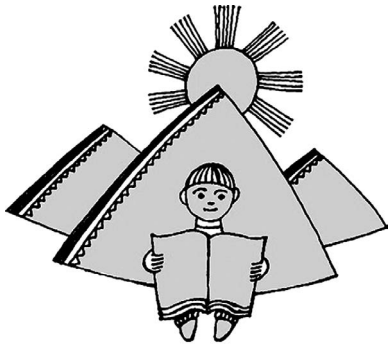
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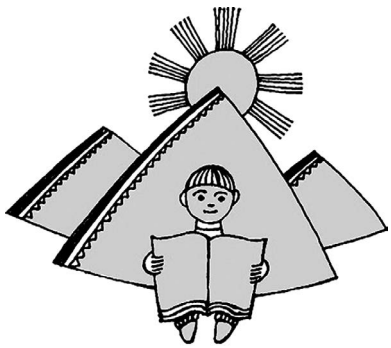
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Chapter I. THEORETICAL AND PEDAGOGICAL PROBLEMS OF MODERN EDUCATION

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COMMUNICATION MANAGEMENT IN EDUCATIONAL INSTITUTIONS UNDER DIGITAL TRANSFORMATION: CHALLENGES AND PROSPECTS INTRODUCTION

Abstract. The article examines the theoretical foundations and current trends in the development of communication management in educational institutions under conditions of digital transformation. The relevance of the study is determined by the rapid integration of digital technologies, cloud services, learning management systems, corporate communication platforms, electronic document management systems, analytical tools, and generative artificial intelligence, which fundamentally transform managerial interaction and create new requirements for organizing internal and external communications. The aim of the study is to substantiate the theoretical foundations of communication management in the context of the digital transformation of education, identify the major challenges affecting its development, and outline promising directions for improving digital communication in educational institutions. The research employs a set of complementary methods, including analysis, synthesis, generalization, the systems approach, comparative analysis, and forecasting. The scientific novelty of the study lies in providing a comprehensive analysis of the transformation of communication management under the influence of digital technologies, highlighting the role of digital leadership, data-driven management, and evidence-based management, and substantiating the need to develop an integrated digital communication policy for educational institutions. The findings demonstrate that digital communication is evolving from an auxiliary information exchange tool into a strategic management resource that enhances interaction among all participants in the educational process, improves transparency, increases the efficiency of managerial decision-making, and supports institutional development. The study identifies the advantages of using digital platforms, cloud technologies, electronic document management, analytical services, and generative artificial intelligence in educational management. It also analyses the major challenges associated with information overload, cybersecurity, the digital divide, the ethical use of artificial intelligence, and the development of digital culture. The practical significance of the research lies in the possibility of applying its findings to improve communication management systems, develop digital transformation strategies, strengthen digital leadership, and enhance the effectiveness of managerial communication in educational institutions.

Keywords: communication management, educational institution, digital transformation, digital leadership, generative artificial intelligence, digital communication..

КОМУНІКАЦІЙНИЙ МЕНЕДЖМЕНТ У ЗАКЛАДІ ОСВІТИ ЗА УМОВ ЦИФРОВІЗАЦІЇ: ВИКЛИКИ ТА ПЕРСПЕКТИВИ

Анотація. У статті досліджено теоретичні засади та сучасні тенденції розвитку комунікаційного менеджменту в закладах освіти за умов цифрової трансформації. Актуальність теми зумовлена активним упровадженням цифрових технологій, хмарних сервісів, систем управління навчанням, корпоративних платформ, електронного документообігу, аналітичних інструментів і генеративного штучного інтелекту, що суттєво змінюють характер управлінської взаємодії та висувають нові вимоги до організації внутрішніх і зовнішніх комунікацій. Метою дослідження є теоретичне

обґрунтування сутності комунікаційного менеджменту за умов цифровізації освіти, визначення сучасних викликів його розвитку та окреслення перспектив удосконалення цифрової комунікаційної діяльності закладів освіти. Для досягнення поставленої мети використано комплекс взаємопов'язаних методів дослідження: аналіз, синтез, узагальнення, системний, порівняльний і прогностичний методи. Наукова новизна полягає в комплексному висвітленні особливостей трансформації комунікаційного менеджменту під впливом цифрових технологій, визначенні ролі цифрового лідерства, моделей управління на основі даних та управління на основі доказів, а також обґрунтуванні необхідності формування цілісної політики цифрових комунікацій у закладах освіти.

Доведено, що цифрові комунікації поступово перетворюються із допоміжного інструменту інформаційного обміну на стратегічний чинник управління, який забезпечує ефективну взаємодію учасників освітнього процесу, підвищує прозорість управлінських процедур, оперативність ухвалення рішень і результативність діяльності закладу освіти. Визначено переваги використання цифрових платформ, хмарних технологій, електронного документообігу, аналітичних сервісів і генеративного штучного інтелекту в управлінській діяльності, а також виклики, пов'язані з інформаційним перевантаженням, кібербезпекою, цифровою нерівністю, етичними аспектами використання штучного інтелекту та розвитком цифрової культури. Практичне значення дослідження полягає в можливості використання його результатів для вдосконалення системи комунікаційного менеджменту, розроблення стратегій цифрового розвитку, підготовки керівників закладів освіти та формування ефективної політики цифрової взаємодії.

Ключові слова: комунікаційний менеджмент, заклад освіти, цифрова трансформація, цифрове лідерство, генеративний штучний інтелект, цифрові комунікації.

INTRODUCTION

Formulation of the problem. The digital transformation of education significantly changes the content and mechanisms of educational institution management, highlighting the need to modernize communication management as one of the key factors of effective managerial activity. A modern educational institution functions as an open social system that ensures continuous interaction among administrators, teachers, students, parents, employers, public administration bodies, and local self-government authorities. Under these conditions, management effectiveness is largely determined not only by the quality of managerial decision-making but also by the speed, reliability, and effectiveness of internal and external communications. The rapid development of digital technologies, cloud services, learning management systems, corporate platforms, mobile applications, and generative artificial intelligence substantially expands the opportunities for organizing information interaction, contributing to greater openness, transparency, efficiency, and soundness of management processes (Fernбndez et al., 2023; Ivanchuk, 2025; McCarthy et al., 2023).

At the same time, the digitalization of the communication environment generates new managerial challenges associated with information overload among participants in the educational process, fragmentation of digital communication channels, cybersecurity, personal data protection, the development of digital culture and professional communication ethics, as well as the implementation of generative artificial intelligence in management practice. This necessitates a reconsideration of traditional approaches to communication management, the development of digital leadership among heads of educational institutions, and the design of effective models of digital communication management that combine technological innovation with human-centeredness, security, and strategic orientation (Kalinichenko, 2021; Kyzym & Yurchenko, 2025; Spirin et al., 2022). Therefore, the study of current trends, challenges, and prospects for the development of communication management under conditions of the digital transformation of education acquires important theoretical and practical significance for ensuring the sustainable development of educational institutions.

Analysis of Recent Research and Publications. Significant contributions to the development of the theoretical and practical foundations of the digital transformation of education, the advancement of the digital educational environment, the improvement of educational management, and the promotion of digital leadership have been made by A. Fernбndez, O. Kalinichenko, M. Kyzym, A. M. McCarthy, O. Poddenezhnyi, O. Shparyk, O. Spirin, W. Strielkowski, S. Tawil, Y. Zhao, and others. The development of digital competence among educational stakeholders, the use of cloud services, learning management systems, analytical platforms, as well as issues of information security and the responsible use of artificial intelligence technologies have been investigated by A. Fernбndez, A. M. McCarthy, O. Spirin, W. Strielkowski, S. Tawil, Y. Zhao, and others. However, the existing studies mainly address individual aspects of digital transformation, whereas the issues of the comprehensive organization of internal and external communication in educational institutions, the development of digital leadership, the establishment of a unified digital communication environment, the mitigation of information overload, the provision of cybersecurity, and the ethical use of generative artificial intelligence require further scientific substantiation.

AIM AND TASKS RESEARCH

The aim of the research is to substantiate the theoretical foundations of communication management in educational institutions under digital transformation, to identify current challenges and prospects for the development of digital communications, and to outline strategic directions for improving the communication management system.

RESEARCH METHODS

The study employed a set of interrelated research methods. Analysis, synthesis, and generalization were used to examine scholarly sources and identify the theoretical foundations of communication management. The systems approach was applied to determine the structure and specific features of communication processes in educational institutions. Comparative

analysis was used to characterize modern digital communication management tools, while the forecasting method served to substantiate prospects for the development of communication management under conditions of digital transformation.

RESEARCH RESULTS

In the contemporary theory of educational management, communication management is regarded as one of the fundamental components of the management system of an educational institution, ensuring the organization of information interaction among all participants in the educational process, the coordination of their activities, support for managerial decision-making, and the creation of a favourable educational environment. Whereas the traditional approach to communication management was primarily focused on information transmission, under conditions of digital transformation its content has expanded considerably. Priority is now given to managing information flows, organizing digital interaction, ensuring openness and transparency, facilitating prompt decision-making, and using analytical data and digital platforms to support the strategic development of educational institutions (Kalinichenko, 2021; McCarthy et al., 2023; Poddenezhnyi, 2021).

The concept of communication management is increasingly interpreted as a purposeful process of planning, organizing, coordinating, implementing, and evaluating internal and external communications aimed at achieving the strategic objectives of an organization. In the context of an educational institution, this involves creating a unified information and communication environment that ensures effective interaction among administrators, academic staff, students, parents, employers, the public, and educational authorities. At the same time, digital transformation changes not only the means of communication but also the very philosophy of management, orienting it towards partnership, horizontal interaction, openness of information, rapid response to change, and collaborative managerial decision-making (Fernбndez et al., 2023).

The concept of the digital transformation of education involves not merely the introduction of information and communication technologies but also a comprehensive rethinking of management processes, organizational culture, and models of interaction among all participants in educational activities. In this context, digital communications become a strategic resource for the development of educational institutions, while the effectiveness of their organization directly influences the quality of management, academic mobility, institutional transparency, and competitiveness. Therefore, international studies consider digital transformation as a continuous process of organizational change centred on people, with digital technologies serving as instruments for achieving strategic development goals (Fernбndez et al., 2023; UNESCO, 2023).

An important theoretical principle of modern communication management is the transition from an information management model to a model based on knowledge and digital data management. Whereas previously the principal function of a manager was to organize the transmission of information, today managers are expected to ensure the effective use of digital resources, integrate various communication channels, analyse information, forecast risks, and make evidence-based managerial decisions. In contemporary scholarly literature, this model is associated with the concepts of data-driven management, evidence-based management, and digital leadership, which are becoming increasingly widespread in educational management (Kyzym & Yurchenko, 2025; McCarthy et al., 2023).

One of the key characteristics of digital communication management is its systemic nature. Communications are no longer viewed as an auxiliary administrative function but are integrated into virtually all management processes, including strategic planning, organization of the educational process, human resource management, quality assurance, cooperation with external stakeholders, crisis management, and performance monitoring. Under such conditions, a unified digital communication ecosystem is formed, integrating information resources, software platforms, electronic document management systems, synchronous and asynchronous communication tools, analytical instruments, and generative artificial intelligence services (Spirin et al., 2022; UNESCO, 2023).

The analysis of the theoretical foundations and current practices of communication management makes it possible to systematize the main components of its transformation in the digital environment. These components reflect the transition from fragmented use of individual digital tools to an integrated communication management system that combines technological infrastructure, organizational processes, data-based decision-making, digital leadership, and responsible interaction among stakeholders. The key components of communication management under digital transformation are summarized in Table 1.

Component	Main content	Digital tools and mechanisms	Expected management effect
Digital communication infrastructure	Integration of internal and external communication channels	LMS, corporate platforms, cloud services, videoconferencing tools	Faster information exchange and continuity of communication
Digital document management	Digitalization and automation of administrative information flows	Electronic document management systems, digital signatures, cloud storage	Reduced processing time, greater transparency and traceability

Data-driven communication management	Collection, integration, and analysis of institutional data	Dashboards, Business Intelligence tools, analytical platforms	Evidence-based decision-making and early identification of risks
Digital leadership	Strategic coordination of digital transformation and organizational change	Digital strategies, collaborative platforms, digital communication policies	Stronger organizational adaptability and stakeholder engagement
Generative artificial intelligence	Automation and support of information and analytical activities	GenAI tools for drafting, summarizing, analysis, and information support	Reduced routine workload and improved managerial efficiency
Digital culture and competence	Development of responsible and effective digital interaction	Professional development, digital literacy, communication standards	Improved quality of digital interaction and staff readiness for change
Information security and ethics	Protection of data and responsible use of digital technologies	Cybersecurity policies, access control, verification procedures, AI guidelines	Reduced security, privacy, ethical, and reputational risks
Stakeholder communication	Digital interaction with students, staff, parents, employers, authorities, and the public	Websites, social media, feedback services, online consultations	Greater openness, trust, participation, and institutional transparency

***Source**: developed by the author based on the analysis of scholarly literature.*

As shown in Table 1, the transformation of communication management is multidimensional and cannot be limited to the introduction of new digital technologies. Technological components, including digital platforms, cloud services, electronic document management systems, analytical tools, and GenAI, provide the infrastructure for communication, while organizational and human components determine the effectiveness of their practical application. In this respect, digital leadership and digital culture perform an integrating function by linking technological innovation with institutional goals, staff competencies, and stakeholder needs.

Particular attention should be paid to the interrelationship between data-driven management, digital leadership, and information security. The growing volume of digital data expands opportunities for evidence-based managerial decision-making but simultaneously increases requirements for data protection, verification, ethical responsibility, and transparency. Consequently, an effective model of communication management should ensure not only the speed and accessibility of information exchange but also the reliability, security, and responsible use of digital communication channels.

At the same time, the digital transformation of communication management cannot be reduced solely to technological modernization. Its effectiveness largely depends on the development of digital culture, the digital competence of staff, the readiness of managers to lead organizational change, and the establishment of trust among all participants in the educational process. Therefore, contemporary researchers emphasize that the digital transformation strategy of an educational institution should integrate technological, organizational, social, and ethical dimensions of development, ensuring a balance between innovation, information security, academic integrity, and a human-centred approach to management (McCarthy et al., 2023; UNESCO, 2023).

The digital transformation of management has significantly expanded the range of tools used to organize communication in educational institutions. Whereas information interaction was previously based mainly on traditional document circulation, telephone communication, and face-to-face interaction, today the communication infrastructure is built upon integrated digital platforms that ensure rapid information exchange, collaborative interaction, joint decision-making, monitoring of educational processes, and accumulation of managerial data. In a modern educational institution, digital communication performs not only informational but also organizational, coordinating, analytical, and strategic functions, becoming one of the key instruments of effective management (Fernбndez et al., 2023; McCarthy et al., 2023).

The most widely used means of digital interaction remain learning management systems (LMS), which integrate administrative, educational, and communication processes within a unified digital environment. These platforms provide centralized management of learning materials, event calendars, assessment, timetables, announcements, and electronic interaction among all participants in the educational process. They also enable administrators to continuously monitor educational activities, analyse statistical indicators, and respond promptly to emerging changes.

Research indicates that the integration of LMS contributes to greater transparency of management, optimization of information flows, and improvement in the quality of managerial decision-making (Spirin et al., 2022).

Cloud technologies also occupy an important place in the digital communication ecosystem, ensuring secure information storage, collaborative document processing, prompt access to information resources regardless of users' location, and synchronization of managerial processes in real time. The use of Google Workspace for Education, Microsoft 365 Education, and other corporate platforms substantially enhances managerial mobility, reduces the time required for document preparation, minimizes information duplication, and promotes teamwork. Cloud services became the technological foundation for organizing distance interaction during the COVID-19 pandemic and have retained their status as essential tools of digital communication in education (McCarthy et al., 2023; Shparyk, 2023; UNESCO, 2023).

Another important component of the digital transformation of management is the implementation of electronic document management systems. The transition to digital processing of managerial documentation automates a considerable proportion of administrative procedures, reduces the time required for document approval, improves control over the implementation of managerial decisions, and minimizes the risks of information loss. Electronic document management also contributes to the establishment of a transparent management system in which every stage of document processing can be tracked and managerial decisions can be promptly communicated to those responsible for their implementation (Kyzym & Yurchenko, 2025).

A separate group of digital tools includes corporate communication platforms and synchronous communication services that support online meetings, videoconferences, group chats, webinars, collaborative planning, and the оперативе dissemination of information among staff. Their use considerably expands opportunities for horizontal communication between structural units, facilitates the rapid coordination of managerial decisions, and supports teamwork regardless of the geographical location of participants. Under present-day conditions, such tools ensure the continuity of management during crises, including martial law, remote work, and other emergency situations (Fernбndez et al., 2023).

Analytical digital platforms (dashboards) are becoming increasingly important because they enable the integration of data from different information systems, monitoring of key institutional performance indicators, identification of trends, and forecasting of potential risks. The use of Business Intelligence tools supports the transition from intuitive management to evidence-based management, where managerial decisions are based on objective data, statistical analysis, and predictive models. This enhances the quality of strategic planning, the efficiency of resource allocation, and the overall effectiveness of institutional management (McCarthy et al., 2023).

A new stage in the development of digital communication has been marked by the active implementation of generative artificial intelligence (GenAI) in educational management. GenAI tools are used for preparing information messages, drafting documents, analysing large volumes of textual data, summarizing monitoring results, processing citizens' requests, generating analytical reports, and providing information support for institutional leaders. At the same time, their application requires adherence to the principles of academic integrity, personal data protection, verification of the reliability of generated information, and transparency in the use of artificial intelligence algorithms (OECD, 2019; UNESCO, 2023).

The expansion of the digital communication environment is accompanied by a number of challenges. One of the most significant is information overload caused by the simultaneous use of e-mail, messengers, learning management systems (LMS), corporate platforms, social media, and electronic document management systems. A large number of messages, their duplication, and the lack of clear prioritization lead to distraction, delays in responding, digital fatigue, and the risk of professional burnout.

The problem is further aggravated by the fragmentation of communication channels, when different structural units use different digital services. This complicates document retrieval, the monitoring of task implementation, and the identification of the official version of information. Therefore, effective digital transformation requires not an increase in the number of platforms but their unification, the regulation of official communication channels, and the creation of a unified digital communication environment (Fernбndez et al., 2023; Kalinichenko, 2021).

Cybersecurity is becoming particularly important because the information systems of educational institutions contain personal data, personnel, financial, and administrative documentation. Phishing attacks, the theft of user accounts, the use of unsecured networks, or personal devices may result in technical, legal, and reputational losses. Therefore, cybersecurity should be regarded as an integral component of management culture, encompassing access policies, multi-factor authentication, data backup, regular software updates, and staff training.

Another important challenge is the digital divide, which is manifested in differences in access to digital devices, the quality of Internet connection, and the level of digital competence of staff, students, and parents. If digital services become the only channel of communication, some participants may find themselves excluded from the information environment. This requires maintaining alternative communication channels, providing technical support, and taking into account the capabilities of different target groups (McCarthy et al., 2023; Spirin et al., 2022).

Additional risks are associated with the use of GenAI. Despite its considerable potential for automating the preparation of documents and analytical materials, GenAI may generate inaccurate information, fabricated references, algorithmic bias, or create risks of confidentiality breaches. Therefore, the use of such tools should include human

verification of the generated results, a prohibition on entering sensitive data, and personal responsibility for the final content of documents (UNESCO, 2023).

The ethical dimension of digital communication encompasses issues of privacy, professional ethics, accessibility of information, and the prevention of discrimination. The use of digital services should ensure the minimization of personal data collection, the transparency of algorithmic decisions, the explainability of automated procedures, and the possibility of appealing such decisions.

The further development of communication management in educational institutions is associated with the transition from the digitalization of individual management processes to the establishment of an integrated digital management ecosystem. It should integrate information resources, communication platforms, electronic document management systems, analytical services, and decision-support tools into a unified digital environment. Such integration ensures the continuity of information flows, the unification of communication processes, the reduction of information duplication, and the improvement of management efficiency. Comprehensive digital platforms will increasingly combine the functions of communication, planning, monitoring, analytics, and the strategic development of educational institutions (Fernбndez et al., 2023; McCarthy et al., 2023).

One of the leading trends is the implementation of data-driven management models based on data analysis. The use of analytical dashboards, Business Intelligence tools, visualization, and predictive analytics makes it possible to carry out comprehensive monitoring of educational institution performance, identify risks in a timely manner, and make managerial decisions based on evidence. This ensures the transition from reactive to proactive management focused on forecasting and preventing problems (McCarthy et al., 2023).

The development of the digital leadership of the head of an educational institution is becoming a decisive factor in digital transformation. A modern leader should not only implement digital technologies but also develop a strategic vision for institutional development, manage organizational change, support an innovative culture, ensure the professional development of staff, and create conditions for open communication and partnership. Practice shows that the success of digital transformation is determined largely by the human factor rather than by the level of technological provision (UNESCO, 2023; Kondur et al., 2025; Kyzym & Yurchenko, 2025).

An equally important area is the development of the digital culture of all participants in the educational process. The effectiveness of digital communication depends on the level of digital competence, information literacy, compliance with the principles of digital etiquette, academic integrity, and the responsible use of generative artificial intelligence. Therefore, one of the priorities of management is the systematic professional development of staff, the enhancement of skills for safe work in the digital environment, and the critical use of modern digital services (Spirin et al., 2022).

A promising direction is the integration of GenAI into management activities. GenAI is capable of automating the preparation of documents, information analysis, the development of analytical materials, and support for managerial decision-making. At the same time, its use should be based on the principles of transparency, accountability, confidentiality, algorithmic explainability, and mandatory human oversight. In this regard, an important task is the development of institutional policies on the use of artificial intelligence, which will define the scope of its application, mechanisms for verifying generated results, and ethical standards for the use of digital services (UNESCO, 2023).

