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Specifics of innovative educational environment and its influence on the development of future teachers' innovative competence

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Abstract. The relevance of the study is determined by the change in views on the process of developing innovative competence of future teachers and the need to improve the innovative educational environment. Accordingly, the purpose of the study was to reveal the specific features and properties of the innovative educational environment and its impact on the process of developing innovative competence in future teachers. To implement the goal, a set of general scientific methods was used: theoretical methods – system analysis, synthesis, generalisation, and comparison; empirical methods – observational (direct and indirect observation, methods of expert assessment and self-assessment); ranking, which helped to find out the specifics of the innovative educational environment in the process of developing innovative competence of future teachers. The content of the concepts "innovation environment", "innovation space", "development of innovative competence", "innovative educational environment" was analysed. It was emphasised that through participation in the work of project groups, educators and future teachers gain valuable experience in innovative and creative collective activities and have the opportunity to develop leadership qualities and innovative competence. It was established that the innovative educational environment in the context of professional training of future teachers functions as a system that creates conditions for personal development as an innovator, promotes the disclosure of creative abilities, and the improvement of innovative and professional skills, emphasising the unity and interaction of its elements. The results of the study also indicate that the professional development of future teachers is significantly influenced by the innovative learning environment, which is simultaneously developed due to the innovation activity of students. The practical significance of this study is that the results obtained can be used in future studies on the impact of information and communication technologies on the subject-subject interaction between participants in the educational process

Keywords: group work; collective innovation activity; communication between students and teachers; subjects of the educational process

INTRODUCTION

Training of the teacher's personality and the process of modernisation of higher education in Ukraine require new approaches and define high requirements for the development of professional and innovative competence. As a result of the full-scale invasion of the Russian Federation, a new type of teachers in the educational environment is required – innovative professionals who can make non-standard and innovative decisions, constantly work on their self-improvement and education, and be able to support and creatively develop students. Thus, the specifics of the innovative educational environment and its impact on the process of developing innovative competence are an important component of professional training of future teachers, which is relevant and requires detailed scientific consideration.

The needs of modern educational practice give rise to the need for innovative training of the teacher, who not only acts as an intermediary between the student and society, but also contributes to the development of the younger generation's readiness to use information and communication technologies (ICTs) in life and professional activities in an open innovation and educational space. The problem of the development of innovative competence of teachers and the introduction of innovative education in the pedagogical process was considered by Ukrainian researchers N. Ventseva & O. Karapetrova (2022) and A. Ruban (2022), who pointed out the uniqueness of its content, which predicted the subject's ability to innovate perception: understanding their own innovations, common or innovative technologies, and the ability to recognise new elements in a sustainable context and the ability to offer completely new innovative solutions to solve pedagogical situations.

A team of researchers consisting of I. Barantsova *et al.* (2022) revealed the essence of the concepts of "competency" and "competence" as concepts of professional training of future specialists, which overlap in semantic terms, but "competency" refers exclusively to the properties and powers of an individual, while "competence" covers the powers of both collective and individual subjects and characterises the activity itself. Pedagogical skills, professional and innovative culture, methodological and information literacy as a foundation for the development of innovative competence in teachers and the image of a scientific and pedagogical worker were revealed as an image that reflects their positive personal and professional qualities and contributes to the choice of an individual style of professional activity and the possession of innovative technologies of self-determination and self-presentation was highlighted by A. Yermolenko *et al.* (2023).

