UDC 37.018.43:377:37.014.5
ISSN: 2707-3092 (Online)
DOI: https://doi.org/10.32835/2707-3092.2024.29.117-136

Institute of Vocational Education of NAES of Ukraine

Professional Pedagogics / 2(29)'2024, pp. 117-136

INNOVATIVE COMPETENCY OF INSTRUCTORS AS A TOOL FOR MODERNIZING VOCATIONAL EDUCATION

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Abstract

The relevance of this article is dictated by the need to develop the innovative competencies of vocational education instructors, considering the dynamic changes in the labor market as well as processes of globalization and digitalization, which actively influence the transformation of the educational system. Modern employers require from professionals not only the presence of professional knowledge but also the ability to adapt to new production conditions, to think critically, and to solve complex tasks. Consequently, vocational education must modernize in response to contemporary challenges, and instructors must be prepared for innovative professional activity to integrate cutting-edge technologies into the educational process.

The aim of this article is to identify and substantiate the key components of the innovative competency of vocational education instructors and contemporary approaches to its development in the context of labor market requirements and technological changes in economic sectors.

Research methods: analysis of scientific sources, legislative and regulatory documents, empirical data to determine the extent of research problem development; surveys for gathering quantitative data on the state of development of the instructors' innovative competencies; semi-structured interviews to identify barriers hindering the integration of new technologies into the educational process; observation for the objective evaluation of instructors' use of innovative approaches in their work; and synthesis and systematization to formulate conclusions, recommendations, and perspectives for further research.

*Results***:** The main components of the innovative competency of vocational education instructors have been identified; traditional and modern approaches to the development of innovative competencies have been substantiated; organizational, psychological, and technological barriers that limit the development of innovative competencies have been identified; modern forms of professional development for vocational education instructors that foster innovative competency have been substantiated; the role of digital technologies in stimulating innovative competency has been revealed; recommendations for enhancing the level of innovative competency of vocational education instructors have been formulated.

*Conclusions***:** The study has determined that the innovative competency of vocational education instructors is a key factor in modernizing the educational process and ensuring its alignment with the contemporary labor market demands. The key components of the instructors' innovative competency include professional knowledge and skills, creative thinking, research skills, skills in pedagogical innovation, communication skills, teamwork and collaboration skills, and adaptability and flexibility. The development of instructors' innovative competency is based on traditional (classical, informational-reproductive) and modern (competency-based, problem-oriented learning, constructivist, project-based, acmeological, interactive, inclusive, digital) approaches. Modern forms of professional development for vocational education instructors that develop innovative competency include short-term courses and trainings; online courses and webinars; coaching and mentorship; participation in international projects; self-development and self-education; internships, etc.

Survey results confirmed the importance of developing digital skills and the ability of instructors to integrate new technologies into the educational process. However, the main obstacles to effective innovation implementation were found to be certain objective and subjective barriers, including insufficient technical support and limited resources, fear of change, and low motivation for professional development. This highlights the need for a comprehensive approach to developing instructors' innovative competency, which includes targeted professional development programs, their support, and stimulation of innovative activity.

Keywords: instructors, innovative competency, vocational education, professional development, labor market, digital technologies.

Introduction. Under modern conditions, vocational education in Ukraine is undergoing dynamic changes driven, on the one hand, by scientific and technological progress and globalization processes, and on the other, by evolving labor market demands. Contemporary employers increasingly seek professionals with digital technology skills, which are now an essential component of professional qualifications across many industries. At the same time, the widespread adoption of artificial intelligence and automated production management systems requires workers to have a deep understanding of technological processes and the ability to quickly adapt to new professional environments. Employers also emphasize the importance of soft skills such as constructive communication, critical thinking, creativity, and teamwork. Moreover, labor market globalization heightens the need to prepare specialists capable of working in international companies, understanding the nuances of various cultures, and being proficient in foreign languages. Consequently, vocational education, as a key segment in training a skilled workforce for the national economy, must meet these demands. This requires not only modernizing educational programs and teaching methodologies but also implementing new approaches to organizing the educational process in vocational education institutions. In this context, the innovative competency of instructors is a crucial tool for modernizing the preparation of future specialists. The ability of instructors to develop and implement new approaches, forms, and methods of teaching directly influences the quality of vocational education (Radkevych, 2024a).

Sources: Developing the innovative competency of instructors in vocational education institutions is a priority of contemporary educational reforms in Ukraine and many other countries. These reforms focus on modernizing vocational education by encouraging educators to apply a competency-based approach and innovative teaching methods. The Law of Ukraine "On Education" (2017) defines the formation of innovative competency among teaching staff as a key aspect of education development. Particular attention is given to fostering digital competency and integrating digital resources into the educational process, aligning with global trends in the digitalization of education and the economy. This is evidenced by the introduction of new professional standards emphasizing digital literacy, critical thinking, creativity, and entrepreneurship among educators (Schleicher, 2018). Furthermore, significant emphasis is placed on the continuous professional development of instructors through qualification enhancement programs and online courses, which enable rapid acquisition of new methodologies and digital tools (European Commission, 2022).

The theoretical foundations of developing the innovative competency of vocational education instructors have been elaborated in the works of domestic and foreign researchers. These studies focus on approaches to defining the content of innovative competency in educators, specifically the ability of individuals to successfully conduct innovative pedagogical activities. Such competency is based on a balanced combination of theoretical knowledge in pedagogical innovation; domain-specific, methodological, and methodological knowledge; skills for creating, evaluating, mastering, and applying pedagogical innovations in organizing the educational process; and moral and ethical values. It also encompasses interests and aspirations for innovation, alongside essential qualities such as creativity, a commitment to continuous innovation, perseverance in self-development and self-improvement, self-criticism, high creative potential, diverse interests, tolerance, and broad-mindedness. These attributes contribute to high levels of education and training among vocational education students (Kurok & Korotych, 2024). Research explores instructors' ability to integrate scientific and technological advancements into the educational process, thereby preparing specialists with competencies relevant to the labor market, and their readiness to seek new solutions to pedagogical challenges, implement innovative technologies, and create interactive learning environments that foster critical thinking among vocational education students (Radkevych, 2022a). The studies also examine instructors' possession of

methodological and pedagogical skills necessary for organizing the educational process at a contemporary level, effective communication with students, and adapting curricula to meet individual needs (Dubaseniuk, 2010). Additionally, they investigate educators' proficiency in digital literacy, their ability to use distance learning tools, and their capacity to integrate information technology into the educational process (Tolochko, 2021). The ability to work in teams, communicate effectively with colleagues, and ensure productive collaboration, especially in the context of implementing reforms in vocational education, is also highlighted (Ternopilska, 2012). Furthermore, instructors are expected to manage the educational process, plan and organize students' learning activities, and design and implement educational projects, coordinate teamwork, and adapt programs to contemporary market needs. In light of technological innovations and new labor market requirements, instructors are becoming not only knowledge transmitters but also mentors who guide students in independent information retrieval, critical thinking, and self-education skills development (Ishchenko et al., 2018).

