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Features of training specialists using innovative approaches

Особливості підготовки фахівців за допомогою інноваційних підходів

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Abstract

The article examines the peculiarities of training specialists through the use of innovative approaches. The article shows the methodological concept of purposeful formation of competitive specialists in the process of professional training, which represents the main innovative approaches to the study of the problem of training specialists. The purpose of the research is revealed, in which the peculiarities of the training of specialists using innovative approaches are revealed. Two types of these approaches to high-quality training of specialists are identified. The innovative approach in education is considered through the use of the proposed model and through the ability to design and model the programmed educational process in a higher education institution with the mandatory application of various innovative approaches. The authors highlight the main components of educational innovation in the article. Prospective directions of educational innovation are highlighted. The necessity of applying innovative approaches in the system of education of future specialists is proven and the need for active assimilation of educational

Анотація

У статті розглянуто особливості підготовки фахівців шляхом застосування інноваційних підходів. У статті показано методологічну концепцію цілеспрямованого формування конкурентоспроможних спеціалістів у процесі професійної підготовки, яка репрезентує основні інноваційні підходи до дослідження проблеми підготовки фахівців. Розкрито мету дослідження в якій виявлено особливості підготовки фахівців з використанням інноваційних підходів. Означено два види цих підходів до якісної підготовки фахівців. Інноваційний підхід в освіті розглянуто через використання запропонованої моделі та через здатність проектувати і моделювати запрограмований освітній процес у закладі вищої освіти з обов'язковим застосуванням різних інноваційних підходів. Автори виділяють у статті основні складові освітньої інновації. Висвітлено перспективні напрями освітньої інновації. Доведена необхідність застосування інноваційних підходів в системі освіти майбутніх фахівців та показано необхідність активного засвоєння навчальної інформації, доведено розвиток ключових

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information is shown, the development of key competencies, professional growth and ensuring the competitiveness of future specialists on the labor market in the modern world are proven. The main innovative technologies in education, which have recently been introduced into the practice of higher education, are considered.

Keywords: innovations, training of specialists, innovative approaches, pedagogical technologies, pedagogical process of a higher school.

Introduction

In the 21st century, when the rapid development of society is observed, humanity is at the stage of globalization and integration. There is a change in all methods of information dissemination, the volume of which is constantly increasing, the virtual E-environment is rapidly being modernized, and this process significantly affects the reformatting of the education space. In connection with the application of innovative approaches to the development of critical thinking, the content of education, the emotional intelligence of education seekers and, as a result, reducing their overload, facilitating socialization - conceptualizing the education of the entire global space (Nezhiva & Palamar, 2020).

Innovation in education is a process that, with the help of creative approaches to learning, implements the application and improvement of creative ideas, teaching aids, and the latest technologies, both pedagogical and managerial, in educational practice. As a result of such application of innovations in education, there is an increase in the level of all components of multi-structural education, and the transition of the education system to its qualitative state is observed. Since the definition of "innovation" is used in two forms: the actual idea and the process of practical implementation, it has many meanings (Kremen, 2008).

The innovative pedagogical activity involves professional self-determination of the person who teaches, including awareness of pedagogical norms, professional model, and the ability to qualitatively assess one's capabilities, which "constitutes the cognitive component of the teacher's readiness for such activity (Dubasenyuk, 2009).

Through the technology of innovative education, we understand a balanced model of activity (organization and conduct of the educational process), which is carried out together with

компетентностей, професійне зростання й забезпечення конкурентоспроможності майбутніх фахівців на ринку праці у сучасному світі. Розглянуто основні інноваційні технології в освіті, які останнім часом впроваджуються в практику вищої освіти.

Ключові слова: інновації, підготовка фахівців, інноваційні підходи, педагогічні технології, педагогічний процес вищої школи.

mandatory design in the most comfortable conditions for both the teacher and the students. The main condition for the continuous development of innovative pedagogical technologies in the modern educational process is the constant implementation of system analysis when solving practical issues related to the use of educational process equipment and technological means of learning. When carrying out a system analysis during the planning of educational resources and before their implementation in the learning process, the main criterion is the criterion of optimality. Therefore, the application of system analysis in the creation and use of teaching aids is a promising and positive thing, and the constant planning of the activities of the teacher and students of education makes the forecasting of educational results justified.