T. Piatnychuk (2019) revealed the process of creating an innovative educational environment based on the following approaches: humanistic, systematic, informational and innovative. I. Zrybnieva (2021) investigated the essence and content of the innovation environment through the prism of social, activity, and environmental approaches. It is this approach that helps to clearly define goals, choose effective methods for turning scientific ideas into practical active reality, and constantly monitor and manage innovations and innovative technologies at all stages of implementation. That is why these researchers described groups of approaches that allowed considering the essence and content of the innovative educational environment, the specifics of the innovative educational process and innovative competence, and analysed favourable conditions for the development of innovative potential of the future teacher to significantly improve the quality of higher education. The specifics of the innovative educational process through its infrastructure, potential, culture, and monitoring of innovation activity were revealed by V. Vitiuk (2022), while L. Shtefan (2019) analysed the essence of the concepts of "competitiveness of higher education institutions" and "innovation environment" through the prism of a systematic approach, examined in detail and clarified external and internal factors that affect the competitiveness of the innovation environment in an educational institution. In particular, O. Kovalova (2020) outlined the way of development of innovative competence of future specialists in creating an innovative environment as one of the key elements of pedagogical conditions and space, which contributes to the development of innovative potential of the individual and integrates the means of accumulation and implementation of innovations in an educational institution.

The analysed scientific sources indicate that the main components of the process of developing innovative competence include an understanding of the innovation process, which covers the essence of innovations, their role in the development of society and higher education, and awareness of the need for innovative changes to achieve success. The process of developing innovative competence requires an analysis of the impact of the innovative educational environment and participants in the educational process and contributes to the creation of conditions for effective innovation activities. Therefore, the purpose of this study was to consider the features of the innovative educational environment and its impact on the development of innovative competence in future teachers. In accordance with the purpose of the study, the main tasks were formulated. 1. To analyse the problem of innovative educational environment in managing the development of innovative competence of teachers in pedagogical theory and practice. 2. To clarify the essence of the following concepts: "innovation environment", "innovation space", "development of innovative competence", "innovative educational environment". 3. To characterise the content of the influence of the innovative educational environment on the process of developing innovative competence of teachers.

MATERIALS AND METHODS

In the course of the study, various methods and approaches were used in the educational process of Melitopol Bohdan Khmelnytskyi State Pedagogical University. In particular, the literature review and analysis of existing research was

used at the initial stages and included an analysis of existing research and publications on innovative approaches in higher education and their impact on the development of the innovative competence of future teachers. Research and analysis contributed to determining the specifics of the existing classification of educational environments, investigating their structure, components, and features, which contributed to the enrichment of knowledge about innovative aspects in education. Based on the collected data and analysis, a number of methodological recommendations for teachers were developed aimed at improving the level of innovative competence of students.

Methods of synthesis, generalisation, and ranking were used for in-depth analysis of the collected data and highlighting key findings. The synthesis helped to combine various theoretical approaches and empirical data on innovative educational environments, identifying common characteristics and trends that influence the development of innovative competence. The use of generalisation allowed identifying the main principles and mechanisms that contribute to the development of innovative competence among future teachers, based on the analysis of specific examples and research. The ranking, in turn, helped establish a hierarchy of importance for various aspects of the innovative educational environment and their impact on innovation competence. Observations and interviews of future teachers allowed students to get feedback and opinions on their experience in the perception and use of innovative approaches and innovative technologies in the educational process or professional activities, which allowed investigating pedagogical situations in an innovative educational environment and interaction between students and teachers. This, in turn, facilitated a thorough analysis of communication between participants in the educational process. Focus groups (project group participants) involved a group of students to discuss specific aspects of the impact and development of an innovative educational environment and identify innovative ideas and effective proposals for the development of innovative competence of future teachers. Peer review – involvement of experts from the field of education to assess the level of innovative competence of future teachers – has helped to identify key aspects of the effectiveness of the impact of the innovative educational environment. Comparative analysis provided for the comparison of different educational environments and programmes to identify differences in approaches to innovative learning and their impact on the development of future teachers' innovative competence. Experiments and pedagogical innovations: introduction of innovative methods and approaches in the educational process for experimental study of the influence of the innovative educational environment on the development of innovative competence of future pedagogical specialists.

