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Main directions of innovative transformations in higher education

Основні напрями інноваційних перетворень у вищій освіті

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Abstract

The article highlights the main directions of innovative transformations in pedagogy. The methodological concept of research based on the following provisions is highlighted: implementation of a complex of approaches of a scientific and methodological direction in the professional training of future specialists; organization of the main directions of innovative transformations in higher education; determination of the principles of functioning of the educational process; determination of essential properties and features of the studied object of innovative transformations in higher education; determination of prospects for the development of the main directions of innovative transformations in higher education. The main directions of innovative transformations in higher education have been clarified. The essence of the content of innovative pedagogical technologies was considered, and the essential features and ways of development of pedagogical innovations were listed, divided into intensive and extensive. For the purpose of effective training of education seekers, the conditions for their innovative activities have been formulated. Distance learning is presented in the article as a set

Анотація

У статті виділено основні спрямування інноваційних перетворень у педагогіці. Виділено методологічну концепцію дослідження, що базується на таких положеннях: реалізація комплексу підходів науково-методичного спрямування у професійній підготовці майбутніх спеціалістів; організація основних напрямків інноваційних перетворень у вищій освіті; визначення засад функціонування навчального процесу; визначення сутнісних властивостей та ознак досліджуваного об'єкта інноваційних перетворень у вищій освіті; визначення перспектив розвитку основних напрямків інноваційних перетворень у вищій освіті. З'ясовано основні напрями інноваційних перетворень у вищій освіті. Розглянуто сутність змісту інноваційних педагогічних технологій та виписано суттєві ознаки та шляхи розвитку педагогічних інновацій поділено на інтенсивні та екстенсивні. З метою ефективної підготовки здобувачів освіти сформульовано умови до їх інноваційної діяльності. Дистанційне навчання у статті

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of information technologies that students need to: ensure the volume of material for their competitiveness in the labor market; for use in the learning process of interactive interaction of students and teachers; to enable students to work independently in order to master the material; for assessment during training and monitoring of their knowledge and skills.

Keywords: innovative transformations, higher education, innovative pedagogical technologies, training students for innovative activities, information technologies.

Introduction

Scientific and technical progress, social development of the individual, development of integration and globalization of the educational field require the introduction of innovations in all spheres of human life. So, in connection with education being at the stage of intensive development, the development of the entire society and each person depends on the ability and opportunities to perceive and use innovations. Therefore, the problem of modernizing the factors and possibilities of forming actions, innovative ways of thinking, forming the ability of graduates of educational institutions for functional and psychological readiness and innovative activities is the main task of the modern educational system (Tyutyunnyk et al., 2021).

The integration of Ukraine into the world community actualizes the problem of the readiness of society and individuals for changes in all spheres of life: social, economic, scientific, political, technical and technological. The priority task of higher professional education is the development of such qualities and abilities in the future specialist that would allow him to successfully adapt to rapidly changing competitive conditions, readily perceive and implement innovations, and create a qualitatively new social space. Therefore, a characteristic trend of modern education is innovativeness, which determines its openness to new, anticipatory character in relation to other fields of human activity.

The main problems of innovative orientation of the content and technologies of modern education are: support of innovative initiative, creativity, self-activity and independence of management objects; transition from spontaneous mechanisms of application of

представлено як сукупність інформаційних технологій, які необхідні студентам для: забезпечення обсягу матеріалу для їх конкурентоздатності на ринку праці; для застосування в процесі навчання інтерактивної взаємодії студентів та викладачів; для надання можливості студентам самостійно працювати з метою засвоєння матеріалу; для оцінки під час навчання та моніторингу їхніх знань та навиків.

Ключові слова: інноваційні перетворення, вища освіта, інноваційні педагогічні технології, підготовка здобувачів освіти до інноваційної діяльності, інформаційні технології.

innovative processes to consciously managed ones, strengthening their sustainability; informational, material and technical, personnel support for the implementation of the main stages of innovative educational processes; forecasting reversible or irreversible structural changes in the innovative educational environment; accelerating the development of innovative processes in institutions and educational institutions.