At the same time, digital transformation creates new opportunities for the interaction of educational institutions with external stakeholders, including employers, public authorities, non-governmental organizations, graduates, and international partners. The use of open digital platforms, electronic feedback services, online consultations, and public information resources enhances the transparency of management, strengthens trust in educational institutions, and broadens the participation of different stakeholder groups in managerial decision-making. Therefore, the further development of communication management will be determined by the integration of digital technologies with the principles of open, human-centered, and partnership-based management.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The findings of the study indicate that digital transformation substantially changes communication management in educational institutions by transforming its organizational foundations, instruments, and mechanisms of interaction among all participants in the educational process. It has been established that modern digital platforms, learning management systems, cloud services, electronic document management systems, analytical tools, and generative artificial intelligence contribute to improving the efficiency, transparency, and evidence base of managerial decision-making. At the same time, the effectiveness of their application depends on the level of digital competence of staff, the development of digital leadership, the provision of information security, adherence to ethical principles, and the establishment of a comprehensive policy for managing digital communications.

Prospects for further research are associated with the development of models of strategic digital communication management in educational institutions, the identification of criteria for evaluating the effectiveness of digital communication management, the investigation of the impact of generative artificial intelligence on managerial processes, and the substantiation of mechanisms for developing the digital culture and digital leadership of heads of educational institutions under conditions of the transformation of the educational environment.

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PEDAGOGICAL CONDITIONS FOR DEVELOPING AN OF PHYSICAL ACTIVITY AMONG STUDENTS WITH DISABILITIES

Abstract. This article examines the issue of creating special conditions to maintain and strengthen physical health during the educational process for students with disabilities. It has been demonstrated that physical activity lasting at least 60 minutes per day is a critical factor for their harmonious development, disease prevention, and successful socialization. The aim of the research was to identify the pedagogical conditions for developing an appropriate level of physical activity among students with disabilities during their studies at a higher education institution. A complex of general scientific and theoretical methods was used in conducting the study: analysis, synthesis, systematization, and generalization. The study introduces the author's concept of «pedagogical conditions», which are viewed as a set of optimal circumstances such as forms, methods, and means that ensure the effective development of health-promoting physical activity among students. It was established that their practical implementation is a determining factor in the effective development of an appropriate level of physical activity among students with disabilities. It was found that the formation of pedagogical conditions is based on scientifically grounded approaches and involves the implementation of three main components: cognitive, motivational-value-based, and activity-based. Three basic pedagogical conditions have been identified: the development of value-motivational readiness, aimed at the conscious promotion of health and the formation of an internal need for systematic physical activity; individualization and differentiation of the physical activity process based on health monitoring, which involves creating personalized physical activity trajectories and direct mastery of techniques for self-monitoring one's physical condition; and providing psychological support and fostering an atmosphere of inclusive interaction, which helps overcome anxiety, self-isolation, and low self-esteem. The scientific value of the approach presented in this paper for implementing comprehensive physical activity for students with disabilities during their studies at a higher education institution lies in the fact that we view physical education for such students not as a standard academic discipline, but as a crisis-response strategy for preserving human capital.

Keywords: students with disabilities, physical activity, physical education, healthy lifestyle.

ПЕДАГОГІЧНІ УМОВИ РОЗВИТКУ ФІЗИЧНОЇ АКТИВНОСТІ СТУДЕНТІВ З ІНВАЛІДНІСТЮ

Анотація. У статті розглянуто питання створення спеціальних умов для збереження та зміцнення соматичного здоров'я у процесі навчання студентів з інвалідністю. Доведено, що фізична активність тривалістю не менше ніж 60 хвилин на день є критично важливою умовою для їхнього гармонійного розвитку, профілактики захворювань та успішної соціалізації. Мета статті полягала у визначення педагогічних умов формування належного рівня фізичної активності студентів з інвалідністю у процесі навчання у закладі вищої освіти. У реалізації дослідження використано комплекс загальнонаукових методів: аналізу, синтезу, систематизації та узагальнення.. У дослідженні введено авторське поняття «педагогічних умов», які розглядаються як комплекс оптимальних обставин, як от форм, методів і засобів, що забезпечують ефективний розвиток оздоровчої фізичної активності студентів. Установлено, що їхня практична реалізація є детермінантою ефективного формування належного рівня фізична активність студентів з інвалідністю. Виявлено, що формування педагогічних умов базуватися на науково обґрунтованих підходах й передбачає реалізацію трьох основних компонентів: когнітивного, мотиваційно-ціннісного та діяльнісного. Виокремлено три базові педагогічні умови: формування ціннісно-мотиваційної готовності, яка скерована на реалізацію свідомого зміцнення здоров'я та сформованості внутрішньої потреби у систематичній фізичній активності; індивідуалізація та диференціація процесу фізичної активності на основі моніторингу стану здоров'я, що передбачає створення персональних траєкторій фізичної

активності та безпосереднє володіння техніками самоконтролю власного фізичного стану; забезпечення психологічного супроводу та створення атмосфери інклюзивної взаємодії, що допомагає долати тривожність, самоізоляцію та низьку самооцінку. Наукова цінність представленого у роботі підходу до реалізації повноцінної фізичної активності студентів з інвалідністю у процесі навчання у закладі вищої освіти полягає в тому, що ми розглядаємо фізичне виховання для таких студентів не як нормативну дисципліну, а як антикризову технологію збереження людського капіталу.

Ключові слова: студенти з інвалідністю, фізична активність фізичне виховання, здоровий спосіб життя.

INTRODUCTION

Statement of the problem. The current stage of higher education development in Ukraine is characterized by the active implementation of the principles of inclusion and equal access to high-quality educational services for all participants in the educational process. Among the student population, students with disabilities constitute a distinct group, and their numbers have been steadily increasing since the start of the full-scale invasion (Babajanyan, Semal, Beseda, Farionov, & Kurii, 2023). Such students require not only the adaptation of educational content but also the creation of special conditions to maintain and strengthen their physical health during the learning process.

Physical activity (PA) is a key factor in the sociocultural integration, physical rehabilitation, and psycho-emotional stabilization of this group of students (Khoruzheva, Yunak, Dotsenko, Vyatchanina, Mykhailenko, & Zhuravlev, 2026). PA in higher education institutions is traditionally implemented through the physical education system and physical fitness and health-promoting activities. However, for students with disabilities, standard approaches often prove ineffective or inaccessible.

According to the Recommendations of the Ministry of Health of Ukraine (MOH), a variety of physical activities should be included in the daily schedule and significantly encompass free time. Limited physical activity has been identified as one of the factors contributing to the critical state of health among Ukrainian citizens (Luskan & Kuzmenko, 2024). At the same time, well-organized education in the field of PA transforms physical education from a mandatory subject into a conscious tool for managing one's own health, work capacity, and quality of life (Roberts, Ryan, Campbell, & Hardwicke, 2024).

The modernization of higher education and the need to respond to contemporary demands necessitate the identification of specific pedagogical conditions that would effectively engage students with disabilities in systematic physical education activities, both in academic and independent settings.

Analysis of recent research and publications. First and foremost, we emphasize that the minimum amount of physical activity should be 30 minutes per day. Accordingly, to ensure a high level of health, the WHO recommends an average of 60 minutes of physical activity per day (Dempsey, Friedenreich, Leitzmann, Buman, Lambert, Willumsen, & Bull, 2021).

It is widely recognized that regular physical activity is essential for maintaining health and a healthy, active lifestyle (Khoruzheva, Yunak, Dotsenko, Vyatchanina, Mykhailenko, & Zhuravlev, 2026). It is argued (Mawena & Sorkpor, 2024; Rebrina, 2023) that promoting physical activity (PA) among college students is a priority for physical education in higher education institutions.

It is important to note that the PA paradigm is based on the concept of fostering a healthy lifestyle (Smith & Sparkes, 2019). A healthy lifestyle, in turn, ensures the development, maintenance, and strengthening of physical, psychological, and social health, as well as the ability to procreate and achieve active longevity (Luskan & Kuzmenko, 2024; Khoruzheva, Yunak, Dotsenko, Vyatchanina, Mykhailenko, & Zhuravlev, 2026).

In scientific studies (Blavt, Bodnar, Mykhalskyi, Gurtova, & Tsovkh, 2023; Roberts, Ryan, Campbell, & Hardwicke, 2024), the issue of PA among students with disabilities is examined specifically from the perspective of their health maintenance. Statistics indicate a steady increase in the number of students with disabilities in Ukrainian higher education institutions, particularly as a result of the prolonged state of war and its consequences (Babajanyan, Semal, Beseda, Farionov, & Kurii, 2023; Blavt, 2025).

At the same time, there has been a general decline in their physical health, the progression of chronic diseases, and a lack of physical activity, all of which are exacerbated during remote or blended learning (Luskan & Kuzmenko, 2024; Rebrina, 2023).

Physical activity (PA) takes on particular significance under the conditions of prolonged martial law in Ukraine. It has been proven (Ovcharenko, 2023; Gurtova & Nezhoda, 2023) that PA counteracts the negative effects of stress and destructive psycho-emotional states, such as anxiety and depression, significantly improving well-being and the overall level of mental and physical health.

The Ukrainian laws «On Education» and «On Higher Education», as well as the National Strategy for Creating a Barrier-Free Environment, declare the guarantee of equal rights for all participants in the educational process (Nedilskyi, 2025). However, the mechanisms for implementing these requirements in the context of physical education at institutions of higher education often remain underdeveloped.

AIM OF THE RESEARCH

To identify the pedagogical conditions for developing an appropriate level of physical activity among students with disabilities during their studies at a higher education institution.

RESEARCH METHODS

The research is based on the use of a set of general scientific theoretical methods: theoretical analysis, systematization, comparison of different views on the investigated problem, generalization of data from scientific, methodological, and special literature.

RESULTS OF THE RESEARCH

First and foremost, we align our scientific research with the view that students with disabilities are full-fledged participants in the educational system (Mawena & Sorkpor, 2024). We agree (Roberts, Ryan, Campbell, & Hardwicke, 2024) that having a disability cannot be a limiting factor or a prerequisite for segregation in the provision of PA during the learning process.

In line with our research, we are guided by the ideas (Smith & Sparkes, 2019) that an adequate level of PA is a primary and necessary condition for harmonious development and a factor in the proper functioning of the body despite the presence of a disability. This assertion is based on the fact that the benefits of PA are traditionally associated with achieving an adequate level of physical fitness and improving psychosocial characteristics. It has been scientifically proven (Dempsey, Friedenreich, Leitzmann, Buman, Lambert, Willumsen, & Bull, 2021) that daily PA lasting at least 60 minutes is critically important for people with disabilities.

In the context of our study, the concept of "health-promoting physical activity" is particularly relevant, and this is the term we will use. Therefore, in our study, we will define PA as any type of activity that is beneficial to health and contributes to improving the body's functional capabilities without associated risks. Accordingly, PA is the primary stimulating factor for physiological processes in the body that ensure an adequate level of physical fitness among students with disabilities and help prevent the development of pathological processes.

At the same time, when establishing pedagogical conditions, we should take into account that the current stage of scientific development offers a broader, sociocultural understanding of this phenomenon. In particular, (Gazali, Sari, Setiawan, Rahmadani, Perdima, Abdullah, & Longakit, 2025) define PA as a process that involves people who move, act, and perform in culturally specific spaces and contexts under the influence of a unique set of interests, emotions, ideas, instructions, and relationships.

The next concept in our research is «pedagogical conditions». An analysis of existing scientific works has revealed the absence of a unified interpretation of the concept of «pedagogical conditions» in contemporary scientific discourse. We believe this is due to the application of various scientific approaches and the interpretation of this concept through the prism of specific didactic tasks and methodological guidelines.

Given that the pedagogical conditions for the development of PA among students with disabilities in higher education institutions during the learning process have not yet been subjected to a comprehensive theoretical analysis, methodological justification, or experimental validation in the domestic scientific discourse, we employ our own synthesized terminological understanding of this phenomenon within the scope of our study.

In defining the concept of pedagogical conditions regarding the PA of students with disabilities, we draw on data (Machynska, 2025) indicating that pedagogical conditions are the circumstances that determine a specific direction of development for the pedagogical process. Specifically, these circumstances constitute a set of objective possibilities regarding the content, forms, methods, techniques, and means of pedagogical activity.

Consequently, by «pedagogical conditions» for fostering an appropriate level of PA among students with disabilities in the learning process at a higher education institution," we mean the optimal circumstances of the educational process; taking these into account is a determining factor in ensuring its effectiveness for fostering an appropriate level of PA among students with disabilities.

Pedagogical conditions are an integral component of the educational, upbringing, and developmental system; they involve the appropriate selection of forms, methods, and means of physical education, and directly influence the development, implementation, and effectiveness of pedagogical innovations. In general, we will consider pedagogical conditions as a resource for ensuring the effectiveness of the pedagogical process of developing PA in students with disabilities; these conditions determine the development, implementation, and effectiveness of pedagogical innovations to ensure their effective use in achieving the goals and objectives of the pedagogical process.

There is no doubt that ensuring the effectiveness of a particular pedagogical process requires the creation of a sufficient set of pedagogical conditions that enable the fulfillment of the didactic tasks of the pedagogical process. In standard practice, researchers classify pedagogical conditions according to various criteria, such as organizational, psychological, social, and so on.

We are convinced that the creation of pedagogical conditions based on scientifically grounded approaches involves the implementation of three main components (Fig. 1):

- cognitive: understanding the biomechanical, physiological, psychological, and social mechanisms by which PA affects the body; the ability to correct functional impairments resulting from disability; and the need to adhere to the principles of a healthy lifestyle to maintain health;
- motivational-value-based, which involves fostering an intrinsic need for movement, perceiving physical culture as an integral part of one's overall personal development, a key to success in life, and a means of improving one's health;
- activity-based, related to the acquisition of motor skills, mastering exercise techniques, and learning to self-monitor one's physical and psychological state and exercise intensity using modern methods.

It is worth emphasizing that in the formation of pedagogical conditions, the identified components exist in synthesis, are mutually dependent, and cannot be completely isolated from one another.

We present these pedagogical conditions as an interconnected set of approaches to organizing PA for students with disabilities, which form the basis for developing the content of physical education. However, it is important to note

that a systematic approach is necessary to ensure the full implementation of PA for students with disabilities in higher education institutions. Since comprehensive PA also involves independent forms of physical activity, the main task of educators is not simply to supervise, but to create a supportive environment that will motivate students with disabilities to engage in systematic PA.

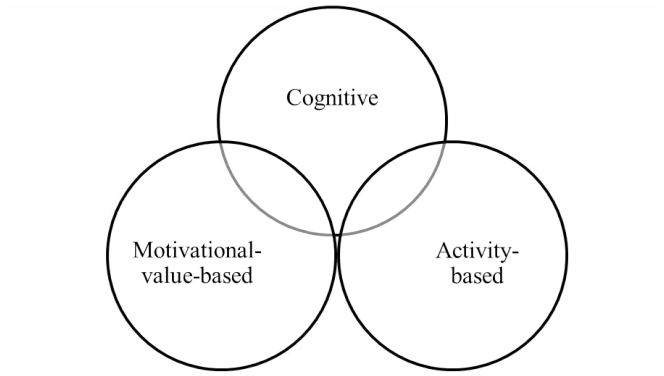


Figure 1. Main components creation of pedagogical conditions

Based on the results of our research, we present a structured system of pedagogical conditions for organizing PA for students with disabilities in higher education institutions (Fig. 2).

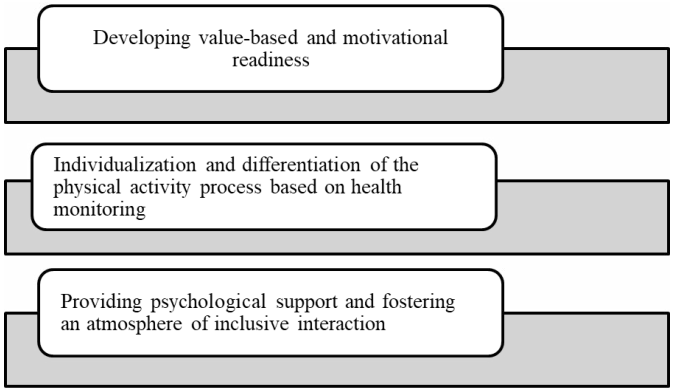


Figure 2. Structured system of pedagogical conditions for for developing an appropriate level for students with disabilities in higher education institutions

1. Developing value-based and motivational readiness: independent activity is impossible without internal motivation. Students must understand why and how they should engage in PA.

The success of PA largely depends on students with disabilities' conviction regarding the necessity and benefits of regular physical education classes for maintaining health and improving their physical condition. Regular physical education classes should place students with disabilities in a position to actively and consciously participate in this process. Every student must understand that the more attentively they approach their classes, the better their results will be, and also that, in today's society, it is not enough to have a high level of education and professional knowledge and skills, it is also necessary to be healthy.

At the core of this pedagogical requirement is the development of motivation for regular physical education classes, which serves as the driving force behind the conscious behavior of students with disabilities and is a determining factor in achieving an appropriate level of physical activity (PA). In making this assertion, we are guided by the findings (Roberts, Ryan, Campbell, Hardwicke, 2024) that the leading factor in engaging students with disabilities in physical development and improvement is fostering their interest in physical education.

Fostering motivation among students with disabilities to engage in regular physical activity is driven by the need to encourage young people to adopt a healthy lifestyle and to explain the importance of physical education as an effective means of promoting well-being, high mental and physical performance, disease prevention, and more. Fostering an interest in physical education and sports is not an instantaneous process but a multi-stage one: from basic knowledge and skills related to health and hygiene to in-depth psychophysiological knowledge of the theory and methodology of physical education (Rebrina, 2023).

This pedagogical approach aims to ensure that students with disabilities engage in physical activity in a more meaningful, purposeful way that is as closely tailored as possible to each individual's unique characteristics. It is necessary to focus on elements designed to promote the effective development of a meaningful attitude among students with disabilities toward themselves and their bodies, to foster the formation of their needs- and motivation-based sphere, and to raise awareness of the need to improve health, lead a healthy lifestyle, and achieve physical

improvement. All of this is considered an important aspect of improving the holistic process of physical education in higher education institutions.

We agree with the conclusions of an empirical study (Gazali, Sari, Setiawan, Rahmadani, Perdima, Abdullah, & Longakit, 2025), which suggests providing students with opportunities to choose types of PA and increasing their knowledge about the importance of PA. At the same time, there is a gap in the literature regarding tools for developing motivation among students with disabilities to engage in regular PA.

Ultimately, by implementing the first pedagogical condition, we ensure a transition from the concept of «obligation» to the concept of «conscious health promotion». In doing so, it is extremely important to take into account the individual interests of students with disabilities, such as an interest in Paralympic or veteran sports, board games, adaptive fitness, and so on.

The development of value- and motivation-based readiness involves acquiring the skills necessary for a healthy lifestyle. There is no doubt that students' health is largely determined by their lifestyle. A healthy lifestyle is viewed as an activity aimed at developing, maintaining, and strengthening health as a condition and prerequisite for the realization and development of other aspects of one's lifestyle. A healthy lifestyle should become a daily necessity for students with disabilities. We are convinced that only by fostering this need during their student years can we ensure the preservation of their health in the future.

There is no doubt about the assertion (Luskan & Kuzmenko, 2024) that adjusting lifestyle habits to increase daily physical activity (PA) yields long-term benefits in strengthening the body. Basic knowledge about regular PA and its importance for health, the impact of physical exercise on the body's development and functioning, and the prevention of certain health issues are key factors in fostering a positive attitude among students with disabilities toward physical education classes and in encouraging them to engage in any form of PA during their free time. The main task here is to acquire knowledge and understanding of the problem of insufficient PA, since it is PA that correlates with motor and mental development.

In general, we support the scientific ideas (Babajanyan, Semal, Beseda, Farionov, & Kurii, 2023) that the most promising, accessible, and effective approach to achieving the most positive results in fostering healthy lifestyle habits among students with disabilities is the comprehensive use of physical education as the primary factor in maintaining health.

The result of implementing the first pedagogical condition is the development of intrinsic motivation in students with disabilities, the overcoming of psychological barriers, and the recognition of physical education as a tool for social integration and rehabilitation.

2. Individualization and differentiation of the physical activity process based on health monitoring. At its core, modern physical education involves purposeful physical activity in the form of various exercises that promote the biological development of students with disabilities, enabling them to acquire necessary skills and abilities, develop physical capabilities, optimize their health and mental resilience, and, overall, ensure high performance throughout their studies.

Given the strong link between the level of PA among students with disabilities and their physical and mental health, the elimination of physical inactivity which is viewed as a means of disease prevention and a manifestation of their social activity, and the practice of independent PA during free time serve as a means of counteracting the negative consequences of PA deficiency through physical education for students with disabilities while they are studying at institutions of higher education. During the period of final development of the body's systems, PA is a safe and effective natural pathogenetic measure, as it improves functional indicators and physical fitness.

Implementing this pedagogical requirement is the most technologically advanced and research-intensive, as it shifts the physical education process from a model based on «averaged standards» to one based on personalized medical and pedagogical support. PA groups are organized according to the focus of their rehabilitation and training effects. Students with disabilities have various impairments and somatic conditions, which makes it impossible to use standardized exercises in the physical education process.

The individualization and differentiation of the PA process involves designing individualized educational and motor trajectories, which consist of developing a personalized PA program. At the same time, students should be provided with an understanding of alternative exercise options, such as, in cases where running is contraindicated, the use of controlled walking, etc. This also includes the use of special equipment for independent PA.

Ultimately, the second pedagogical condition completely shifts the focus of student performance assessment. The evaluation is based not on absolute performance standards, but on individual progress which is determined by improvements in results relative to the student's initial performance levels, as well as the regularity and quality of optimal PA.