Pedagogical technology, which we understand broadly and when defining it, we mean its orderly system of actions. It is these proposed actions that lead to the desired achievement of the pedagogical goals set by us. We mean: developmental training, problem-based training, credit-module training, etc. When applying educational innovative technologies, a general strategy for the development of education takes place, and when applying pedagogical technologies, their implementation tactics are implemented. Learning technology comes from the Latin word valeo which means health; studies all approaches to improving the individual health of the individual and society as a whole. So, from here it can be stated that learning technology is a valeologically, pedagogically, and economically justified process of possible achievement of educational results and contributes to learning as a whole. For the creative professional improvement of the teacher's qualifications, his self-realization, as well as to ensure the competitiveness of the education seeker, we are interested in researching the impact on this process of teaching technology, which represents

a set of substantiated innovative techniques, methods and means for implementing the updated innovative content of education within the limits of both the subject and individual types of educational activities using innovative approaches. With the help of innovative teaching, stimulating, innovative, innovative changes in education, and therefore in culture and society, take place. Innovative changes in education are aimed at obtaining innovative changes, with the help of clear new approaches, as a result of which there is a process of individual readiness for education, dynamic changes in society in connection with the development of creative abilities, taking into account various forms of imaginative thinking and logical thinking, as well as leads to a strong ability to work in a team with other people (Bakhtiyarova et al., 2017).

The 21st century is a century characterized by a mandatory and undeniable transition from the energy to the information age. And this era is the main basis for the development of all spheres of life on our planet. Therefore, the principles related to the training of competitive specialists of all levels and areas of training must always be improved and changed. The need to improve the professional training system of competitive specialists depends on the conditions and organization of the education process itself, and the use of innovative learning technologies in this process is important. The quality of professional training of competitive specialists is achieved by increasing the amount of information, rationalizing the education process, and building a cognitive process with the help of highlighting important, essential knowledge and skills for specialized training of competitive specialists. Practice requires that the main goal of a high-quality educational process is a specific competitive education seeker. This means the personification of the process of professional training of specialists (Shestopalyuk, 2013). We see the problem of inconsistency between the requirements of competitive specialists and the educational technology of a higher education institution that provides educational services at this moment in time, taking into account changes in the social environment from the outside. We see the possibility of eliminating such inconsistency in the mandatory appropriate adjustment of the information society, in particular the information and pedagogical flows of this very society, aimed at increasing the productivity of educational technology through the use of innovative approaches, which is the relevance of our research.

The purpose of the research is to reveal the peculiarities of the training of specialists using innovative approaches.

Literature Review

Modern pedagogical science is characterized by the search for innovations aimed at creating conditions for the formation and development of a whole, creative, free personality capable of socialization, adaptation and self-realization in society, as well as revealing the essence of innovative approaches in the educational process and taking into account the main components of influence on their implementation. The general nature of educational reforms in Ukraine is primarily related to innovative trends in the development of education. Pedagogical innovations, which have become widespread in education, include ideas, methods, technologies, a complex of elements that carry progressive principles; creative search; an original solution to pedagogical and educational problems.

It should be noted that the topic of innovative technologies is the subject of discussions and disputes among many scientists and teachers.

O. Podpletnya and others. (2018) highlighted the different approaches needed to implement innovative forms of learning. To improve the quality of training of competitive specialists, the functioning of distance education on the open Moodle platform, which is very popular in global practice, is shown.

In the studies of V. Tyutyunnyk (2021), ways of introducing innovative technologies and their implementation in higher educational institutions are considered. The current state of implementation of innovative activities in institutions of higher education is analyzed. Problematic points in the modern education system regarding the introduction of innovative technologies are shown.

The authors emphasize that innovative pedagogical activity is connected with the rejection of stereotypes in education, creates new norms of personal and creative, individually directed activity of the teacher, develops pedagogical technologies that are implemented in this activity.