Innovative activity is specific and quite complex, requiring special knowledge, skills, and abilities. The implementation of innovations is impossible without a teacher-researcher who possesses systemic thinking, a developed ability to be creative, and a formed and conscious readiness for innovations. Innovative educators of this type are called innovative teachers. They are characterized by a clear motivation for innovative activity and a crystallized innovative position, the ability not only to be included in innovative processes, but also to be their initiator. The following questions are clarified in the article: signs of innovativeness; considered the qualities of innovation as a system learning; classification of innovations; content of innovative pedagogical technology; the main directions of innovative transformations in pedagogy; the conditions for effective training of education seekers with the help of innovative pedagogical transformations are shown; the basic principles of the technology of scientific and methodological support in the system of innovative educational transformations; principles of implementation of ensuring effective activity in the market of educational services.

Literature Review

V. Tyutyunnyk, V. Savchenko, & S. Vasylieva (2021) clarified the ways of innovations and the possibilities of innovative technologies. The authors consider innovative technologies to be a system of updated methods and techniques in education, with the help of which effective achievement of activity results is possible; high-quality training of the younger generation, the readiness of the individual for all innovative conditions of the development of society; directing the educational process to the development of potential achievements and abilities of the student of education.

P. Luzan, V. Manko, L. Nesterova, G. Romanova (2014) using the theoretical analysis of vocational education and the implementation of innovative learning technologies during its implementation, presented the theoretical and methodological justification of innovative learning technologies. During the analysis of the content of the practice of implementing such learning technologies in the training of qualified workers, the methodical principles of applying innovative technologies in vocational education were characterized and determined. In particular, problem-based and developmental learning, educational design, valid test control, etc. were analyzed. The peculiarities are substantiated, and the advantages of implementation and design of personal development technologies during training are shown. The ways are characterized and the possibilities of forming the readiness of future specialists for the introduction of innovative technologies in the educational space of educational institutions are shown.

V. Sydorenko (2014) substantiated and showed the advantages of using the innovative technology of scientific and methodological support - pedagogical coaching, showed effective methods that contribute to the quality of training of specialists, retraining, improving the qualifications of personnel for society, forming their ability to continuously acquire education throughout their lives.

The purpose of Ya. Boyko's (2014) work is to research innovative ways of implementing innovative technologies into the educational process. Ways of implementing research methods are shown: structural-logical, systemic, analytical, and method of comparisons, to improve the educational society.

S. Stebluk (2011) the concept of "innovation" is revealed, which is a necessary condition for

improving the quality of education, for the implementation of the focus of education on training a competitive specialist, and separate innovative methods of education are presented that are effective for use in higher education of the I-II levels of accreditation.

G. Rozlutska (2011) shows the necessary mass quality education for modern society, which should meet the needs of the consumer and the producer of material and spiritual goods, which are constantly growing. It has been proven that the quality of professional training in higher education depends on the level of implementation of pedagogical technologies, which are aimed at ensuring the effective training of competitive, highly qualified specialists who can realize themselves in the conditions of the information society.

O. Dubasenyuk (2009) revealed the peculiarities of the technologies of pedagogical training of the future teacher and described the possibilities of applying various options for their implementation from the standpoint of modern scientific approaches, which improve the entire structure of the readiness of future specialists for innovative activities.

M. Kademiya (2014) considers and presents the possibilities of using modern pedagogical technologies of learning in the educational society, which are used with the help of information and communication networks and information computer technologies.

L. Nikonorova (2020) in the conditions of a higher education institution investigated the possibilities of implementing the project method to improve the process of teaching foreign languages.

The purpose of the article: to find out the main directions of innovative transformations in higher education.

Methodology

Conceptual provisions that reveal the main directions of innovative transformations in higher education as elements of a systemic vision of the organization of the educational process are presented as interconnected concepts that embody the understanding of theoretical, innovative, methodological, multiple, and practical approaches to improve the professional training of future specialists with constant innovative transformations in higher education.

The research idea reflects the main scientific ideas, content, and implementation, the improvement of which makes it possible to update and improve the system of professional training of specialists during innovative transformations in higher education. We took into account the recommendation-methodical, fundamental-scientific, and operational-technological aspects of the development of the outlined problem.

Scientific positions are considered at the levels presented as concepts (nodal parts are based on basic scientific ideas): theoretical, methodological, and practical.