3. Providing psychological support and fostering an atmosphere of inclusive interaction. It is widely recognized that academic performance is a factor influencing the mental health of students with disabilities (Gurtova & Nezhoda, 2023).

Given the current situation of prolonged martial law in Ukraine, it is worth noting a body of evidence regarding the negative impact of stress on well-being. Recognizing that the war has had a profound impact on the psychological well-being of students with disabilities, an impact that carries long-term consequences for the psychological well-being of all participants in the educational process, it is crucial today to prioritize mental health in order to cope with the challenges of war (Ovcharenko, 2023).

Therefore, the importance of providing psychological support extends far beyond the psychological well-being of students with disabilities. Although such well-being is the foundation of academic success, chronic stress impairs the functioning of the prefrontal cortex, which is responsible for focus and memory.

Learning to overcome the difficulties that arise during this important transitional period can set students up for success throughout their lives. We address the issue of psychological support aimed at developing the ability to cope with stressful and challenging experiences through the lens of physical education. The scientific value of this approach lies in the fact that we view physical education not as a standard academic discipline, but as a crisis-management strategy for preserving human capital.

For students with disabilities in today's reality, physical education becomes a «safe space». Students in this category often have not only physical limitations but also associated psychological characteristics (Mawena & Sorkpor, 2024). These include:

- increased anxiety due to the fear of not being able to cope with the workload;
- low self-esteem and feelings of inferiority compared to the general student population;
- a tendency toward social self-isolation.

In this context, providing psychological support serves as a mechanism for transforming physical limitations into an experience that fosters psychological resilience. It is precisely this resilience that enables students with disabilities to: maintain their ability to learn even under stressful conditions; reduce the level of academic procrastination caused by anxiety; develop the ability to manage their emotions; and maintain a positive outlook.

This position is based on the assertion (Smith & Sparkes, 2019) that for people with disabilities, PA is not only a tool for restoring health but also a platform for overcoming internal barriers and social isolation. We position this pedagogical framework for providing psychological support not merely as an "additional skill," but as a fundamental component of preserving and enhancing human capital. The key here is to ensure the full participation of students with disabilities in systematic PA, as well as a sense of safety and acceptance. An atmosphere of inclusion is considered to exist when the presence of a person with special needs is perceived by the group as a natural norm, and providing support to that person is voluntary and unobtrusive.

In terms of creating an atmosphere of inclusive interaction, it is important to implement blended formats, such as combining mandatory scheduled consultation sessions with a flexible schedule of independent online training sessions.

The scientific value of the presented approach lies in the fact that we view physical education not as a normative discipline, but as a crisis-response strategy for preserving human capital.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Students with disabilities are full-fledged participants in the educational system, and the presence of medical conditions cannot serve as a basis for segregation or restrictions. Health-promoting physical activity is considered a fundamental stimulator of physiological processes, which is critically important for harmonious development, improved functional abilities, and psychosocial well-being. It has been scientifically established that daily physical activity lasting at least 60 minutes is vital for this category of students.

The issue of systematically defining pedagogical conditions as a factor in ensuring the effective implementation of systematic PA for students with disabilities requires a comprehensive scientific analysis. We consider pedagogical conditions to be a set of optimal circumstances within the educational process, namely, the combination of objective possibilities regarding content, forms, methods, techniques, and resources, the consideration of which is a determining factor in the effective development of an appropriate level of PA among students with disabilities. These conditions are an integral part of the educational system and are based on the unity of three interrelated components: cognitive, motivational-value-based, and activity-based.

The effective organization of academic performance for students with disabilities in higher education requires a systematic approach and the implementation of three basic pedagogical conditions: the development of value-motivational readiness; the individualization and differentiation of the academic performance process based on health monitoring and the provision of psychological support; and the creation of an atmosphere of inclusive interaction.

The implementation of these pedagogical conditions, presented as a three-level system, aims to transform physical education in higher education institutions from a mandatory subject into an effective tool for restoring health, preserving human capital, and fully integrating students with disabilities into society.

We see prospects for further scientific research in the area of methodological support for ensuring an adequate level of physical activity among students with disabilities during their studies at higher education institutions.

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PROFESSIONAL COMMUNICATIVE COMPETENCE OF SCIENTIFIC AND PEDAGOGICAL WORKERS: VECTORS OF IMPROVEMENT

Abstract. The article studies relevant vectors for improving the professional communicative competence of scientific and pedagogical workers, taking into account the structure of this competence and the specifics of the modern educational and scientific environment.

In the course of the study, the system-based structural method and the descriptive method were used to elucidate general scientific principles. The theoretical methods of analysis, synthesis, generalization, and concretization were applied to determine the structure of the professional communicative competence, as well as to justify the need for improvement of each of its components. The method of mathematical processing of results was applied at the stage of quantitatively determining the need to improve the components of the communicative competence among scientific and pedagogical workers. Visual methods were used to illustrate the structural approach to the process of improving the professional

communicative competence, graphically represent the quantitative results of the study, and organize the forms and results of the implementation of the components of teachers' communicative competence into tables.

It has been demonstrated that the requirements for the level of teachers' professional communicative competence are independent of their subject specialization. Emphasis is placed on the need to identify relevant vectors for the self-education and non-formal education of scientific and pedagogical staff, aimed at developing skills in oral and written self-presentation, producing high-quality scientific texts, and implementing synchronous and asynchronous remote communication in a professional environment, taking into account contemporary educational challenges. The necessity of applying a structural approach to improving the professional communicative competence of teachers across three sections – scientific, practical, and reflective – is substantiated.

The authors formulate a definition of the concept of "professional communicative competence of scientific and pedagogical workers," and within its structure, five components are identified: linguistic, pragmatic, sociolinguistic, activity-instrumental, and cognitive-motivational. The paper describes a system of work aimed at the targeted improvement of all of the components of teachers' professional communicative competence, with a focus on achieving specific results.

Keywords: communicative competence, communication culture, interdisciplinarity, scientific and pedagogical worker, non-formal education, educational process, professional image, professional competence, reflection, self-analysis, self-correction, self-education, self-presentation, structural approach, Ukrainian literary language.

ПРОФЕСІЙНА КОМУНІКАТИВНА КОМПЕТЕНТНІСТЬ НАУКОВО-ПЕДАГОГІЧНИХ ПРАЦІВНИКІВ: ВЕКТОРИ ВДОСКОНАЛЕННЯ

Анотація. Стаття присвячена дослідженню актуальних векторів удосконалення професійної комунікативної компетентності науково-педагогічних працівників з урахуванням структури цієї компетентності та специфіки сучасного освітньо-наукового середовища.

У процесі дослідження використано системно-структурний та описовий методи для розкриття загальнонаукових положень. Теоретичні методи аналізу, синтезу, узагальнення і конкретизування застосовано для визначення структури професійної комунікативної компетентності, а також для обґрунтування необхідності вдосконалення кожного її компонента. Метод математичного опрацювання результатів застосовано на етапі кількісно-відсоткового визначення потреби у вдосконалення складових комунікативної компетентності науково-педагогічних працівників. Візуальні методи застосовано для відображення структурного підходу до процесу вдосконалення професійної комунікативної компетентності, графічного зображення кількісних результатів дослідження, а також табличної організації форм і результатів реалізації компонентів комунікативної компетентності викладачів.

Доведено, що вимоги до рівня професійної комунікативної компетентності викладачів функціонують безвідносно до їх предметної спеціальності. Акцентовано на необхідності визначення актуальних векторів самоосвіти та неформальної освіти науково-педагогічних працівників, спрямованих на розвиток умінь усної і писемної самопрезентації, продукування якісних наукових текстів, реалізації дистанційної синхронної та асинхронної комунікації у професійному середовищі з урахуванням сучасних освітніх викликів. Обґрунтовано необхідність застосування структурного підходу до вдосконалення професійної комунікативної компетентності викладачів за трьома блоками: науковим, практичним, рефлексивним.

Авторками сформульовано визначення поняття «професійна комунікативна компетентність науково-педагогічних працівників», а в його структурі виокремлено п'ять компонентів: лінгвістичний, прагматичний, соціолінгвістичний, діяльнісно-інструментальний, когнітивно-мотиваційний. Описано систему роботи щодо цілеспрямованого вдосконалення усіх компонентів професійної комунікативної компетентності викладачів з орієнтацією на досягнення конкретних результатів.

Ключові слова: комунікативна компетентність, культура спілкування, міждисциплінарність, науково-педагогічний працівник, неформальна освіта, освітній процес, професійний імідж, професійна компетентність, рефлексія, самоаналіз, самокорекція, самоосвіта, самопрезентація, структурний підхід, українська літературна мова.

INTRODUCTION

The problem formulation. The issue of improving the professional communicative competence of scientific and pedagogical workers (hereinafter referred to as SPWs) today goes beyond mere knowledge of grammatical rules. It is a multifaceted phenomenon that directly correlates with the quality of higher education and the competitiveness of the university. The professional communicative competence of teachers is no longer merely a tool for conveying information; it has become a marker of academic integrity, a means of effective communication in a multicultural environment, an important factor in the quality of the educational process, and the foundation for shaping the professional image of the modern scholar and representing national science in the international scientific discourse. Moreover, the requirements for the level of the professional communicative competence of SPWs apply regardless of their specific field of study.

Traditionally, based on existing scientific findings, the professional activities of scientific and pedagogical staff require mastery of the norms of the modern Ukrainian literary language, specialized terminology, academic writing, and oral scientific speech. The ability to present scientific ideas clearly, logically, and persuasively, to adhere to linguistic standards, and adapt speech to various communicative situations is an essential component of the professional image of a teacher and researcher. At the same time, the results of an analysis of educational practice indicate the emergence of other, no less important, aspects that, through oral and written professional speech, influence the perception of the SPW as a highly qualified specialist by colleagues, consumers of scientific information, and students.

Analysis of recent research and publications. The issue of improving the professional communicative competence of SPWs has become increasingly relevant due to globalization processes in higher education,

digitalization, the growing importance of intercultural communication and academic mobility, and, consequently, the increasing demands on the actual competence characteristics of teachers.

An analysis of the scientific information space has revealed a growing focus among researchers on specific aspects of enhancing the professional communicative competence of SPWs, particularly on teachers' professional pedagogical speech, communication culture (verbal, nonverbal, and remote), diversity of genres, expressions of empathy, proficiency in communication technologies, etc. At the same time, there is currently no consensus among scholars regarding the essence of the concept of "professional communicative competence" or its structure, which, in our opinion, is due to rapid transformational processes in the educational sphere and the emergence of new means and methods of communication.

In this context, I. Kohut's statement regarding "the teacher's professional and pedagogical communicative competence as an integral concept capable of combining linguistic, psychological, and pedagogical meanings" (Kohut, I., 2013) deserves attention. However, the author does not include the information technology component in the structure of the concept, which is significant in contemporary realities. O. Korniiaka places the communicative, speech, informational, technological, psychological, and pedagogical competences on the same level as components of a teacher's professional competence, interpreting the communicative competence in the context of "a combination of communicative knowledge and skills that reflect the goals and outcomes of the communicative activity carried out by the communicator" (Korniiaka, O., 2016, p. 86).

In S. Pochtarov's study, the concept of "communicative competence" encompasses not only communicative but also organizational skills, including empathy, communication culture, and self-control (Pochtarov, S., 2022, p. 20). Scholars unanimously assert that the communicative competence is based on the ability to navigate the complexities of social interaction and overcome anxiety regarding communication. Remote communication is facilitated by modern technical means, which requires selecting those appropriate to the situation and knowing how to use them (Handbook of Communicative Competence, 2008, pp. 290–298, 375).

N. Tkachova, A. Tkachov, V. Baidala, and Ya. Chyrva, when considering the communicative competence in the context of a teacher's professional image, include in its structure "humanistic value orientations, motives, and needs to engage in constructive professional communication, knowledge of the norms and specifics of its implementation with students of various ages, as well as communicative and reflective skills" (Tkachova, N., Tkachov, A., Baidala, V. & Chyrva, Ya, 2025, p. 156).

It is worth emphasizing that in the analyzed studies and many others, the communicative competence is largely viewed unidirectionally: as oral communication from the educator to the learner. At the same time, the professional activities of SPWs also encompass the use of written (handwritten and technology-based) communication, "teacher-to-teacher" and "teacher-to-administration" communication, as well as the production and presentation of texts in the academic and journalistic styles, among other things. This necessitates a somewhat different format for analyzing the professional communicative competence.

Thus, the research conducted to explore the issue of improving the professional communicative competence of scientific and pedagogical staff has confirmed the assumption that a comprehensive study in this area is necessary. The criteria for assessing the formation of professional competencies of future teachers are substantiated in the work "The Criterion and Level Aspect of the Experimental Research into the Effectiveness of the Methodical System of Teaching Ukrainian Language for Professional Purposes," which expands the possibilities of a comprehensive analysis in this direction (Humeniuk, I., Humeniuk, M., 2024). Particular attention should be paid to identifying relevant vectors of self-education and non-formal education for SPWs, aimed at developing skills in oral and written self-presentation, producing high-quality scientific texts, and implementing synchronous and asynchronous remote communication in a professional environment, taking into account contemporary educational challenges.

AIM AND TASKS RESEARCH

Since the content of the professional communicative competence, as summarized in scientific works, encompasses knowledge, abilities, skills, and relevant experience regarding communicative interaction in various professional situations, we consider it necessary to focus on those components of this process that reflect the educational specifics of the present day and, accordingly, are under-researched in the scientific information space. The purpose of the study is to identify relevant directions for improving the professional communicative competence of scientific and pedagogical staff, taking into account the structure of this competence and the specific nature of the modern scientific and educational environments.

The purpose necessitates completing a sequence of specific **tasks**:

1) theoretically justifying the need for a structural approach to improving the professional communicative competence of teachers;

2) specifying and expanding the structure of the professional communicative competence of SPWs;

3) identifying the vectors for actualizing individual components of the professional communicative competence of SPWs in the context of contemporary scientific and educational realities;

4) formulating recommendations regarding the forms and methods for improving the professional communicative competence of SPWs.

RESEARCH METHODS

The course of the research necessitated the use of the system-based structural method and the descriptive method to elucidate general scientific principles. The theoretical methods of analysis, synthesis, generalization, and

concretization were applied to determine the structure of the professional communicative competence, as well as to justify the need to improve each of its components. The method of mathematical processing of results was applied at the stage of quantitatively determining the need to improve the components of the communicative competence of scientific and pedagogical workers. Visual methods were used to illustrate the structural approach to the process of improving the professional communicative competence, to graphically represent the quantitative results of the study, and to organize the forms and results of the implementation of the components of teachers' communicative competence into tables.

RESULTS OF THE RESEARCH

The structural approach allows us to view the professional communicative competence as a complex integrative system (linguistic, speech-related, sociocultural, and pragmatic components), which aligns with the current principles of the competence-based educational paradigm (Humeniuk, I., 2019). A clear distinction between the components of the communicative competence makes it possible to develop each of them in a targeted manner during the professional training or qualification improvement of SPWs. Understanding the structure serves as the foundation for creating pedagogical technologies, methods, and techniques for developing a teacher's professional speech. Furthermore, the structured nature of the competence allows for the identification of criteria, indicators, and levels of its development, which is essential to monitor the quality of professional training. These aspects constitute the external, scientific section for justifying the necessity of applying the structural approach in the context of the research problem.

The practical section is formed by the following prospective outcomes:

1) increased effectiveness of pedagogical interaction, since awareness of the components of the communicative competence contributes to the improvement of pedagogical communication, which directly influences the effectiveness of the educational process;

2) formation of teachers' professional image, since communicative competence is the foundation of pedagogical mastery; therefore, a structural understanding of it helps to purposefully shape the linguistic image of a scientific and pedagogical worker;

3) taking into account the interdisciplinary nature of communication, since the structure of the communicative competence reflects the interconnection of linguistic, psychological, and pedagogical aspects, which ensures a comprehensive approach to professional activity;

4) adaptation to contemporary educational challenges, since in the context of digitalization, academic mobility, and intercultural interaction, a high level of communicative flexibility is required, which can only be developed with a clear understanding of the competence structure.

We believe that the theoretical justification for the structural approach to improving the professional communicative competence of SPWs also includes an internal, reflective section. First, the structural approach contributes to the development of a culture of scientific and pedagogical speech, as well as to the adherence to the norms of academic ethics. Second, awareness of the components of one's own communicative competence enables teachers to engage in reflection, identify gaps, and plan their professional development, thereby contributing to the optimization of the self-development process for specialists.

A visualization of the theoretical rationale for the importance of the structural approach to the process of improving the professional communicative competence of SPWs is presented in Fig. 1.

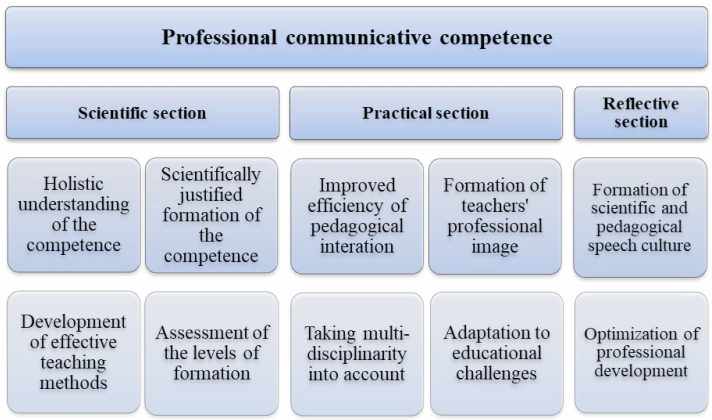


Fig. 1. Structural approach to improving the professional communicative competence of SPWs

The theoretical justification for the necessity of applying the structural approach to understanding the professional communicative competence of SPWs, visualized in Fig. 1, provides grounds for viewing it not as a collection of separate skills, but as a holistic system of interrelated components. It is precisely this interpretation that enables the targeted development, assessment, and improvement of this significant professional quality. At the same time, a theoretical understanding of the competence structure requires a transition to its practical concretization, since only a clear definition of

its components allows for the effective implementation of the competence-based approach in the training and professional practice of teachers.

Traditionally, in educational research, the structure of the communicative competence consists of the following components: emotional (self-awareness, empathy), verbal and logical (analysis, evaluation, memorization, formulation of judgments and conclusions), interactive (sociability, communicativeness), socio-communicative (ethics, organization of communication, behavior in conflict situations), technical (nonverbal communication) (Vtornikova, Yu., 2012); "communication and speech-based, socio-perceptual, and interactive" (Korniiaka, O., 2016, p. 87); "knowledge of communication norms and rules, an appropriate level of speech development based on a deep understanding of linguistic norms, the ability to establish contact with an interlocutor while taking into account gender, age, and sociocultural characteristics, an understanding of nonverbal means of communication, the ability to objectively assess oneself as an interlocutor, selection of an appropriate strategy, etc." (Podanovska, H., 2019, p. 38); "cognitive (discursive, linguistic), communication activity-based (action-oriented), sociocultural" (Kondor, M., 2020, p. 155); motivation and value-based, cognitive, activity-related, personality and emotion-oriented (Volkova, N., & Lebid, O., 2020), and others.

Since SPWs engage in communication in various forms (oral, written, documentary, face-to-face, technologically mediated, synchronous / asynchronous, dialogic / monologic, multi-stylistic) and across various domains (scientific, didactic, organizational, educational, methodological, managerial, etc.), the need to specify and expand the understanding and structure of teachers' communicative competence becomes evident.

The basic and universal structural component of communicative competence is undoubtedly the linguistic (language) component, which involves knowledge of language norms (phonetic, lexical, grammatical, stylistic) and the ability to apply them correctly in speech (Humeniuk, I., 2022, p. 25). Improving this component is a prerequisite for the professional activity not only of teachers of philological disciplines but also of any other subject areas, since speech is a universal tool for learning. Any educational content – whether mathematical, natural science, technical, or artistic – is conveyed through language. Consequently, the accuracy, standardization, and clarity of a teacher's speech directly influence the quality of knowledge acquisition. Vague formulation of concepts, logically unstructured statements, or linguistic errors hinder the understanding of the material regardless of the educational subject. Furthermore, language and thought are closely intertwined: the more precisely a teacher masters linguistic tools, the more clearly they structure and present educational information. This is particularly important for academic disciplines where precision in formulation is essential (mathematics, physics, etc.).

It is also undeniable that the teacher serves as a linguistic model for students. Regardless of their specialization, the teacher shapes the students' linguistic culture: their vocabulary, ability to construct sentences, and adherence to the norms of standard literary language. Thus, an insufficient level of the linguistic competence on the part of the teacher leads to the transmission of linguistic errors in the educational environment. Teachers in various fields are increasingly working within the context of integrated learning, where it is important not only to know the subject matter but also to be able to articulate it clearly and accessibly for diverse audiences.

The pragmatic component of the communicative competence "involves the appropriate use of linguistic and paralinguistic means, taking into account the situation, the circumstances of communication, and the interlocutor's reaction in order to achieve the intended communicative goal" (Humeniuk, I., 2022, p. 30). The teacher must not merely convey information but organize its assimilation: motivate students, stimulate their activity, and guide their thinking. This requires the ability to select appropriate speech strategies (explanation, persuasion, stimulation, correction), which is the essence of the pragmatic competence. Furthermore, the ability to take into account the communication situation, the audience's level of preparation, and the students' psychological state allows the teacher to adapt communication and avoid misunderstandings.

Modern higher education is focused on active and interactive teaching methods. Therefore, organizing discussions, project-related activities, and problem-based learning requires SPWs to be able to simulate communicative situations, maintain dialogue, and manage group interaction, all of which are manifestations of well-developed pragmatic competence. Through well-formulated questions, problem-based situations, and reasoned discussion, the teacher stimulates the students' analytical activity. Online classes, asynchronous learning, and written comments require particular clarity, conciseness, and thoughtfulness in speech acts, which also fall within the realm of the pragmatic competence.