Round tables were also organised with teachers to discuss their experience in implementing innovative teaching practices and the possibilities of applying them to improve the quality of education. This provided a deeper understanding of the potential of an innovative educational environment in the context of professional training of future teachers. For greater objectivity of the results of the study, the academic performance of students who participated in innovative programmes was analysed, comparing their achievements with the control group that studied under the conventional programme. This helped to assess the real impact of innovative learning on the development of important skills and competencies. During the study, all the norms and provisions of the Declaration of Helsinki (2013) were observed. The use of these methods enabled a detailed study of the specifics of the innovative educational environment and its impact on the development of innovative competence in future teachers at Melitopol Bohdan Khmelnytskyi State Pedagogical University.

RESULTS AND DISCUSSION

The process of influence of the innovative educational environment and the use of ICT for the effective development of innovative competence of future teachers involves: 1) creation of an innovative educational environment in a higher education institution – student clubs, scientific societies, scientific conferences, competitions, projects, all-Ukrainian competitions, etc.; 2) use of teaching forms, methods, and tools (role-playing and business games, problematic seminars, independent work, video lectures, video seminars, etc.); 3) use of information and communication technologies that contribute to the development of innovative competence as a necessary component of successful professional activity of future teachers. The basis for determining the effectiveness of the impact of the innovative educational environment on the development of innovative competence of future teachers are the project groups of the Faculty of Informatics, Mathematics and Economics of Bohdan Khmelnytskyi Melitopol State Pedagogical University: the scientific club "Informaticist" of the Department of Informatics and Cybernetics; the scientific club "Acme" of the Department of Pedagogy and Pedagogical Mastery.

The innovation of educational environment is necessary for the development of the future teacher's personality and innovative competence. Through participation in the work of project groups, educators and future teachers gain valuable experience in innovative and creative collective activities. They also have the opportunity to develop leadership skills and prospects to combine various aspects of their activities, including innovation, creativity, research, popularisation, and teaching. The project group form of work was the most effective for the development of innovative competence of future teachers, since applicants for higher education in extracurricular hours are ready to creatively solve problems in any discipline and contribute to the motivation of the student's professional activity. Mentoring systems were introduced, where experienced teachers or experts from a particular field provided support and advice to future teaching specialists in developing their innovative competence. It is worth noting that the project groups "Informaticist" and "Acme" were a creative team of applicants

for higher education, which contributed to the solution of a number of scientific issues related to the professional training of future teachers and the process of developing innovative competence. The objectives of the project groups were to encourage applicants for higher education to innovative, scientific activities and initiate independent work; to raise the practical value of scientific and creative works and innovative projects; to gain pedagogical experience in organising and participating in scientific discussions, conferences, seminars, round tables, webinars, etc.; to foster love for the native language and culture of the Ukrainian people; to carry out scientific, creative, and practical activities by involving subjects of the educational process in independent or creative collective work; to create conditions for revealing the innovative and creative potential of applicants for higher education; to participate in online-conferences, seminars, forums, competitions, and other events; to test the results of scientific research by applicants for higher education at international and all-Ukrainian competitions and conferences and the publication of findings; to establish relationships with other student scientific organisations, associations, and institutions at the international, national, and regional levels; active participation in the public life of the university.

Participants of scientific circles conducted research on the topics "innovative pedagogical technologies of training in a general secondary education institution", and "Information and communication applications in teaching" the purpose of which was to analyse and study innovative pedagogical technologies used in educational institutions to identify their effectiveness and opportunities for improving the educational process; study and evaluate the use of information and communication tools in teaching the subject "Informatics", identify their impact on the quality of material assimilation and activation of the educational process; highlight the possibilities of implementing the found research results in the practice of the educational process to improve its quality and effectiveness. Representatives of the project groups used various information and graphic tools to visualise statistical data, analysed and compared the study results. The obtained conclusions and information data were presented in the form of reports at scientific and practical conferences at various levels. Thus, according to the assessment of the performers of these student research papers, they gained important experience in organising scientific research on the relevance of using information and communication technologies and solving modern scientific problems. In the course of joint scientific and project activities, which were attended by students of the project groups "Informaticist" and "Acme", it turned out that they are more interested in conducting innovative research and developing innovative competence. That is why the influence of the innovative educational environment and the outlined integration created favorable conditions for the formation of innovative competence of future teachers and the active development of subjects of the educational process. Information and communication technologies are a key element of modern models of innovation processes, as a means of ensuring external and internal relations of an educational institution as an innovation system in the process of developing innovative competence. These technologies will not only mean the consumption of information, but also represent an interactive process of subject-subject interaction, exchange of knowledge, creative ideas, and innovative experience. Such interaction promotes cooperation and serves as one of the tools for increasing the teacher's motivation for innovation (Gotko & Chaikovska, 2015).