The theoretical concept reflects the main provisions of the regulatory and legislative framework, which is used to update and improve the professional training of future specialists, and reflects the strategic directions of education. The terminological apparatus proposed in the study makes it possible to predict the qualitative professional identification of future specialists; apply modern intentions of pedagogical science, without which it is impossible to reveal the specifics of professional training of future specialists abroad and in Ukraine; show the prospects of the educational activity (technology, informatization, professionalization); ways of implementing high-quality and effective use of innovative technologies in education, which determine the innovative focus on improving the education of modern experimental research.

The methodological concept of the study is based on the following provisions:

- the implementation of a set of approaches of a scientific and methodological direction in the professional training of future specialists is seen in the complex application of the main directions of science, which lead to the solution of the necessary research tasks; Such approaches can be: competence, system, epistemological, integrative, complex, activity, personal, axiological, contextual, synergistic, individual-creative;
- organization of the main directions of innovative transformations in higher education, their terminological space, taking into account the civilizational development of semantic transformations in the historical context during the professional training of future specialists;
- identification of the principles of the functioning of the educational process, its regularities for the renewal of the modern system of innovations in higher education, in

particular, the professional training of future specialists;

- determination of essential properties and features of the studied object of innovative transformations in higher education, which shows the expected result - readiness for professional activity of future specialists;
- determination of prospects for the development of the main directions of innovative transformations in higher education, the system of professional training of future specialists.

The practical concept improves the procedural components of the object under investigation, which are diverse when conducting experimental research in several educational institutions and reveals the prospects of implementing the main directions of innovative transformations in higher education and the system of professional training of future specialists in the educational process of other educational institutions; a mandatory component is the approval and implementation of design, stimulation, interactive, etc. learning technologies in education, with the application of which teachers create innovative conditions for the professional training of future specialists, the goal of which is to perform professional duties at a high level in an innovative way, to bring professional competences to automaticity with the effectiveness of such a process at various stages of its implementation.

In the application of the outlined concept, thanks to the practical context, the development and implementation of pedagogical conditions for the training of specialists took place, applying the main directions of innovative transformations in higher education.

In the content of the practical concept, it is mandatory to generalize the best experience of implementing the updated system of implementing the main directions of innovative transformations in higher education, professional training of future specialists (conducting open classes with a demonstration of the best experience, pedagogical workshops; using methodological developments using pedagogical innovations; conducting knowledge monitoring and expert assessment based on intuitive and logical analysis of the problem.

Taking into account the theoretical, methodological, and practical concepts of our work became the basis for the development of the author's system for the implementation of the main directions of innovative transformations in

higher education, and professional training of future specialists. The functioning of the system for the implementation of the main directions of innovative transformations in higher education is provided for in the use of the toolkit of organizational and methodical activity of the teacher, which is based on innovative pedagogical technologies (technologies of independent information search, webquest, interactive, modeling technologies of professional behavior and achieving success, project, virtual, simulation technologies).

To implement the set tasks and achieve the goal, the following research methods were used: analysis, synthesis, comparison and comparison, induction and deduction, analogy, which made it possible to characterize the state of working out the problem in scientific sources, substantiate the conceptual and categorical apparatus, study legislative and regulatory documents in the field of education, scientific literature, electronic resources, work experience of scientific and pedagogical workers of higher education institutions.

Results and Discussion

In 1986, UNESCO published and substantiated the official definition of the concept of "pedagogical technology" and showed the necessity of its application. Pedagogical technology was presented as an application of the system of introducing the main directions of innovative transformations in higher education, evaluation and monitoring of the entire learning process, a systematic method of planning, assimilation of knowledge by taking into account human and technical resources, the need for interaction between students and their teachers to achieve a more effective form of education.

All scientifically based technologies have characteristic features (Morska, (2008):

- division of the process of implementation of the main directions of innovative transformations in higher education into interconnected stages;
- coordinated and step-by-step implementation of actions to implement the main directions of innovative transformations in higher education, aimed at achieving the goal and obtaining quality results;
- unequivocal implementation of the included main directions of innovative transformations in higher education of procedures and operations into technology,

which is a decisive condition for achieving results;

- repeatability and reproducibility of the process of obtaining the product of the system of implementing the main directions of innovative transformations in higher education.