The sociolinguistic component of the professional communicative competence for SPWs involves the ability to take the social context into account. The teacher must be able to select linguistic means while considering status-role relationships (teacher – student, teacher – colleague, teacher – administration representative), the formality of the situation, and the communicative goal. The abilities to express comments appropriately, evaluate learning outcomes, and maintain a constructive dialogue are important components of a teacher's professional culture. The sociolinguistic component also forms the basis for creating a supportive educational environment. Adequately taking into account students' age, social and cultural characteristics and avoiding discriminatory or stylistically inappropriate statements contributes to the formation of an atmosphere of trust and respect. In the context of growing intercultural communication in higher education (academic mobility, foreign students, international projects), a teacher must be able to adapt their speech to different cultural norms and traditions, avoid communication barriers and misunderstandings. The ability to select appropriate linguistic strategies and tactics helps prevent the escalation of conflicts and maintain constructive interaction. Researchers emphasize the age-related aspect of implementing this component. O. Korniiaka, presenting the results of her own research, states: "A decline in the development of the communicative competence in the field of business communication and its individual components was observed among higher education instructors as they age – 40 years and older" (Korniiaka, O., 2016, p. 89). This

occurs “as a result of excessive ‘identification’ of the individual with the profession – a communicative and professional deformation that leads to a lack of energy in pedagogical interaction, inattention to others, authoritarianism, a lack of self-criticism, and especially – a weakening of psychological readiness (or its complete absence) for new professional, including communicative, achievements” (Korniiaka, O., 2016, pp. 89–90).

The activity-instrumental component in the structure of the communicative competence of SPWs emphasizes the implementation of communicative activities using appropriate means and tools. First and foremost, this includes working with various types of texts: producing scientific, educational, and official business (document) texts in compliance with the requirements for standardization, citation, referencing of sources used, and transliteration. The activity-instrumental component also involves the abilities to communicate in a digital environment (platforms, messengers), present scientific and educational products using appropriate digital applications, create electronic educational resources, etc. Closely related to these activities are the skills of technologically correct formatting of printed texts. After all, shortcomings in the linguo-technological aspect distort texts, undermine motivation to work with such texts, and negatively impact the professional image of the teacher (Humeniuk, I., 2018). The activity-instrumental component integrates knowledge and skills into the practical communicative activities (oral and written, direct and indirect) of SPWs, ensuring the effective implementation of all other components (linguistic, sociolinguistic, and pragmatic).

In our view, the cognitive and motivational components of the communicative competence should be considered inseparable from one another as a single cognitive-motivational component, given their obvious interdependence. First and foremost, the cognitive component serves as the content foundation of motivation. Knowledge of linguistic norms, communicative strategies, the psychology of communication, and pedagogical discourse fosters in the teacher an awareness of the importance of effective communication. It is precisely this understanding of the role of speech in the educational process that fosters an internal need to improve one’s own communicative skills. In addition, the cognitive component facilitates reflection and self-regulation of motivation. Awareness of one’s own level of communicative proficiency, as well as analysis of successes or difficulties in communication, contribute to the correction of motivational attitudes and the development of a need for further self-improvement.

The motivational component activates the realization of cognitive potential. Even with a solid foundation of knowledge, a teacher will not always apply it in practice without appropriate motivation. The desire for professional self-development, improving the quality of teaching, and achieving pedagogical effectiveness stimulates the use and deepening of knowledge in real communicative situations.

The interaction between the cognitive and motivational components can be represented cyclically: knowledge → awareness of its significance → motivation to apply → practical implementation → reflection → deepening of knowledge. This cycle ensures the continuous improvement of the communicative competence. As a result, the unity of the cognitive and motivational components determines the level of a teacher’s professional activity. A high level of knowledge combined with intrinsic motivation fosters a creative approach to pedagogical communication, whereas an imbalance between them (for example, knowledge without motivation or motivation without an adequate theoretical foundation) reduces the effectiveness of professional activity.

An empirical study conducted among SPWs in the education sector showed that the majority of respondents need to improve their linguistic component (87.5%). In our opinion, this is related to the specifics of pedagogical activity (non-linguistic), changes in Ukrainian spelling, fragmented linguistic training during the professional education of teachers in non-linguistic specialties, and insufficient attention to linguistic reflection (weakened conscious control over one’s own speech, which reduces its accuracy, logicality, and expressiveness). The quantitative results of the study are presented in the diagram (Fig. 2).

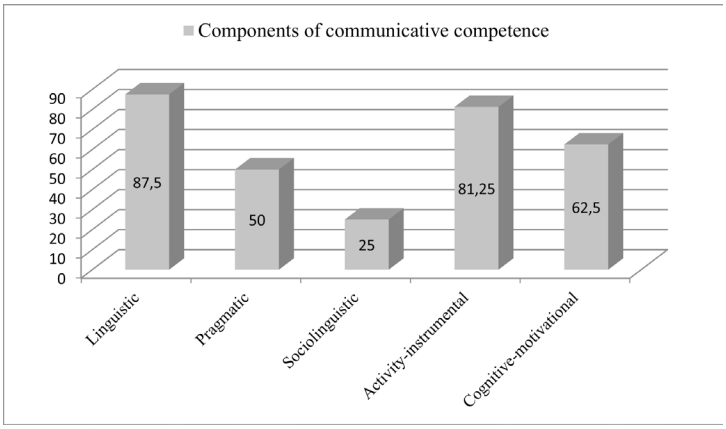


Fig. 2. Results of the study on the need to improve the professional communicative competence of SPWs

A high need for improvement was identified in the activity-instrumental component – 81.25% – that is, in ensuring the practical implementation of communicative activities using appropriate means, tools, and technologies. Ranking first among the analyzed problems are incorrectly formatted texts with linguistic and technological flaws, failure to adhere to citation and source formatting standards, as well as an insufficient level of digital communication skills, which causes

difficulties in the process of developing the teaching and methodological support for educational components, in remote interaction with students, etc.

The cognitive-motivational component was found to be at 62.5%. Some teachers do not view the improvement of their own speech and communicative behavior as a priority for professional growth, focusing primarily on the subject matter of the discipline. Another significant factor is the inertia of professional thinking, particularly the orientation toward traditional, often monological teaching models, which do not stimulate the development of communicative flexibility and innovation. We observe a lack of systemic self-analysis regarding communication and a limited capacity for self-correction.

The need to improve the pragmatic component of scientific and pedagogical workers' communicative competence was identified at a rate of 50.0%. This component involves the abilities to correctly persuade, argue, and motivate students, as well as to adapt communicative scenarios in response to the audience's reactions. Often, these skills are underdeveloped, which complicates the management of the communication process. The pragmatic component is realized through linguistic, sociolinguistic, activity-instrumental, and cognitive-motivational knowledge and skills. If these components are not fully integrated, the effective achievement of communicative goals becomes difficult.

As for the sociolinguistic component, its numerical value is 25%, and such a low result is primarily associated with partial adherence to communication norms, untimely or inappropriate shifts in speech style, and incomplete maintenance of a favorable psychological atmosphere in the communication environment.

Effective implementation of the process of improving the professional communicative competence of SPWs is possible through a comprehensive combination of formal education, methodological work, practical activity, and reflection, which will ensure the continuous professional development of SPWs and the integration of acquired experience into daily scientific and pedagogical practice. Table 1 illustrates the interrelationship between the components of the communicative competence, the forms of their improvement, and the expected outcomes, within the context of which we see opportunities for SPWs to achieve a high level of professional communicative competence.

Table 1

Implementation of the components of SPWs communicative competence: Forms and Results

Component of communicative competence	Forms of improvement	Expected outcomes
Linguistic	*Professional development courses, work with language resources, text editing, scientific and methodological seminars, non-formal education*	*Improvement of linguistic knowledge and literacy, development of professional speech culture, refinement of written and oral communication skills, enhancement of linguistic self-control, and development of an individual speaking style*
Activity-instrumental	*Master classes on working with electronic educational resources, webinars on formatting academic papers and increasing citation rates, online courses, methodological seminars, virtual discussion platforms, and forums*	*Development of digital communication literacy, improvement of the effectiveness of online interaction, and development of practical skills for communication in various formats (oral, written, digital)*
Cognitive-motivational	*Scientific and methodological seminars, conferences, roundtables, experience-sharing presentations, coaching, mentoring, reflective journals, portfolios*	*Fostering motivation for professional self-development, awareness of the role of communication in this process, development of reflective skills, the ability for self-correction, and continuous professional growth.*
Sociolinguistic	*Cross-class visits, intercultural communication training, cultural and educational events*	*Improving skills in adapting speech to different audiences and situations*
Pragmatic	*Trainings, workshops (discussions, case studies), micro-teaching with analysis*	*Development of skills to achieve communicative goals, apply effective communication strategies and tactics, develop dialogue management skills, receive and interpret feedback*

Table 1 illustrates a system for the targeted improvement of all components of the professional communicative competence for SPWs, with a focus on achieving specific outcomes. At the same time, the effectiveness of this process is

ensured by the interaction and integration of the components, as the development of one component indirectly influences the others.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Thus, defining the professional communicative competence of SPWs as a complex personal trait that enables a specialist to effectively implement any communicative strategies for the high-quality performance of professional duties, we identify five components within its structure: linguistic, pragmatic, sociolinguistic, activity-instrumental, and cognitive-motivational. Each of these components requires continuous improvement regardless of the subject-specific activities of the SPW and the specific forms of implementing this process: from formal training (linguistic) to reflective and motivational practices (cognitive-motivational), which ensures comprehensive and purposeful professional development. We see prospects for further scientific research in the creation of a structural and functional model for the formation of the professional communicative competence of SPWs, taking into account the challenges of digitalization, as well as in the study of the relationship between the cognitive-motivational component and scientific-pedagogical effectiveness and professional burnout.

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FUNCTIONAL-STYLISTIC APPROACH TO THE STUDY OF HUTSUL DIALECTAL PREPOSITIONS AND CONJUNCTIONS IN LITERARY DISCOURSE (BASED ON THE DICTIONARY «HUTSUL DIALECTAL LEXIS AND PHRASEOLOGY IN THE UKRAINIAN LITERARY LANGUAGE»)

Abstract. One of the important tasks of modern linguistics is the issue of interaction between the Ukrainian literary language and territorial dialects. The study of the main aspects of this problem makes it possible to more deeply clarify the role of local dialects in the formation and development of the literary language, the foundations of its phonetics, vocabulary, and grammar, as well as the features of its standardization and codification. As research shows, the Hutsul dialect is most extensively recorded in literary texts, apparently due to its vividness and specificity. From this perspective, the functional-stylistic aspect of studying Hutsul dialectisms in fictional texts is of particular interest. In the dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language» a segment of the Hutsul dialect lexicon that has been adopted by fiction and actively used by writers for artistic purposes has been lexicographically processed. Dictionary entries contain information on the semantic characteristics of dialectal words based on their usage in literary texts, along with illustrative examples, which significantly expands the possibilities for studying the interaction between the literary language, literary style, and territorial dialects. The dictionary provides lexicographic treatment not only of lexical (content) words but also of function words, which forms the basis for a comprehensive study of the nature, types, and functional features of Hutsul dialectal grammatical words, as well as their relationships with other parts of speech. Among function words, an important component is constituted by dialectal prepositions and conjunctions, which are the primary focus of this study. The functional-stylistic approach to studying Hutsul dialectal prepositions and conjunctions in the Ukrainian literary language within language and literature education outlines new perspectives for understanding the nature, composition, and essence of these units, and expands knowledge about the prepositional and conjunctive system of the Hutsul dialect, its specificity, and distinctiveness.

Keywords: Hutsul dialectal prepositions and conjunctions; lexicographic processing; innovative technologies; methodological aspects; semantic-grammatical relations; functional-stylistic approach.

ФУНКЦІОНАЛЬНО-СТИЛІСТИЧНИЙ ПІДХІД ДО ВИВЧЕННЯ ГУЦУЛЬСЬКИХ ДІАЛЕКТНИХ ПРИЙМЕННИКІВ І СПОЛУЧНИКІВ У ХУДОЖНЬОМУ ДИСКУРСІ (ЗА МАТЕРІАЛАМИ СЛОВНИКА «ГУЦУЛЬСЬКА ДІАЛЕКТНА ЛЕКСИКА ТА ФРАЗЕМІКА В УКРАЇНСЬКІЙ ХУДОЖНІЙ МОВІ»)

Анотація. Одним із важливих завдань сучасного мовознавства є питання взаємодії української літературної мови та територіальних діалектів. Дослідження основних аспектів цієї проблематики дає можливість глибше з’ясувати роль місцевих говорів у формуванні й розвиткові літературної мови, підґрунтя її фонетики, лексики, граматики, а також особливості її нормалізації та кодифікації. Як засвідчують здійснені дослідження, гуцульський діалект найбільше зафіксований у художніх текстах, очевидно через свою колоритність і специфіку. Цікавим із цього погляду є функціонально-стилістичний аспект вивчення гуцульських діалектизмів у белетристичних текстах. У словнику

«Гуцульська діалектна лексика та фраземіка в українській художній мові» лексикографічно опрацьовано сегмент лексикону гуцульського діалекту, освоєного художньою літературою і затребуваного письменниками для художніх цілей. Словникові статті містять інформацію про семантичну характеристику діалектних слів на основі їх використання в художніх текстах разом із ілюстраціями-прикладами до них, що суттєво розширює можливості дослідження питань взаємодії літературної мови, художньої мови та територіальних діалектів. У зазначеному словникові лексикографічно опрацьовані не тільки самостійні, а й службові слова, що є підґрунтям різнобічного дослідження сутності, типів гуцульських діалектних неповнозначних слів, особливостей їх функціонування, взаємозв'язків з іншими частинами мови тощо. Серед службових слів важливим компонентом виступають діалектні прийменники та сполучники, на які зосереджено основну увагу у нашому дослідженні. Функціонально-стилістичний підхід до вивчення гуцульських діалектних прийменників та сполучників в українській художній мові на заняттях із дисциплін мовно-літературної освітньої галузі окреслює нові перспективи в осмисленні природи, складу, сутності цих одиниць, розширює відомості про прийменниково-сполучникову систему гуцульського говору, її специфіку та своєрідність.

Ключові слова: гуцульські діалектні прийменники та сполучники, лексикографічне опрацювання, інноваційні технології, методичні аспекти, семантико-граматичні відношення, функціонально-стилістичний підхід.

INTRODUCTION

The problem formulation. In contemporary Ukrainian linguistics, the dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language» edited by Vasyl Greshchuk, is considered a unique publication, as it provides a systematic description of the dialectal vocabulary and phraseology of a single region the Hutsul one and traces the functioning of Hutsul dialectisms in literary texts. The dictionary records more than 7,500 units, including individual words, phraseological expressions, proverbs, and etiquette formulas. Each dictionary entry contains not only a definition of meaning but also illustrative material from literary works, which makes it possible to trace the functioning of a word in texts. Such an approach ensures the combination of lexicographic and text-centered principles in describing linguistic material, which significantly increases the scientific and didactic value of the dictionary. The dictionary includes lexicographically processed material not only on full-meaning (content) Hutsul dialectal words but also on function words, in particular prepositions and conjunctions, which function in Ukrainian literary texts on Hutsul themes. The identified Hutsul dialectal prepositions and conjunctions express the same semantic-grammatical relations as their standard literary counterparts and often differ from them only in phonetic form; therefore, their interpretation is carried out through corresponding equivalents and analogues of standard Ukrainian prepositions and conjunctions. The dialectal differentiation of the lexicographically interpreted prepositions and conjunctions is manifested in their phonetic form, as well as in certain semantic-grammatical features. The functional-stylistic approach to the study of such dialectal units in literary discourse contributes to the formation of subject-specific competences in language and literature education, expands knowledge about the linguistic worldview of the Hutsul people, and establishes the main aspects of the typology of relationships between dialect speech and the language of fiction.

REVIEW OF RESEARCH

The effectiveness and prospects of studying the functioning of Hutsul dialectal prepositions and conjunctions in the Ukrainian literary language, as well as their lexicographic processing in the dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language» are confirmed by the linguistic studies of Vasyl Greshchuk and Valentyna Greshchuk (Greshchuk Vasyl, Greshchuk Valentyna, 2024; Greshchuk Vasyl, Greshchuk Valentyna, 2025; Greshchuk Valentyna, 2025). The methodological aspects of the outlined problem are the focus of many Ukrainian scholars. The theoretical foundations of Ukrainian dialectology have been thoroughly developed in the works of S. Bevzenko, who defines a dialect as a historically formed type of language existence that reflects the characteristics of life in a particular region. O. Ponomariv emphasizes that the literary language constantly interacts with dialects, borrowing lexical and stylistic resources from them. In contemporary research, particular attention is paid to the functioning of dialect vocabulary in literary language, which is reflected in the works of V. Greshchuk and his scholarly school. The linguodidactic aspect of the problem is addressed in the works of S. Karaman, who emphasizes the necessity of implementing a competence-based approach to teaching the Ukrainian language and using diverse linguistic resources in the educational process.

PURPOSE OF THE STUDY. The purpose of the article is to identify functional-stylistic approaches to the study of Hutsul dialectal prepositions and conjunctions in the Ukrainian literary language, as well as to highlight the lexicographic processing of such Hutsul dialectal units in the dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language».

Objectives. The objectives follow from the stated purpose – to analyze the use of Hutsul dialectal prepositions and conjunctions in Ukrainian literary language, to present their lexicographic processing in the specified dictionary, to outline innovative approaches to studying the functioning of Hutsul dialectal prepositions and conjunctions in literary discourse.

RESEARCH METHODS

To study Hutsul dialectal conjunctions in the Ukrainian literary language, the following methods were used: the analytical-descriptive method, the comparative-historical method, methods of analysis and synthesis, and techniques of linguistic modeling.

RESULTS OF THE RESEARCH

The relevance of the study is determined by contemporary processes of transformation in language education in Ukraine, which involve not only the formation of linguistic competence and the acquisition of certain norms, but also the development of learners' ability to perceive language as a complex, multi-level, and variable system. Dialect vocabulary emerges as an important component of the linguistic worldview, reflecting the historical development of the Ukrainian

language, its territorial differentiation, and cultural diversity. In the context of the modernization of contemporary Ukrainian education, particular importance is attached to the implementation of innovative approaches to the study of dialect vocabulary using the materials of the dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language». One such approach is the contextual-interpretive method, which involves analyzing dialectisms within the structure of a literary text. The illustrative material of the dictionary makes it possible to study the functioning of a word in a specific context, to determine its semantic nuances, stylistic role, and figurative potential. Equally important is the linguocultural approach, which allows dialect vocabulary to be considered as a reflection of the cultural realities of a particular region. The dictionary contains a significant number of phraseological units, paremias, and etiquette formulas that reflect the traditions, customs, and worldview of the Hutsuls. The analysis of such linguistic material contributes to the formation of learners' cultural competencies. An innovative approach is also the research-based method, which involves independent work with the dictionary: analyzing the structure of dictionary entries, identifying thematic groups of vocabulary, and comparing dialectal and literary equivalents. Such activities develop analytical thinking and form skills in working with scholarly sources, which is particularly relevant within the framework of a competence-based approach to education. A comparative-contrastive approach, which can also be implemented on the basis of the dictionary, enables learners to analyze the relationship between dialectal and literary forms, identify their similarities and differences, and thus contributes to the formation of a systemic understanding of language. The use of digital technologies is of particular importance in the study of dialect vocabulary. Based on dictionary materials, interactive exercises, multimedia projects, and individual mini-dictionaries can be created, which enhances the effectiveness of learning. For example, learners can develop digital dictionaries, interactive dialect maps, or video presentations demonstrating the functioning of dialect vocabulary in contemporary speech. An interesting option could be the interactive game «Visual Dictionary of the Carpathians», the task of which is to identify dialectisms in literary texts using the provided illustrations and literary equivalents, based on the dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language». At the same time, learners have the opportunity to become familiar with the corpus of Hutsul prepositions and conjunctions attested in literary language.

«Prepositions, as analytical function elements, play an increasingly important role in the grammatical system of the modern Ukrainian literary language, acting together with synthetic relational morphemes as the most prominent markers of syntactic connections and semantic-syntactic relations» (Vykhovanets, 1980, p. 3). The same tendency is observed in the prepositions of the Hutsul dialect, which have become the subject of analysis in this study.

According to the materials of the mentioned lexicographic work, more than two dozen Hutsul dialectal (differential) prepositions function in Ukrainian literary language, representing all three semantic types – spatial, temporal, and logical (HSULM, 2017, p. 600).

The Hutsul dialectal preposition *d*, which is semantically closest to the standard Ukrainian preposition *do*, expresses the meaning of the final point of movement (Astafieva, Voronych, 2014, p. 422): <...> *anu, naklykayte meni d'hati drobu* (R. Fedoriv. Zhban vyna, 138); *Ale meni treba ity d'hati.* (M. Ostromyra. Nad bystrym Cheremoshem, 41); <...> *a shi u vesillie uziev i dobru torbu yisty-pyty vinis d'stayentsi* (V. Shkurgan. Maite na uvazi, 178); – *Khody 'd babi, Petryku* <...> (Marko Cheremshyna. Karby, vol. 1, 32); *Khody d'meni, brachchiku!..* (M. Kotsiubynskyi. Tini zabutykh predkiv, 200); *Ty z chym, kazhe, viishov d'meni na poiedynok?* (V. Hzhytskyi. Opryshky, 56); <...> *sho pryishly d'nam do vecheri* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 66); – *Vykhodte d'meni, yimostečku* <...> (H. Khotkevych. Kaminna dusha, 25); *Vsi hlyanuly d pivnochi i zhdaly* (M. Pavlyk. Propashchyi cholovik, 81).