In their research, O. Marinovska and R. Zubyak (2018) systematized and showed the importance of the information space regarding the approbation, implementation and development of innovative work technologies in general

secondary education institutions. O. Shestopalyuk (2013) considered the content of innovative educational technologies in institutions of higher education and the possibilities of their use in the education system. A comparison of the main technologies was carried out and innovative models of education were analyzed.

Research by L. Nezhiva and S. Palamar (2020) shows the need to introduce interactive technology into education, which changes the focus of lectures through dialogic interaction with students, ensuring real improvement of practical training through the use of master classes and quests.

In the studies of the authors, innovations are caused by new socio-economic transformations due to the need for fundamental changes in the organization of the education system, methodology and technology of the organization of the pedagogical process in educational institutions of various types and the need to train a new galaxy of scientific and pedagogical and pedagogical personnel; the tendency to humanize the content of education intensified, new academic disciplines appeared and there was a rapid need for teachers who could provide a creative, innovative approach to the implementation of these trends; the emergence of competition between state and non-state universities, which provided an opportunity for young people to study where there is innovative potential and quality of education.

G. Rozlutska (2011) substantiated the definitions of "pedagogical technology", "educational technology", "pedagogical innovation technology", "teaching technology" and others. The advantages of innovative technologies and the activity and possibilities of use in the educational process of the higher school are shown.

Generalizing the above, in the context of innovative education, the requirements for the teacher's personality take on a completely different meaning. Having analyzed the scientific sources, we emphasize that the innovative renewal of the pedagogical system should ensure the growth of the personal potential of both students and teachers, should contribute to their self-improvement, the expression of individuality. A teacher must know his subject, master teaching methods, have knowledge in related scientific fields, orient himself in modern social and political life. Taking into account the peculiarities of the professional training system,

the specifics of educational activity, the peculiarities of becoming a teacher as a subject of innovative activity and the content of teacher training for innovative pedagogical activity, the creation of an innovative educational environment of a higher educational institution is relevant in the training of future teachers.

Methodology

To achieve the defined goal of the research and to solve the set tasks, a complex of research methods was applied: theoretical: a comparative analysis of philosophical, psychological and pedagogical, methodological literature, normative, and legislative documents - to clarify the state of development of the problem of training specialists using innovative approaches, clarification of conceptual -categorical apparatus of research, determination of the essence and component composition of the studied ability; synthesis, generalization - to substantiate the theoretical and methodological foundations of the research.

The leading idea of the study is based on identifying the peculiarities of training future specialists using innovative approaches in the process of professional training, which ensure effectively, targeted formation of professional competence of future specialists in the created innovative educational environment based on the modernization and modification of the components of the methodological concept of purposeful formation of competitive specialists in the process of professional training represents the main innovative approaches to the study of the specified problem:

- competence-based, which provides guidelines for the education paradigm for a creative, active, independent educational process while revealing the essential potential of each future specialist, while providing an opportunity to actively act and apply the formed competencies in various, not only professional situations but also life realities;
- systemic, which provides an opportunity to provide a comprehensive study of the methodology of the formation of eco-competence of future specialists during professional training at all stages of training; to organize systematic actions aimed at the perfect formation of a professional phenomenon;
- personally oriented, involves the creation and provision of methods, content, and environment for revealing a unique potential

- in the future specialist, forming an individual trajectory of development, self-realization, and self-development of the personality qualities that are formed based on harmonious interaction with the surrounding world;
- axiological, directs the activity of a specialist to humanistic development, substantiates value orientations, regulates moral and ethical norms of relations between society and man, establishes the moral principles of harmonizing human relations with the surrounding world, which are based on the absolute value of life;
 - activity, which substantiates the formation of professional competence of future specialists in the process of training specialists with the help of innovative approaches, interaction with the surrounding world based on sustainable development, active activity;
 - reflective, aimed at forming the ability of future specialists with the help of innovative approaches to realize their responsibility for self-monitoring the effectiveness of their professional activities, to stimulate self-improvement and consequently, develop professionally;
 - humanistic, in which we observe the personal growth of specialists with the help of innovative approaches, taking into account oriented values in the conditions of educational activities for competitiveness in their professional activities.