Let's clarify the essence of the concept of "pedagogical technology" in the following aspects:

- pedagogical technology - a special organization of the educational process of introducing the main directions of innovative transformations in higher education;
- under the technological approach, the educational process should be aimed at achieving the set goals of implementing the main directions of innovative transformations in higher education;
- for the introduction of technology, it is mandatory to develop a project on a scientific basis;
- the project necessarily reflects the pedagogical technology as a system of implementation of the main directions of innovative transformations in higher education with specified procedures, components, stages, etc.;
- we must take into account that we can achieve guaranteed learning results when applying the system of implementing the main directions of innovative transformations in higher education, provided that we interact with participants in the educational process (Biletska et al., 2021).

The definition - pedagogical technology - is interpreted as the organization of the pedagogical process, which is purposeful, is necessary for the scientific project of a logically structured system of pedagogical interaction, which is designed for clearly achieving the planned learning outcomes. Today's challenges have made the concept of "innovative pedagogical technology" necessary in education.

Innovation in education is a phenomenon that serves to resolve contradictions between the traditional education system and the necessary needs for new, high-quality education; is a natural phenomenon, developmental in results and dynamic in nature.

Signs of innovation:

- the ability to influence the level of professional activity of a competitive specialist;
- the ability to increase the innovative field of the environment in the educational process of an educational institution or region.

Consider the qualities of innovation as a system formation:

- innovative environment,
- innovative potential,
- innovation process,
- innovative activity.

Innovations are classified as:

- by the object of influence (pedagogical, social-psychological, organizational-management). According to the object of influence, as the result of pedagogical innovations, we see qualitative changes in the educational process. The introduction of innovations of a special psychological orientation in the educational institution contributes to the creation of a positive microclimate in education and creates a high level of culture of relations between students of education. They provide an opportunity to introduce innovative forms and methods of management, provide partnership relations, provide an opportunity to overcome stereotypes of a conservative style of management - innovations of the organizational and management type;
- level of distribution (systemic-methodological and local-technological). Innovations of the system and methodological level are applied within the framework of the general system. Innovations at the local technological level create the testing of systems at individual educational facilities, personally oriented innovative methods;
- the innovative potential of the new (radical, modification, combinatorial). New ideas of innovation in the educational field are introduced based on new tools (neuro-linguistic programming, information and computer technologies, etc.). Modification innovations aimed at updating the content, methods, and forms of the education organization process. Combinatorial, these are modernized innovations adapted to the new socio-cultural environment. If we consider innovations in the system of professional and pedagogical education, we will emphasize their dual orientation. They are aimed at reorientation not only in the

system of pedagogical training, which takes into account the positive changes taking place in educational institutions but also takes into account historical and pedagogical trends in the field of education (Dubasenyuk, 2009).

Let's consider the content of innovative pedagogical technology:

- systematic, purposeful, consistent application in educational practice of methods of pedagogical actions, methods, and tools that make the educational process integral - from setting its goal to obtaining predicted results;
- an integrated, complex process, which includes ways of organizing innovative activities, the subjects themselves, their ideas, and as a result, the effectiveness of the innovation is obtained.
- innovations include the creation of new means and significant changes that update the way of doing business and make thinking styles innovative. With such an approach, innovative approaches are those that rework the nature of the educational process in relation to the personal interaction of the teacher and students of education, target orientation, and change positions in the educational process (Dychkivska, 2004).

The content of innovative pedagogical transformations includes a consistent, systematic, purposeful introduction into the practical training of specialists of means, techniques, and innovative methods that ensure a holistic process in the educational field, starting from the definition of the goal of this process to the expected general results. This leads to the conclusion that the educational system of training a future competitive specialist should correspond to the trends of the modern development of society. S. Stebluk singles out the following effective learning technologies: game, problem technologies, collective and group activity technologies, etc. (Steblyuk, 2011). Regarding the introduction of innovative pedagogical transformations, we mean: personal development technologies, the theory and practice of which are based on a person-oriented approach to the field of education, at the same time, the methodological principles ensure the individualization of the learning process, the interactive position of education seekers, to achieve a specifically formulated goal as a result educational activity, a practical component is necessary. The condition for the implementation of innovative pedagogical transformations is the

teacher's readiness for professionalism during the conscious implementation of such pedagogical innovations (personal development pedagogical technologies) (Luzan et. al., 2014).