Researchers argue that developing innovative competency requires continuous professional development and self-education among vocational education instructors. Instructors cannot afford to halt their development, as the demands on vocational education evolve with societal and technological advancements. Professional enhancement involves not only raising the level of instructors' subject-matter and pedagogical competency but also fostering innovative thinking, which enables them to effectively integrate new approaches into the educational process (Kovalchuk, 2015). This is particularly critical in the context of vocational education modernization, where new approaches to teaching and training that meet contemporary requirements must be established. Instructors should serve as change agents, actively implementing innovative teaching methods, collaborating with employers to align educational programs with labor market needs, and fostering partnerships with other educational and research institutions (Shevchenko, 2019).

Theoretical contributions include the findings of Kyriyenko (2020), who revealed the connection between increasing the level of innovative competency among vocational education instructors and their mastery of new methods for fostering innovative thinking. Ogiyenko (2013) emphasizes that innovative competency is linked to instructors' readiness to take risks when implementing new pedagogical technologies. Additionally, foreign researchers such as Garzón Artach, Martínez, Ortega Martin, Marin Marin, and Gomez Garcia (2020) substantiate the importance of lifelong learning as a key factor in developing instructors' innovative competency. Studies by the European Commission (2022) underscore the significance of digital skills within the structure of innovative competency, particularly under the conditions of distance learning, which became highly relevant during the COVID-19 pandemic.

The purpose of the article is to identify and substantiate the key components of innovative competency in vocational education instructors and modern approaches to its development in the context of labor market demands and technological changes across economic sectors.

Research methods: The study involved analyzing scientific sources, legislative and regulatory documents, and empirical data to assess the extent to which the research problem has been addressed. Surveys were conducted to collect quantitative data on the state of innovative competency development among vocational education instructors. Semi-structured interviews were utilized to uncover barriers hindering the integration of new technologies into the educational process, while observations provided an objective evaluation of instructors' use of innovative approaches in their work. The data were synthesized and systematized to formulate conclusions, recommendations, and directions for future research.

Results and discussion: Considering technological advancements and increasing demands for specialist training, the innovative competency of vocational education instructors is not only a competitive advantage but a necessity for those aiming to organize the educational process on an innovative foundation and in alignment with labor market requirements. The ability to achieve such transformations lies in the readiness of instructors to promptly respond to changes in technologies, methods, and teaching tools. For instance, the integration of online platforms, artificial intelligence, virtual laboratories, simulators, and other advanced

teaching methods into the educational process requires instructors to possess a high level of digital skills. Instructors who develop innovative competencies can not only integrate digital educational tools into professional training but also adapt them to the specifics of the subject, thereby enhancing learners' comprehension of educational content (Radkevych, 2024c).

Innovative competency also plays a crucial role in improving instructors' professional mobility and readiness to update educational program content by integrating the latest scientific achievements and practical knowledge. Instructors possessing this competency can quickly adopt new teaching methodologies, such as gamification, project-based learning (Kravets, 2024), and blended learning (Kruchek, 2022; Radkevych, 2022b), making the educational process more dynamic and engaging for learners. Furthermore, innovative competency equips instructors with the ability to tailor educational content to the specifics of industries, particularly those experiencing rapid technological and production process developments. For instance, in fields like information technology or mechanical engineering, changes occur so rapidly that traditional educational programs and methodologies often lag behind new demands. Ultimately, innovative competency enables instructors to adapt to these changes in vocational education by fostering new forms of interaction with learners, focusing on student-centered approaches. These approaches emphasize not only the transmission of knowledge but also the creation of conditions for learners to independently acquire professional knowledge, skills, and abilities. Instructors with innovative competencies can implement such approaches to ensure high motivation among learners and their readiness for independent professional development. Thus, innovative competency encompasses a wide range of knowledge, skills, abilities, and motivational attitudes that enable vocational education instructors to manage educational projects aligned with the demands of the modern knowledge economy, create interactive educational environments, employ new teaching forms, methods, and tools, as well as foster learners' critical thinking, readiness for independent and responsible decision-making, and ability to effectively solve professional tasks and non-standard problems.

The *key components of innovative competency* among vocational education instructors, forming the foundation of their innovative professional activities, include:

– *Professional knowledge and skills:* These ensure a deep understanding of the subject area and continuous knowledge updating in line with the latest scientific and practical advancements. Instructors should not only possess theoretical knowledge but also be able to apply it in practice, ultimately improving the quality of professional training for future specialists. Additionally, instructors need to be familiar with the latest digital tools, distance learning platforms, and tools for visualizing educational content. This makes education more dynamic and accessible while meeting the demands of a digital society.

– *Creative thinking:* This is essential for developing and implementing innovative approaches to professional education. Creativity allows instructors to generate original ideas (Yershova, 2024), find effective solutions to pedagogical problems, design unconventional teaching methods, adapt educational material to the individual needs of vocational learners, and stimulate creative thinking, preparing them for innovative professional activities.

– *Research skills:* These enable instructors to systematically analyze their own teaching practices and improve them based on scientific data. They include the ability to plan and conduct pedagogical research, collect and interpret data, and draw well-founded conclusions.

– *Pedagogical innovation skills:* These involve the ability to develop and implement new educational strategies, methods, and technologies in line with the demands of modern society. Instructors with such skills constantly seek ways to enhance the educational process, experiment with new teaching forms, and create conditions for developing the innovative potential of learners.

– *Communication skills:* These facilitate effective interaction between instructors, colleagues, stakeholders, and vocational learners. Instructors with advanced communication skills successfully build trust-based relationships, motivate future specialists to learn, contribute to their personal development, and effectively convey information, listen actively, and respond to feedback.

– *Collaboration and teamwork skills:* These enable instructors to work effectively with colleagues in developing and implementing innovative practices, jointly plan, share experiences, and support each other in professional growth. Instructors with these skills can create team synergy to improve the quality of the educational process. This also serves as a model for learners, teaching them teamwork skills essential in professional life.