The related dialectal preposition *id* is characterized by the same semantic-syntactic relations: <...> *popry same vorynnia zaidetsia id Reshetarevii tsarynci, vidtak id Fenchukovii, a vidtak pid horu Klotichku* (Marko Cheremshyna. Zlodiia zlovyly, vol. 1, 70); <...> *to porobyv dvi-try nedili ta y ziiishov na tyzhden id hati* (A. Krushelnytskyi. Rubaiut lis, 322); <...> *mozhe, she sy navernet moie sertse id tobi* <...> (H. Khotkevych. Kaminna dusha, 126); // in a carol. *Id tsemu dvoru, id veselomu* (P. Fediuk. Sviata vecheria, 86).

Isolated examples also attest the prepositions *k* and *ik* with the same semantic-syntactic relations as d and id: <...> *a dali yak prypade ik zaliznym gratam* <...> (Yu. Fedkovych. Khto vynen, 279); *Sklonyv zhe vin holovonku / K stolovi na rih* (Yu. Fedkovych. Dezertyr, 54).

The literary language also records the Hutsul spatial preposition *dov*, which expresses the meaning of the limit of an action (Astafieva, Voronych, 2014, p. 454): <...> *tai yshov studenyi moroz po tsilym tili, vyd holovy dov nih* (P. Shekeryk-Donykiv. Dido Ivanchik, 40).

Among Hutsul spatial prepositions, compound forms prevail, which were formed through the fusion of the preposition *pered* ('in front of') with other prepositions of this type, in particular *o, na, cf. opered (operet'), naopered, navpered:* <...> *Vsikh hutsuliv opered zamku sklykat'!* (Yu. Fedkovych. Dovbush, abo Hromovyi topir i znakharskyi khrest, 358); *I tak ya stoiu opered' banhofy* <...> (O. Manchuk. Frantsuz, 34); *Za richkov, naopered' samykh vykon* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 8); *Navpered khaty sydiv na osloni zhorblenyi maister* <...> (Marko Cheremshyna. «Hrushka», vol. 1, 64).

Another group of Hutsul compound prepositions expressing spatial relations is formed by combining the preposition po with other prepositions, however po appears in preposition relative to the other component – *pocheres, pokonets, povid: Iz staroho dvoryshcha pereliz ya pocheres perelaz na Rizhu* (P. Shekeryk-Donykiv. Dido Ivanchik, 10); *Po-cherez ploty ponadvysala chervona kalyna* (Yu. Fedkovych. Opryshok, 322).

The word-formation structure of the compound dialectal preposition *pokonets* is also transparent, as it emerged from the fusion of the preposition *po* and *kinets*' ('end'): *C h o n y i. Ya povedu yoho poza selom: kladkoiu pokonets sela za Cheremosh* <...> (I. Franko. Yak Yura Shykmaniuk briv Cheremosh, vol. 21, 444).

The composite preposition povid indicates an object at a certain distance from which something occurs: <...> *shi polizu na toi kostrubatyi konar', a ty na bilu solodku povid potoka* <...> (V. Shkurhan. Solodki yabluka, 79).

The dialectal preposition *protyv*, used with the genitive case, denotes a person on the opposite side relative to whom an action takes place: <...> *ty, Fedore, kazhe, pidesh z tymy protyv dovhopil'tsiv* <...> (Yu. Fedkovych. Liuba-zghuba, 242). The preposition *latyr* indicates spatial proximity: *Ot yikhav sobi [Yurii] latyr mene ta sumuvav* (Yu. Fedkovych. Liuba-zghuba, 262).

Among dialectal temporal prepositions are *okolo, pislid' (poslid'), zvysh* and *poverez*: *Okolo samoho pidpoludnia rushyv doshch* (D. Kharoviuk. Smert Sorokaniukovoho Yury, 541); <...> *bo pislid' mene bulo yshche shestero ditochok* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 8); *I poslid' toho znav vin* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 28); *Se buv statnyi chorniavyi hutsul, zvysh 40-litnii, uzhe davno zhonatyi* (I. Franko. Hutsulskyi korol, vol. 22, 492); – *A polia poverez piv tyshchi hektariv* (V. Shkurhan. Perekaz, 97).

Logical prepositions express relations of cause, purpose, concession, and correspondence (Vykhovanets, 1980, p. 610). The preposition *zadili* indicates a person for whose sake something occurs: *Shkoda takoi posteli zadili noho* (O. Manchuk. Zarobok, 19); <...> *bo tohdy trokhe slobidniishe bulo v horakh zadili striltsiv* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 159). The prepositions *mist', namist'*, navmist' indicate substitution of someone or something by another: *Mist' pisnei z nykh posoky krovavi d hori b'iut'* (Yu. Fedkovych. Yak to spivak proklynaie, 70); <...> *kazav yomu sebe zadavyty namist' panottsia* <...> (Marko Cheremshyna. Bodai yim put' propala!, vol. 1, 158); <...> *aby mni kolbamy posikly na mak, navmist' tebe* (Marko Cheremshyna. Pomennyk, vol. 1, 135).

In Ukrainian literary language, the Hutsul preposition *navkirky* is attested, indicating a person, object, or phenomenon contrary to which something occurs: *A ya – ya khochu / Liubyty tak, yak khochu! / Hutsulam / Navkirky!* (Yu. Fedkovych. Dovbush, abo Hromovyi topir i znakharskyi khrest, 401); // in comp. *A Kostiuk, yakby navkirky vsim bidnym* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 230).

The simple primary preposition o denotes a phenomenon with respect to which an action takes place: *Koly zh ishche Koltso kazav sobi daty dobroho vyna ta pidpyv sobi, to zabuvsia y o sviti* (M. Pavlyk. Propashchyi cholovik, 51).

In the Hutsul dialect, the preposition *polud*' is attested, used to denote correspondence of an action to something: <...> *to klaly yikh za stiv polud' viku y za tse nikhto ny serdyvsy* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 229).

In literary language, alongside expressive Hutsul prepositions, a number of Hutsul conjunctions are attested. Among them, coordinative conjunctions *a* and *ba* meaning 'and': *Tysiachi a tysiachi usikh otykh kutkiv* <...> (H. Khotkevych. Kaminna dusha, 345–346); *A yasna zoria vse a vse ne skhodyt'* (Yu. Fedkovych. Oskresny, Boian, 48).

The conjunction *ba* is also used as a repeated coordinative conjunction: O*t postiahali z nykh ba korali, ba monestva, ba poiasy, ba baiury* <...> (Yu. Fedkovych. Sertse ne navchyty, 268); *Nebo ba khmarne, ba mrachne* (D. Kharoviuk. Litsytatsiia, 539); <...> *vidty znov pryishov ba hreitsar yakyis', ba pomich vid liudei za vyhodu, shcho pozvoliav braty z lisa ba drov, ba krad'ky vid zlisnoho vsiakoi derevni* (M. Pavlyk. Vykhora, 263).

From the Hutsul coordinative adversative conjunctions, *ba* and *no* 'but' are widely used in Ukrainian literary texts: *Ba, ty meni y taka vdaeshsy* (V. Shkurgan. Ne pershyi raz, 210); *No yak dolia hlohova poranyt tia – hore* <...> (Yu. Fedkovych. Na dorohu, 53). A number of Hutsul dialectal coordinative conjunctions are represented by disjunctive forms, in particular *albo* 'or' and *ba* 'then': *Sprobuemo, chy ne vpryadu prosto v sertse. Albo v oko!* (B. Zahorulko. Chornohora, book 1, 251); *Ya vzhe yakshcho pyty, to albo mohorych, albo zapyty yake dobre dilo...* (Iryna Vilde. Sestry Richynski, book 2, 673); <...> *ale robota vse-taky ye: ba ploty zakladaty, ba peresypaty, ba odno, ba druhe* (Yu. Fedkovych. Liuba-zghuba, 259); *Vytak zachialy skhodytysia do noho lehini to po dva, to po try, ba z innoi kiechiry, ba z druhoi* <...> (H. Khotkevych. Dovbush, 406).

The conjunction *cy* is used when connecting homogeneous members of a sentence and parts of a compound sentence: *Polomyt ty kosti cy zastudyshsia* <...> (M. Yanovskyi. Shtrykhar, 81); – *To chyi budesh: tatova cy mamyna?* (L.-P. Strynadiuk. A kiemuiesh, yek to bulo!, 65).

The repeated conjunction *cy..., cy* intensifies separation in alternation of listed objects, phenomena, actions, or their mutual exclusiveness: *Cy vin koho ubyv, cy ni – ne znaie* (M. Pavlyk. Yurko Kulykiv, 22); *Cy ya, cy susida?* (H. Khotkevych. Kaminna dusha, 8); *Cy ty, Yvanku, z konia vpav, cy ty, Yvanku, vbyvsia?* (B. Zahorulko. Chornohora, book 1, 206); <...> *cy z-pered noho tikaty, cy molytysia, cy plakaty nad yeho vichnym kalitstvom, cy smiiatysy* (O. Manchuk. Sviatyi Yurii, 12).

Another Hutsul coordinative conjunction *ba i* is also used to attach sentence members that add or specify the expressed idea: <...> *parubky, divky, molodytsi, ba i z nashykh khloptsiv bulo kil'ka* (Yu. Fedkovych. Shtefan Slavych, 287); <...> *zvernuly svoi ochi yoho batko i Hershko, ba i Tanasii* (A. Krushelnytskyi. Rubaiut lis, 186).

The dictionary also examines a number of types of Hutsul subordinate conjunctions: abismy, *abi-smy, abi-smo, abi-ste, zheby, nai*, which introduce purpose clauses meaning 'so that': <...> *vzhe ne pryidesh do nas, abismy sy pohovoryly, abi-smy sy rozveselyly* (M. Kozoris. Chornohora hovoryt, 279); *Aby-ste v pamiat uzyaly* (M. Karpenko. Doroha pnes'tsia vhoru, vhoru..., 127); <...> *vizmy moiu bartku, zheby vona ne rzhavila bez boiu, zheby slava opryshkivska ne vmyrala razom zi mnoiu* (R. Fedoriv. Zhban vyna, 309); *Nai, dumaiu, khoch na starosti lit pobachyt liudyna take misto* (M. Stelmakh. Nad Cheremoshem, 15).

Subordinate temporal conjunctions are used with the following meanings: *zaky, zakym, zakiv* ‘while, until’, *kilko* ‘as soon as’, *nakoly* ‘when, as soon as’, *nakoly...to* ‘when... then, as soon as... then’, *nim* ‘before, until’, *pisliad' toho yak* ‘after’, *chim lys...tym* ‘as soon as... then’: *Ta zaky pereishly polovynu dorohy, potemnilo* <...> (R. Yarymovych. Lovy na gotura, 61); *Ta zaky mene vbiut', to kil'kokh z nykh pokladu* (M. Ostromyra, Nad bystrym Cheremoshem, 118); *Zaky yomu se brat rozkazuvav, vyishly sestry z tserkvy* <...> (Yu. Fedkovych. Liuba-zghuba, 245); <...> *pidozhdaty den'-dva, zaky Khudan ne zaghostyt do sela* <...> (I. Berezovskyi. Khudan, 28); *Zaky rozghliavusia u shyrokykh sinyakh* <...> (H. Smolskyi. Oleksa Dovbush, 24); <...> *namahavsia shchos' skazaty, zaky vona rozchavyla yoho glyvkoiu stopoiu* (R. Yendyk. Regit Aridnyka, 23); *Zaky vony spaly, prypasovuiuchy kosti do miakoti* <...> (T. Prokhasko. Neprosti, 35); *Zakym stav hovoryty, to obzyravsia na vsi boky* <...> (Marko Cheremshyna. Pomennyk, vol. 1, 133); *Zakym holovni koliednyky kolieduvaly v popa* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 76); <...> *mene pantruie, / zakiv rostu* (V. Shkurgan. Na didovii pechi oleni b'yut'sia, 36); *Kil'ko misiats' moloden'kyi / Krai moria zomlie* (Yu. Fedkovych. Dezertyr, 169); *Nakoly zachev Dzhyunda kolieduvaty koledu* <...> (P. Shekeryk-Donykiv. Dido Ivanchik, 86); *Ale ya spav malo i nakoly lysh zachelo zoriaty* <...> (O. Manchuk. Frantsuz, 37); <...> *nakoly monastyrski parubky perestaly pidpyraty yii svoimy spivankamy, tilko huhukaly shchos pid nosom, to Yustynu zrazu doreshty pokynula syla y volia...* (M. Pavlyk. Vykhora, 195); *Shchob tebe bula smaha spalyla, nim ya liagla z nym...* (M. Kozoris. Chornohora hovoryt, 250); *By nahadaty, yak kolys' tam bulo, / Nim bozhe slovo z svitlosti ho pkhnulo* (Yu. Fedkovych. Vechir na Pidhir'iu, 44); *Navit' pisliad' toho yak smereka vpala yemu...* (L.-P. Strynadiuk. U nas, hutsuliv, 161); *Ta chim lysh vybih diedia, tym yak ne vdaryt hrim* <...> (H. Khotkevych. Pocherez verkhy, 439).

Among subordinate conditional conjunctions, the following forms are attested: *yik* ‘if’, *kob, koby* ‘if, if only, would that’, *nakoly* ‘when, as soon as’, *sly* ‘if’: <...> *klady na stil, bo yik ty ddyidya takomu lehinykovi* <...> (M. Kozoris. Chornohora hovoryt, 180); *Za taku, yak ty, kob ya buv molodshyi, dushu zaklasty ne poshkoduvav by* (V. Sychevskyi. Vernys, Ruzheno, 202); *Koby ho, Hospody, vkhopylo* <...> (M. Pavlyk. Vykhora, 219); *Koby ty mene liubyv, to mozhe...* (R. Fedoriv. Vesilni vorota, 258); *Koby znav – ne smiv by otak z matiriu rozmovliaty* (V. Sychevskyi. Vernys, Ruzheno, 171); – *Koby shche ochei hrun', shcho za potokom* <...> (A. Krushelnytskyi. Rubaiut lis, 374); <...> *Koby syla, lastovytsieiu poletila b* (S. Skliarenko. Karpaty, book 1, 222); *Koby khoch de pobachytysia, naborzi do sebe vsmiikhnutysia* <...> (O. Kobylianska. «V nediliu rano zillia kopala...», 136); – *Ya by, Mikhailyku, vzhe za tebe don'ku dala, koby-s mav khoch chvertku grunty...* (V. Shkurgan. Lohika, 187); // in Kolomyia songs. *Koby richka ne shyrychka, ya by ne brodyla, / Koby Ihnat ne buv fainyi, ya by ne liubyla* (M. Ostromyra. Nad bystrym Cheremoshem, 47); // in Kolomyia songs. *Koby-m znala, mii mylen'kyi, shcho ya tvoja budu* <...> (M. Yanovskyi. Hirske sertse, 174); // in Kolomyia songs. *Ekh, koby sia buchok rozvyvavsia i ta Chornohora* (V. Hzhytskyi. Opryshky, 199); <...> *ta y zholodniili kolesa vhamuvalysia, nakoly «vkusyly» sukhoho* (V. Shkurgan. Lohika, 184); *A sly pytaty budut', o shcho khodyt* <...> (Yu. Fedkovych. Dovbush, abo Hromovyi topir i znakharskyi khrest, 358).

Literary language also represents concessive conjunctions *nai, khot'* ‘although, even though’: *Nai sho khotia robiie, a ty budesh moieiu* (M. Kotsiubynskyi. Tini zabutykh predkiv, 187); *Khot' Kupalo, khot' Lopushnyk, ale tse ye spravedlyvyi Ivan* (Marko Cheremshyna. Na Kupala, na Ivana, vol. 1, 224).

Among explanatory conjunctions, a single form *cy* is attested in literary language: – *Ne znayu, cy zmozhu* (M. Yanovskyi. Sluzhnytsia, 28); – *Pidu porazhusia z zhinkoiu, cy pozwolyt* (M. Matios. Solodka Darusia, 103).

Comparative conjunctions in literary texts include: *hei, heiby, hyy* ‘as if, as though, like’, *otiek, otik, takyik* ‘as if, as though, supposedly’: *Hora vid toho hudila, zdryhalasia, hei bubon* (M. Yanovskyi. Zarva, 329); <...> *my zbyhlisia, hei ti vivtsi, yak vatah klykne* (A. Krushelnytskyi. Rubaiut lis, 326); *Dovbush dyvyt'sia na hory, hei orel z vysoty khmar* <...> (H. Smolskyi. Oleksa Dovbush, 15); *Ty dykhav, hei viter nad verkhami* <...> (M. Yanovskyi. Vhaduiu tvoiu teku chu dushu, 4); *Hei viter z hir bizhyt, bryniat potoky* (Vira Vovk. Mandrivnyk, 49); – *Koby nevistochku mala, zakvitchala b, heiby sviatkovu yalytsiu* <...> (I. Pil'huk. Pisniu snuie Cheremosh, 173); <...> *kocheietsia shos kruhle, heiby kapschuk* (M. Kotsiubynskyi. Tini zabutykh predkiv, 205); *Tak, heiby rozum vtratyv* (I. Bodnarchuk. Nad Cheremoshem, 25); *A nyni natiahnesh v nediliu take vbrannia, heiby tobi kosivskyi starosta...* (Ya. Stetsiuk. Shumyt Cheremosh, 116); <...> *khaty vyplesnuly, heiby pecherytsi* (R. Fedoriv. Zhban vyna, 21); *Rozpavsia, heiby mzzychkoiu dribnoiu* (Vira Vovk. Horiv Drezden, 47); <...> *a vzhe breshet, hyy pes* (H. Khotkevych. Kaminna dusha, 303); // in comparisons. *A Vasyl upersia, otiek toi tsap* (M. Ostromyra. Nad bystrym Cheremoshem, 27); // in comparisons. *Otik dvi hlyboki kyrnytsi, spekoiu spaleni* (Marko Cheremshyna. «Hrushka», vol. 1, 65); // in comparisons. – *Yabluka rvy pocheres odno, takyik prorivai* (V. Shkurgan. Solodki yabluka, 79).

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Thus, the dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language» records and lexicographically processes a significant segment of the corpus of Hutsul dialectal prepositions and conjunctions. It has been established that, alongside prepositions and conjunctions commonly used in the literary language, there is also a number of such units whose functioning is territorially limited to the area of Hutsul dialects or, in some cases, to adjacent dialectal regions. In texts, Hutsul dialectal differential prepositions and conjunctions perform important functions, including conveying the local color of the Hutsul dialect, ensuring artistic persuasiveness and ethnographic authenticity of the depicted reality, and contributing to the typification of characters’ speech. The study of Hutsul dialectal prepositions and conjunctions based on the materials of the dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language» opens up new opportunities and prospects for understanding the nature, composition, and functioning of these dialectal units. It also complements, expands, and deepens knowledge of the prepositional and conjunctive system of the Hutsul dialect, illustrating and documenting the functional dimension

of dialectal function words. In the context of globalization processes and the rapid development of the information society, the issue of preserving linguistic identity and cultural heritage becomes particularly important. In this regard, the integration of dialect vocabulary into the educational process, especially in classes within the language and literature educational field, is highly relevant. The dictionary «Hutsul Dialectal Lexis and Phraseology in the Ukrainian Literary Language» serves not only as a scholarly publication but also as an effective didactic tool that enables the implementation of innovative approaches to teaching the Ukrainian language. It's use promotes the integration of linguistic and literary knowledge, the development of key competencies, and the formation of a value-based attitude toward the country's linguistic heritage. The implementation of innovative approaches to the study of Hutsul dialect vocabulary, particularly the corpus of dialectal prepositions and conjunctions based on the aforementioned dictionary is a promising direction for the development of language education. This makes it possible to overcome problems associated with the marginalization of dialects, increase the effectiveness of learning, and form in students a holistic understanding of the Ukrainian language as a multifaceted and dynamic system. Prospects for further research may be associated with the development of methodological recommendations for using the dictionary in the educational process, as well as with the creation of new educational resources based on it.

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SIMULATION TECHNOLOGIES IN TEACHING PROFESSIONAL FOREIGN LANGUAGE COMMUNICATION TO MEDICAL STUDENTS

Abstract. The relevance of the research is determined by the growing need to improve the professional foreign language communication of future physicians in the context of the internationalization of medical education, academic mobility, and the widespread use of English-language clinical protocols and scientific resources. Traditional approaches to foreign language teaching do not always ensure the formation of practical communication skills required in authentic professional situations. Therefore, simulation technologies are becoming an effective means of integrating language learning with clinical training.

The purpose of the article is to substantiate the pedagogical potential of simulation technologies in teaching professional foreign language communication to medical students and to determine the methodological features of their implementation in the educational process.

The research employed theoretical analysis, synthesis, generalization and systematization of scientific literature, structural-functional analysis, pedagogical modelling, and interpretation of contemporary educational practices.

The article characterizes the educational potential of role-playing, standardized patients, Objective Structured Clinical Examination, clinical scenarios, team-based simulation, debriefing, digital simulators, and virtual patients. It is established that simulation technologies contribute to the integrated development of linguistic, communicative, clinical, intercultural, and reflective competencies. Particular attention is paid to the methodological organization of simulation-based foreign language instruction, including the stages of preparation, implementation, debriefing, and assessment.

The study concludes that simulation technologies provide effective conditions for integrating language and professional training, enhance students' communicative confidence, develop clinical reasoning, and prepare future physicians for professional interaction in an international medical environment.

Keywords: simulation technologies; medical education; professional foreign language communication; medical students; English for Medical Purposes; Objective Structured Clinical Examination.

СИМУЛЯЦІЙНІ ТЕХНОЛОГІЇ У НАВЧАННІ ПРОФЕСІЙНОЇ ІНШОМОВНОЇ КОМУНІКАЦІЇ СТУДЕНТІВ-МЕДИКІВ

Анотація. Актуальність дослідження зумовлена необхідністю вдосконалення професійної іншомовної комунікації майбутніх лікарів в умовах інтернаціоналізації медичної освіти, академічної мобільності та широкого використання англомовних клінічних протоколів і наукових ресурсів. Традиційні підходи до навчання іноземної мови не завжди забезпечують формування практичних комунікативних умінь, необхідних у реальних професійних ситуаціях. У зв'язку з цим симуляційні технології розглядаються як ефективний засіб інтеграції мовної та клінічної підготовки.

