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INNOVATION-DRIVEN APPROACHES TO THE PROFESSIONAL TRAINING OF FUTURE SPECIALISTS IN HIGHER EDUCATION

ABORDAGENS INOVADORAS PARA A FORMAÇÃO PROFISSIONAL DE FUTUROS ESPECIALISTAS NO ENSINO SUPERIOR

ENFOQUES IMPULSADOS POR LA INNOVACIÓN PARA LA FORMACIÓN PROFESIONAL DE FUTUROS ESPECIALISTAS EN EDUCACIÓN SUPERIOR

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ABSTRACT: The article examines the content of research concepts and the key innovative requirements for modern specialists. It highlights the necessary innovative teaching methods for students during their professional training in higher education. The periods when innovative teaching technologies are used in higher education institutions are characterized. The essence of the experiment was to exert targeted influence on participants to enhance the professional training of future specialists through innovative teaching technologies. The analysis of the initial state of readiness for the use of innovative teaching technologies, its low indicators, and the modeling of the preparation process for the outlined activity enabled a transition from the ascertaining stage to the formative stage of the experiment. The results of the control stage of the study indicate the effectiveness of all methodological support materials, special courses, and pedagogical conditions used in the experimental group.

KEYWORDS: Higher education institutions. Virtual reality. Augmented reality. Blockchain. Informatization of the educational process.

***RESUMO**: O artigo examina o conteúdo dos conceitos de pesquisa e os principais requisitos inovadores para os especialistas modernos. Destaca os métodos de ensino inovadores necessários para os estudantes durante sua formação profissional no ensino superior. Os períodos em que as tecnologias de ensino inovadoras são utilizadas nas instituições de ensino superior são caracterizados. A essência do experimento foi exercer influência direcionada sobre os participantes para aprimorar a formação profissional de futuros especialistas por meio de tecnologias de ensino inovadoras. A análise do estado inicial de prontidão para o uso de tecnologias de ensino inovadoras, seus baixos indicadores e a modelagem do processo de preparação para a atividade delineada permitiram a transição da fase de verificação para a fase formativa do experimento. Os resultados da fase de controle do estudo indicam a eficácia de todos os materiais de apoio metodológico, cursos específicos e condições pedagógicas utilizadas no grupo experimental.*

***PALAVRAS-CHAVE**: Instituições de ensino superior. Realidade virtual. Realidade aumentada. Blockchain. Informatização do processo educacional.*

***RESUMEN**: El artículo examina el contenido de los conceptos de investigación y los requisitos clave de innovación para los especialistas modernos. Destaca los métodos de enseñanza innovadores necesarios para los estudiantes durante su formación profesional en la educación superior. Se caracterizan los períodos en que se utilizan tecnologías docentes innovadoras en las instituciones de educación superior. La esencia del experimento fue ejercer una influencia específica en los participantes para mejorar la formación profesional de los futuros especialistas mediante tecnologías docentes innovadoras. El análisis del estado inicial de preparación para el uso de tecnologías docentes innovadoras, sus bajos indicadores y el modelado del proceso de preparación para la actividad descrita permitieron la transición de la etapa de determinación a la etapa formativa del experimento. Los resultados de la etapa de control del estudio indican la eficacia de todos los materiales de apoyo metodológico, los cursos especiales y las condiciones pedagógicas utilizadas en el grupo experimental.*

***PALABRAS CLAVE**: Instituciones de educación superior. Realidad virtual. Realidad aumentada. Blockchain. Informatización del proceso educativo.*

INTRODUCTION

The modern labor market requires specialists who possess digital competencies and fundamental skills (Okolie et al., 2019). Training in an information technology and digital environment has a positive impact on the development of digital professional competencies among future specialists, regardless of their specialization. Flexible digital skills at the beginning of a professional career are actively used by specialists and acquired through practically oriented training (Geng et al., 2019). Increasing the scale of application of innovative technologies is possible through practical blended, virtual, or distance learning (Smith & Hill, 2018). In acquiring professional skills, it is worth considering the conditions for increasing the level of digitalization and technologization of education, taking into account its effectiveness and modernity.

Higher education is currently undergoing rapid, ambiguous transformations. The difficulties are that, in pursuit of innovation, even with all organizational capabilities, there is a risk in the educational sphere of preserving the intended purpose. Higher education provides organizational access to current technological innovations, and participants in the educational process are appropriately prepared to work in a technological environment, as technological innovations are widely used in everyday life. Therefore, the transfer of technological and digital components, as well as information and communication environments, to higher education is important (Tereshchuk et al., 2023).

