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INCREASING THE EFFECTIVENESS OF THE QUALITY OF EDUCATION AMONG STUDENTS OF HIGHER EDUCATION ON THE BASIS OF MODERN INFORMATION TECHNOLOGIES

AUMENTAR A EFICÁCIA DA QUALIDADE DA EDUCAÇÃO ENTRE OS ESTUDANTES DO ENSINO SUPERIOR, COM BASE NAS MODERNAS TECNOLOGIAS DA INFORMAÇÃO

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ABSTRACT

As a result of the historical and pedagogical analysis, the main trends and features of adult education in universities based on modern information technologies at various stages of the development of pedagogical theory and practice have been identified. The pedagogical characteristic of the adult education category is given. The pedagogical essence of the process of adult education in universities is substantiated on the basis of modern information technologies, taking into account their socio-psychological characteristics, the content and structure of the pedagogical process under study are disclosed. A pedagogical target program for improving the effectiveness of adult education in universities based on modern information technologies has been developed and tested. Criteria and indicators for evaluating the effectiveness of adult education in universities based on modern information technologies have been determined: meaningful, organizational and productive. The main ways to increase the effectiveness of adult education based on modern information technologies are identified: the development of a distance education system in modern universities, improving the efficiency of the corporate information system of a university, training faculty and university administration as tutors and managers of students' cognitive activity.

Keywords: higher education; education system; learning; education.

RESUMO

Como resultado da análise histórica e pedagógica, foram identificadas as principais tendências e características da educação de adultos nas universidades com base nas modernas tecnologias da informação em vários estágios do desenvolvimento da teoria e prática pedagógica. A característica pedagógica da categoria de educação de adultos é dada. A essência pedagógica do processo de educação de adultos nas universidades é substanciada com base nas modernas tecnologias da informação, levando em conta suas características sócio-psicológicas, o conteúdo e a estrutura do processo pedagógico em estudo. Foi desenvolvido e testado um programa alvo pedagógico para melhorar a eficácia da educação de adultos nas universidades com base nas modernas tecnologias da informação. Foram determinados critérios e indicadores para avaliar a eficácia da educação de adultos nas universidades com base nas modernas tecnologias da informação: significativos, organizacionais e produtivos. As principais formas de aumentar a eficácia da educação de adultos baseada nas modernas tecnologias da informação são identificadas: o desenvolvimento de um sistema de educação à distância nas universidades modernas, a melhoria da eficiência do sistema de informação corporativo de uma universidade, o treinamento de professores e administração universitária como tutores e gerentes da atividade cognitiva dos estudantes.

Palavras-chave: educação superior; sistema educacional; aprendizagem; educação.

Introdução

The relevance of research. In the context of globalization, adult education becomes especially relevant, as it provides a person with the opportunity to expand the existing stock of knowledge; helps to reduce the gap in the worldview of representatives of different generations; gives people opportunities to improve their professional skills, making them competitive in the labor market, thereby improving the quality of life.

As you know, adult learning has significant features, among them: a conscious attitude to the process of learning; high independence; the need for meaningful learning content; practical orientation of the offered knowledge; life experience of students; the impact on the learning process of professional, social, domestic and temporal factors (Devadze et al., 2022).

Adult education makes a special requirement for the organization of training, which is expressed in a strict time frame, as it takes place either simultaneously with work activity, or within limited limits. The organization, content and methods of adult education that exist in modern universities do not take into account the peculiarities of their professional and life experience (Kraus et al., 2021).

The urgency of the problem, its theoretical and practical significance, as well as the lack of elaboration determined the choice of the research topic.

The scientific objective of the study is to increase the effectiveness of adult education based on the development of the information educational environment of the university and the improvement of distance communication relationships between teachers and students.

Literature review

The problem of digitalization in the Ukrainian system of education became more relevant with the introduction of ICT elements in the educational process. At the same time, the practical application of digital learning environments significantly warmed up this topic in the scientific and pedagogical discourse (Morze & Strutynska, 2021). Experience in implementing the digital component in the educational system Ukrainian education acquired the advanced examples of countries with a high level of technological development (Kryvoshein et al., 2022).