Метою статті є теоретичне обґрунтування педагогічного потенціалу симуляційних технологій у навчанні професійної іншомовної комунікації студентів-медиків та визначення методичних особливостей їх використання.

У дослідженні використано методи теоретичного аналізу, узагальнення, систематизації наукових джерел, структурно-функціонального аналізу, педагогічного моделювання та інтерпретації сучасного педагогічного досвіду.

Охарактеризовано освітній потенціал рольових ігор, стандартизованих пацієнтів, об'єктивного структурованого клінічного іспиту, клінічних сценаріїв, командних симуляцій, дебрифінгу, цифрових симуляторів і віртуальних пацієнтів. Встановлено, що симуляційні технології забезпечують комплексний розвиток мовленнєвої, комунікативної,

клінічної, міжкультурної та рефлексивної компетентностей. Запропоновано методичні рекомендації щодо організації симуляційного навчання професійної англійської мови майбутніх лікарів.

Зроблено висновок, що використання симуляційних технологій забезпечує інтеграцію мовної та професійної підготовки, сприяє розвитку клінічного мислення, професійної комунікації та готовності студентів до ефективної діяльності в міжнародному медичному середовищі.

Ключові слова: симуляційні технології; медична освіта; професійна іншомовна комунікація; студенти-медики; медична англійська мова; об'єктивний структурований клінічний іспит.

INTRODUCTION

The problem formulation. Contemporary medical education is oriented toward a competency-based model of training future physicians, in which professional foreign language communicative competence constitutes an essential component. The internationalization of medical education, academic mobility, the use of English-language clinical guidelines, international scientific publications, and digital resources necessitate the preparation of specialists capable of communicating effectively in English with patients, colleagues, and representatives of the international medical community.

Traditional foreign language instruction does not always ensure a sufficient level of professional communicative competence, as it is often separated from authentic clinical practice. Under these conditions, simulation technologies acquire particular importance, as they enable the modelling of professional situations by integrating language training with the development of clinical reasoning, professional behaviour, and teamwork skills.

The use of role-playing, standardized patients, clinical scenarios, simulation centres, and digital platforms creates a safe educational environment for practising professional foreign language communication. These approaches contribute to the development of communicative skills, professional confidence, and readiness to work in an international medical environment.

Despite the active implementation of simulation-based education in medical training, the use of simulation technologies specifically for developing the professional foreign language communication of medical students has not yet been sufficiently investigated. This determines the relevance of the present study. Its scientific novelty lies in substantiating the pedagogical potential of simulation technologies in teaching professional foreign language communication to medical students and identifying the methodological features of their implementation. The practical significance of the study is associated with the possibility of applying the proposed approaches in teaching the courses Foreign Language for Professional Purposes, Medical English, and in the educational activities of simulation centres.

Analysis of recent research and publications. Simulation-based education has been widely investigated in contemporary international research. The theoretical foundations of standardized patients and simulation methods have been developed in the studies of Barrows, 1993; Cleland, Abe, Rethans, 2009; Nestel, Bearman, 2015. The significance of the Objective Structured Clinical Examination (OSCE) as an instrument for assessing clinical competence was substantiated by Harden, Stevenson, Downie, Wilson, 1975.

The effectiveness of simulation-based learning and its influence on the development of future physicians' professional competence have been demonstrated by Issenberg et al., 2005; Lateef, 2010; McGaghie et al., 2010; Motola et al., 2013; Elendu et al., 2024. The application of digital simulations, virtual patients, and web-based educational technologies has been analysed by Cook, Erwin, Triola, 2010; Cook et al., 2013; Cant, Cooper, 2017; Kononowicz et al., 2019.

The communicative aspect of medical education has been explored by Silverman, Kurtz, Draper, 2013, while interprofessional education has been investigated by Reeves et al., 2017, and the role of debriefing has been highlighted by Cheng et al., 2016. Contemporary requirements for the quality of medical education are reflected in the WFME Global Standards (2023). At the same time, the methodological principles of integrating simulation technologies into the teaching of professional English to future physicians remain insufficiently investigated.

THE PURPOSE OF THE RESEARCH

The purpose of the research is to substantiate the pedagogical potential of simulation technologies in teaching professional foreign language communication to medical students and to identify the methodological features of their implementation in the process of professional language training. To achieve this purpose, the following research objectives were formulated:

1. To analyse contemporary approaches to the use of simulation technologies in medical education.
2. To reveal the essence of professional foreign language communication in the training of future physicians.
3. To characterize the didactic potential of the main types of simulation-based learning.
4. To determine the methodological conditions for the effective implementation of simulation technologies.
5. To develop practical recommendations for integrating simulation technologies into the teaching of professional English in medical education.

RESEARCH METHODS

The study employed a set of complementary research methods to ensure a comprehensive analysis of the problem under investigation. Theoretical analysis, synthesis, generalization, and systematization of scientific literature were applied to determine the current state of research on simulation-based learning and professional foreign language communication in medical education. Structural-functional analysis was used to identify the components of professional foreign language communicative competence and to determine their interrelationships within the educational process. The method of pedagogical modelling was applied to develop methodological recommendations for integrating simulation technologies into the teaching of professional English to medical students. Generalization

of contemporary pedagogical experience made it possible to systematize the educational potential of role-playing, standardized patients, clinical scenarios, team-based simulation, debriefing, digital simulators, and virtual patients.

The interpretation and generalization of research findings were used to formulate the conclusions and identify перспективні directions for the further development of simulation-based foreign language instruction in medical education.

RESULTS OF THE RESEARCH

Simulation-based learning has become one of the leading directions in the modernization of medical education because it effectively combines theoretical instruction with the practical development of professional competencies. It creates a safe educational environment in which students can repeatedly practise clinical procedures, make professional decisions, and improve their communication skills without posing any risk to patients (McGaghie et al., 2010; Elendu et al., 2024).

One of the principal advantages of simulation-based learning is its ability to facilitate the active development of professional communication. During simulated clinical situations, students not only reproduce linguistic material but also apply it to solve authentic professional tasks. Such an approach promotes the development of clinical reasoning, communicative confidence, and readiness for professional interaction in an international medical environment (McGaghie et al., 2010).

Modern simulation technologies include task trainers, high-fidelity manikins, standardized patients, digital simulators, virtual patients, and team-based clinical scenarios. Each of these educational tools contributes to the development of specific components of future physicians' professional competence (Issenberg et al., 2005).

Simulation technologies are particularly valuable in teaching Medical English because they enable students to participate in authentic professional communication, including history taking, patient counselling, interprofessional interaction, participation in multidisciplinary case discussions, and clinical handovers. Consequently, language learning becomes closely integrated with future professional practice, increasing students' motivation and ensuring the practical application of foreign language knowledge.

The competency-based value of simulation-based learning lies in students' active involvement in solving professional problems, making clinical decisions, and reflecting on their own performance. The systematic implementation of simulation technologies contributes to the development of clinical reasoning, professional communication, teamwork, and self-confidence, which are essential components of contemporary medical education.

Professional foreign language communication constitutes an integral component of contemporary medical education. Proficiency in English enables future physicians to communicate effectively with patients, participate in international educational and scientific projects, use up-to-date clinical guidelines, and cooperate within multidisciplinary healthcare teams (O'Dowd, 2018; World Federation for Medical Education, 2023).

In educational research, professional foreign language communication is interpreted as an integrated ability to perform professional interaction in a foreign language in accordance with linguistic, professional, and ethical standards. It encompasses linguistic, communicative, clinical, sociocultural, interprofessional, and reflective components that ensure the effective performance of professional tasks (Nestel et al., 2011; Cant & Cooper, 2017).

The central element of professional foreign language communication is interaction within the doctor–patient relationship. Future physicians should be able to obtain a patient's medical history, explain diagnostic findings, discuss treatment options, demonstrate empathy, and take intercultural aspects of communication into account. At the same time, professional practice requires continuous interaction with other healthcare professionals, which demands accurate use of medical terminology and adherence to internationally accepted standards of clinical communication (Silverman, Kurtz, & Draper, 2013; Reeves et al., 2017).

Simulation technologies play a decisive role in developing these competencies. Unlike traditional language instruction, they provide authentic professional contexts in which English functions as a means of clinical communication rather than merely an academic subject. During simulation activities, students analyse clinical situations, conduct professional dialogues, apply medical terminology, and justify clinical decisions, thereby integrating language learning with professional training.

The diversity of modern simulation technologies makes it possible to achieve different educational objectives depending on the stage of medical training. Some simulation tools primarily develop practical clinical skills, whereas others focus on professional foreign language communication, teamwork, clinical reasoning, and reflective practice. Their combined use ensures the comprehensive development of future physicians' professional competence by integrating language and clinical training. The main types of simulation technologies and their educational potential are presented in Table 1.

Table 1

Types of Simulation Technologies in Medical Education and Their Educational Potential

Type of Simulation Technology	Characteristics	Educational Potential	Example of Use in Teaching Medical English
Task Trainers	Practice of individual clinical procedures and technical skills	Development of procedural and psychomotor skills	Describing and commenting on clinical procedures in English
Standardized Patients	Simulation of authentic doctor–patient interaction	Development of communicative competence	Taking a patient's medical history, explaining diagnosis and treatment
High-Fidelity Manikins	Simulation of physiological responses in realistic clinical scenarios	Development of clinical reasoning and decision-making	Team-based clinical decision-making and emergency communication

Team-Based Simulation	Collaborative performance of multidisciplinary clinical tasks	Development of teamwork and leadership skills	Clinical handovers and interprofessional communication in English
Virtual Reality (VR) and Virtual Patients	Computer-based simulation of clinical situations	Independent learning and digital competence	Virtual consultations and interactive clinical communication
Debriefing	Structured analysis and reflection following simulation activities	Development of reflective competence	Analysis of communication performance and language-related errors

As shown in Table 1, different simulation technologies perform specific educational functions; however, their greatest effectiveness is achieved when they are implemented in combination. The integration of task trainers, standardized patients, team-based simulations, digital platforms, and structured debriefing promotes the simultaneous development of clinical, communicative, and foreign language competencies. Consequently, the comprehensive nature of simulation-based education significantly enhances the professional training of future physicians.

The effectiveness of developing professional foreign language communication largely depends on the use of instructional methods that closely reproduce authentic clinical practice. For this reason, simulation technologies are considered one of the most effective educational approaches in contemporary medical education (Motola et al., 2013).

Role-playing is among the most frequently used simulation methods because it reproduces typical clinical situations, including history taking, patient counselling, explanation of diagnoses, and discussion of treatment recommendations. Such activities foster spontaneous professional speech, clinical reasoning, empathy, and communicative confidence (Nestel & Bearman, 2015).

Another highly effective approach is the use of standardized patients, which provides students with opportunities to practise professional communication under conditions that closely resemble real clinical practice (Barrows, 1993; Cleland et al., 2009).

An important component of contemporary medical education is the Objective Structured Clinical Examination (OSCE), which is widely used to assess the clinical competence of future physicians. OSCE consists of a series of standardized stations, each designed to simulate a specific professional task, such as history taking, physical examination, patient counselling, interpretation of diagnostic findings, or interaction with members of the healthcare team.

In teaching Medical English, OSCE should be regarded not only as an assessment tool but also as an effective instructional strategy. By completing standardized clinical tasks in English, students develop professional medical vocabulary, improve their clinical communication skills, strengthen their ability to justify clinical decisions, and practise professional interaction in situations that closely resemble authentic clinical practice. Furthermore, standardized assessment criteria provide objective evaluation of students' professional foreign language communicative competence and help identify areas requiring further improvement (Harden et al., 1975).

The increasing complexity of contemporary healthcare highlights the importance of team-based simulation. During collaborative simulation activities, students from different medical disciplines coordinate their actions, distribute professional responsibilities, exchange clinical information, and make collective clinical decisions using English as the language of professional communication. Such learning experiences contribute to the development of communicative leadership, professional responsibility, teamwork, and the ability to apply internationally recognized communication frameworks, particularly the SBAR (Situation–Background–Assessment–Recommendation) protocol (Reeves et al., 2017).

An essential component of every simulation session is debriefing. During this stage, students analyse their clinical performance, discuss communication challenges, evaluate the appropriate use of medical terminology, and identify more effective strategies for professional interaction. Debriefing promotes reflective thinking, self-assessment, and self-correction, thereby substantially increasing the educational effectiveness of simulation-based learning (Cheng et al., 2016).

Rapid advances in digital technologies have considerably expanded the possibilities of simulation-based education. Digital simulators enable educators to recreate a wide variety of clinical situations through multimedia resources, interactive learning tasks, and automated feedback. These technologies support individualized learning, repeated practice of clinical scenarios, and objective assessment of students' learning outcomes. Their educational value has become particularly evident with the widespread implementation of blended and distance learning (Cook et al., 2010).

Another promising direction in simulation-based medical education is the use of virtual patients. Interactive digital platforms allow students to complete the entire clinical consultation process—from the patient's initial presentation to diagnosis and treatment planning. While working with virtual patients, future physicians use English in authentic professional contexts, improve clinical dialogue, strengthen professional argumentation, and develop proficiency in international medical terminology. Moreover, these technologies support individualized learning pathways and enable students to accumulate professional experience regardless of the availability of real clinical placements (Kononowicz et al., 2019).

Therefore, contemporary simulation technologies create an integrated educational environment in which professional foreign language communication develops under conditions that closely resemble authentic clinical practice. The combination of traditional simulation methods with digital technologies promotes the integration of linguistic, clinical, and communicative training, fully corresponding to contemporary international standards of medical education.

The effectiveness of developing professional foreign language communication depends not only on the availability of simulation facilities but also on the methodological organization of the educational process. Simulation sessions should integrate linguistic, clinical, and communicative training, ensuring that English functions as a practical tool for professional interaction rather than solely as a subject of study (Motola et al., 2013; McGaghie et al., 2010).

Based on the analysis of contemporary research, a methodological framework for organizing simulation-based Medical English instruction is proposed. The first stage involves defining the learning objectives and selecting an appropriate clinical scenario according to the professional competencies to be developed. Authentic clinical guidelines, international protocols, medical records, and up-to-date medical terminology should be incorporated to ensure the professional relevance of learning activities.

The second stage focuses on preparing students for the simulation. At this stage, learners revise essential medical vocabulary, practise key communicative patterns, and complete short preparatory language activities. Such preparation enables students to participate confidently in subsequent professional interactions conducted in English.

The third stage, which represents the core of the learning process, involves the implementation of the clinical scenario through role-playing, standardized patients, team-based simulations, or OSCE stations. Students communicate in English, justify clinical decisions, interact with patients and healthcare professionals, and apply appropriate medical terminology in realistic professional situations. During this stage, the instructor acts primarily as a facilitator and observer, assessing both professional performance and the level of foreign language communicative competence (Nestel & Bearman, 2015).

The final stage is debriefing, during which students analyse their performance, discuss communicative and clinical difficulties, evaluate the accuracy of professional terminology, and identify strategies for improving both language proficiency and professional communication. This reflective stage plays a crucial role in consolidating learning outcomes and promoting continuous professional development (Cheng et al., 2016).

The educational effectiveness of simulation-based instruction increases considerably when clinical scenarios gradually become more complex. During the early years of medical education, simulations should focus on history taking, primary patient consultations, and explaining treatment recommendations. At senior stages of training, students should participate in multidisciplinary case discussions, clinical handovers, delivery of difficult news, and collaborative clinical decision-making.

Assessment of learning outcomes should be comprehensive and should evaluate students' command of medical terminology, logical organization of professional dialogue, communicative appropriateness, linguistic accuracy, adherence to professional ethics, and effectiveness of interaction with standardized patients and healthcare team members.

The practical implementation of simulation technologies makes it possible to formulate several recommendations for teachers of Medical English in higher medical education institutions. Language instruction should be closely integrated with future professional practice through the use of authentic clinical scenarios, international clinical guidelines, and English-language medical documentation. Clinical simulations should gradually increase in complexity according to students' level of training. Regular debriefing should follow every simulation session, while digital simulators and virtual patients should be actively incorporated into the educational process. Furthermore, interdisciplinary collaboration between language instructors and clinical educators significantly enhances the formation of future physicians' integrated professional competence and prepares them for effective communication in international healthcare settings.

The successful implementation of simulation technologies in teaching professional foreign language communication requires a systematic methodological approach. Each simulation session should be organized according to clearly defined stages that ensure the gradual development of students' linguistic, communicative, and clinical competencies. Such an approach promotes the integration of language learning with professional training, increases the effectiveness of simulation-based instruction, and creates favourable conditions for reflective learning. The proposed methodological framework for organizing simulation-based Medical English instruction is presented in Table 2.

Table 2

Methodological Framework for Organizing Simulation-Based Instruction in Medical English

Stage	Students' Activities	Instructor's Role	Expected Learning Outcomes
Defining learning objectives	Familiarization with learning outcomes and clinical scenario	Formulates learning objectives and selects simulation tasks	Motivation and understanding of learning objectives
Preparatory stage	Revises medical terminology, practises communicative patterns, completes preparatory language tasks	Provides methodological guidance and language support	Readiness for professional communication
Simulation activity	Performs clinical tasks, communicates with patients and healthcare professionals, applies medical terminology	Facilitates learning, observes students' performance, provides support when necessary	Development of professional foreign language communicative competence
Debriefing	Analyses performance, identifies communication difficulties, reflects on learning outcomes	Moderates discussion, provides constructive feedback	Development of reflective skills and self-assessment
Assessment	Evaluates personal achievements and identifies areas for improvement	Assesses clinical performance and communication competence according to established criteria	Planning of further professional development

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The findings of the study confirm that simulation technologies represent an effective pedagogical tool for developing the professional foreign language communicative competence of medical students. Their implementation ensures the integration of language, clinical, and communicative training by creating authentic educational situations in which English is used as a means of professional interaction. Such an approach enhances students' communicative confidence, promotes clinical reasoning, and prepares future physicians for professional practice in an international healthcare environment.

The study substantiates the pedagogical potential of simulation-based learning, identifies the structural components of professional foreign language communicative competence, systematizes the principal simulation methods used in medical education, and proposes a methodological framework for organizing simulation-based Medical English instruction. The proposed recommendations may be applied in teaching Foreign Language for Professional Purposes, Medical English, and other professionally oriented language courses in higher medical education institutions, as well as in the educational activities of simulation centres.

Further research should focus on the experimental verification of the proposed methodology, the development of digital simulation courses, the integration of virtual and augmented reality technologies into Medical English instruction, and the use of generative artificial intelligence for creating adaptive clinical scenarios, personalized learning environments, and intelligent systems for assessing students' professional foreign language communicative competence. These directions correspond to current international trends in the digital transformation of medical education and open new opportunities for improving the quality of future physicians' professional training.

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MODERN TEACHING METHODS IN VOCATIONAL AND HIGHER EDUCATION: THE PROBLEM OF FUNCTIONAL SYSTEMATIZATION

Abstract. The article examines the problem of the functional systematization of modern teaching methods in vocational and higher education. It is established that existing classifications are based on different criteria, including the level of learner activity, the nature of cognitive activity, the technological basis, and forms of instructional organization, which complicates the differentiation between teaching methods, educational technologies, digital tools, and organizational forms of learning. An original functional systematization of modern teaching methods is proposed on the basis of the dominant mechanism of learner activity. Four groups are distinguished: problem-analytical, simulation-and-activity-based, project-and-product-oriented, and interactive-communicative methods. Their functional characteristics and the specific features of their implementation in vocational and higher education are substantiated. Digitalization is conceptualized as a cross-cutting factor that modifies the didactic potential of teaching methods, while digital technologies are regarded as tools for their implementation rather than as a separate classification group. A comparative matrix for the implementation of modern teaching methods is developed according to the dominant learning activity, the nature of professionally oriented tasks, the level of learner autonomy, digital support, and the expected learning outcome. It is established that the specific implementation of teaching methods in vocational and higher education is determined by the nature and complexity of professionally oriented tasks, the level of learner autonomy, and the expected outcomes of learner activity. It is demonstrated that functional systematization enables the organization of modern methodological tools on a unified didactic basis and provides a foundation for the evidence-based selection of teaching methods in accordance with learning objectives, content, and expected learning outcomes.

Keywords: teaching methods; functional systematization; vocational education; higher education; dominant mechanism of learner activity; problem-analytical methods; simulation-and-activity-based methods; project-and-product-oriented methods; interactive-communicative methods; digitalization.

СУЧАСНІ МЕТОДИ НАВЧАННЯ В ПРОФЕСІЙНІЙ І ВИЩІЙ ОСВІТІ: ПРОБЛЕМА ФУНКЦІОНАЛЬНОЇ СИСТЕМАТИЗАЦІЇ

Анотація. У статті досліджено проблему функціональної систематизації сучасних методів навчання в професійній та вищій освіті. Встановлено, що наявні класифікації ґрунтуються на різних критеріях – рівні активності здобувачів, характері пізнавальної діяльності, технологічній основі, формах організації навчання, що ускладнює розмежування методів, освітніх технологій, цифрових засобів і форм організації навчання. Розроблено авторську функціональну систематизацію сучасних методів за домінантним механізмом діяльності здобувача освіти з виокремленням чотирьох груп: проблемно-аналітичних, імітаційно-діяльнісних, проєктно-продуктивних і інтерактивно-комунікативних. Обґрунтовано їх функціональні характеристики та специфіку реалізації у професійній і вищій освіті. Цифровізацію визначено як наскрізний чинник модифікації дидактичних можливостей методів, а цифрові технології – як засоби їх реалізації, що не утворюють самостійної класифікаційної групи. Сформовано порівняльну матрицю реалізації сучасних методів навчання за домінантною навчальною дією, характером професійно орієнтованого завдання, рівнем самостійності здобувача, цифровою підтримкою та очікуваним освітнім результатом. Встановлено, що специфіка реалізації методів у професійній та вищій освіті визначається характером і складністю професійно орієнтованих завдань, рівнем автономності здобувача та очікуваними результатами його діяльності. Доведено, що функціональна

систематизація забезпечує впорядкування сучасного методичного інструментарію за єдиною дидактичною основою та створює підґрунтя для обґрунтованого добору методів відповідно до цілей, змісту й очікуваних результатів навчання.