LITERATURE REVIEW

Scientific research revealed the strategic aspects of the development of innovative learning technologies (Alexander et al., 2019). Zawacki-Richter et al. (2019) highlight the need for ongoing updating and improvement, in line with contemporary requirements, to support long-term planning for the latest learning technologies.

Lai and Bower (2019) characterized the innovative learning technologies available today and attempted to systematize them in higher education. A significant challenge for scientific and pedagogical discourse is the implementation of innovative learning technologies and their effectiveness in higher education institutions.

Kim et al. (2019) examined the structuring and systematic analysis of innovative learning technologies across various scientific fields, demonstrated the feasibility of modeling optimal scenarios and their use in the educational process, and conferred academic status on innovative learning technologies within the higher education system. The study by Rakhimov and Mukhamediev (2022) presents the features of implementing digital learning and the principles of Information and Communications Technology (ICT).

Aljawarneh (2019) investigated the human-oriented dimensions of innovative learning technologies in higher education, their synergistic context, and showed the ways of self-organization of higher education students under the conditions of using innovative technologies; using the technological and digital environment, he showed the advantages of organizing a modern research cluster of activity in a higher education institution.

Castro (2019) focuses on the complexity of the interaction system at the “human-machine” level when organizing the educational process, investigates the techno-oriented dimensions of learning in higher education institutions, and analyzes the use of innovative technologies in the everyday educational cycle. Scientists have shown that technologization and digitalization in education, unlike the classical production cycle, require a more thorough analysis, as automation conflicts with individualization.

Naciri et al. (2020) present a blended learning format primarily focused on students’ capabilities and needs. The use of technological devices in the professional training of future specialists helps ensure the accessibility and continuity of learning. It underscores the importance of digital tools and ICT in educational transformation.

Almeida and Simões (2019) present the mobile learning format and its use in higher education, particularly through innovative technologies in the professional training of future specialists. In such training, the use of gamification in the educational process is important, as evidenced by Haidabrus (2022). The scientist is also concerned about the challenges of implementing innovative learning technologies in higher education institutions, as these innovations extend beyond the educational process to encompass organizational and research components of students’ educational activities.

Modern researchers have made significant contributions to the study of professional training for specialists, including its various aspects. However, research on the professional training of future specialists in higher education institutions requires careful consideration. Therefore, this article works on the dimension of professional professional training of future specialists in higher education institutions through the use of innovative teaching technologies.

METHODOLOGY

In order to solve the set goal, the following research methods were used in the study: i) theoretical: general scientific (synthesis, analysis, comparison, classification, generalization and systematization)—in order to analyze in practice and in the psychological and pedagogical theory of the state of the problem under study, clarify the essence of the research concepts, substantiate the criteria, indicators and levels of readiness of future specialists through the use of innovative teaching technologies in higher education institutions; ii) empirical: diagnostic (interview, observation, testing)—to determine the state of readiness of future specialists through the use of innovative teaching technologies in higher education institutions; iii) pedagogical experiment; generalization of one's own pedagogical experience—to check the effectiveness of pedagogical conditions; iv) statistical (methods of mathematical statistics)—to analyze and process qualitative and quantitative indicators of experimental research, and establish reliability.

The essence of the experiment was the deliberate isolation of the phenomenon under study and the targeted influence on participants to enhance the professional training of future specialists using innovative teaching technologies.

The working hypothesis is, the professional training of future specialists will become more efficient and systematic when innovative teaching technologies are employed, and pedagogical conditions for this process are developed and implemented.

In the course of the research, we identified components (motivational, cognitive, and activity) and criteria (motivational, cognitive, and innovative), indicators, and levels of readiness of future specialists to apply innovative teaching technologies (high, sufficient, medium, and low). Based on the defined criteria, indicators, and readiness levels for future specialists to apply innovative learning technologies, we developed questionnaires and experiments (2023-2025).

The study's working hypothesis was tested at the following stages: preparatory, ascertaining, formative, and control. Respondents were randomly assigned to an experimental group and a control group. The absence of differences between these groups ($\alpha = 0.05$) was substantiated. Their main parameters were determined.

The equivalence of the groups was confirmed based on the ascertaining section of the study, which involved initial testing of respondents' readiness to address the specified problem.