Sociocultural realities of recent years play a key role in the implementation of the principles of digitalization of education, forming signs of the revolutionary nature of these transformations, rather than evolutionary development (Kraus et al., 2021). These aspects are reflected in the scientific research on the processes of education digitalization in today's realities (Chernenko, 2021). Note that the processes of digitalization of education have their own specificity when positioned at the global level (Karacabey et al., 2019) and in the national context (Kraus et al., 2021).The constraints of the COVID-19 pandemic have actualized a number of scholarly studies that analyze the specifics of digitalized science and pedagogy (Williamson et al., 2020).The digitalization of education in scientific and pedagogical intelligence is considered in the context of different educational levels: primary and secondary school levels (Budnyk, 2018), higher education (Holovko & Kanishchenko, 2021).The processes of digitalization in education have their own peculiarities in relation to individual knowledge clusters. The natural sciences, humanities, or philological sciences have their pedagogical specificity in the digital learning environment. Peculiarities of the application of ICT elements in philological education are investigated in the scientific exploration of Tolochko et al. (2019).

Aims

The Aim of the study is to identify and substantiate the pedagogical essence, content and structure of adult education in universities based on modern information technologies and ways to improve its effectiveness in universities on the basis of theoretical analysis and experimental work.

The object of the study is adult education, and its subject is the process of increasing the effectiveness of adult education in universities based on modern information technologies.

Materials and methods

The hypothesis of the study is that the organization, content and methods of adult education existing in modern universities do not take into account the peculiarities of their professional and life experience. It is assumed that it is possible to resolve the identified contradiction on the basis of: the development of a distance education system in modern universities, improving the efficiency of the corporate information system of the university, as well as training the teaching staff and university administration as tutors and managers of students' cognitive activity (Sanetra et al., 2022).

The methodological basis of the study was classical philosophical approaches (the dialectical method of cognition of socio-pedagogical phenomena and processes, provisions on universal connection, mutual conditionality and integrity of phenomena and processes of the surrounding world), general scientific methodological approaches (structural-logical, historical-logical, method of comparative analysis, mathematical modeling, manufacturability, algorithmization, the method of ascent from the abstract to the concrete, etc.).

Research methods. The solution of research problems was carried out using a complex of theoretical and empirical methods. Theoretical methods: analysis (historiographic, terminological, comparative); synthesis; generalization;

abstraction and concretization, typification; forecasting; modeling and design, etc. Empirical methods: questioning; conversation; interview; pedagogical observation; analysis of documents and results of activities; expert review; generalization of independent characteristics; monitoring; study and generalization of pedagogical experience; ascertaining and forming experiment, etc.

Results

The content of adult education in universities is a set of modern educational and scientific knowledge integrated with the life and professional experience of students based on previous education using information technology. Educational software tools focused on organizing and conducting training sessions: electronic textbooks, electronic libraries, computer training and testing systems, slide lectures, video lectures, audio lectures, tests, computer simulators, virtual reality tools or systems, etc (Goloborodko, 2022).

The structure of the process of adult education in universities based on modern information technologies includes subject-subject relations, goals and objectives of the process under study, patterns and principles, functions and contradictions, methods and forms, results.

The subjects of the process of adult education are the administration of the university, the teaching staff, employees of faculties and departments, adult students. In the educational process, subject-subject relations are carried out, which involve the active role of learning adults (Kholiavko et al., 2021).

The purpose of adult education based on the use of modern information technologies is to create a progressively organized information environment based on modern hardware and software with innovative learning technologies (Kryvoshein et al., 2022).

To achieve the goal of effective adult education, as the study showed, it is necessary to solve the following tasks: creating more opportunities for the use of information technology in education; concentration of efforts of the teaching staff

on the active use of information technology in teaching; the use of new teaching, illustrating, testing, monitoring programs in teaching university students; formation of information culture of the teacher and student; increasing the motivation of learning through computer visualization of the studied objects, phenomena; constant updating of the technical and software of the university; opportunities for teachers to choose modern teaching technologies (Hörberg et al., 2019).