– *Adaptability and flexibility:* These skills allow instructors to effectively implement new ideas, adjust their organizational approach to teaching depending on circumstances and audience needs, respond swiftly to labor market changes, and adapt to new technologies, methods, and the needs of vocational learners. This contributes to creating an innovative educational environment that aligns with the demands of the time.

The development of innovative competency among vocational education instructors is a complex process based on the provisions of various methodological approaches. These approaches are categorized into traditional and modern, each with distinct characteristics and advantages. Traditional approaches include the classical approach, which employs conventional teaching methods such as lectures, seminars, and practical lessons. The goal of this approach is to transfer knowledge with minimal use of innovative technologies. While effective in certain contexts, this method does not necessarily foster innovative competency, as it focuses on transmitting existing knowledge rather than generating new ideas. Similarly, the informational-reproductive approach emphasizes the reproduction of information. Instructors primarily work with existing knowledge without substantial engagement in research activities or the pursuit of new ideas. This approach supports knowledge acquisition but does not cultivate innovative thinking.

Modern approaches include the competency-based approach, which emphasizes the development of key competencies, particularly innovative ones, through active involvement of learners in the educational process. Instructors act as mentors, guiding learners to develop skills in independent thinking and problem-solving. Tools associated with this approach include project-based learning, research activities, and collaboration with other stakeholders in the educational process. Problem-based learning focuses on solving real-world problems through teamwork and critical thinking. Learners are presented with problems to solve, motivating them to seek new approaches and use interdisciplinary knowledge. In this context, instructors develop learners' professional competencies through mentorship and problem-solving support.

The constructivist approach centers on the idea that knowledge is constructed by future professionals through active interaction with instructors, peers, and an interactive educational environment. Constructivism encourages instructors to use innovative methods to enhance learners' motivation, engagement, and critical thinking skills. The project-based approach organizes learning around the creation of projects that stimulate innovative thinking and teamwork. Instructors serve as facilitators, helping learners integrate knowledge from various disciplines to achieve their final objectives. This approach fosters innovative solutions and technological advancements.

The acmeological approach focuses on achieving the highest levels of professional mastery, allowing instructors to enhance their innovative competency through continuous self-improvement and the expansion of professional experience. This approach emphasizes self-realization and creative exploration. The interactive approach enables the use of interactive teaching methods, such as simulations, group discussions, and case studies, fostering active learner engagement in problem-solving activities. Interactivity promotes the integration of theoretical knowledge with practical experience, which is particularly important for developing innovative competency.

The inclusive approach involves designing educational programs and technologies that adapt teaching methods for future professionals with varying levels of knowledge and abilities. Instructors working in inclusive settings are encouraged to explore new approaches to effectively integrate learners into the inclusive educational process. The digital approach leverages digital technologies in teaching and professional development. Instructors enhance their competencies by mastering tools for distance learning, digital educational platforms, and the use of artificial intelligence for adaptive learning. Modern approaches, unlike traditional ones, focus on developing

instructors' critical thinking, research skills, and creativity, which are essential components of their innovative competency and are better aligned with contemporary requirements.

Instructors' professional development plays a vital role in enhancing their innovative competency, particularly in response to the challenges of today's knowledge- and technology-based society. Various forms of professional development are geared towards fostering innovative competency. One of the most common forms is short-term courses and training programs that allow instructors to acquire new knowledge and skills in a condensed timeframe. Online courses and webinars are also popular, enabling instructors to gain new competencies regardless of their location. Platforms such as Coursera and EdX offer a wide selection of courses on innovative pedagogy, digital technologies, and teaching methods.

Teaching methodologies within professional development programs are also evolving, emphasizing interactive methods that engage instructors actively in the educational process. Project-based methods are an essential component of professional development programs, allowing instructors to apply acquired knowledge in real-world situations, such as developing innovative teaching materials or integrating advanced technologies into the educational process. Coaching and mentoring have emerged as effective forms of professional development. These approaches involve experienced instructors or experts providing guidance to less experienced colleagues in mastering new tools and teaching methods. Such programs are effective because they ensure a personalized approach and address the specific needs of each instructor (EducateMe.com.ua, n.d.).

An equally important aspect is the engagement of instructors in international projects. This expands their access to international experience and academic mobility programs, enabling them to adopt best practices in organizing innovative education and adapt these practices to national conditions. Programs such as Erasmus+ promote professional mobility and encourage instructors to continuously improve their skills, which is a crucial component of innovative competency. In this context, the experience of developing the innovative competency of vocational education instructors in Finland is of particular scientific interest, as it emphasizes the development of creativity, critical thinking, and digital tool proficiency. The Finnish education system prioritizes providing instructors with opportunities to engage in research activities, fostering the creation of new pedagogical technologies and the implementation of innovations in the educational process. A key feature of this system is the creation of conditions for continuous professional development, including participation in various seminars, training sessions, and experience exchange programs where instructors can learn new approaches and methods (Li & Dervin, 2018).

Germany also demonstrates successful approaches to developing the innovative competency of vocational education instructors. Considering that Germany's vocational education system actively integrates innovations through dual education models, instructors, in collaboration with industry professionals, equip students with practical skills required in the labor market. They also regularly attend professional development courses to master modern technologies and methodologies, enabling them to adapt quickly to labor market changes. Instructors are also involved in international educational projects, where they can exchange experiences with colleagues from other countries (Zutavern & Seifried, 2022).

In the United States, the development of instructors' innovative competency focuses on creating a flexible teacher training system that addresses the ongoing technological advancements and societal challenges. Open online courses (MOOCs) offered by universities such as Harvard and Stanford are actively utilized by instructors for individual development. An integral part of the American education system is the creation of professional communities, where instructors exchange new pedagogical approaches, explore innovations in educational technologies, and enhance their interaction skills with students (Misra, 2018).

A notable aspect of international experience in developing the innovative competency of vocational education instructors is the emphasis on collaboration between educational institutions and enterprises. This practice is widespread in countries such as Singapore, Australia, and Canada. In particular, Singapore has implemented a model of continuous teacher training based on the concept of lifelong learning. Under this

model, instructors have access to government training programs offering courses focused on improving digital skills, managing the educational process with innovative technologies, and integrating artificial intelligence. The success of Singapore's education system is often attributed to the high level of government involvement in the development of instructors' professional competencies, creating a stable and adaptive platform for implementing innovative practices in the educational process. Instructors receive not only technical support but also opportunities to develop leadership qualities and innovative thinking (Zhou et al., 2023).