Thus, the use of ICTs reflects the teachers' skills, whereas their individual methods, techniques, and forms of training and mentoring influence the personal development level of higher education applicants. Analysis of the use of information and communication technologies in the training of future teachers confirmed that such a process is complex, constantly changing and requires continuous consideration of the latest requirements for informatisation of the educational process and adaptation to the needs of modern society (Kozhevnikova *et al.*, 2023). The authors of this study suggest that the use of information and communication technologies by future teachers in professional and pedagogical activities in the course of performing innovative creative tasks corresponded to all the principles of higher education and provided an opportunity to test the influence of the innovative educational environment on improving the quality of education of higher education applicants and the process of developing innovative competence and positive motivation for innovation activities. To understand how the innovative educational environment affects the development of innovative competence of future teachers, it is necessary to characterise the essence and content of the concepts of "innovative competence" and "innovative educational environment". Thus, O. Marynovska (2023) considered the concept of "innovative competence of a teacher" as an integrated personal and professional quality, dynamic in essence; a combination of knowledge, skills, values, views, ways of thinking, personal qualities developed based on their own subject experience, which determines their ability to successfully carry out activities by means of educational innovations. The researcher identified the following components of innovative competence of the teacher: cognitive, axiological, acmeological, thinking and activity, personal, androgogical components, and determining the level of formed innovative competence of the teacher, it is necessary to clarify the specific type of innovation, since there may be a high level of knowledge of teaching technologies in the field of research, but the basic level in other areas of acme technologies.

L. Burchak (2023) identified specific features of innovative competence of teachers – five classes according to their characteristics: 1) generic features that indicate the presence of a certain class to which the concept under consideration belongs; 2) species differences to distinguish the concept from similar ones; 3) complex, which consists of generic features and species differences, and is a characteristic that

can be attributed to the concept; 4) own features that are common to all subjects of this class, but are not mandatory features that can be derived from others; 5) non-proprietary features that cannot be derived from essential features, but can still be specific to all items in this class. Notably, the key goal of the innovative competence of the future teacher was to combine various subject areas with innovative approaches aimed at changing the ideas of the subjects of the educational process about the digital transformation of modern society and this was done with the help of a competence approach. It is the innovative competence of a modern teacher that is aimed at integrating various subject areas with innovation, which leads to a change in the consciousness of students and their understanding of digitalisation processes in modern society. The use of information and communication technologies in education, their introduction into the structure and content of education is essential, because it provides for the restructuring of the educational process in an innovative creative way (Kyrylenko, 2023).

O. Yevdokimova & N. Alekseienko (2017) concluded that functional, personal, cultural, and virtual approaches are not the only correct group of approaches to defining the concept of innovation competence. Therefore, it is necessary to analyse this concept from different perspectives and methodologies, because modern society requires continuous updating and improvement of professional education, development of their readiness for innovative work as a key professional quality, which increases their competitiveness and efficiency in the field of professional activity. The process of development of innovative competence at all levels of education contributes to the development of the methodological base, the development of the innovative potential of all participants in the educational process, the coordination of joint efforts of scientists and teachers in response to the challenges of modern time – the continuity of the innovative educational process and the innovative educational environment was proved by I. Vakulova (2022). Disclosure of the specifics of the terms "educational environment" and "educational space" are often considered interchangeable in scientific sources, so it is important to carefully consider these concepts and reveal the basic principles of the development of an innovative educational environment in the context of innovative competence. In order to clarify the essence and interaction of the concepts of "innovative educational environment" and "innovative educational space", it is necessary to define the essence and interdependence of the concepts of "environment" and "space". The environment is a collection of people connected by the common living conditions, activities, interests, and the social and living conditions in which a person's life takes place; its concept was revealed by O. Kovalova (2020); and space – the dimension, the place in which objects are located and events occur (Franchuk, 2009).