Following the set goals and objectives, it is necessary to observe the following principles: consistency, modularity, functionality, openness, standardization, communication.

The process of adult education in universities based on modern information technologies has the following functions: developmental, formative, informational, managerial, prognostic, emotional-motivational, telecommunication (Kraus et al., 2021).

Purposeful study of the practice of the educational process in universities on the basis of modern information technologies, the results of the study made it possible to identify the contradictions that are typical for the implementation of this activity: between modern requirements for the quality and level of knowledge of a modern specialist and the real possibilities of universities in training such specialists, between relatively unlimited training opportunities in the conditions of modern information technologies and the lack of development of psychological and pedagogical foundations, methods of higher professional education in this environment (Morze & Strutynska, 2021).

The forms of education include: classical form of education, intensive (retraining courses), self-education, distance learning.

The methods of adult education are: the problematic method of teaching - provides for the organization of search and research activities of students aimed at solving problematic problems; method of programmed learning - postulates the implementation of learning as a process strictly subordinate to the algorithm for mastering small doses of educational material with a programmed result; interactive teaching method - involves learning using television or computer

networks that provide communication between the teacher and students at a distance (Holovko & Kanishchenko, 2021).

The result of the process under study is to increase the effectiveness of adult education in universities based on modern information technologies.

In order to test the hypothesis and the provisions submitted for defense, an experimental study of the process of adult education in universities based on modern information technologies was carried out (Kuzminska et al., 2020).

Criteria and indicators for evaluating the effectiveness of adult education in universities based on modern information technologies.

Criteria Indicators

Organizational - the presence of goals, objectives and teaching methods aimed at improving the effectiveness of adult education based on modern information technologies; - compliance with the availability and quality of the available forces and means at the university to achieve the goal of increasing the effectiveness of adult education based on modern information technologies; - consistency and complexity of the use of modern information technologies;

Content

- the completeness of the reflection of educational material in the teaching materials;

- compliance of the content of disciplines with the requirements of the State Educational Standard of the Higher Professional Education (Dudaret al., 2021);

- the degree of novelty of the educational material;

- assessment of the quality of guidelines for students; - availability of multimedia tools in the teaching materials (video lectures, slide lectures, etc.);

- compliance of the content of academic disciplines with the needs of the upcoming professional activity;

Productive

- the rate of increase in personal and professional growth;

- the rate of assimilation of knowledge and growth of results;

- the level of improvement of information knowledge and skills;

- the quality and strength of the acquired knowledge.

The research plan for the application of this system of criteria and indicators implied the following. Each of the criteria is characterized by three main indicators; each of the indicators is measured and evaluated on its own scale, however, these scales have in common the possibility of interpreting data in the form of a single level system - a low level (3.0-3.5 points), an average level (3.6-4.5 points), high level (4.6-5.0 points); each of the criteria is evaluated by the whole complex of levels obtained for each indicator separately; a system of criteria and indicators makes it possible to assess the level of increasing the effectiveness of adult education in universities based on modern information technologies; the interpretation of the level of efficiency improvement is made on the basis of the obtained evaluation score according to the totality of criteria; average scores are calculated using Microsoft Excel software.

The basis of the formative experiment was the pedagogical target program of adult education in universities based on modern information technologies. The program included three stages: preparation of the university administration and faculty for the use of modern information technologies, pedagogical influence of teachers on enhancing students' self-education, and increasing the efficiency of using modern information technologies in adult education.

As a result of the implementation of the main stages of experimental work, data were obtained that made it possible to confirm the research hypothesis.

Discussion

The obtained indicators allowed us to conclude that there was a progressive change in the estimated indicators in both the control and experimental groups. However, the indicators obtained by students included in the experimental group are noticeably higher. This is provided by the targeted pedagogical program to increase the effectiveness of adult education in universities based on modern information technologies.