Australia has developed several national initiatives aimed at enhancing instructors' innovative competency. These include professional development programs based on researching new teaching methods within the context of digital transformation. A distinctive feature of the Australian education system is the close collaboration between universities and vocational schools, facilitating the direct application of research findings in educational practice. Through this partnership, instructors not only acquire new knowledge but also conduct experiments and test new methodologies and technologies, enabling them to improve their innovative competency and adapt to changes in the educational environment (Department of Education, Australian Government, 2022).

In Canada, professional development programs for instructors often include modules dedicated to the use of innovative technologies, such as virtual reality (VR) and augmented reality (AR), which enhance the quality of educational process organization and make it more interactive and effective. Furthermore, Canadian educational institutions actively collaborate with technology companies to develop and implement new educational tools that instructors can use to enhance their innovative competency (Dick, 2021).

Modern professional development programs must also ensure the integration of elements of scientific research and self-education. In this context, a key role is assigned to self-development and self-education. In particular, the constant aspiration of instructors for personal and professional growth ensures the relevance of their knowledge and skills necessary for organizing a high-quality educational process. It is also important to emphasize the role of self-reflection and continuous evaluation of one's own performance as key elements in the development of innovative competency. Instructors must be able to analyze their own experiences, identify weaknesses in their work, and promptly adapt the methods they use to new challenges and opportunities. This ability for self-correction and self-education is a critical tool for maintaining the relevance of knowledge and skills in a dynamic educational environment.

Instructors who actively master new technologies, methodologies, and approaches to teaching independently earn respect among vocational education learners and colleagues, which motivates them to further improvement. This is particularly relevant in conditions where the requirements for vocational education are changing, aiming to develop competencies in future specialists that align with the demands of the modern economy. Moreover, innovative competency in instructors enhances their ability to collaborate with various participants in the educational process, particularly employers and other stakeholders, on the principles of public-private partnership (Radkevych, 2024b). Such interdisciplinary interaction is essential for the professional training of future specialists who can effectively work and adapt to the complex conditions of the contemporary professional world.

One of the important forms of professional development that stimulates the growth of innovative competency is internships for instructors at enterprises or institutions where modern technologies are utilized. These internships allow them not only to familiarize themselves with real working conditions but also to observe the application of innovative technologies. This enables them to critically evaluate technological advantages and select those most aligned with the needs of vocational education learners, integrating them into their own professional activities. After all, innovative technologies and teaching methods, such as project-based learning or simulations, help instructors create conditions for practical mastery of knowledge and skills by future specialists, increasing their level of preparedness for real-world production activities.

An increasing number of professional development programs focus on digital educational resources that expand instructors' access to the latest scientific materials, methodological developments, and innovative practices. These resources stimulate the

development of digital skills, facilitate adaptation to new professional conditions, and automate educational processes. Digital educational tools assist in automating various aspects of instructors' work, such as lesson planning, assessment of students' knowledge and skills, and monitoring their progress (Savchuk, 2024; Radkevych, 2011, 2023b). For instance, platforms like Moodle and other Learning Management Systems (LMS) enable instructors to follow flexible learning schedules while mastering new technological tools that they can later integrate into the educational process. Blended learning, combining traditional face-to-face sessions with online courses, has proven especially effective for developing innovative competency among vocational education instructors. This method provides valuable experience in employing modern educational technologies in conjunction with diverse teaching approaches, which are critical elements of innovative competency.

The impact of digital technologies on the development of vocational education instructors' innovative competency can be observed in several key aspects. Personalization of learning is achieved by creating individual learning trajectories tailored to the needs, interests, and preparedness of vocational education students. Opportunities for self-directed learning are supported by online resources such as video lectures, electronic textbooks, and interactive exercises, allowing students to learn at their own pace and review material as often as needed (Pryhodiy et al., 2022). Digital technologies also foster the development of 21st-century skills, including critical thinking, teamwork, problem-solving, and digital literacy, which are essential for successful professional activity in the modern world. Furthermore, continuous professional development is facilitated through access to online courses, webinars, forums, and distance learning platforms like Coursera, Udemy, and Prometheus. These platforms enable educators to stay informed about the latest advancements in their fields, mastering new teaching methods and technologies. In the context of rapid digitalization in vocational education, this has become an indispensable part of fostering instructors' innovative competency.

Collaboration and experience exchange are also enhanced by digital technologies, opening up new opportunities for cooperation among educators, both within individual vocational education institutions and internationally. Social media, professional community forums, and collaborative platforms such as Google Docs and Microsoft Teams provide opportunities for sharing experiences, developing joint educational projects, and crafting new pedagogical innovations. Moreover, mobility and accessibility of educational resources are significantly improved through modern digital tools, including mobile applications, interactive textbooks, and online platforms. These tools allow instructors to remain adaptable to different teaching environments, enhancing the efficiency of the educational process and increasing accessibility for future professionals regardless of their location. Digital platforms such as Google Classroom or Moodle also streamline the assessment and monitoring of students' progress, providing instructors with detailed performance analytics. This functionality allows for swift adjustments to learning content based on students' individual needs (Radkevych, 2023a).

Digital technologies contribute to the development of innovative pedagogical culture by encouraging instructors to explore new ways of improving educational quality, creating innovative teaching methods, and adopting the latest pedagogical approaches. This supports the creation of an interactive learning environment that fosters a creative approach to organizing the vocational education process for future skilled professionals.

To investigate the state of innovative competency development among vocational education instructors, three data collection methods were employed: surveys, interviews, and observation. Each method has its unique features, advantages, and limitations, which were taken into account during the analysis. The survey enabled the collection of quantitative data on the level of innovative competency among vocational education instructors. Questionnaires created using Google Forms included questions designed to measure the levels of competency formation. Based on the responses from 1,313 instructors, it was found that a significant proportion actively employ innovative approaches but face challenges integrating digital technologies into the educational process. Only 22.7% of instructors confirmed their readiness for innovative activities, while 63.6% expressed uncertainty, 11.8% reported a lack of confidence, and 1.9% were entirely unprepared for the integration of digital technologies into teaching.

Regarding the frequency of using innovative teaching methods, such as project-based learning and gamification, only 8.8% reported consistent use, 38.9% used them occasionally, 38.0% sometimes, 10.2% rarely, and 4.1% never employed these methods. Consequently, the study sought to understand how vocational education instructors evaluate their digital literacy for utilizing advanced learning technologies. Survey results revealed that only a small proportion—3.1%—acknowledged having low digital literacy, while 0.4% admitted to having very low proficiency (see Figure 1).