The concept of "environment" can be interpreted in two ways: first, as a set of natural conditions in which the vital activity of an organism takes place; second, as conditions in which a person's life takes place; surroundings (Tkachuk, 2015). In pedagogical science, the concept of "environment" is used in a broad and narrow context: as a general social reality, society, the state as a whole; or as an environment that directly affects a child's development. The specificity of the term "environment", as an external space that surrounds the object of research, has systemically organised components and creates conditions for its existence and interaction. The environment reflects the relationship of conditions that contribute to human development. In this context, the presence of a person in the environment is assumed, the interaction of the environment with the subject, while space can exist independently of the presence of a person. And space, in comparison with the environment, was considered by O.P. Tsyunyak (2019) as a higher-order construct in which various interactions can occur. V. Melnyk (2022) examined "the educational environment" in detail as the conditions, context, and methods that influence the effectiveness of teaching and upbringing, which plays a key role in improving the educational process, contributing to the development of a person with such important qualities as flexibility, integrity, diversity, adaptability, consistency, and emotional saturation. But the researcher notes that one of the important aspects associated with the innovative educational space is a complex phenomenon in pedagogy, since it is characterised by qualitative indicators that change within the educational system. It is important to note that educational innovations involve updating educational materials, methods, forms of teaching and upbringing, developing and implementing new systems, and spreading existing pedagogical approaches. A review of the literature indicates that there is no single system for classifying educational environments. Often, criteria related to educational levels are used to classify educational environments, such as: pre-school education environment; general secondary education environment; vocational education environment; and higher education environment. Pedagogical categories are also used, such as: learning environment, educational environment, and developmental environment.

The authors of this study agree with I. Konovalchuk (2014b), who describes the innovation environment as a complex of innovations that open up new ways to develop the innovative potential of an educational institution and the innovative abilities of teachers. This is manifested through a high level of innovative characteristics, forms, and methods, which contributes to significant changes in the activities of the educational institution and creates optimal conditions for the development of social and pedagogical initiatives of teachers, supports creativity, and expands opportunities for the implementation of new ideas. It is important to emphasise that the innovation environment is not just a set of individual elements, but a complex system of their interaction, where the environment itself develops, including professional and personal growth of teachers. The study of specific aspects of information and communication technologies and their impact on the training process of future teachers, especially in the context of changing the paradigm of

knowledge transfer and introducing innovative teaching methods, was carried out by I. Konovalchuk (2014a). To support the interaction and development of structural elements of the system aimed at increasing the innovation competence of teachers, non-standard models of the innovation process are used. This includes integration, creating innovative networks, sharing knowledge and experience, and accelerated learning. Such approaches provide conditions for establishing horizontal communication between innovative educational institutions and their employees.

The authors of this study also agree with N.P. Onishchenko (2021) that an innovative educational environment plays a key role in improving teacher training, becoming an important element in the professional training of future teachers. Researchers emphasise that for a significant improvement in the quality of education of future teachers, it is critically important to study in conditions that maximise the reproduction of the real socio-cultural environment. Such an innovative environment in educational institutions contributes to the personal and professional growth of teachers, motivating them to actively and creatively search for new ideas within the educational process. I. Konovalchuk (2014b) investigated the specifics of the innovative educational process and innovation competence as a system of technologies aimed at achieving sustainable and predictable results of innovations through a technological approach. The specifics of the innovative educational environment were also revealed by N. Tkachuk (2015) as a complex of interrelated conditions that ensure human education, the development of a teacher's personality with innovative and creative thinking, and their professional competence. Thus, O. Tsyunyak (2019), studying the mechanisms of development of the innovative educational space of the region, considered it in two planes: as an environment, a territory within which there are uniform agreed rules of innovation activity, and as an integral system, the result of which is the latest ideas and original technologies. Thus, analysing the concepts of "innovative educational space" and "innovative educational environment", researchers define them as similar in meaning, but not completely interchangeable.