Innovative pedagogical transformations are the implementation of an innovative idea in the education process, which is necessary for the creative and active search for non-standard solutions. Ways of development of innovative pedagogical transformations can be divided into intensive (implemented at the expense of the education system's resources) and extensive (implemented with the help of investments, involvement of additional forces, capital investments, new means, technologies, equipment, etc.) (Kuchai et al., 2021).

Innovative transformations in pedagogy have the following main directions:

- during the assimilation of the content of education by the students, developing technologies are introduced into the education process, which stimulates activity;
- improving the education system as a whole, modernizing the management of educational institutions;
- development of the education system development program, concept, and structure of the education system;
- promotion of pedagogical personnel with the help of innovative pedagogical transformations of qualifications;
- with the help of innovative pedagogical transformations, implementation of the design of innovative models of the education process;
- ensuring with the help of innovative pedagogical transformations the success of education, the level of development of education seekers, and quality monitoring of the educational process;
- development of innovative textbooks, teaching aids, etc., with the help of innovative pedagogical transformations.

For the implementation of innovative pedagogical transformations, highly qualified specialists of promising, advanced educational institutions apply purposeful work and create innovative conditions for the development of such qualities that provide students with innovative activity, which depends on the atmosphere that has developed in the educational institution, the desire, skills, and opportunities of teachers to use innovative pedagogical transformations.

The conditions for effective training of education seekers with the help of innovative pedagogical transformations include:

1. To ensure success in innovative activities, the development of personal potential and qualities is necessary.
2. For the formation of innovative thinking and the creation of opportunities for creative self-realization, it is necessary to create such an environment that meets the needs of the development of the subject of innovative activity.
3. To improve the relationship between the teacher and the student, perseverance, tolerance, cooperation with students, initiative, expressing one's opinion, the use of methodological tools are used, to enable students to stimulate search activity and show their interests. Purposeful work to attract education seekers to scientific research and creative activities, compliance with the above conditions, will contribute to innovative ways of thinking, and the development of independence (Tyutyunnyk et al., 2021).

A prerequisite for the modernization of education using innovative pedagogical transformations as a non-linear, open, complexly organized synergistic system is the application of scientific and methodological support technology. This technology allows to overcome the detachment of course and inter-course periods with the mandatory application of innovative pedagogical transformations, ensures the professional, continuous growth of the teacher along the individual educational trajectory, and creates acmeological conditions to master new functions, roles, and professional improvement of the subject. This variety is manifested in the human-centered, humanistic orientation, the development of the teacher's pedagogical skills; characterized by subject-subject interaction, professional facilitative support, interactive mutual learning, and mutual assistance. The center of technology is a person, an active subject of creative self-realization, characterized by a demand for the provision of professional needs, requests, potential opportunities for the prediction of multi-disciplinary, pedagogical methods, methods, multivariate differentiated forms, meta-technologies, research-experimental and social activities, scientific-methodical, organizational -pedagogical conditions, adjust the teacher's goal, regarding the successful solution of professional tasks, provide the ability to overcome difficulties in professional and pedagogical activity (Shunkov et al., 2022).

The main bases of the technology of scientific and methodological support in the system of innovative educational transformations are:

- democracy (collegiality in decision-making, consideration of innovative approaches);
- the choice situation (creation of activity models, variable programs, and methods that ensure a conscious choice of the educational trajectory of those seeking an education);
- self-realization (revealing the potential of the personality of each student of education);
- co-creation (to achieve innovative quantitative and qualitative results, joint activities of education seekers who strive for high-quality competitive knowledge are necessary);
- synergy (instability, non-linearity of scientific and methodical support).

Pedagogical coaching is a qualitative technology of scientific and methodical support of innovative pedagogical transformations. At the heart of such innovative technology, the main idea is that each individual has different motives, interests, own needs, goals, and is unique. The satisfaction of such an idea with all its components involves individual forms, methods, and approaches to raising the personal and professional levels.

This technology involves:

- vertical and horizontal integrity, systematicity of the continuous process of education;
- integration of non-formal, informal, formal, educational education, self-education, and practical activities;
- application at different stages of the life cycle of the content of the teacher's educational needs;
- unity of general, professional, humanitarian education, etc (Sydorenko, 2014).