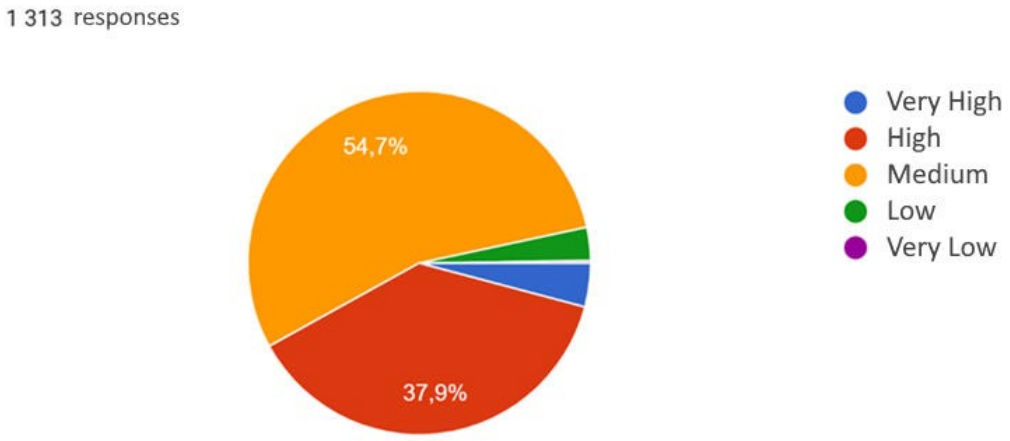

Fig. 1 Level of digital literacy of instructors for working with advanced technologies

As shown in the diagram, the average level of digital literacy among instructors is 54.7%, with 37.8% exhibiting a high level and 4.0% demonstrating a very high level. These survey results do not fully correlate with previous findings regarding the use of innovative teaching methods and overall readiness of instructors for innovative activities. It is possible that the survey should have included indicators for each level, enabling instructors to assess their innovative competency without the influence of subjective factors, which could have yielded more accurate data. When asked whether vocational education instructors have sufficient technical resources to implement innovations in the educational process, only 8.8% reported having adequate resources for daily use during lessons. Resources are partially available for 50% of instructors, occasionally insufficient for 27.7%, frequently insufficient for 10.4%, and completely lacking for 3.0%. Notably, 1.0% of instructors indicated that they rely on personal laptops for conducting lessons. These findings highlight the necessity of modernizing the material and technical resources of vocational education institutions, particularly in light of the demands of digital transformation.

Regarding the readiness of vocational education instructors for continuous professional development, a survey question addressed how often they participate in professional communities or attend seminars and training sessions to enhance their pedagogical skills. Among 1,313 surveyed instructors, 37% stated that they participate regularly, 46.5% – several times a year, 7.6% – once a year, 8.3% – rarely, and 0.6% – never. This survey indicates that 16.5% of instructors fall into a risk group, as they show no inclination to engage in communication or improve their pedagogical expertise. Methodologists at vocational education institutions should encourage these instructors to participate in active forms of professional development. Of particular scientific interest are the survey results regarding which forms of professional development instructors consider the most effective for enhancing their innovative competency.

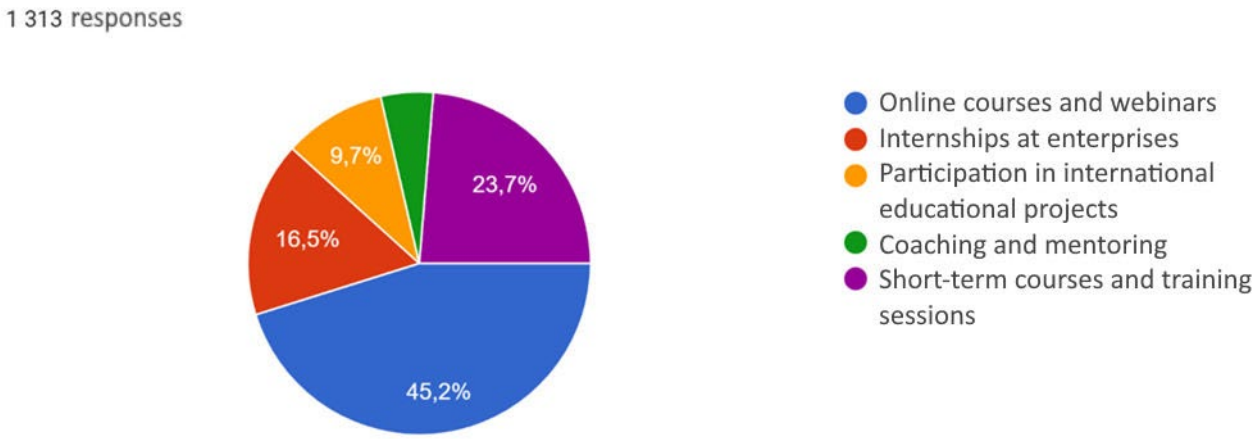

Fig. 2 Forms of professional development for instructors aimed at enhancing innovative competency

45.1% of instructors preferred online courses and webinars, 23.7% favored short-term courses, 16.5% chose workplace internships, 9.8% participated in international projects, and 4.9% opted for coaching and mentoring. The preference for online courses and webinars demonstrates that this method of professional development enables instructors to continuously improve without interrupting their professional activities. Moreover, under martial law conditions, it also protects them from various dangers associated with face-to-face professional development. Additionally, online courses enhance instructors' digital literacy as they are required to independently utilize digital educational resources for learning the material and completing a series of tests after finishing the course.

The low percentage of instructors participating in international projects also has its explanation. Primarily, it is due to the low level of foreign language proficiency, which is essential for communication with colleagues from vocational education institutions in other countries. Therefore, it is crucial for vocational education institutions to create appropriate conditions for their instructors to attend English language courses. English serves as an effective tool for communication and for studying successful practices in the field of vocational education in European Union countries, thus accelerating integration into the European educational space.

Interviews conducted with 1,643 instructors of vocational education institutions provided deeper insights into their perspectives on professional activity and the use of innovative approaches in the educational process. Semi-structured interviews were used to gather partially structured data, combining standardized questions with the opportunity to clarify specific aspects of the instructors' professional activities. This method made it possible to uncover subjective perceptions of innovation and factors influencing the development of innovative competence. The study also identified barriers affecting the development of instructors' innovative competence, including organizational (lack of a systematic strategy for developing the innovative potential of teaching staff, insufficient integration of new approaches into the educational process, inadequate funding for professional development, lack of time for professional growth, and limited availability of suitable educational programs), psychological (anxiety about new technologies or changes in professional responsibilities, fear of losing control over the educational process, and lack of confidence in their abilities and knowledge to effectively use new teaching methods), and technological barriers (limited access to advanced technologies, which complicates their integration into the educational process, as well as insufficient knowledge and skills in using digital educational resources, often inadequately addressed in traditional professional development programs).