An analysis of the initial state of readiness to apply innovative learning technologies, their low indicators, and modeling of the preparation process for the outlined activity enabled a transition from the ascertaining stage to the formative stage of the experiment. It demonstrated the need for a formative stage of the study.

The results of the control stage of the study indicate the effectiveness of the methodological support materials used in the experimental group (EG) and their positive effect on respondents' readiness. The results confirm the assumption regarding the effectiveness of the developed specialized course, pedagogical conditions, and methodological support in training specialists to implement innovative technologies in professional activities. According to statistical tests, the changes among respondents in the control group were not statistically significant.

RESULTS AND DISCUSSION

Content of research concepts and basic innovative requirements for modern specialists. Necessary innovative means of teaching students during their professional training in higher education. Periods of innovative teaching technologies in higher education institutions

Innovations play a key role in enhancing the effectiveness of higher education by introducing meaningful changes that improve educational products and processes. They involve the implementation of new services, technologies, and organizational and socio-economic solutions that support professional training and development.

High-quality specialist training requires the integration of innovative learning tools, including interactive technologies (online courses, webinars, multimedia, virtual laboratories), gaming technologies to increase motivation, project-based learning to develop practical skills, and student research activities (Knysh et al., 2026).

Let us name the periods during which innovative learning technologies take place in higher education institutions:

- *Short-term* − from traditional full-time education, it involves the transformation of learning spaces in classrooms to virtual, distance, blended learning (up to 2 years);
- *Medium-term* − a culture of innovation is formed in the higher education system, and the first results of innovative learning are obtained (up to 5 years);
- *Long-term* (over 5 years) − rethinking the work of classical university institutions (Knysh et al., 2024).

Innovative learning technologies contribute to the development of future specialists' independent activity and are creative and inquiry-based, distinct from traditional teaching methods. In higher education institutions, innovative teaching aims to reject outdated values and the systematic desire of students to reassess them, preserving only those that have undeniable weight. Therefore, educational innovations differ from traditional teaching in a purposeful process of changes that require modification of the content, goals, organizational forms, teaching methods, ways of individual behavior, adaptation of the educational process to the demands of the labor market, modern requirements, educational services, and social needs (Mytnyk et al., 2024).

Informatization of the educational process of higher education for the professional training of future specialists

The informatization of higher education has influenced traditional approaches to educational activities. University teachers are increasingly incorporating technical innovations into the training of higher education applicants, implementing web-based platforms such as Kahoot!, Zoom, and Google Classroom, as well as other specialized software tools that help visually demonstrate and reproduce materials in both distance and classroom settings. In recent years, "virtual laboratories" have been established within higher education institutions to leverage the latest technologies in the educational and scientific spheres (Kuchai et al., 2017).

In the educational process, Innovations should be directed to the development of informatization to improve the quality of learning and achieve new results, by optimizing and automating various work processes, which contribute to increasing the efficiency of activities in all areas of life, in particular, positively affecting science, education, economics, medicine, and management.

In recent years, virtual reality (VR) technologies have been developed and applied with particular intensity, with great potential for modeling various situations in professional training and specialist work. VR is a product of educational technologies, not just information technologies, and has a significant positive impact on students through programming, computer graphics, and animation that visualize three-dimensional objects. Speaking of VR, we understand an artificial world created from scratch using computer technologies, with no analogues, and reproduced in a manner analogous to the existing one. At the same time, such an approach to learning seems real and is perceived by the senses of every person. A significant effect is achieved when using programs and various devices (Zasiekina et al., 2025).

Innovative educational technologies also include augmented reality, which refers to the use of digital data to augment the real-world environment during professional training for future specialists in higher education institutions, where the real world is supplemented in real time. This is an educational system in which the environment is used to supplement learning with virtual objects (3D objects, photos, text, audio, links to video frames, websites, etc.). The listed objects can be interactive, respond to specific actions of the teacher or student, and not merely be observed. Augmented reality technology is the superimposition of digital content into the user's environment, fed in real time and processed to make it as close as possible to the real environment (Verbivskyi, 2023).