The essence of modern innovative educational transformations in education is that they are based on the processes of memory, attention, perception and are based on the productive, creative thinking, communication, and behavior of education seekers. At the same time, the educational process is organized so that students learn to interact with each other, solve complex problems based on the analysis of industrial situations, and situational professional tasks, communicate, and think critically.

The goals of innovative educational transformations are the promotion of self-

affirmation and self-realization of the personality of the student of education; focus on person-oriented, humanistic, cultural values; use of active, creative, individually differentiated forms and methods of the educational process.

Innovative educational transformations include interactive technologies, information computer technologies, group and project learning technologies, modular rating system, and others. These technologies increase independence, promote activity, initiative, and enable students to be responsible for themselves and others (Kotiash et al., 2022).

Innovative educational transformations are based on increasing the quality of independent work of education seekers. Thanks to the application of Internet technologies in the pedagogical field of educational services, with the emergence of an integrated educational environment, it became possible to achieve a qualitatively new innovative level of informational, semantic, technological, and organizational connectivity of educational resources. Thanks to this, a new promising level of education, a virtual educational space is being provided. Such an education system increases the role of the teacher in a modern institution of higher education, leading to the reorganization of educational and methodical work. The main result of such an educational approach is the effectiveness of the management of the higher education system, and the production of highly qualified specialists while ensuring the updating of the educational and methodological complex, which includes the program, workshops, and guidance on disciplines. The application of innovative educational transformations is aimed at increasing the receptivity of personnel to innovations, and effective management of changes in education (Kuchai et al., 2022).

To implement the provision of effective activities in the educational services market, the education strategy must adhere to the following principles:

- a shared vision by the management of the organization's development prospects and goals;
- aspiration of the staff during innovative educational transformations to acquire new knowledge and skills in professional activity, professional continuous development;
- creation of conditions for innovative educational transformations necessary for continuous improvement of personnel;

- participation in the implementation of innovative personnel processes;
- presence of the institute in financial support of professional development;
- continuous monitoring of the internal and external environment (Boyko, 2014).

Computer technologies are of great importance for innovative educational transformations. Informatization of education requires computer literacy from the teacher and students (Kuzminskyi et al., 2018).

The structure of computer literacy in innovative educational transformations includes knowledge of modern operating systems and mastery of their basic commands; knowledge of the basic concepts of informatics and computer technology; knowledge of modern shells and operating tools.

The importance of distance learning technology has increased. The development of distance education is a pattern of adaptation of education to modern conditions: without special material costs from the state, the implementation of the social order of society. Distance education combines the elements of full-time, correspondence and evening, full-time, and extramural education based on new multimedia systems, and information technologies with innovative educational transformations. We consider distance learning in innovative educational transformations as a set of information technologies that serve to ensure the delivery of interactive interaction of students and teachers in the learning process to those seeking education; thorough amount of material; providing students with the opportunity to work independently; to assess their knowledge and skills in the educational process (Shchyrbul et al., 2022).

This technology in innovative educational transformations is characterized by a strong cognitive motivation created by the Internet and the quality of specialist training. Thanks to this, distance learning is a technology of the 21st century. Its characteristic features in innovative educational transformations are flexibility, the coordinating role of the teacher, specialized control of the quality of education, economic efficiency, modularity, and the use of specialized forms and means of education (Rozlutska, 2011). The intensive development of information and communication network technologies led to their use in educational activities.

Cloud computing in innovative educational transformations is a model of providing convenient on-demand network access to a common pool of configured computing resources that can be quickly provided with minimal operating costs or requests to the provider.

Electronic learning in innovative educational transformations is a system of the educational process that uses Internet technologies, educational and methodical multimedia materials, electronic libraries, virtual laboratory workshops, etc. Electronic learning (e-learning) in innovative educational transformations is a learning model that works for the future and is based on the use of the Internet, new multimedia technologies to improve the quality of the educational process by facilitating access to resources and services, as well as their exchange, joint work on distance (Kremen, 2008). The most relevant technologies are e-learning: virtual educational institutions, virtual classrooms, blog quests, web quests, blogs, etc. We are observing the development of mobile information technologies that make it possible to acquire knowledge with the help of pocket personal computers; mobile phones; netbooks; laptops, tablets, etc.

Mobile learning (m-learning) in innovative educational transformations is the transfer of knowledge to mobile devices using WAP and GPRS technologies. The purpose of such training is to make the process of educational space accessible, flexible, and personalized.