L. Vashchenko (2012) noted that the main role of an innovative educational environment is to generate new ideas and increase the innovation potential within each educational institution and in the education system as a whole. The researcher considered the innovative educational environment as a set of pedagogical conditions that contribute to the development of personality and professional qualities, including a space where there are principles of innovative work, modern ideas and avant-garde pedagogical technologies used to improve the training of future primary school teachers, to enrich their professional abilities. N. Kalyuzhka (2016) described the process of developing innovative competence through a system of regularities, principles and formal, civilisational, personal and activity, sign and contextual, and intern scientific approaches. O. Tsyunyak (2019) identified the following criteria for assessing the innovative educational environment in the context of professional development of future pedagogical specialists:

1) Conceptually and meaningfully, this area covers the following aspects: the presence of updated educational and methodological kits and programmes with an innovation focus; considering the opportunities provided by the domestic and international market of educational innovations; and scientific support of future prospects in the professional development of masters of primary education;

2) Activity, which includes such elements as the ability and desire of Masters to apply knowledge and skills in scientific, methodological, organisational, and managerial aspects to work effectively with innovative programmes, and the ability to demonstrate innovative experience using advanced pedagogical technologies and scientific and educational methods;

3) Information and communication component covers the availability of scientific and methodological literature, and specialised publications, continuous access to world educational networks, the availability of online training systems and the use of distance education methods, the creation of electronic educational materials;

4) Professionalism, which is manifested in the creation and use of innovative approaches in the educational process, including updating the content, forms, and methods of teaching, and in the ability to introspect and self-regulation during individual and group work on the search for innovations.

It is worth noting that a modern institution of higher education is a system that includes the presence of organic development of an innovative educational environment and all subjects of the educational process. And dynamic innovation activity of students is key in the process of developing innovative competence, as it helps to create conditions for creative thinking, skills of innovative cooperation and solving pedagogical situations, contributes to the preparation of future teachers for the challenges of the modern world in the labour market. That is why the process of acquiring innovative competence by future teachers includes the integration of components within the pedagogical system of an educational institution, which is characterised by unity, mutual ordering of elements, close connection with the innovative educational environment, and a clearly defined goal of its activities. Each aspect of the system includes specific components related to the problem under study, while the structure of the system ensures interaction between its parts to achieve the main goal – the development of innovative competence in future teachers.

Thus, the process of developing the innovative competence of future teachers in the innovative educational environment of higher educational institutions is complex and multifaceted, including the creation of unique educational spaces, such as project groups and student scientific societies, the introduction of information and communication technologies, the active use of innovative forms and methods of teaching. This process contributes not only to the acquisition of knowledge, skills, and abilities, but also

to the development of personal qualities of future teachers, such as creativity, initiative, the ability to self-education and innovation. In addition, the emphasis is placed on the importance of integrating theoretical knowledge and practical skills through research activities and participation in scientific projects, which leads to the development of professional competence and readiness to implement innovative educational projects in the future. As a result, the innovative educational environment acts as a basis for the development of innovative competence of future teachers, ensuring their readiness for effective professional activity in modern dynamic world.