Such innovative technologies of higher education, which ensure the informatization of the educational process for the professional training of future specialists in higher education, are correlated with the globalization trends of digital and information technology progress, and have been implemented in higher education institutions over the past decades, intersecting with global processes of large-scale digitalization and informatization of society. Digitalization is shaped by the development of cloud, virtualization, Artificial Intelligence (AI) and machine learning technologies; blockchain, Internet of Things (IoT), robotics, and mixed/augmented reality; the expansion of mobile and wireless ICT infrastructures; the growth of digital data processing and electronic information systems; the use of virtual assistants and chatbots; the publication of electronic educational resources; interoperability of ICT tools; and the strengthening of cybersecurity and data protection systems (Buinytska, 2021).

Experimental research methodology

The essence of the experiment was to identify the phenomenon under study deliberately and to have a targeted impact on participants to improve the professional training of future specialists through innovative teaching technologies.

Working hypothesis: the professional training of future specialists will become more effective and systematic if innovative teaching technologies are employed and pedagogical conditions for this process are developed and implemented.

During the research, we identified components (motivational, cognitive, and activity) and defined criteria (motivational, cognitive, and innovative), indicators, and levels of readiness for future specialists to use innovative teaching technologies (high, sufficient, medium, and low). Based on the identified criteria, indicators, and levels for future specialists to use innovative teaching technologies, and using the developed questionnaires, we experimented (2023–2025).

The working hypothesis of the study was tested at the following stages:

- Preparatory stage of the experiment;
- Ascertaining the stage of the experiment;
- Formative stage of the experiment;
- Control stage of the experiment.

Respondents were randomly assigned to an experimental group and a control group. No statistically significant differences were observed in these groups ($\alpha = 0.05$). Their main parameters were determined.

Seventy students of the first educational level (bachelor's) participated in the study. The experimental group consisted of 35 participants, and the control group consisted of 35 participants.

The equivalence of the groups was confirmed based on the ascertaining section of the study, which involved initial testing of respondents' readiness to address the specified problem.

At the ascertaining stage of the experiment, we set the goal to identify the initial, input level of readiness of respondents to the use of innovative learning technologies by means of a questionnaire, which was aimed at identifying motivation, personal priorities, and significance for this type of activity, which we determined for the study in the control and experimental groups; analysis, processing, generalization of the results obtained and verification of their statistical significance were made.

During the ascertaining stage of the experiment, the survey of students, it was found that:

- 58% of respondents are partially ready to use innovative teaching technologies;
- 21% of respondents are not at all ready to use innovative teaching technologies;
- 83% of respondents have no experience in using innovative teaching technologies during their internship.

The analysis of the initial state of readiness to use innovative teaching technologies, its low indicators, and modeling of the preparation process for the outlined activity enabled a transition from the ascertaining to the formative stage of the experiment. It demonstrated the need for a formative stage of the study.

The purpose of the formative stage of the experiment is to confirm the effectiveness of the developed pedagogical conditions, special course, and methodological support for training specialists in the introduction of innovative technologies into professional practice.

Taking into account the existing standard curricula and traditional methods of organizing the educational process, the control group trained students.

In the experimental group, student training was conducted in accordance with the developed pedagogical conditions and methodological support for training specialists, taking into account the development of respondents' readiness (motivational, cognitive, and activity) for this type of activity.

The formative stage of the experiment was based on the developed methodological support, pedagogical conditions, and the special course "Innovative technologies of training in professional training of specialists", the basis of which was the digital content developed.

The purpose of the special course was to develop theoretical, systemic, holistic, and comprehensive knowledge, as well as practical skills and abilities, for organizing the professional activities of future specialists in higher education institutions through the use of innovative learning technologies.

The results of the control stage of the study indicate the effectiveness of the methodological support materials used in the EG and their positive effect on respondents' readiness.

At the ascertaining stage of the experiment, with $\alpha = 0.05$, we determined the nature of the distribution based on the initial level of students' readiness to use innovative technologies in the control and experimental groups. Using random sampling, 35 individuals were randomly selected from the control and experimental groups, respectively.

The cross-sectional results determined the nature of the distribution of students in the control and experimental groups by initial readiness to use innovative technologies, at the statistical significance level $\alpha = 0.05$.

The average score of the test performance by respondents of the experimental random sample was calculated using the formula below:

$$\bar{X} = \frac{\sum_{i=1}^{n} x_i}{n}$$

$n = 35$ − the number of students in the experimental group of the random population.

$\bar{X}$ – average score of respondents performing the test of an experimental sample of a random population.

x_i – score for the test of the *i-th* student.