Results and Discussion

Under innovative education, we understand not only a certain educational technology but the principle of conscious application of all the possibilities of the most effective elements of the system of the educational process, which are constantly being improved. Note that the innovative approach in education is manifested not only through the use of the selected, most dynamic model, but also through the mandatory ability to model and design the educational process in a higher education institution with the mandatory use of the most effective innovative approaches (Shestopalyuk, 2013).

Innovative approaches to high-quality training of specialists are divided into two types:

- 1) innovations-modernizations that modernize the education process and are programmed to achieve guaranteed results within its traditional reproductive orientation;

- 2) innovations-transformations that serve to change the educational process according to the traditional scheme and set a goal and achieve a result that is aimed at ensuring a research-innovative nature, including the mandatory organization of search educational and cognitive activity. Let's define the main difference between the two approaches, which is precisely the role of education seekers, in particular, in the implementation of educational activities. With the traditional approach, the learner is a passive recipient of the provided educational information, and when using innovative new technologies, the entire educational process is aimed at improving the active process of assimilation of knowledge and skills by the learner. It is the second type of innovative education that is necessary, promising and effective today, which makes it possible to update the education process and to teach students to independently carry out innovative activities.

Innovative processes in education, in general, and the scientific discipline "innovation", in particular, aim to use the essence of the masterful embodiment and scientific design of innovative technologies, to identify the natural connections between traditions, approaches, and innovations, to apply innovative approaches and management models of systemic innovations in institutions education (Dake & Ofosu, 2019).

Let's highlight the main components of an educational innovation:

- theoretical components of creating innovative approaches in the education system (neology);
- methodology of perception and its assessment, interpretation of novelty in sociology, psychology, didactics, and management;
- practical application of innovations in education, technology, and experience.

With the help of these interconnected components, the structuring and formation of the essence of theoretical educational innovation take place (Omonayajo et al., 2022).

Let's focus on promising areas of an educational innovation:

- definition of the content, structure, subject, functions of innovation in education, using innovation as a separate branch of scientific

- knowledge, taking into account it's one of the main places in the system of sciences;
- scientific understanding in the modern philosophy of education of innovative processes, in particular, innovative principles;
 - development of management models using innovative processes in modern education;
 - highlighting and substantiating the contradictions of innovative approaches in activities and ways of solving them;
 - determination of patterns of socio-psychological changes in the development of innovative processes;
 - consideration of the conditions for the implementation of innovative processes in education and the description of the necessary and sufficient categories of their application;
 - substantive analysis of innovative activity and development of norms, etc (Bakhtiyarova et al., 2017).

Technologies and products of computerization have a short life span and it is getting shorter and shorter, and aging is happening faster and faster. This causes more and more innovations (Kremen, 2008).

Let's consider the main innovative technologies in education, which have recently been introduced into the practice of higher education. Technologies of modular training. Let's consider the main content of the elements of the technology of modular learning and the logic of construction. The structuring of the educational process according to the modular principle is used when studying a topic or section. The study of the educational material is not conducted in parts but is presented as a generalized module in lectures as a whole. The duration of innovative lectures is adjusted by the methods of structuring and volume of theoretical material with the use of innovative methods with the help of information technologies. The founding innovative lectures highlight the problematic and complex issues of the topic, applying the latest facts and events. Activation of the thinking of education seekers in the course of innovative approaches to lectures is ensured if the lecture has a problematic innovative character. The role of the teacher in the implementation of innovative pedagogical technologies is also changing. The teacher performs the role of a consultant when applying innovative approaches (Rozlutska, 2011).