The above study showed that an important way to increase the effectiveness of adult education in universities based on modern information technologies is the development of a system of distance education in modern universities. Its implementation is ensured by the following conditions: organization of logistics (programs, databases, computer park, channels); development of educational and methodological support; formation of a management structure responsible for the implementation of Internet technologies; personnel training (teachers, methodologists, technologists); planning the process of online learning; adaptation of the document management system; training of students; the presence of operational feedback between the student and the teacher, which allows you to control the intermediate and final results of training, compare them with the set goals; creation of standard methods for conducting training; development of educational and methodological complexes for conducting training sessions; individualization and differentiation of training due to the possibility of varying and gradual progress of students towards the goal according to programs of varying complexity; developing the ability of trainees to plan their interaction with information resources; the need for students to master the skills of searching and analytical processing of information received from the Internet; obligatory consideration of age characteristics of information perception by students; development of students' understanding of the targeted orientation of information and systematization of information; development of trainees' skills of interpreting information (Budnyk, 2018).

The next effective way to increase the effectiveness of adult education in universities based on modern information technologies is to increase the efficiency of the corporate information system of the university. Its implementation is ensured by the following conditions: clarification of the goals of using modern information technologies in adult education; setting and substantiation of the main pedagogical tasks of their application; identification and filling with pedagogical content of the main functions of modern information technologies in the learning process; determination of the pedagogical content of the main types of modern information

technologies that implement the functions necessary for teaching; clarification of techniques, ways to optimize the content of the use of modern information technologies in education; pedagogical substantiation of the content of curricula and student training programs; improvement of the "Electronic office of the teacher"; improvement of the "Electronic cabinet of the student".

An important way to increase the effectiveness of adult education in universities based on modern information technologies is the training of the teaching staff and administration of the university as tutors and managers of students' cognitive activity (Sherman et al., 2022). The conditions for its implementation are: the organization of logistics (programs, databases, etc.); creation of methodological tools, which is a complex that includes educational and methodological materials for the preparation of the teaching staff and administration of the university for work based on modern information technologies. It includes a curriculum, a course program, guidelines for studying courses, guidelines for studying courses, a schedule for the learning process, a collection of test tasks, study guides, recommendations; formation among the teaching staff and administration of the university about the need to introduce modern information technologies to effectively solve the problems of the educational process; increasing motivation aimed at understanding the teaching staff and the administration of the university of the social significance of modern information technologies, the importance of professional competence in teaching based on modern information technologies, the manifestation of the need for the use of modern information technologies and continuous self-improvement; control and correction of activities in the course of training the teaching staff and administration of the university, including various methods, means and organizational forms of training, as well as types of control to assess the success of the training process; identification of emerging difficulties in the process of training the teaching staff and administration of the university, the search for the causes that gave rise to them, as well as ways to improve didactic support.

Conclusions

The essence of modern information technologies in adult education lies in the pedagogical design of innovative elements of the information educational environment in universities that contribute to the effective further development of students' professional competencies, taking into account their socio-psychological characteristics.

The content of adult education in universities is a set of modern educational and scientific knowledge integrated with the life and professional experience of students based on previous education using information technology.

The structure of the adult education process based on modern information technologies includes: subject-subject relations, goals and objectives, patterns and principles, functions and contradictions, methods and forms, results.

In the course of the study, a comprehensive targeted program was developed to improve the effectiveness of adult education based on modern information technologies. For the purpose of the experiment, criteria for evaluating the effectiveness of adult education based on modern information technologies were identified: meaningful, organizational, and productive.

Experimental work made it possible to substantiate pedagogical ways to increase the effectiveness of adult education based on modern information technologies: development of a system of distance education in modern universities; improving the efficiency of the corporate information system of the university; training of the teaching staff and administration of the university as tutors and managers of students' cognitive activity.

It is advisable to continue further research of the problem in the following areas: optimization of the organization of adult education based on modern information technologies; the content and structure of information and pedagogical support of the educational process based on modern information technologies; intensification of the development of curricula and programs of higher professional education in the information and educational environment of the university, etc.

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