensive development of science and technology; the use of information, telecommunications, multimedia and other technologies to manage the educational process is becoming relevant.

It is computer technologies of education, which occupy an important place among innovative technologies, provide for the wide use of computer, information and telecommunication technologies, which ensure effective interaction between the teacher and the student. They will help improve teaching by pointing out teachers for their shortcomings in classes with students. With their effective use, modern technologies become a valuable tool for the teacher, helping, by analyzing the learning style, strategy and overall progress of the student, find the most optimal learning strategies to improve his level of theoretical and practical knowledge.

The place of information and social technologies in education, which provide for the general computerization of students and teachers at the level, makes it possible to solve the following tasks constantly increasing. It is about the possibility of access to the necessary information at any time and in any place; continuous development, use of managed informational educational resources; development of a common information space of educational resources and access to it for all participants in the educational process. It is clear that the use of artificial intelligence systems can be considered effective methods of teaching, and helps teachers to teach classes in the best way, to present information or to give tasks. In the course of the educational process, the opportunity to adhere to the lesson plan can be used, without shying away from an additional explanation of the material, which is regulated by the time allotted. But one should pay attention to the peculiarities of the listener's perception of the material, and, if necessary, repeat the information, give an example. Attention also requires the speed of teaching and perception of the material, and, if necessary, the listener should be able to adjust it by technical means to improve the quality of the educational process.

Modern forms of education are characterized by their comprehensive combination, namely, interactivity and cooperation in the learning process. New learning theories are constantly being introduced, such as constructivism, student-oriented education, knowledge-oriented education, learning without temporal and spatial boundaries. Today, the use of artificial intelligence in educational processes is quite limited, but there is a tendency of its constant growth, which will lead to a whole low research and recommendations in the future. Researchers believe that the latest educational software, despite its powerful technical and technological component, is not able to completely replace teachers, but can be an important means of the educational process. Artificial intelligence in education has great potential for a meaningful improvement of the existing methods of study in institutions of higher education.

Different approaches to the definition of educational technology, using artificial intelligence systems, can be described as a set of ways to implement curricula and training programs, is a system of forms, methods and means of education, ensures the achievement of educational goals. Information educational technologies arise through the use of computer technology, therefore, the educational environment in which educational information technologies are carried out, determine working with its many components. Today, in educational technologies in institutions of higher education they understand the system of scientific and engineering knowledge, as well as the methods and means used to create, collect, transmit, store and process information in the subject area of higher education. Among the main components of the educational environment are distinguished: technical, organizational and methodological, and software and technical. Separate attention should be paid to the analysis of the relationship between the efficiency of curriculum implementation and the degree of integration of the corresponding artificial intelligence systems in them.

An important task is to implement the problem of informatization of higher education, which is that as a result, global rationalization of intellectual activity in society should be achieved through the use of artificial intelligence in order to increase the efficiency and quality of training to the level of information culture achieved in developed countries. So, the use of artificial intelligence systems in the learning process allows not only to give students information about the object of management, but also helps them to realize the diversity and complexity of relationships characteristic of real enterprises, to trace the dynamics of these relationships when external and internal factors change.

The possibilities of using artificial intelligence to make the learning process manageable and intuitive are huge, but student-centered learning in higher education institutions requires a combination of human and artificial intelligence. This makes it possible to build modern educational technologies that provide for the formation of students of an extraordinary thinking, creative approach to learning, and therefore the learning process should be based not on a process using standard techniques, but based on an understanding of the causal relationships of phenomena and processes, significantly increases its motivation and performance. The task of using artificial intelligence systems in training should be considered as an auxiliary source of information.

Based on the importance of information technology in the educational process, it is advisable to consider software for educational purposes, which should perform a number of functions: efficiency and visualization of learning, simulation of processes and phenomena, individualization of the learning process, monitoring and correction of learning outcomes, the formation of the ability to make the right decisions and like that Much attention is paid to the analysis of the capabilities of modern Internet technologies with the comprehensive use of virtual online laboratories, where experiments are carried out on virtual or remote in space equipment. It should be noted the positive results of world experience in using the latest technologies in distance learning, which refers to the form of education in which the teacher and the student are at a distance, with case-technology, TV-technology, network and other learning technologies being the modern tools.