Problem-based learning technology. Professional, creative training of future

competitive specialists becomes purposeful and real when innovative problem-based learning technologies are used. The very name of this learning technology speaks of its focus and capabilities. Problem-based learning is related to a problem, problematic tasks are formed by the teacher, an innovative problem-based explanation of the educational material takes place, the content of which is presented using innovative approaches. This is the essence of problem-based learning, which forms research activity, creative thinking, critical thinking, dialectical thinking, independence of students, and solving theoretical and practical tasks with the help of innovative approaches, which are important in the formation of a future competitive specialist (Luo, 2022).

Situational modeling technology. Innovative teaching technology sets the following conditions for the presentation of material: curiosity, vividness, and emotional imagery. The purpose of situational modeling technology is to create such educational conditions when every student would study not only successfully, but with interest, revealing his talents, and abilities and being ready for creativity and self-realization.

Interactive learning technologies. Recently, interactive learning technologies are often used, the meaning of which is to activate not only cognitive activity but also to activate the labor activity of students, increasing interest in classes. Thanks to the use of interactive learning technologies, students acquire an attitude of constant search and creativity when completing a task. The business game is the main component when using interactive technologies (Diaz-Parra et al., 2022).

Business game technology. The essence of the use of business games in educational institutions is manifested in the development of the independence of the future competitive specialist, in the activation of thinking, in the formation of creativity, and in the situation of approaching the realities of life (Morze et al., 2017).

Developmental learning technology. Developmental learning technology is a didactic system. The purpose of developmental education is to focus not only on ready-made knowledge but most importantly on the principles of acquiring new knowledge. The technology of developmental education, which takes into account the peculiarities of the mental development of students of education, is based

on the concept of developmental education, ensures the personal formation of students of education, their development as subjects of education and later professional activity.

Case technology. Case technology ensures the use of the principles of problem-based learning. Provides an opportunity to acquire skills in solving existing problems, ensures the work of a group of education seekers on a common field by applying a specially developed problem; thus, the process of acquiring knowledge is more adequate, it imitates professional processes from real life, applying life situations. This is better than memorizing terms, and retelling them, because such an innovative approach requires not only the mechanical acquisition of knowledge, understanding of terms, but also skillful operation of these terms, which makes it possible to solve problems by building logical schemes, and makes it possible to argue one's opinion.

The technology of collective and group methods of learning. The basis of the technology of the collective and group method of learning is a person-oriented approach related to the interaction of the teacher and students of education. This approach is based on opportunities for all participants in the educational process of natural communication.

Technology for the development of critical thinking. The purpose of technology is to form positive personality traits, such as independence, creativity, and responsibility; to organize work that will make it possible to solve urgent problems and achieve the programmed result; to form communicative skills: justify thoughts, hear, discuss, listen, express; acquire the ability to control oneself, evaluate others and oneself, self-improvement throughout one's life; determine the purpose of the activity, solve problems, organize cooperation, develop responsibility, initiative for decision-making, overcome conflicts.

The technology of programmed learning. The positive aspects of programmed learning technology are as follows: the possibility of individualizing education; the development of independent work of education seekers and its activation, the ability to focus attention, develop observation; using feedback to ensure thorough assimilation of the material; the ability to perform work clearly and correctly; objectively determine the level of assimilation of skills, knowledge, and skills (Bakhtiyarova et al., 2017).

The introduction of ICT technology, technologies of critical thinking, project activity, augmented reality, activation of the educational process in the preparation of future specialists contributes to the innovative assimilation of the information provided, the improvement of basic professional competencies, and thus the competitive growth and ensuring the competitiveness of graduates in modern global labor market relations, which is necessary for the assimilation of educational material and increasing its volume during life (Plakhotnik et al., 2022). With this approach, when the educational process does not depend on the location of the student in time and space and a specific educational institution, the value is given to the independent study of the material during life, dialogic exchange between the teacher and the student (Kuharenko, 2002).

The main innovative approach that is increasingly necessary for education is distance education. We justify this statement. By the distance education system, we mean a form of obtaining education, when not only traditional approaches are used during training, but also innovative approaches to education, and forms of education based on telecommunication and computer technologies are a mandatory element of the application of innovative approaches (Podpletnya et al., 2018).