We are witnessing the replacement of e-learning technologies with u-learning technologies (ubiquitous learning) during innovative educational transformations, with the use of information and communication tools in all spheres of society, and pervasive learning of continuous education technologies.

In the case of innovative educational transformations, the model used in the educational space remains the blended learning model (blended learning), which combines e-learning with classroom classes and allows for the integration of e-learning into the existing education system, and in the future, blended learning on based on e-learning and traditional training, which involves the creation of new pedagogical methods (Kademiya, 2014).

The project method is relevant. Its relevance in innovative educational transformations is associated with the development of computer telecommunication technologies. In the case of

innovative educational transformations, project activity takes the main place in the system of general and higher education, it allows the learner to acquire such skills that cannot be acquired by traditional educational methods. The project method is one of the most effective methods of developing the creative and cognitive abilities of students. The goal of the project method is to enable students to independently acquire knowledge in the process of solving problems and practical tasks that require the integration of knowledge in various subject areas (Plakhotnik et al., 2022).

The popularity of the project method in innovative educational transformations is provided by the opportunity to solve specific problems, combine theoretical knowledge and their practical application, support new approaches to the organization of management, provide means of building a person-oriented pedagogical system; the opportunity to individualize the educational process, the student's manifestation of independence in planning, organization and control of his activities; direction on the formation of skills for the acquisition of professional competences, independent acquisition of knowledge.

In the 21st century, the problem of innovative educational transformations occupies an important place, since the rapidity of the development of science and a large number of discoveries require a person to have developed experimental, creative thinking (Nikonorova, 2020).

Conclusions

The main directions of innovative transformations in higher education have been clarified. Innovative pedagogical technologies are considered. Signs of innovation are listed. Ways of development of pedagogical innovations are conditionally divided into intensive and extensive. The conditions for effective training of education seekers for innovative activities have been formulated. A prerequisite for the modernization of education as a complex, open, the non-linear synergistic system is the introduction of scientific and methodological support technology. Pedagogical coaching is an effective technology of scientific and methodical support. Innovative learning technologies include interactive technologies, group and project learning technologies, modular rating system, information computer technologies, and others.

Internet technologies have been analyzed, thanks to which an integrated educational environment has appeared, in which a new level of informational, semantic, organizational, and technological connection of educational resources is established. The importance of distance learning is considered. Information and communication network technologies and the need to use modern ICT and computer technologies are analyzed. The role of electronic learning (e-learning), mobile learning (m-learning), and blended learning (blended learning) in education is shown; e-learning technologies on u-learning technologies. The project method is presented as one of the most effective methods of students' creative abilities. Prospects for further research consist in revealing the scientific and methodological support of pedagogical coaching technology.

Bibliographic references

- Arbeláez-Campillo, D. F., Villasmil Espinoza, J. J., & Rojas-Bahamón, M. J. (2021). Inteligencia artificial y condición humana: ¿Entidades contrapuestas o fuerzas complementarias? *Revista De Ciencias Sociales*, 27(2), 502-513. <https://doi.org/10.31876/rsc.v27i2.35937>
- Biletska, O., Kuchai, T., Kravtsova, T., Bidyuk, N., Tretko, V., & Kuchai, O. (2021). The Use of the Activity Approach in Teaching Foreign Languages in Higher Education Institutions. *The Romanian Journal for Multidimensional Education*, 13(2), 243-267. DOI: <https://doi.org/10.18662/rrem/13.2/420>
- Boyko, Y.M. (2014). Education and innovative technologies. *Scientific Bulletin of Uzhhorod University. Economy series*, 1(42), 306-309. (In Ukrainian)
- Dubaseniyuk, O.A. (2009). Innovative educational technologies and methods in the system of professional and pedagogical training. *Professional pedagogical education: innovative technologies and methods: Monograph*. Zhytomyr: Publication of ZhDU named after I. Franko.
- Dychkivska, M. I. (2004). Innovative pedagogical technologies: teaching. manual K.: Academvidav.
- Kademiya, M. Yu. (2014). Modern pedagogical technologies for teaching adults. *Modern pedagogical technologies in education. Theory and practice of social systems management*, 2, 11-17. (In Ukrainian)
- Kotiash, I., Shevchuk, I., Borysonok, M., Matviienko, I., Popov, M., Terekhov, V., & Kuchai, O. (2022). Possibilities of Using Multimedia Technologies in Education. *International Journal of Computer Science and Network Security*, 22(6), 727-732. <https://doi.org/10.22937/IJCSNS.2022.22.6.91>