In modern conditions of informatization of society, the main directions of using artificial intelligence systems in a learning environment are the organization of training based on a combination of all teaching methods, pedagogical and information technologies of training, as well as expansion of opportunities for improving the quality of education using modern information technologies. Artificial intelligence systems in education are not only means of learning, but also qualitatively new technologies in training competitive specialists, because during the period of study at the university, the foundations of professionalism are laid, the skills of independent professional activity, the ability to think creatively, to quickly and efficiently solve the tasks are formed (fig. 1).

Today, in the era of the development of artificial intelligence, information, computer, communication, audiovisual and other technologies are considered separately. It is more expedient to analyze their influence on educational processes in the interaction, where modern technologies using artificial intelligence are organically included in the educational process for the implementation of new educational models.

Conclusions

New features that have emerged with the advent and use of the capabilities of artificial intelligence systems allow you to implement the learning process, helping to most effectively master the material being studied. An additional task is to create an accessible alternative for obtaining knowledge for students who do not have access or opportunities for quality training assistance.

One of the definitions of the information educational environment makes it possible to consider it as an information system combining with the help of network technologies, software and hardware, organizational, methodological and mathematical software designed to increase the efficiency and accessibility of the educational process of training specialists.

In this case, the advantage is the ability of students and teachers to freely refer to structured teaching materials and multimedia complexes, where, in addition to the availability of educational material, it is necessary to provide the student with the opportunity to communicate with the teacher and receive advice online. The possibility of personal development and professional growth remains important for students; therefore, today there is a growing need for the use of innovative teaching methods in the development of artificial intelligence systems.
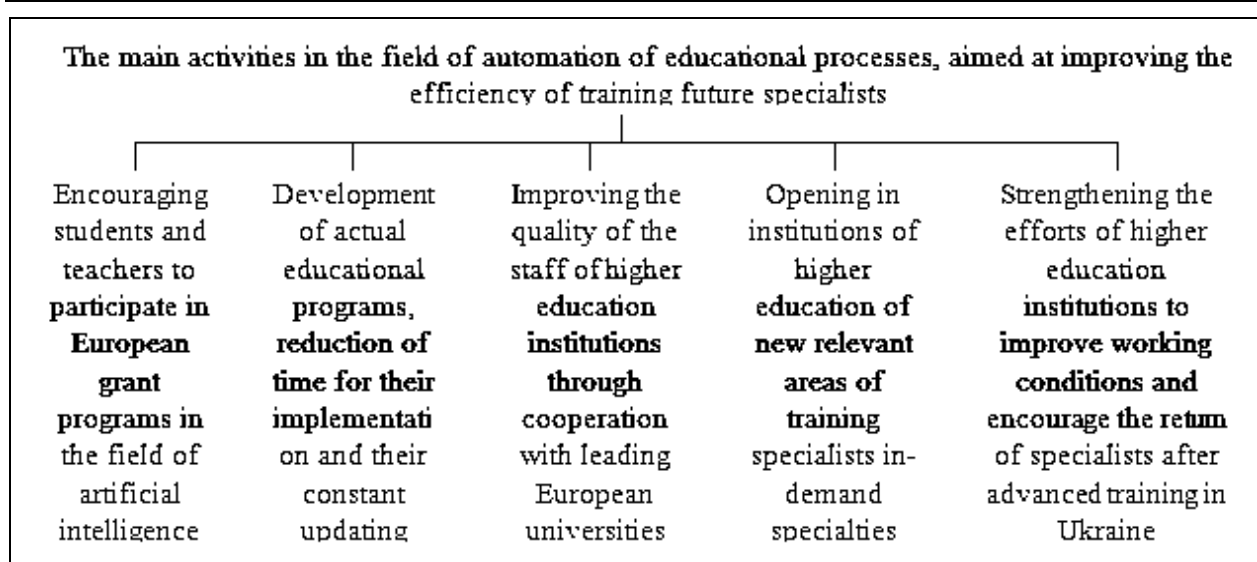
Fig. 1. Ways to improve the efficiency of training future specialists

In the educational process of higher educational institutions, the use of innovative teaching methods in the conditions of the development of information technologies allows to significantly improve the quality of training of future specialists.