For the implementation of distance education and its development, platforms are used, that is, software to support distance education, without the use of which the distance education system is impossible. Today, in the distance information society, there are a large number of platforms to organize distance education. There are two categories of platforms: open source, which is distributed for free, and closed source, which is paid, commercial (Sysoeva, 2011).

Distance education is a regularity of the adaptation of education to modern educational conditions, it does not develop by chance, because its task is: fulfilling the social order of educational space for society with minimal material costs from the state and combines full-time, part-time, extramural, and evening training based on innovative information multimedia technologies and systems. Therefore, we consider distance education to be a set of innovative information technologies that provide the learner with all the necessary amount of material; interactive interaction of students and teachers during the educational process and provide an opportunity for students to independently work with literature for qualitative

learning of the material; and also provide an assessment of knowledge and skills in the education process and carry out its monitoring (Kiryakova et al., 2018).

Distance education is based on electronic textbooks, the use of personal computers, and the use of telecommunications, which constitute a qualitatively new innovative approach to education. For such an innovative approach in education, the main thing is a strong cognitive motivation, which is provided by the Internet and helps to improve the quality of training of a competitive specialist (Kravchenko et al., 2022).

This quality of distance education is an innovative technological approach to the education of the XXI century. The characteristic features of the innovative technological approach are modularity, flexibility, the coordinating role of the teacher, economic efficiency, monitoring and control of the quality of education, the use of innovative approaches of forms and means of education (Rozlutska, 2011).

The result of applying innovative, technological approaches in education depends not only on the skill of the teacher but also on the motivation and ability of the student to study independently and analyze the literature used. Innovative educational approaches lead to the effectiveness of education because they are aimed at the high-quality training of highly qualified specialists, who are needed by the modern world, who can successfully master new knowledge throughout their lives, flexibly, innovatively, and dynamically respond to modern socio-economic conditions; to possess civic and moral qualities in the innovative space of education. This is the result of the education process (Podpletnya et al., 2018).

Innovativeness in education is based on the value perception of the world by the individual, and individuality in the relationship between the teacher and the student of education. Innovative approaches in education are complex and responsible and are connected by significant human factors. We are witnessing the beginning of innovations in education: from the change of the traditional "teacher-learner" relationship model to the "person-person" model; out of respect for the individuality of the student of education (Shestopalyuk, 2013).

Conclusions

Innovative education and innovative approaches in its development are considered as the principle

of justified use of all the possibilities of the elements of the education system. The definition of an innovative approach in education is the use of an innovative model through the possibility of modeling and designing an innovative educational process in a higher education institution using innovative approaches.

Innovative approaches to education are grouped into two types: innovation-modernization, to modernize the educational process and aim at achieving accurate results of the traditional reproductive orientation; innovations-transformations, which aim to transform traditional education into a research approach, the organization of search and cognitive activities in the educational space. A clear difference between these two approaches is singled out, which is the role of education seekers to innovatively learn and self-learn with the help of innovative approaches and creatively implement educational activities in the process of competitive work for society.

The components of educational innovation are revealed: a theoretical approach to creating innovations in the educational system; activity assessment methodology, perception of the global educational dimension; interpretations of the innovation in psychology, didactics, sociology, and management; technological approach, the experience of educational innovations in the practical dimension of society. These components are interrelated, structure and form the main approaches to theoretical educational innovation. Prospective directions of educational innovation are highlighted.

The importance of the main innovative technologies in education, which are leading in higher education today (problem-based learning technology, modular learning technology, business game technology, situational modeling technology, developmental learning technology, interactive learning technologies, case technology, collective and group learning technology, is substantiated), programmed learning technology, critical thinking development technology. It has been proven that the use of these technologies is necessary for the education system of future specialists and promotes the active learning of material that will be necessary for their professional activities and will ensure the development of key competencies and will contribute to the professional growth of specialists, ensure competitiveness specialists in the modern labor market.