For example, in response to the question of whether instructors feel supported by their administration in implementing innovative approaches in the educational process, 53.7% of respondents indicated they always receive support, 33.4% reported receiving support most of the time, 8.3% noted they

rarely receive support, 3.7% stated there is almost no support, and 0.9% said they do not receive any support at all. As the semi-structured interviews allowed instructors to provide additional comments, some mentioned that they used to receive consistent support from their administration before the war, but now even basic technical resources for teaching are no longer provided.

The interviews also examined how frequently instructors of vocational education institutions face the problem of lacking digital educational resources for integrating innovative technologies and approaches into the educational process. Notably, only 12.5% of instructors reported never encountering a shortage of resources. In contrast, 63.0% stated that they occasionally or rarely face this issue. Additionally, 19.7% reported frequently encountering a lack of digital educational resources, 4.6% constantly experience shortages, and 0.2% of instructors indicated that due to the absence of institutional resources, they are forced to use their own. Some instructors noted that before the war, they rarely faced resource shortages for implementing innovative approaches in the training of future professionals.

When asked whether they experience discomfort or anxiety due to the need to use new technologies in teaching, 33.0% of respondents said they feel no discomfort, 30.7% reported rarely feeling it, 29.2% occasionally feel discomfort, 5.2% feel it frequently, 0.9% feel it constantly, and 1.0% added that they feel discomfort and anxiety, particularly in the current wartime conditions, but emphasized that they try to learn if they are unsure about something.

Regarding access to advanced technologies and digital educational resources necessary for innovative teaching, 28.5% of instructors reported having constant access, 49.9% stated they mostly have access, 15.2% have access occasionally, 5.4% have access rarely, and 1.0% said they have no access at all. Some instructors deemed the question irrelevant and suggested reviewing the material and technical base of vocational education institutions to understand whether they have access to digital resources (see Figure 3).

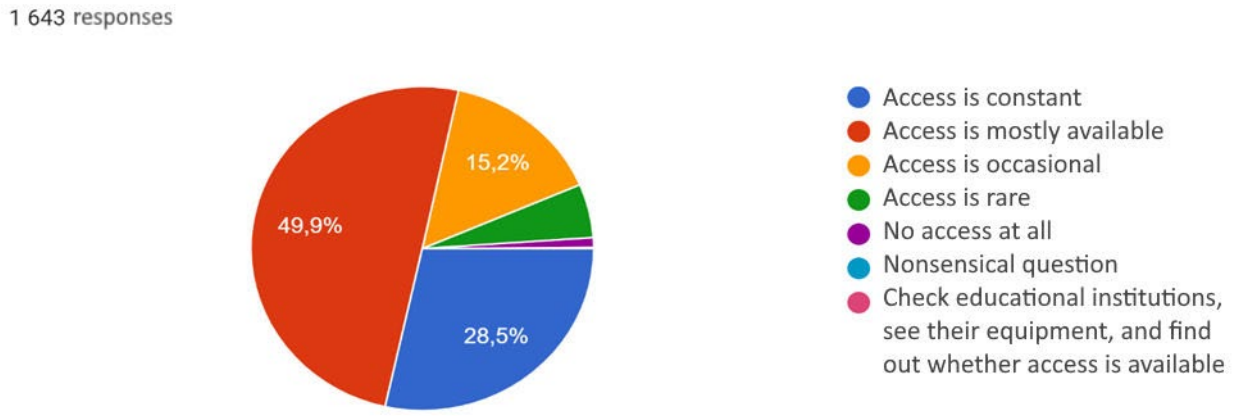

Fig. 3 Access of instructors to modern technologies and digital educational resources

From this interview, it can be concluded that instructors in vocational education institutions exhibit varying levels of access to modern technologies and digital educational resources relevant to organizing innovative teaching. These findings indicate the need for further improvement of the material and technical base of vocational education institutions and the enhancement of instructors' professional qualifications.

In response to the question, "How confident are instructors in their knowledge and skills for effectively using innovative teaching approaches?", 18.2% of respondents indicated they are fully confident, 64.9% are mostly confident, 12.4% are occasionally confident, 3.2% are rarely confident, and 1.2% are not confident at all. Some instructors (0.1%) noted that during wartime, they experience greater uncertainty but are striving to learn in areas where they lack confidence.

In the course of the interviews, instructors were also asked, "Do they have sufficient time for professional development and mastering innovative

teaching methods?" Among the respondents, 9.9% stated they always have enough time, 51.0% said they mostly have sufficient time, 22.8% indicated they rarely have enough time, 13.1% reported they almost never have enough time, and 3.0% stated they do not have enough time at all. Only 0.2% of instructors mentioned they occasionally find time for self-education and professional development.

During the interviews, it was also explored to what extent professional development programs assist vocational education instructors in mastering innovative methods of vocational training (Fig. 4).

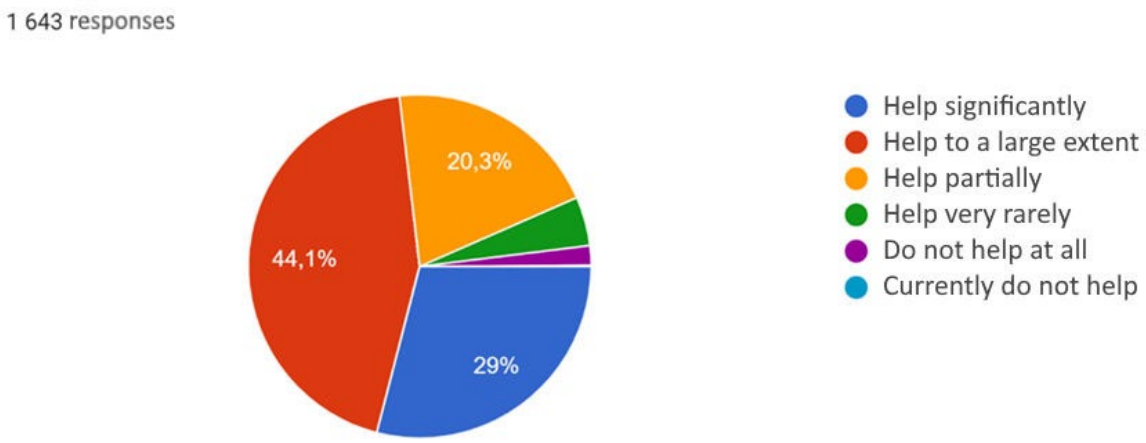

Fig. 4 Impact of professional development programs on instructors of vocational education institutions mastering innovative methods of vocational training