The sample variance was calculated using the following formula:

$$S_x = \sqrt{\frac{\sum_{i=1}^{n}(x_i - \bar{X})^2}{n}}$$

For respondents in the experimental group, a random sample was obtained: $\bar{X} = 17{,}37;\ S_x = 5{,}85$.

Using the formulas above and a similar principle, the entrance test results for undergraduate students in a randomly selected control group were calculated. Its number was, as in the experimental group, 35 people (m = 35).

The average score $\bar{Y}$ of the test performance by students of a random population in the control sample was calculated using the formula:

$$\bar{Y} = \frac{\sum_{i=1}^{m} y_i}{m}$$

The sample variance S_y calculates the sample variance:

$$s_y = \sqrt{\frac{\sum_{i=1}^{m}(y_i - \bar{Y})^2}{m}}$$

So, for the control group respondents, the random population received $\bar{Y} = 17{,}03;\ S_y = 5{,}81$.

The Cramer-Welch criterion was used in the study to confirm and test the hypothesis of the coincidence of the characteristics of both groups of undergraduate students, since, under the given conditions, it is the most optimal, that is, the calculated average scores and variances, and the volume of random populations. The formula below calculated the empirical value of all criteria:

$$T_{emp} = \frac{\sqrt{n \cdot m}\,|\bar{x} - \bar{y}|}{\sqrt{m \cdot S_x + n \cdot S_y}}$$

0.03 is equal to the obtained empirical value of the Cramer–Welch T_{emp}.

$$T_{emp} \leq T_{crit} \left(T_{0,05} = 1{,}96\right)$$

Therefore, we conclude that, prior to the experiment, the characteristics of the control and experimental sample sets are comparable at the 0.05 significance level.

So, since the specified sample sets were formed by the method of random sampling of elements, we say that the characteristics of the sets of participants in the experiment, the control group and the experimental group, coincide.

We present the entrance-test results for students of both groups before the start of experimental training in Table 1.

Table 1.
Results of the distribution of respondents of both groups (determinative stage) by the levels of readiness of respondents to use innovative technologies

Respondents' readiness levels for the use of innovative technologies	**Experimental group**	**Control group**
Low Level	64%	67%
Average Level	28%	28%
Sufficient Level	8%	5%
High Level	0%	0%
Total	100%	100%

Note. Prepared by the authors.

After completing training in the experimental group according to the developed training program, which included the author's methodological support for the training of specialists, the introduction of pedagogical conditions, and the development of components of readiness (motivational, cognitive and activity) of respondents for this type of activity, a comparative final testing of students in the control and experimental groups was conducted.

Testing identified statistically significant changes in the experimental group, confirming the effectiveness of the proposed methodology and its impact on specialist training. According to the obtained experimental results, the reliability of differences and identities between the levels of readiness for the application of innovations in students of the control and experimental groups of respondents was determined at the level of statistical significance (a = 0.05).

The experimental hypothesis was formulated as follows: students in the control and experimental groups, after completing the experimental training, differed in their readiness to apply innovations at the level of statistical significance (a = 0.05).

As in the ascertaining experiment, the average score for the initial test of the experimental sample of a random population was calculated.

For the conclusion about the absence or presence of specific statistical changes of students in the experimental group due to the developed and tested innovative methodology, the Cramer-Welch criterion was applied. The formula below determined its empirical value:

$$T_{emp} = \frac{\sqrt{n \cdot m}\,|\bar{p} - \bar{q}|}{\sqrt{m \cdot S_p + n \cdot S_q}}$$

For the final (initial) test, the empirical value of the Cramer-Welch criterion of the levels of formation of specialists' readiness for the specified problem: $T_{emp\ final\ test}$ = 0.98.

Since the selected level (a = 0.05) of statistical significance, and the critical value of the Cramer–Welch criterion is 1.96 (T_{crit} = 1.96), we have the result ($T_{0.05}$ = 1.96) − $T_{emp} \leq T_{crit}$. Therefore, the characteristics of the control and experimental groups are comparable at the 0.05 significance level after the experiment.

The sample populations of the control group and the experimental group of respondents were formed using a random sampling of elements (method). Therefore, we draw the same conclusion about the entire population of participants in the experiment.

The results of the entry and final tests administered to respondents in the control and experimental groups enabled us to draw a general conclusion and assess their readiness to adopt innovations in professional practice.

In Table 2, we present data on the dynamics of changes in the control and experimental groups, expressed as percentages, and we observe significant changes in the levels of readiness to apply innovations in professional activities.