The need to introduce innovative teaching methods in the process of professional training of future specialists, using modern technological capabilities, requires further scientific research and implementation.

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Информационные технологи как составляющая повышения качества подготовки будущих специалистов в учреждениях высшего образования

А. М. Гафияк, С. П. Ястреба, О. Б. Носач, Е. А. Бородина

Исследования и решение проблемы информатизации высшего образования, которое заключается в том, что в результате должна быть достигнута глобальная рационализация интеллектуальной деятельности в образовании за счет использования искусственного интеллекта с целью повышения эффективности и качества подготовки специалистов до уровня информационной культуры. Возможность использования систем искусственного интеллекта в процессе обучения позволяет иметь представление об объекте познания, и помогает усвоить все многообразие и сложность связей, характерных для реальных процессов, проследить динамику этих связей при изменении внешних и внутренних факторов. В статье проанализировано использование информационных технологий, как фактора повышения качества подготовки будущих специалистов в учреждениях высшего образования и актуальные проблемы профессиональной подготовки специалистов и пути их решения Исследована виды инновационных методов обучения в высшем учебном заведении и рассмотрена роль информационно-социальных технологий в образовании. Выявлены особенности программных средств учебного назначения и обоснованы направления использования информационных технологий в учебной среде. Поставленная цель определила задачи: проанализировать возможности современных информационных образовательных технологий и исследовать развитие понятия педагогической инновации как нововведению в области педагогики; определить возможности применения систем искусственного интеллекта с целью реализации дифференцированного подхода к студентам с разным уровнем подготовки; определить перспективные направления в области применения информационных технологий в процессе подготовки будущих специалистов в учреждениях высшего образования.

Ключевые слова: информационное общество, системы искусственного интеллекта, информационная система, информационные технологии, учреждение высшего образования

Інформаційні технології як складова підвищення якості підготовки майбутніх фахівців у закладах вищої освіти

А. М. Гафіяк, С. П. Ястреба, О. Б. Носач, О. О. Бородіна

Дослідження та розв'язок проблеми інформатизації вищої освіти, яке полягає в тому, що в результаті повинна бути досягнута глобальна раціоналізація інтелектуальної діяльності в освіті за рахунок використання штучного інтелекту з метою підвищення ефективності та якості підготовки фахівців до рівня інформаційної культури. Можливість використання систем штучного інтелекту у процесі навчання дозволяє мати уявлення про об'єкт пізнання, і допомагає засвоїти все різноманіття і складність зв'язків, характерних для реальних процесів, простежити динаміку цих зв'язків при зміні зовнішніх і внутрішніх факторів. У статті проаналізовано використання інформаційних технологій, як фактору підвищення якості підготовки майбутніх фахівців у закладах вищої освіти та актуальні проблеми професійної підготовки фахівців та шляхи їх вирішення Досліджено види інноваційних методів навчання у вищому навчальному закладі та розглянуто роль інформаційно-соціальних технологій в освіті. Виявлено особливості програмних засобів навчального призначення та обґрунтовано напрямки використання інформаційних технологій у навчальному середовищі. Поставлена мета визначила завдання: проаналізувати можливості сучасних інформаційних освітніх технологій та дослідити розвиток поняття педагогічної інновації як нововведенню в галузі педагогіки; визначити можливості застосування систем штучного інтелекту з метою реалізації диференційованого підходу до студентів з різним рівнем підготовки; визначити перспективні напрями в галузі застосування інформаційних технологій в процесі підготовки майбутніх фахівців у закладах вищої освіти.

Ключові слова: інформаційне суспільство, системи штучного інтелекту, інформаційна система, інформаційні технології, заклад вищої освіти**.**