The results of the interviews indicate that 29.0% of respondents find professional development programs very helpful, 44.1% consider them significantly helpful, 20.3% see them as partially helpful, 4.6% report they rarely help, and 1.8% find them not helpful at all. Notably, a small portion of instructors (0.2%) emphasized that in the current conditions, professional development programs fail to provide any assistance. Consequently, it is not surprising that 45.1% of instructors prefer online courses and webinars, while 23.7% favor short-term courses and training sessions. Observation added an objective component to the study, as it allowed direct examination of how vocational education instructors utilize innovative approaches in their work. During classroom visits, the instructional process was analyzed, particularly focusing on which instructors use digital educational tools, innovative teaching methods, and forms of interaction with vocational education students. In most cases, instructors employed only isolated innovative elements rather than making them a central part of the educational process. Observations revealed that vocational education instructors predominantly rely on traditional teaching methods, with only a few actively integrating innovations. Thus, the challenges and obstacles to developing instructors' innovative competency are multifaceted and require a systematic approach to overcome them. This approach should include institutional support to enhance the innovative potential of teaching staff, efforts to improve digital literacy levels, and addressing the psychological aspects of readiness for change.

Conclusions. The innovative competency of vocational education instructors constitutes a fundamental component of their professional activity and serves as a primary driver of change in vocational education. It facilitates the implementation of modern technologies and teaching tools that improve the efficiency of the educational process. Key components of innovative competency for vocational education instructors include professional knowledge and skills, creative thinking, research abilities, pedagogical innovation skills, communication skills, teamwork and collaboration abilities, self-development, and continuous professional improvement. The development of instructors' innovative competency is based on traditional (classical, informational-reproductive) and modern (competency-based, problem-oriented learning, constructivist, project-

based, acmeological, interactive, inclusive, digital) approaches.

Enhancing instructors' qualifications plays a crucial role in developing their innovative competency. Common contemporary forms of professional development include short-term courses and training sessions, which allow instructors to acquire new knowledge and skills within a short timeframe; online courses and webinars, which enable educators to gain new competencies regardless of location; coaching and mentoring, where experienced instructors or experts assist less experienced colleagues in mastering digital educational tools and new teaching methods; participation in professional communities, where instructors can exchange experiences, discuss current trends and issues in vocational education, and receive peer support; internships at enterprises or institutions utilizing modern technologies to familiarize instructors with real working conditions and the application of innovations in specific professional activities; and participation in academic mobility programs and international educational projects, through which instructors adopt innovative teaching practices and adapt them to national conditions.

The analysis of international experience demonstrates that many countries emphasize the need for continuous professional development of vocational education instructors, adaptation of their competencies to the conditions of a globalized labor market and digital transformation, integration of innovations into the educational process based on lifelong professional development and collaboration with businesses, and encouraging instructors' independent work with new technologies and innovations using open educational resources. Overall, international experience shows that developing instructors' innovative competency is the foundation for successfully modernizing vocational education, adapting it to contemporary demands, and meeting labor market needs. This experience serves as a valuable resource for implementing it in the professional development system for vocational education instructors in Ukraine.

For this purpose, there is a need to implement a comprehensive approach to developing innovative competency in vocational education instructors. This includes stimulating their innovative activities through institutional, technological, and regulatory measures, such as integrating cutting-edge technologies into the preparation and professional development process to acquire digital skills necessary for modern educational environments; developing and implementing innovative training programs for instructors based on contemporary research and global trends in vocational education; and fostering close collaboration between educational institutions and businesses to provide instructors with access to the latest tools and technologies for developing their innovative competency.

The study results indicate a heterogeneous level of innovative competency development among vocational education instructors. While a significant portion of teaching staff actively uses innovative approaches, substantial barriers remain, including insufficient material and technical resources, lack of systemic development strategies, psychological obstacles, and limited funding. The lack of stable access to digital educational resources and decreased administrative support, especially under martial law conditions, further complicates the integration of new technologies into the educational process. Moreover, the high preference for online courses and webinars underscores the need for flexible and accessible forms of professional development that enable instructors to continuously improve without interrupting their professional activities. Observations confirm that most instructors still use traditional teaching methods, highlighting the need for continued efforts to transform pedagogical practices and support instructors in implementing innovative teaching methodologies.

Thus, modern vocational education must be based on innovation, with vocational education instructors possessing advanced innovative competency serving as key agents of these changes. To stimulate the development of innovative competency among vocational education instructors, the following recommendations are relevant:

– *First*, creating favorable conditions for the professional development of instructors in vocational education institutions. This involves implementing professional development programs aimed at familiarizing instructors with innovative teaching methods, technologies, and the latest approaches to organizing the educational process. An important aspect is engaging instructors in practical work with innovations, which helps develop their competencies through real educational projects. For instance, the

creation of virtual laboratories or the use of simulation programs enables instructors to gain experience in implementing technological innovations into the educational process.

– *Second*, fostering a culture of innovation implementation. It is essential for the leadership of vocational education institutions to actively encourage instructors to experiment with new teaching approaches, create opportunities for experience sharing among colleagues, and organize seminars and training sessions on modern pedagogical technologies. Activities such as sharing best practices during conferences, workshops, or webinars can be highly effective. Additionally, mentoring programs for young instructors should be supported to help them quickly adapt to using innovations.

– *Third*, providing instructors with technical support for mastering and using digital platforms for distance and blended learning, as well as creating conditions for the regular updating of these technologies in the educational process. It is important for these platforms to be user-friendly and offer opportunities for integrating various technological tools, enabling instructors to easily adapt innovative solutions into the educational process. Government organizations should also develop strategies to encourage innovative activities among vocational education instructors. One effective mechanism could be the establishment of grant programs to fund projects aimed at modernizing educational equipment, developing new methodologies, and innovative approaches to teaching, or supporting research on the impact of innovations on the quality of professional training for future specialists. Furthermore, government organizations should promote the development of standards for instructors' professional activities that account for the need to develop innovative competency, as well as encourage postgraduate education institutes to implement relevant educational programs. Collaboration between public and private institutions in vocational education should also be considered to ensure instructors have access to modern technological equipment and tools that meet current production standards.