Ключові слова: методи навчання; функціональна систематизація; професійна освіта; вища освіта; домінантний механізм діяльності; проблемно-аналітичні методи; імітаційно-діяльнісні методи; проєктно-продуктивні методи; інтерактивно-комунікативні методи; цифровізація.

INTRODUCTION

The problem formulation. The current stage of development of vocational and higher education is characterized by a substantial renewal of the instructional repertoire under the influence of digitalization, competency-based and student-centered educational paradigms, changes in the labour market, the proliferation of artificial intelligence technologies, and increasing demands for the professional mobility of specialists. Accordingly, greater importance is being attached to teaching methods that engage learners in active learning, the solution of professionally oriented problems, the modelling of real-life situations, the creation of educational and professional products, collaborative interaction, reflection, and independent decision-making.

At the same time, the expanding range of such methods raises the issue of their systematic scholarly organization. In pedagogical theory and practice, alongside problem-based, research-oriented, project-based, simulation-based, and interactive methods, concepts such as blended and flipped learning, gamification, microlearning, digital platforms, simulators, VR/AR technologies, and artificial intelligence tools are increasingly used. However, these phenomena differ in their didactic nature: some characterize ways of organizing learning activities, whereas others represent educational technologies, models, strategies, or digital tools used to support their implementation. The lack of clear differentiation among these categories complicates the systematization of modern teaching methods and their theoretically grounded selection in accordance with the aims and intended learning outcomes of professional education and training.

This issue is particularly significant in vocational and higher education, where methods bearing the same name may be implemented through different types of learner activity and lead to different learning outcomes. In vocational education, the instructional repertoire is more strongly oriented towards the performance of professional actions, the modelling of workplace processes, and the solution of practice-oriented tasks, whereas in higher education greater emphasis is placed on analytical, research-oriented, project-based, and reflective components of learning. At the same time, digital technologies are becoming increasingly integrated into all types of learning activity; however, their use in itself does not provide sufficient grounds for distinguishing a separate category of teaching methods.

Thus, a contradiction emerges between the expansion and differentiation of the contemporary instructional repertoire in vocational and higher education and the insufficiently defined common didactic basis for its systematization. The use of different classification criteria complicates the comparison of teaching methods, the identification of their functional specificity, and their differentiation from educational technologies, organizational forms of learning, and digital tools. This necessitates the functional systematization of modern teaching methods according to the dominant mechanism of learner activity as the key classification criterion and the learning outcome associated with that mechanism.

Analysis of recent research and publications. The issue of updating and systematizing teaching methods in vocational and higher education has received considerable attention in contemporary pedagogical research. The didactic potential of modern teaching methods and technologies in vocational and higher education has been explored in the works of O. Karpenko, L. Prokopiv, V. Stynska, O. Shamraliuk, and others. These studies substantiate the effectiveness of the case method, problem-based and inquiry-oriented, game-based, project-based, and interactive methods, as well as training technologies aimed at enhancing students' cognitive and practical engagement, professional interaction, and reflection (Stynska, Prokopiv, 2020; Stynska, Karpenko, 2021; Shamraliuk, 2023; Stynska, Basarab, Paska, 2025).

The classification of innovative teaching methods is specifically addressed by A. Boiarska-Khomenko and T. Sobchenko, who systematize them according to the level of student activity, the nature of cognitive activity, their technological basis, and the form of learning organization (Boiarska-Khomenko, Sobchenko, 2025). This multiplicity of criteria reflects the diversity of scholarly approaches; at the same time, it highlights the need to identify a unified didactic basis for the systematization of teaching methods.

International research also confirms the transformation of the methodological repertoire of vocational and higher education. In vocational education, there is a growing emphasis on active, problem-oriented, project-based, collaborative, and digitally supported learning (Noguera Fructuoso et al., 2024), whereas higher education is increasingly characterized by the adoption of student-centred and technology-enhanced pedagogical practices (Suyo-Vega et al., 2024). At the same time, digital transformation encompasses not only technological provision but also organizational and pedagogical changes, which necessitates a clear distinction between teaching methods themselves and the digital tools used to implement them (Castro Benavides et al., 2020).

Thus, existing studies represent diverse approaches to the classification of teaching methods; however, the multiplicity of criteria complicates their coherent functional systematization. The systematization of teaching methods according to a unified didactic basis – the dominant mechanism of student activity – remains insufficiently developed. Such an approach makes it possible to identify their functional specificity and to compare the particularities of their implementation in vocational and higher education.

AIM AND TASKS OF THE RESEARCH

The aim of the study is to theoretically substantiate and carry out a functional systematization of contemporary teaching methods in vocational and higher education according to the dominant mechanism of learner activity, to

identify their functional specificity, and to determine the particularities of their implementation in different educational contexts.

Achieving this aim involves the following objectives: to clarify the essence and defining characteristics of contemporary teaching methods; to substantiate the criterion for their functional systematization and distinguish the corresponding groups of methods; to identify the particularities of implementing these groups in vocational and higher education; to reveal the role of digital technologies as a cross-cutting factor modifying the didactic potential of teaching methods; and to develop a comparative matrix of their implementation in vocational and higher education.

The scientific novelty of the study lies in the development of an original functional systematization of contemporary teaching methods according to the dominant mechanism of learner activity, distinguishing four groups: problem-analytical, simulation-activity-based, project-productive, and interactive-communicative; the substantiation of digitalization as a cross-cutting factor modifying the didactic potential of teaching methods rather than as an independent classification group; and the development of a comparative matrix of their implementation in vocational and higher education according to the dominant learning action, the nature of the professionally oriented task, the level of learner autonomy, digital support, and the expected educational outcome.

RESEARCH METHODS

The study employed a set of interrelated theoretical methods: analysis and synthesis – to examine scholarly approaches to the essence, classification, and application of contemporary teaching methods; comparative analysis – to identify common and distinctive features of their implementation in vocational and higher education; systematization and classification – to organize teaching methods according to the dominant mechanism of learner activity; structural-functional analysis – to establish the relationship between the dominant learning action, the mode of organizing learning activity, and the expected educational outcome; theoretical generalization – to formulate conclusions regarding the functional specificity of contemporary teaching methods and the role of digital technologies in their implementation.

RESULTS OF THE RESEARCH

Our research has shown that contemporary educational transformations are changing not so much the nature of the teaching method itself as its functional role in the educational process. A teaching method is increasingly understood not as a means of transmitting educational information, but as a way of organizing learners' active cognitive, communicative, project-based, and professional-practical activities.

In this context, contemporary teaching methods are interpreted as ways of organizing pedagogical interaction and learners' independent activity aimed at the active acquisition and application of knowledge, solving professionally oriented problems, creating educational and professional products, developing communication and reflection, and fostering the capacity for self-directed learning (Doolittle et al., 2023; OECD, 2019). Their defining characteristics include learner agency, the activity-based nature of learning, professional contextualization, problem orientation, interactivity, practice orientation, variability in approaches to task solving, reflexivity, the possibility of digital support, and a focus on educational outcomes.

Existing classifications of contemporary and innovative teaching methods are based on different criteria, which makes it possible to reveal particular aspects of their application but at the same time complicates their comparison and the clear differentiation among teaching methods, educational technologies, digital tools, and forms of learning organization. In particular, A. Boiarska-Khomenko and T. Sobchenko systematize innovative methods according to the level of learner activity, the nature of cognitive activity, the technological basis, and the form of learning organization (Boiarska-Khomenko, Sobchenko, 2025).

Against this background, the functional systematization of contemporary teaching methods is carried out according to the dominant mechanism of learner activity, understood as the principal mode of learning activity that determines the logic of method application and the expected educational outcome. According to this criterion, four groups of methods are distinguished: problem-analytical, simulation-activity-based, project-productive, and interactive-communicative.

1. Problem-analytical methods. This group includes the case method, problem-search method, partial-search (heuristic) method, method of professional situation analysis, critical incident analysis method, problem-solving method, and other methods in which the dominant activity involves problem analysis, identification of cause-and-effect relationships, generation of alternatives, and selection of a substantiated solution.

The case method involves the analysis of a specific situation requiring the application of theoretical knowledge in order to make a practically significant decision. Its value lies in its professional contextualization: the learner does not reproduce a predetermined answer but compares facts, identifies the problem, evaluates possible alternatives, and substantiates their own position (Stynska, Prokopiv, 2020).

In vocational education, a case should be designed around a specific workplace situation, such as a technological error, equipment malfunction, violation of a work procedure, or the need to select the optimal way of performing an operation. Accordingly, the learning outcome is the ability to make a professionally appropriate decision and implement it in a practical context.

In higher education, the case assumes a more complex problem-analytical character and may involve the integration of knowledge from several disciplines, engagement with alternative perspectives, analysis of scholarly and professional contradictions, argumentation, and prediction of the consequences of a decision.

The problem-search method involves posing a problem task that requires learners to independently search for a way to solve it by formulating the problem, proposing assumptions, selecting and analyzing the necessary information, and substantiating the adopted decision (Stynska, Prokopiv, 2020).

In vocational education, its implementation is primarily associated with solving specific workplace, technological, or practical problems that require the selection of an appropriate mode of professional action.

In higher education, problem-search activity acquires a more analytical and research-oriented character and involves problem formulation, the generation and verification of assumptions, critical analysis of information, comparison of alternative approaches, and substantiation of conclusions. Thus, in both educational contexts, the method is based on the independent search for a way to solve a problem, although it differs in the nature and complexity of the problem task and in the degree of learner autonomy.

The method of professional situation analysis involves examining a real or simulated professional situation, identifying the problem, analyzing its causes and conditions, comparing possible courses of action, and substantiating the optimal solution.

In vocational education, it is primarily focused on the analysis of specific workplace and technological situations, whereas in higher education it addresses complex professional problems requiring the integration of theoretical knowledge, critical analysis, and a reasoned choice of a course of action (Stynska, Prokopiv, 2020).

The critical incident analysis method is based on examining significant cases of professional practice that require clarification of their causes, evaluation of participants' actions, analysis of consequences, and identification of possible alternative responses. The Critical Incident Technique was originally developed by J. Flanagan (Flanagan, 1954) as a procedure for the systematic analysis of significant manifestations of professional behavior; subsequently, critical incident analysis also came to be used in vocational training and pedagogical reflection.

In vocational education, the method is primarily oriented toward the analysis of specific workplace or practical situations, identification of the causes of ineffective or effective actions, and development of an optimal algorithm of professional behavior.

In higher education, critical incident analysis acquires a more reflective and analytical character and is used to interpret complex professional situations, compare alternative solutions, integrate theoretical knowledge with practical experience, and develop critical thinking (Anselmann, 2023).

Thus, within the problem-analytical group, the learning process progresses from an educational problem to a professionally substantiated decision.

2. Simulation-activity-based methods. This group includes the method of professional situation modelling, business game, role-playing game, simulation method, training, and method of practical performance of professional actions. These methods are united by the dominant mechanism of reproducing or modelling professional activity, performing relevant actions under simulated conditions, analysing the results obtained, and adjusting modes of activity.

Training is characterized by an activity-based orientation, group interaction, practical focus, and reflexivity (Shamraliuk, 2023). It facilitates not only the acquisition of modes of professional activity but also their practical application, the receipt of feedback, the analysis of difficulties, and the adjustment of one's own actions (Stynska, Karpenko, 2021).

In vocational education, training-based learning is primarily aimed at practising professional operations, action algorithms, and ways of responding to non-standard workplace situations and may have a production-practical, technical-technological, communicative, or entrepreneurial orientation (Shamraliuk, 2023; Stynska, Basarab, Paska, 2025).

In higher education, training is more strongly oriented towards the development of professional communication, teamwork, leadership and management skills, professional mastery, and reflection (Stynska, Karpenko, 2021).

The simulation-activity-based group also includes business games and role-playing game, whose didactic mechanism involves modelling professional roles, situations, and interactions. In vocational education, they primarily reproduce workplace situations, the distribution of professional functions, and modes of interaction in the work environment; in higher education, they may simulate pedagogical, managerial, project-based, expert, and other types of professional activity that require decision-making and coordination of participants' actions (Stynska, Prokopiv, 2020).

An important place within this group is occupied by the method of professional situation modelling, which involves reproducing the essential characteristics of real professional activity in order to test different modes of action and evaluate their effectiveness. In vocational education, modelling is primarily aimed at practising specific technological operations and workplace scenarios, whereas in higher education it focuses on the analysis of complex professional situations, consideration of alternative decision-making options, and prediction of their consequences.

The didactic potential of simulation-activity-based methods is considerably enhanced through digital simulators, virtual training environments, VR/AR environments, and digital models of professional processes, which make it possible to practise actions repeatedly, analyse errors, and adjust professional behaviour within a controlled and safe educational environment (Stynska, Basarab, Paska, 2025).

3. Project-productive methods. The dominant mechanism of this group is the design, creation, and presentation of a completed educational or professionally oriented product. This group includes the project method, construction (design) method, method of creative productive tasks, as well as the research method in cases where its outcome is a completed research product. Such products may include a model, technological solution, algorithm, methodological development, analytical report, digital resource, prototype, and others.

The project method combines learner autonomy, planning, practical activity, responsibility for the outcome, and its presentation. Projects may be research-oriented, practical, informational, creative, or prognostic in nature (Stynska, Prokopiv, 2020). In vocational education, project activity is primarily aimed at creating a specific professional or technological product, such as a model, an algorithm for performing a task, a technological solution, a digital

resource, or a project for organizing a production process. In doing so, the learner completes the full cycle of activity: from task formulation and planning to implementation, quality control, and presentation of the outcome. In higher education, project activity acquires greater analytical and research complexity and may culminate in the development of research projects, methodological materials, analytical reports, educational models, strategies, digital products, or start-up projects.

The construction (design) method involves developing a structure, model, technology, or mode of activity in accordance with specified requirements and criteria. In vocational education, it is primarily oriented towards designing a material, technological, or production object or process, whereas in higher education it may encompass the design of educational, managerial, research, digital, or organizational models.

The method of creative productive tasks is aimed at the independent creation of a new or modified product on the basis of acquired knowledge and experience. Its implementation involves variability of solutions, independent choice of modes of activity, and substantiation of the resulting product.

Project-productive methods may be combined with elements of design thinking, interdisciplinary project work, and activities in creative laboratories, thereby extending their potential from the performance of a prescribed task to the generation, development, testing, and presentation of a new professional or educational product (Boiarska-Khomenko, Sobchenko, 2025).

4. Interactive-communicative methods. The dominant mechanism of this group is the construction of knowledge, the formation of a professional position, and joint decision-making in the process of interpersonal and group interaction. This group includes the discussion method, debates, brainstorming method, cooperative learning method, peer learning, and other methods involving the active exchange of ideas, argumentation, coordination of positions, and collaborative solution of educational and professional tasks.

The implementation of interactive-communicative methods may be supported by such techniques as Circle of Ideas, Fishbowl, and Take a Position, as well as by pair and small-group work. Circle of Ideas facilitates the sequential presentation and comparison of different approaches to solving a problem; Fishbowl promotes observation, analysis, and evaluation of group interaction; Take a Position develops the ability to substantiate and defend one's own position. Small-group work ensures the distribution of functions, coordination of joint actions, and responsibility for the collective outcome (Stynska, Prokopiv, 2020).

The discussion method is based on the reasoned exchange of positions on a problematic issue and is aimed at developing critical thinking, professional discourse, the ability to substantiate one's own judgments, and the capacity to evaluate alternative viewpoints. In vocational education, discussion is primarily associated with the consideration of workplace situations, ways of performing professional tasks, standards, and alternative modes of professional behaviour; in higher education, it may address complex theoretical, professional, research, and interdisciplinary issues and involve a higher degree of learner autonomy and argumentation.

Debates, as an interactive-communicative method, involve the structured comparison of alternative positions on a problematic issue, their reasoned defence, critical evaluation of opponents' evidence, and formulation of substantiated conclusions. The method contributes to the development of critical thinking, argumentation, communication skills, and the ability to evaluate alternative viewpoints (Andreucci-Annunziata et al., 2023; Gu et al., 2022). In vocational education, debates are particularly appropriate for discussing approaches to performing professional tasks, workplace decisions, and practical problem situations, whereas in higher education they may be aimed at examining complex professional, scientific, ethical, and interdisciplinary issues.

Interactive-communicative methods acquire particular significance in view of the growing role of professional interaction, collaboration, and cooperation in the contemporary professional environment. In vocational education, they are primarily aimed at developing professional communication skills, coordination of actions, and interaction in the workplace environment; in higher education, they focus on the development of reasoned professional discussion, expert and interdisciplinary interaction, collective decision-making, and collaborative design.

The further transformation of the methodological repertoire of vocational and higher education is largely associated with the digitalization of the educational environment, which expands the ways in which teaching methods can be implemented without altering their didactic nature. In this regard, it is methodologically important to distinguish teaching methods themselves from the digital tools used for their implementation. Moodle, Google Classroom, Microsoft Teams, digital whiteboards, VR/AR technologies, simulators, and artificial intelligence systems are tools and environments that provide new opportunities for organizing learners' cognitive and professionally oriented activities. This approach is consistent with studies in which the digital support of professional training is associated with modelling real-world conditions of professional activity, providing access to up-to-date resources, increasing interactivity, and creating a safe environment for practising professional actions (Boiarska-Khomenko, Sobchenko, 2025).

At the same time, a digital tool acquires didactic significance only within the structure of a particular mode of learning activity – problem analysis, modelling of professional action, product creation, or interaction. Therefore, digitalization is considered not as an independent classification group of methods, but as a cross-cutting modifier of their functional potential. Within the problem-analytical group, digital tools support information search and analysis, work with digital cases, and substantiation of decisions; within the simulation-activity-based group, they support the modelling of professional processes and the practising of professional actions; within the project-productive group, they facilitate the design, creation, and presentation of educational and professional products; and within the

interactive-communicative group, they enable synchronous and asynchronous interaction, cooperative activity, and timely feedback.

On this basis, we propose a comparative matrix for the implementation of contemporary teaching methods in vocational and higher education. On this basis, we propose a comparative matrix for the implementation of contemporary teaching methods in vocational and higher education (Table 1).

Table 1

Comparative Matrix for the Implementation of Contemporary Teaching Methods in Vocational and Higher Education

Group of methods	Dominant learning action	Vocational education	Higher education	Level of learner autonomy	Digital support	Key outcome
Problem-analytical	analysis – search for alternatives – substantiation of a decision	solving workplace, technological, and practical problems	analysis of complex professional, scientific, and research problems	medium – high: from analysing a given problem to independently searching for and substantiating a solution	digital cases, databases, information and analytical resources, AI tools	critical and analytical thinking; ability to make substantiated decisions
Simulation-activity-based	modelling – performance – analysis – adjustment of actions	practising professional operations, action algorithms, and workplace scenarios	modelling complex professional roles, situations, and interactions	medium – high: performing, analysing, and adjusting actions in a simulated professional context	digital simulators, virtual training environments, VR/AR environments, digital models	readiness to perform professional actions in changing situations
Project-productive	design – creation – testing – presentation of a product	creation of a professional, technological, or digital product	creation of a research, analytical, educational, digital, or innovative product	high: independent or collaborative planning, implementation, and evaluation of outcomes	digital design environments, collaborative work services, tools for creating and presenting products	project competence, autonomy, ability to create a completed product
Interactive-communicative	interaction – argumentation – coordination of positions	professional communication, cooperation, and coordination of actions in the workplace environment	discussion-based, expert, professional, and interdisciplinary interaction	medium – high: autonomy of one's position in the process of collaborative activity and decision-making	platforms for synchronous and asynchronous interaction, digital whiteboards, collaborative work services	communicative competence, argumentation skills, ability to engage in professional interaction

The proposed matrix demonstrates that the functional specificity of contemporary teaching methods is determined primarily by the dominant mechanism of learner activity, whereas the particularities of their implementation depend on the nature and complexity of the professionally oriented task, the level of learner autonomy, the mode of digital support, and the expected educational outcome. This makes it possible to compare methods not by their formal designation or technological provision, but by the dominant type of activity they organize.

In vocational education, the functional implementation of teaching methods is more closely associated with practice orientation, the performance of professional actions, the practising of algorithms, and the modelling of workplace processes. In higher education, analytical, research, project-based, and reflective components become more pronounced. At the same time, these differences are not absolute: vocational education is increasingly integrating problem-based, research, and project tasks, whereas higher education is strengthening its practical orientation and the connection between learning and real professional situations.

Thus, functional systematization makes it possible to view contemporary teaching methods not as an isolated set of pedagogical innovations, but as interrelated ways of organizing different types of learner activity. The selection and combination of methods should be determined by the aim, content, nature of the professional task, expected learning outcomes, and the level of learner autonomy. This is consistent with the principle of the expedient integration of traditional and innovative methods in accordance with the aim, content, and specific characteristics of educational activity (Stynska, Prokopiv, 2020).

Therefore, the defining characteristic of contemporary teaching methods is not their formal novelty, but their functional correspondence to the nature of learner activity and the expected educational outcome. Such correspondence is manifested in the activation and increasing autonomy of learning activity, the professional contextualization of content,

the integration of knowledge and modes of activity, the development of interaction and reflection, the purposeful use of digital tools, and the transfer of acquired educational experience into professional practice.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The study has demonstrated the relevance of the problem of functional systematization of contemporary teaching methods in vocational and higher education. The expediency of organizing these methods according to the dominant mechanism of learner activity has been substantiated, making it possible to differentiate them by the nature of the dominant learning action and the expected outcome. On this basis, four functional groups have been distinguished: problem-analytical, simulation-activity-based, project-productive, and interactive-communicative methods.