CONCLUSIONS

The active participation of subjects in the educational process and the development of innovative competence play an important role in modern higher education and is carried out in an innovative educational environment. The process of training future teachers in innovative competence involves engaging students in more active and independent study of the material and developing innovative skills. That is why the authors attribute the following aspects to the active participation of future pedagogical specialists in these processes: collective creative innovation activity, participation in innovative projects and innovative practical tasks; development of critical thinking; use of information and communication technologies – online resources, video tutorials, webinars, and other tools for training, education, and innovative cooperation. The process of developing the innovative competence of future teachers is assigned to the group of key professional competencies of a modern pedagogical specialist, and innovative competence is considered as an integral characteristic that ensures the teacher's readiness for professional and innovative activities in an innovative educational environment and modern society.

In addition, with the help of innovative competence and professional information communication in a higher education institution, an educational innovative environment is created with the specified characteristics of relations and interactions: organisational and managerial, functional and business, interpersonal, information and educational, network; social and partner, humanitarian, etc. To solve this problem, it is necessary to develop innovative competence and promote the evolution of the dynamics of cognitive and informational needs of subjects of the educational process; understand the structure and mechanisms of development of communicative abilities and innovative competence; characterise the content and structure of the process of developing innovative competence of future teachers. The developed innovative competence in the application of information and communication technology provides for its application in teaching, training, and everyday life; rational use of innovative means in solving pedagogical situations related to the subjects of the innovative educational environment; creation of pedagogical conditions for innovative competence of future computer science teachers is effectively carried out in the process of professional training using information and communication technology. That is why the innovative educational environment and all key components and subjects have an effective impact on the process of developing innovative and professional competence of future teachers; the process of research activities constantly affects the innovative educational environment. An important area of research can be the study of mechanisms for the effective integration of information and communication technologies into the learning process to improve the quality of education and the development of professional skills, and the study of the impact of collective creative activity and participation in innovative projects on the development of critical thinking of future teachers.

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CONFLICT OF INTEREST

None.

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Специфіка інноваційного освітнього середовища та його вплив на формування інноваційної компетентності майбутніх вчителів

Анотація. Актуальність дослідження визначається зміною поглядів на процес формування інноваційної компетентності майбутніх вчителів й потребою у вдосконалені інноваційного освітнього середовища. Відповідно, метою статті було розкриття особливих ознак та властивостей інноваційного освітнього середовища та його вплив на процес розвитку інноваційної компетентності у майбутніх вчителів. Для реалізації мети було використано комплекс загальнонаукових методів: теоретичні методи – системного аналізу, синтезу, узагальнення та зіставлення; емпіричні методи – обсерваційні (пряме та непряме спостереження, методи експертного оцінювання та самооцінювання); ранжування, що допомогло з'ясувати специфіку інноваційного освітнього середовища в процесі формуванням інноваційної компетентності майбутніх вчителів. Проаналізовано змістове наповнення понять «інноваційне середовище», «інноваційний простір», «формування інноваційної компетентності», «інноваційне освітнє середовище». Виділено, що завдяки участі в роботі гуртків, викладачі та майбутні вчителі здобувають цінний досвід інноваційної та творчої колективної діяльності й мають можливість розвивати лідерські якості та розвивати інноваційну компетентність. Встановлено, що інноваційне освітнє середовище у контексті професійної підготовки майбутніх вчителів функціонує як система, котра створює умови для особистісного розвитку в ролі інноватора, сприяє розкриттю творчих здібностей, а також поліпшенню інноваційних та професійних навичок, підкреслюючи єдність та взаємодію її елементів. Результати дослідження також вказують на те, що професійний розвиток майбутніх педагогів відбувається під значним впливом інноваційного навчального середовища, яке водночас формується за рахунок активної інноваційної діяльності студентів. Практичне значення цієї статті полягає у тому, що отримані результати можуть бути використані у майбутніх дослідженнях щодо впливу інформаційно-комунікаційних технологій на суб'єкт-суб'єктну взаємодію між учасниками освітнього процесу

Ключові слова: гурткова форма роботи; колективна інноваційна діяльність; спілкування між здобувачами та викладачами; суб'єкти освітнього процесу