Table 2.
Results of the distribution of respondents in both groups (control stage) by the levels of respondents' readiness to apply innovative technologies

Respondents' readiness levels for the use of innovative technologies	**Before experimental training**		**After experimental training**	
	EG %	**CG %**	**EG %**	**CG %**
Low Level	64%	67%	2%	44%
Average Level	28%	28%	20%	29%
Sufficient Level	8%	5%	38%	18%
High Level	0%	8%	40%	9%
Total	100%	100%	100%	100%

Note. Prepared by the authors.

During the experimental study, respondents' readiness to apply innovative technologies in professional activities was assessed before and after EG training. After the completion of experimental training at the control stage, we observed a significant decrease in the number of respondents in the experimental group who had a low level of readiness, as well as a reduction in respondents with a sufficient level, while the number of respondents with a high level significantly increased by 40%. The results confirm the assumption regarding the effectiveness of the developed specialized course, pedagogical conditions, and methodological support in training specialists to introduce innovative technologies into professional practice. According to statistical measurements, changes in the control group respondents were insignificant.

The insignificant progress of the control group respondents is attributable to independent research activities undertaken after the entrance test, which were motivated by respondents' personal interest.

Changes in the growth of the relative number of respondents to the application of innovative technologies in professional activity by level of formation indicate the effectiveness of the organization of the educational process in the EG and the appropriate selection of innovative approaches, methods, and forms, as determined in the special course.

To confirm the reliability of students' detection of differences between experimental and control samples in the final (initial) test results, we examine the effectiveness of the content-methodical provision of training for respondents in the experimental group proposed in the EG. To confirm our reasoning, we applied the χ^2 statistical criterion of homogeneity. The calculation was carried out using the previously defined random sets for the control and experimental groups (35 participants).

The experimental value χ^2_{emp} was calculated using the following formula:

$$\chi^2_{emp} = N \cdot M \cdot \sum_{i=1}^{L} \frac{\left(\frac{n_i}{N} - \frac{m_i}{M}\right)^2}{n_i + m_i}$$

Where L is the number of gradations of the scale for assessing the levels of students' readiness to apply innovative technologies in professional activities. In the context of our study, $L = 4$ (low, medium, sufficient, high):

- n_i − the number of students in the experimental group of the sample population;
- m_i − the number of students in the control group of the sample population;
- N and M − the total number of respondents in the experimental group and the control group of the sample populations.

After completing the experimental training, we determine the empirical value of the homogeneity criterion for the control and experimental groups of the sample populations using the formula above.

Therefore, $\chi^2_{emp} = 36.698$.

Using the formula and by analogy, we calculate all other pairwise comparisons of the sample populations of respondents who participated in the experiment.

The critical value of χ^2 0.05 of the homogeneity criterion χ^2 for the level of statistical significance $\alpha = 0.05$, and is χ^2 0.05 = 9.49 for $L\text{-}1 = 4$.

The empirical value (χ^2) of the homogeneity criterion for the comparison of two sample sets (EG and CG) exceeds the critical value after completion of experimental training (χ^2 0.05 = 9.49). This indicates that, after completion of experimental training, the reliability of the characteristics of the specified comparison sample sets is 95%.

Therefore, the observed increase in initial test scores for students in the experimental group is not coincidental. This is a logical consequence of the effectiveness of the proposed special course, the pedagogical conditions, and the methodological support for training specialists for the specified type of activity.

The study conducted and the data obtained through the experiment confirmed the validity of the hypothesis proposed by us and achieved the goal.

FINAL CONSIDERATIONS

The study substantiates the significance of innovative teaching technologies in improving the professional training of future specialists in higher education. Innovative requirements, tools, and approaches to informatization were systematized, and the educational potential of digital, virtual, augmented reality, and blockchain technologies was clarified.

The experimental research confirmed the working hypothesis that the purposeful implementation of innovative teaching technologies under defined pedagogical conditions significantly increases students' readiness for professional activity. The developed criteria, indicators, and levels of readiness enabled an objective assessment of training outcomes.

The results of the formative experiment demonstrated a statistically significant increase in the level of readiness of future specialists in the experimental group, particularly a substantial growth in the high level of readiness, which confirms the effectiveness of the proposed pedagogical conditions, specialized course, and methodological support. Further research should focus on studying international experience in the implementation of innovative technologies in professional training.

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