– *Fourth*, developing long-term programs for the professional development of instructors' innovative competency. These programs should be flexible, aimed at equipping instructors with the skills to adapt curricula and programs to the individual needs of vocational education students, and interactive, enhancing their knowledge, skills, and abilities to organize the educational process on an innovative basis. A critical condition for implementing these programs is their alignment with the current challenges and labor market needs to ensure the connection between vocational education and practice. Vocational education institutions should also prioritize providing instructors with access to modern technologies, such as artificial intelligence and virtual reality, to improve the quality of learning, its interactivity, and individualization. This can be achieved by updating material and technical resources, ensuring open access to digital resources and modern methodologies for instructors. Regular professional development courses, including online formats, can be organized to enable instructors to learn without interrupting their primary professional activities. Finally, the development of innovative competency among vocational education instructors must be supported by a culture of innovation that should be maintained across all levels of educational management. This culture involves creating an open educational environment for discussing novel approaches, fostering collaboration between instructors and administrators, and supporting innovative ideas and projects.

– *Fifth*, creating opportunities for vocational education instructors to participate in scientific research, projects, conferences, and seminars, enabling them to stay informed about the latest pedagogical innovations and actively contribute to the development of new technologies and teaching methodologies. At the governmental level, attention should be paid to the importance of programs incentivizing instructors' innovative activities. This may include benefits or financial rewards for instructors who actively implement pedagogical and industrial innovations in their activities. Government organizations should also update standards and regulatory frameworks that establish mandatory criteria for the innovative competency of vocational education instructors.

Future research perspectives in this field will focus on deepening the understanding of the impact of instructors' innovative competency on the alignment of vocational education with the requirements of digital transformation, as well as on preparing specialists for various economic sectors. The issues of continuous professional development for instructors, particularly

in the context of rapid technological evolution and emerging digital educational platforms, also require attention. These studies will help develop strategies for the sustainable development of vocational education and ensure its compliance with the challenges of Industry 4.0. Lastly, the issue of creating regulatory and organizational conditions to motivate instructors to develop innovative competency remains relevant. This should include government support for investments in infrastructure and the creation of platforms for experience exchange among instructors.

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ІННОВАЦІЙНА КОМПЕТЕНТНІСТЬ ВИКЛАДАЧІВ ЯК ІНСТРУМЕНТ МОДЕРНІЗАЦІЇ ПРОФЕСІЙНОЇ ОСВІТИ

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Реферат:

Актуальність статті зумовлюється необхідністю розвитку інноваційної компетентності викладачів закладів професійної освіти з урахуванням динамічних змін на ринку праці, а також процесів глобалізації та цифровізації, що активно впливають на трансформацію освітньої системи. Сучасні роботодавці потребують від фахівців не лише наявності професійних знань, але й здатності адаптуватися до нових виробничих умов, критично мислити та вирішувати комплексні завдання. У зв'язку з цим професійна освіта має модернізуватися відповідно до сучасних викликів, а викладачі – бути готовими до інноваційної професійної діяльності для інтеграції новітніх технологій у освітній процес.

Метою статті є визначення та обґрунтування основних складників інноваційної компетентності викладачів закладів професійної освіти й сучасних підходів до її розвитку в контексті вимог ринку праці та технологічних змін у галузях економіки.

Методи дослідження: вивчення наукових джерел, законодавчих, нормативно-правових документів, емпіричних даних – для з'ясування ступеня розробленості проблеми дослідження; *анкетування* – для збору кількісних даних про стан розвитку інноваційної компетентності викладачів закладів професійної освіти; *напівструктуровані інтерв'ю* – для виявлення бар'єрів, що перешкоджають інтеграції новітніх технологій у освітній процес; *спостереження* – для об'єктивного оцінювання використання викладачами інноваційних підходів у своїй роботі; *узагальнення та систематизація* – для формулювання висновків, рекомендацій і перспектив подальших досліджень.

Результати: визначено основні складники інноваційної компетентності викладачів закладів професійної освіти; обґрунтовано традиційні і сучасні підходи до розвитку інноваційної компетентності; виявлено організаційні, психологічні й технологічні бар'єри, що обмежують розвиток інноваційної компетентності; обґрунтовано сучасні форми підвищення кваліфікації викладачів закладів професійної освіти; розкрито роль цифрових технологій у стимулюванні інноваційної компетентності; сформульовано рекомендації для підвищення рівня інноваційної компетентності викладачів закладів професійної освіти.

Висновки: у ході дослідження з'ясовано, що інноваційна компетентність викладачів закладів професійної освіти є ключовим чинником модернізації освітнього процесу та забезпечення його відповідності сучасним вимогам ринку праці. До основних складників інноваційної компетентності викладачів закладів професійної освіти віднесено: професійні знання та вміння, креативне мислення, дослідницькі навички, навички педагогічної інноватики, комунікативні навички, навички співпраці та командної роботи, навички адаптивності та гнучкості тощо. Розвиток інноваційної компетентності викладачів базується на положеннях традиційних (класичний, інформаційно-репродуктивний) і сучасних (компетентнісний, проблемно-орієнованого навчання, конструктивістський, проєктний, акмеологічний, інтерактивний, інклюзивний, цифровий) підходів. До сучасних форм підвищення кваліфікації викладачів закладів професійної освіти, що розвивають інноваційну компетентність належать: короткострокові курси і тренінги; онлайн курси та вебінари; коучинг та наставництво; участь у міжнародних проєктах; саморозвиток та самоосвіта; стажування тощо.

Результати анкетування підтвердили важливість розвитку цифрових навичок і здатності викладачів закладів професійної освіти до інтеграції новітніх технологій у освітній процес. Однак, основними

перешкодами на шляху до ефективного впровадження інновацій виявилися певні об’єктивні і суб’єктивні бар’єри, зокрема, недостатня технічна підтримка та обмеженість ресурсів, страх перед змінами та низька мотивація до професійного розвитку. Це свідчить про потребу комплексного підходу до розвитку інноваційної компетентності викладачів, що охоплює цільові програми підвищення кваліфікації, їх підтримку і стимулювання інноваційної діяльності.

Ключові слова: *викладачі, інноваційна компетентність, професійна освіта, професійний розвиток, ринок праці, цифрові технології.*

Received: 12 June 2024
Accept: 22 August 2024