Bibliographic references

- Bakhtiyarova, H.Sh., Aristova, A.V., & Volobuyeva, S.V. (2017). Innovative learning technologies: Education. Manual for students higher technical educational institutions. K.: NTU. <https://ukreligieznastvo.wordpress.com/2019/01/18/itn/>
- Dake, D.K., & Oforu, B. (2019). 5G Enabled Technologies for Smart Education. *International journal of advanced computer science and applications*, 10(12), 201-206.
- Diaz-Parra, O., Fuentes-Penna, A., Barrera-Camara, R.A., Trejo-Macotela, F.R., Ramos-Fernandez, J.C., Ruiz-Vanoye, J.A., Zezzatti, A.O., & Rodriguez-Flores, J. (2022). Smart Education and future trends. *International journal of combinatorial optimization problems and informatics*, 13(1), 65-74.
- Dubasenyuk, O. A. (2009). Innovative educational technologies and methods in the system of professional and pedagogical training. *Professional pedagogical education: innovative technologies and methods: Monograph / editor. O. A. Dubasenyuk. Zhytomyr: Publication of I. Franko ZhDU*
- Kremen, V. G. (2008). *Encyclopedia of education*. Kyiv: Yurinkom Inter.
- Kiryakova, G., Angelova, N., & Yordanova, L. (2018). The Potential of Augmented Reality to Transform Education into Smart Education. *Tem journal-technology education management informatics*, 7(3), 556-565. DOI: <https://doi.org/10.18421/TEM73-11>
- Kravchenko, T., Varga, L., Lypchanko-Kovachyk, O., Chinchoy, A., Yevtushenko, N., Syladii, I., & Kuchai, O. (2022). Improving the Professional Competence of a Specialist in Poland by Implementing Multimedia Technologies. *International Journal of Computer Science and Network Security*, 22(9), 51-58. DOI: <https://doi.org/10.22937/IJCSNS.2022.22.9.8>
- Kremen, V.G. (2008). Man before the challenge of civilization: creativity, man, education. The phenomenon of innovation: education, society, culture. K.: Pedagogical thought.
- Kuharenko, V. M. (2002). Distance learning and conditions of application. Kh.: NTU "KhPI", "Torsing".
- Luo, Y.T. (2022). Construction of Smart Higher Education Teaching Resources Using Data Analysis Technology in Unbalanced Data Environment. *Journal of environmental and public health*, 2022, 2130623. DOI: <https://doi.org/10.1155/2022/2130623>
- Marynovska, O., & Zubyak, R. (2018). *Innovative educational technologies: information. directory: Ivano-Frankivsk: City.*
- Morze, N.V., Smyrnova-Trybulska, E., & Glazunova, O. (2017). Design of a University Learning Environment for SMART Education. *Smart technology applications in business environments*, 221-248. DOI: <https://doi.org/10.4018/978-1-5225-2492-2.ch011>
- Nezhiva, L., & Palamar, S. (2020). Innovative technologies in literary education of future primary school teachers. *Educological discourse*, 31(4), 129-142.
- Omonayajo, B., Al-Turjman, F., & Cavus, N. (2022). Interactive and Innovative Technologies for Smart Education. *Computer science and information systems*, 19(3), 1549-1564. DOI: <https://doi.org/10.2298/CSIS210817027O>
- 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>
- Podpletnya, O. A., Potapova, T. M., & Slesarchuk, V. Y. (2018). Innovative technologies in professional education: modern trends and practice of implementation. *Medical education*, 4, 77-80. DOI: <https://doi.org/10.11603/me.2414-5998.2018.4.9326>
- 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)
- Shestopalyuk, O.V. (2013). Innovative models of learning in the activities of higher educational institutions. *Innovations in the training of modern specialists Theory and practice of management of social systems*, 3, 118-124. (In ukrainian)
- Sysoeva, S. O., & Osadcha, K. P. (2019). State, technologies and prospects of distance learning in higher education of Ukraine. *Information technologies and teaching tools*, 70(2), 271-284. URL: http://nbuv.gov.ua/UJRN/ITZN_2019_70_2_22.



Tyutyunnyk, V. V. (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 V International. science and practice conference, Kharkiv, March 31. - April 2 2021. Kharkiv: Mitra. 1. 244–247. (In ukrainian)