- Kremen, V. G. (2008). Encyclopedia of education. K.: Yurinkom Inter.
- Kuchai, O., Skyba, K., Demchenko, A., Savchenko, N., Necheporuk, Y., & Rezvan, O. (2022). The Importance of Multimedia Education in the Informatization of Society. *International Journal of Computer Science and Network Security*, 22(4), 797-803. <https://doi.org/10.22937/IJCSNS.2022.22.4.95>
- Kuchai, O., Yakovenko, S., Zorochkina, T., Okolnycha, T., Demchenko, I., & Kuchai, T. (2021). Problems of Distance Learning in Specialists Training in Modern Terms of the Informative Society During COVID-19. *International Journal of Computer Science and Network Security*, 21(12), 143-148. <https://doi.org/10.22937/IJCSNS.2021.21.12.21>
- Kuzminskyi, A. I., Kuchai O. V., & Bida, O. A. (2018). Use of Polish experience in training computer science specialists in the pedagogical education system of Ukraine. *Information Technologies and Learning Tools*, 68(6), 206-217. <https://doi.org/10.33407/itlt.v68i6.2636>
- Luzan, P. G., Manko, V. M., Nesterova, L. V., & Romanova, G. M. (2014). Theory and practice of introducing innovative learning technologies into the professional training of skilled workers: monograph. K.: "NVP Polygraph Service" LLC. (In Ukrainian)
- Morska, L. I. (2008). Information technologies in teaching foreign languages: training. manual Ternopil: Aston.
- Nikonorova, L. (2020). Innovative technologies in education: project method in learning foreign languages. *Innovation in education*, 11(2), 216-222. (In Ukrainian)
- Plakhotnik, O., Strazhnikova, I., Yehorova, I., Semchuk, S., Tymchenko, A., Logvinova, Ya., & Kuchai, O. (2022). The Importance of Multimedia for Professional Training of Future Specialists. *International Journal of Computer Science and Network Security*, 22(9), 43-50. DOI: <https://doi.org/10.22937/IJCSNS.2022.22.9.7>
- Rozlutska, H.M. (2011). Innovative technologies in the pedagogical process of a higher school. *Scientific Bulletin of the Uzhhorod National University. Series "Pedagogy, social work"*, 20, 121-123. (In Ukrainian)
- Shchyrbul, O., Babalich, V., Mishyn, S., Novikova, V., Zinchenko, L., Haidamashko, I., & Kuchai, O. (2022). Conceptual Approaches to Training Specialists Using Multimedia Technologies. *International Journal of Computer Science and Network Security*, 22(9), 123-130. <https://doi.org/10.22937/IJCSNS.2022.22.9.19>
- Shunkov, V., Shevtsova, O., Koval, V., Grygorenko, T., Yefymenko, L., Smolianko, Y., & Kuchai, O. (2022). Prospective Directions of Using Multimedia Technologies in the Training of Future Specialists. *International Journal of Computer Science and Network Security*, 22(6), 739-746. <https://doi.org/10.22937/IJCSNS.2022.22.6.93>
- Steblyuk, S.V. (2011). Innovative learning technologies in higher education. *Scientific Bulletin of the Uzhhorod National University Series "Pedagogy, social work"*, 20, 141-142. (In Ukrainian)
- Sydyorenko, V.V. (2014). Pedagogical coaching as an innovative technology of scientific and methodical support of the professional and personal development of the teacher in the postgraduate education system. *Scientific treasury of education of Donetsk region*, 3(14), 13-19.
- Tyutyunnyk, V. V., Savchenko, V. V., & Vasylieva, S. O. (2021). The problem of introducing innovative technologies in education. Psychological and pedagogical problems of higher and secondary education in the conditions of modern challenges: theory and practice: materials of the 5th International Scientific and Practical Conference (Kharkiv, March 31 - April 2, 2021). In 2 volumes. / Hark. national ped. H.S. Skovoroda University. Kharkiv: "Mitra", 1, 244-247. (In Ukrainian)