It has been established that the commonality of the functional mechanism does not eliminate the specific features of method implementation in different educational contexts: vocational education is predominantly oriented towards the practical performance of professional actions and the solution of workplace tasks, whereas higher education is characterized by increasing problem complexity, a higher level of analytical engagement, a stronger research orientation, and greater learner autonomy. Digitalization has been substantiated as a cross-cutting modifier of the functional potential of teaching methods, while digital technologies are regarded as means of their implementation that do not constitute an independent classification group.

The developed comparative matrix makes it possible to correlate each group of methods with the dominant learning action, the nature of the professionally oriented task, the level of learner autonomy, digital support, and the key educational outcome.

Prospects for further research are associated with the empirical validation of the proposed functional systematization, refinement of the criteria for assigning individual methods to the identified groups, and substantiation of the pedagogical conditions for their effective combination in vocational and higher education.

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MEDICAL INTERPRETING TRAINING IN UK HIGHER EDUCATION AS A DETERMINANT OF PATIENT SAFETY

Abstract. The relevance of the study is due to the growing linguistic diversity in the UK healthcare system and the increased risk of communication errors in clinical practice, which directly affect patient safety, quality of medical care and treatment outcomes. In the NHS, language barriers remain a significant factor in clinical risks, which highlights the need for high-quality training of medical interpreters in the higher education system. The aim of the article is to analyse the training of medical interpreters in higher education institutions in the UK from the perspective of patient safety and determining the contribution of educational models to the formation of professional competences to minimize communication risks. The research methods include analysis and synthesis of scientific sources on interpreting studies and medical communication, comparative analysis of educational models of interpreter training in the UK, a systematic approach to considering the relationship between education and the healthcare system, as well as content analysis of NHS regulatory documents and university curricula. The scientific novelty lies in the comprehensive consideration of the training of medical interpreters in the UK precisely in relation to patient safety, as well as in the isolation of the competency structure of professional training with an emphasis on the risk-oriented component. The practical significance lies in the possibility of using the results to improve educational programs in interpreting, as well as to develop interprofessional interaction between educational institutions and the healthcare system. The results of the study indicate that the training of medical interpreters in the UK is integrated into the Interpreting Studies programs, is characterized by a combination of research- and practice-oriented approaches, but remains fragmented and insufficiently standardized. This creates a gap between academic training and the real-world demands of the clinical environment, which has direct implications for patient safety.

Keywords: medical interpreting, higher education, UK, NHS, intercultural communication, interpreter training.

НАВЧАННЯ УСНОГО МЕДИЧНОГО ПЕРЕКЛАДУ В СИСТЕМІ ВИЩОЇ ОСВІТИ ВЕЛИКОЇ БРИТАНІЇ ЯК ЧИННИК БЕЗПЕКИ ПАЦІЄНТІВ

Анотація. Актуальність дослідження зумовлена зростанням лінгвістичної різноманітності в системі охорони здоров'я Великої Британії та підвищеним ризиком комунікативних помилок у клінічній практиці, які безпосередньо впливають на безпеку пацієнтів, якість медичної допомоги та результати лікування. У Національній службі охорони здоров'я (NHS) мовні бар'єри залишаються значним фактором клінічних ризиків, що підкреслює необхідність якісної підготовки фахівців у галузі усного медичного перекладу в системі вищої освіти. Метою статті є аналіз підготовки фахівців з усного медичного перекладу у вищих навчальних закладах Великої Британії крізь призму безпеки пацієнтів та визначення внеску освітніх моделей у формування професійних компетентностей для мінімізації комунікативних ризиків. Методи дослідження включають аналіз та синтез наукових джерел з перекладознавства та медичної комунікації, порівняльний аналіз освітніх моделей підготовки перекладачів у Великій Британії, системний підхід до розгляду взаємозв'язку між освітою та системою охорони здоров'я, а також контент-аналіз нормативних документів NHS та університетських навчальних програм. Наукова новизна полягає у всебічному розгляді підготовки медичних перекладачів у Великій Британії саме крізь призму безпеки пацієнтів. Практичне значення полягає в можливості використання результатів для вдосконалення освітніх програм з перекладознавства та усного перекладу, а також для розвитку міжпрофесійної взаємодії між навчальними закладами та системою охорони здоров'я. Результати дослідження свідчать про те, що підготовка фахівців у галузі усного медичного перекладу у Великій Британії інтегрована в програми з перекладознавства та усного перекладу і характеризується поєднанням дослідницьких та практично-орієнтованих підходів.

Ключові слова: усний медичний переклад, вища освіта, Велика Британія, Національна служба охорони здоров'я, міжкультурна комунікація, підготовка перекладачів.

INTRODUCTION

The problem formulation. Effective communication in healthcare is a key determinant of patient safety, quality of care and clinical outcomes. In the multilingual environment of the UK healthcare system, ensuring accurate medical interpreting and language support services is of particular importance as an integral component of safe clinical practice (Hale, S., 2007, p. 260; Yousaf, R., et al., 2025, 7p.). According to the NHS, approximately one million people in the UK have limited English language skills, which significantly increases the risks of misunderstandings during healthcare provision, delays in diagnosis and the prescription of inappropriate treatment. Language barriers are consistently associated with poorer access to healthcare and an increased likelihood of adverse clinical outcomes (Rana, K., 2023).

Within the NHS, patient safety is increasingly conceptualised through the lens of communication risks. Research shows that language barriers can lead to medication errors, incorrect diagnoses, unnecessary diagnostic procedures and, in extreme cases, preventable deaths (Navarro, J., et al., 2016; Yousaf, R., et al., 2025, p. 6). Furthermore, current NHS frameworks for improving healthcare quality highlight that communication difficulties are not only associated with clinical risks but also with systemic inefficiencies, including increased emergency admissions, rising healthcare costs and increased risk of litigation for patient harm (NHS England, n.d.). These risks are compounded when non-professional interpreters are used, including patients' relatives or healthcare staff without appropriate language training, raising serious ethical and safety concerns (Klete□ka-Pulker, M et al., 2021, p. 612).

Despite the availability of interpreting and interpreting services in NHS settings, their use remains uneven. Research shows that professional interpreting services are often undervalued in clinical practice, and healthcare professionals often resort to informal solutions or avoid using interpreters altogether (Rana, K., 2023). This situation highlights a significant gap between policy recommendations and actual healthcare practice, where communication breakdowns continue to pose a threat to patient safety.

In this context, the role of higher education institutions that train future medical interpreters is growing. Universities not only train language specialists, but also indirectly influence patient safety in healthcare systems (Angelelli, C. V., 2004, p. 200). At the same time, educational programs differ significantly in their structure, the level of integration of linguistic training, medical knowledge and practical skills of intercultural communication. This raises the question of how effectively modern training models prepare graduates for the complex requirements of the real clinical environment.

Given the growing recognition of communication as a critical element of patient safety in global healthcare systems, there is a need for a thorough analysis of the organization of medical interpreter training in higher education institutions in the United Kingdom. Understanding these educational practices is important for identifying ways to improve professional training in order to reduce communication-related risks and increase the level of safety and equity in the provision of healthcare.

Despite the growing body of research on the role of language communication in patient safety, there is relatively little systematic research that specifically focuses on the training of medical interpreters in UK higher education institutions in the context of patient safety. Existing research has tended to focus on either general aspects of medical interpreting or the organisation of interpreting services in the healthcare system, with little attention paid to how university education programmes develop competences that are critical to minimising clinical risks (Hale, S., 2007, p. 261; Yousaf, R., et al., 2025, p. 5). Thus, there is a need for a comprehensive analysis of educational models for the training of medical interpreters in the UK from the perspective of their contribution to improving patient safety.

AIM OF THE RESEARCH

The aim of this paper is to analyse the training of medical interpreters in higher education institutions in the United Kingdom from the perspective of patient safety, as well as to determine the role of modern educational models in the formation of professional competences necessary to minimize communication risks in the clinical environment.

To achieve the aim, the following tasks were defined:

1. to analyse the role of language communication in the patient safety system within the NHS;
2. to characterize the place of medical interpreting in the modern healthcare system of the United Kingdom;
3. to investigate the features of the training of medical interpreters within the Interpreting Studies programs;
4. to determine the main models of professional training (research-oriented and practice-oriented);
5. to identify the key competences of medical interpreters in the context of ensuring clinical safety;
6. to analyse the main problems and limitations of the interpreter training system in the United Kingdom;
7. to substantiate the importance of improving educational practices for increasing patient safety.

RESEARCH METHODS

The article uses a set of general scientific and special research methods, including analysis and synthesis to summarize scientific sources on interpreting studies, medical communication and patient safety; comparative analysis to compare different models of training medical interpreters in the UK; a systemic approach to consider interpreter training as a component of a single health and education system; generalization and interpreting to formulate conclusions about the effectiveness of educational models; as well as content analysis of regulatory and academic sources (NHS documentation, university programs and scientific publications) to identify key trends in the field of interpreter training.

RESULTS OF THE RESEARCH

Medical interpreting in the modern healthcare system of the United Kingdom performs a critically important function in ensuring patient safety (Hale, S., 2007, p. 261; Yousaf, R., et al., 2025, p. 5), as it directly affects the accuracy of clinical communication, decision-making and the quality of medical care. Within the NHS, interpreting and language support services are not considered auxiliary services but structural components of the accessibility of medical services.

The relevance of this issue is confirmed by the scale of linguistic diversity in the United Kingdom. NHS England estimates that over one million people in the country have limited English language skills, creating a systemic risk of communication breakdowns in clinical practice (Rana, K., 2023). Language barriers in the healthcare are directly linked to poorer access to primary and specialist care, delayed diagnosis and an increased risk of treatment complications.

Within the clinical safety framework, medical interpreting plays a role in reducing the risks associated with communication errors. Official NHS documents highlight that language barriers are a key factor in patient safety incidents (NHS England, n.d.).

A particularly critical aspect is the role of communication errors as a factor in serious medical incidents. NHS analysis and other patient safety studies show that communication breakdowns between healthcare professionals and patients are regularly reported in clinical incident reports (NHS England, n.d.; Navarro, J., et al., 2016).

The practical consequences of such errors are well illustrated by numerous clinical cases. One of the most famous international examples is the “Intoxicado” case (Angelelli, C. V., 2004, p. 131). Such cases demonstrate that language errors in medicine can have a direct impact on patient survival and quality of life.

In this context, the interpreter in the medical environment performs a much broader role than a purely linguistic one (Hale, S., 2007, p. 67). The modern paradigm of medical interpreting sees the interpreter as a safety mediator.

At the same time, the NHS operates as a de facto multilingual healthcare system, in which interpreting services are essential infrastructure (Care Quality Commission, 2022). Despite the existence of official interpreting services, research and reports indicate that their use in clinical practice is uneven (Rana, K., 2023), sometimes leading to the involvement of non-professional interpreters.

Medical interpreting training in UK higher education institutions is provided within a broader system of Translation Studies and Interpreting Studies programmes, which combine linguistic training, the development of interpreting skills and a gradual specialisation in professional communication, including in the medical context (Рцchhacker, F., 2016, p. 110; Hale, S., 2007, p. 160). Most UK universities do not have separate full-time undergraduate programmes exclusively in medical interpreting; instead, medical specialization is integrated into master’s programmes through separate modules, clinically-oriented courses or practice-oriented components (Kelly, D., 2005, p. 89; Laviosa, S., & Cleverton, V., 2006).

Typical educational trajectories include master’s programs in interpreting, such as MA Translation and Interpreting, MA Interpreting Studies, or more modern options that include a technological component, such as Translation, Interpreting and AI at the University of Surrey, where students master both classical interpreting techniques and digital technologies, including machine translation and terminology management tools (University of Surrey, 2025). Similar programs operate at leading universities, including UCL, University of Leeds, University of Manchester, Newcastle University and Heriot-Watt University, which have established centres of interpreting studies and close links with the professional community (University of Leeds, 2025; University of Manchester, 2026; Newcastle University, 2025; Heriot-Watt University, 2025).

The following types of degree programmes can be distinguished:

1. Translation Studies programmes focus on translation, terminology, localisation and interpreting technology. For example, the MA Translation and Interpreting Studies at the University of Manchester includes modules on localisation, project management, audiovisual interpreting and specialised interpreting for professional areas, including medical and crisis communication (University of Manchester, 2026). Although the medical component is not central, it is often included in the ‘specialised interpreting’ or ‘public service interpreting’ blocks (Hale, S., 2007, p. 29).

2. Interpreting Studies programmes aim at the development of simultaneous and consecutive interpreting, including in institutional contexts (courts, hospitals, civil service) (Рцchhacker, F., 2016, p. 55). Many programmes explore the social, ethical and cognitive aspects of interpreting, including in medical situations (Moser-Mercer, B., 2008, p. 19).

3. In medical/public service interpreting modules, individual components of medical interpreting are usually integrated into wider programmes as specialist modules. For example, at Queen’s University Belfast, the Public Service Interpreting module covers medical, legal and diplomatic contexts, with an emphasis on professional ethics, the role of the interpreter and the management of complex communication situations in hospitals (Council of Europe, 2020; NHS England, n.d.-a). Such modules are the closest to developing the competences of a medical interpreter in an NHS setting.

Educational approaches in the UK demonstrate significant variability between universities, which can be conditionally divided into two models. The first one is the research-oriented model. It is typical for universities with a strong research profile (e.g. UCL, University of Leeds, University of Manchester). It involves a significant number of theoretical courses in interpreting studies, an emphasis on cognitive, sociolinguistic and discursive aspects of interpreting, limited but high-quality practical training (Shaw, S., et al., 2017, p. 128). In this model, medical interpreting is considered rather as part of the broader concept of institutional interpreting or public service interpreting (Hale, S., 2007, p. 34).

Another model is practice-based model which is presented by universities that actively integrate training formats, simulations and collaboration with professional organizations (e.g. Heriot-Watt University, Newcastle University) (Heriot-Watt University, 2025; Newcastle University, 2025). This model is characterized by intensive interpreting practice, simulations of clinical and crisis situations, development of rapid response skills in real-time conditions, use of conference laboratories and role-playing scenarios (Moser-Mercer, B., 2008, p. 19). Practice-based programs better approximate the real conditions of the NHS, where the interpreter must operate under high pressure and limited time (NHS England, n.d.-b).

An important trend is the gradual integration of medical subjects into language and interpreting programs. This is done through medical interpreting modules in public service interpreting courses (Hale, S., 2007, p. 67), the use

of clinical cases, simulation practices, teaching medical terminology and the basics of clinical discourse (Angelelli, C. V., 2004, p. 112). For example, a number of programmes teach students not only to interpret terms, but also to understand clinical logic, which is critical for patient safety (Council of Europe, 2020; NHS England, n.d.-b).

One of the key trends is the development of collaboration between universities and the NHS system, which provides access to real clinical scenarios, involvement of practicing interpreters and doctors, internships in health institutions, development of standards of professional training (NHS England, n.d.-a; NHS England, n.d.-b). At the same time, such collaboration remains uneven, creating a gap between academic training and the real demands of medical practice (Council of Europe, 2020).

Thus, the system of training medical interpreters in the UK is diverse, heterogeneous and embedded within broader interpreting studies programmes (Рцchhacker, F., 2016, p. 78; Hale, S., 2007, p. 67). At the same time, it demonstrates structural heterogeneity in the level of integration of medical competences, which directly affects the readiness of graduates to work in the NHS and, consequently, patient safety (NHS England, n.d.-b).

The training of medical interpreters in the UK is based on a competence-based education approach, within which professional readiness is determined not only by the level of language proficiency, but also by the ability to function effectively in institutional contexts, in particular in the healthcare sector (Shaw, S., et al., 2017, p. 134; Рцchhacker, F., 2016, p. 78). In modern interpreting studies programs, competences are formed through a combination of theoretical training, simulation practice and gradual immersion in professional scenarios, including medical situations that simulate real NHS conditions (Moser-Mercer, B., 2008, p. 27; Hale, S., 2007, p. 67). In the structure of medical interpreter training, five key blocks of competences can be distinguished: linguistic, medical, ethical, intercultural and risk-oriented. Each of them is directly related to the concept of patient safety, as errors in interpreting can lead to clinically significant consequences (World Health Organization, 2019; Karliner, L. S., et al., 2007, p. 729).

The formation of professional competences of medical interpreters in the UK occurs through the integration of linguistic, medical, ethical, intercultural and risk-oriented training (Shaw, S., et al., 2017, p. 134; Рцchhacker, F., 2016, p. 78). This multi-dimensional approach directly impacts the level of patient safety in the NHS.

Linguistic competence is a basic component of interpreter training, but in the medical context it becomes specialized (Mikkelson, H., 2014, p. 165). University programs in the UK include training in skills such as consecutive and simultaneous interpreting, sight interpreting, note-taking and working with terminology databases (Рцchhacker, F., 2016, p. 78).

For example, modules on interpreting include doctor-patient simulations, where students must promptly convey clinically complex information, including symptoms, diagnoses and treatment recommendations. In this context, the role of practice-oriented learning and simulations is emphasized (Moser-Mercer, B., 2008, p. 27).

Medical literacy is a key element of interpreter training, as quality interpreting is impossible without understanding the clinical content of the message (Angelelli, C. V., 2004, p. 131).

Official British and international guidelines also emphasize the need for medical literacy as a component of safe communication in healthcare (World Health Organization, 2019).

Another central component of the professional training of an interpreter in a medical environment is ethical competence (Hale, S., 2007, p. 67; Roberts, R. P., 1997, p. 15). It includes the principles of confidentiality, accuracy and impartiality, which are basic in public service interpreting. The principle of informed consent is particularly important, as the interpreter ensures the patient's full understanding of medical information, which is directly related to the quality of clinical decision-making (Karliner, L. S., et al., 2007, p. 729).

Intercultural competence is critically important in the multinational environment of the NHS (Angelelli, C. V., 2004, p. 131; Hale, S., 2007, p. 67). The interpreter must take into account the cultural characteristics of the perception of illness, pain and the authority of the doctor. A separate modern area of training is the development of risk management competences in medical interpreting. The interpreter in a clinical environment actually performs the function of a safety intermediary, since any error can affect clinical decisions (World Health Organization, 2019; Karliner, L. S., et al., 2007, p. 729).

It should be noted that in current approaches to the training of medical interpreters in the UK, patient safety is not considered as a side effect of training, but as an integrated learning outcome. This concept is consistent with the overall NHS strategy to reduce preventable harm, where communication errors are identified as one of the key factors in clinical incidents (World Health Organization, 2019; Karliner, L. S., et al., 2007, p. 726). In this context, the quality of interpreter training is directly correlated with the ability of future professionals to prevent errors in clinical communication that affect diagnosis, treatment and patient safety.

Despite significant progress in the development of interpreting education in the UK and the gradual integration of public service interpreting components into curricula, the system of training medical interpreters remains fragmented and exhibits a number of structural limitations. These challenges directly affect the readiness of graduates to work in the NHS and, consequently, the level of patient safety, since it is the interpreter who often acts as a critical element in the chain of clinical communication (World Health Organization, 2019; Hale, S., 2007, p. 67).

One of the key problems is the significant variability in the structure and content of interpreting training programs. Leading universities such as UCL, University of Leeds, University of Manchester, Heriot-Watt University offer comprehensive master's programmes in interpreting, but even among them there are significant differences in the degree of specialisation in the medical context (Рцchhacker, F., 2016, p. 78; Shaw, S., et al., 2017, p. 134).

For example, in some programmes medical interpreting is integrated as a separate module within public service interpreting, while in others medical topics are limited to examples in general institutional interpreting courses. This leads to a situation where graduates from different universities have different levels of readiness to work in NHS clinical settings (Hale, S., 2007, p. 67).

In less specialised programmes students may not have systematic experience of working with clinical scenarios, creating a gap between academic training and the real demands of the medical environment.

Despite the extensive use of simulations, students' real-world access to clinical environments remains limited. In most university programmes, practical training takes the form of role-playing or laboratory simulations, while direct immersion in real NHS settings is fragmented (Moser-Mercer, B., 2008, p. 27).

This means that students are often not exposed to the full range of real-world clinical situations, such as:

- multidisciplinary consultations;
- medical emergencies in A&E;
- complex oncology or palliative discussions;
- situations of high emotional burden (trauma-informed communication).

The result is a gap between simulated competence and real-world performance, which is critical from a patient safety perspective (World Health Organization, 2019).

Another significant challenge is the insufficient level of interdisciplinary integration between interpreting faculties and medical schools. In most cases, interpreting programs operate autonomously, without the systematic involvement of medical teachers or joint training modules with future doctors (Bowen, S., 2015; Karliner, L. S., et al., 2007, p. 729).

While interprofessional education (IPE) is actively developing in modern medical education in the UK, interpreting programs are often left out of this process.

At the same time, doctors and medical staff also do not always receive sufficient training in effective interaction with interpreters, which further complicates the three-way communication "doctor-interpreter-patient".

A significant systemic challenge is the lack of a single mandatory standard of competences for medical interpreters at the UK level. Although professional codes exist (e.g. NRPSI), they are not a standard part of university curricula (Hertog, E., & van der Veer, B., 2006, p. 13; Shaw, S., et al., 2017, p. 134).

A particular systemic challenge is the continued use of informal interpreters in clinical settings. Despite NHS policies to use professional interpreters, ad hoc interpreters (relatives, friends or staff) are still used in practice (Kletečka-Pulker, M., et al., 2021, p. 612; Karliner, L. S., et al., 2007, p. 729).

Such practices are particularly common in situations such as emergency medical services (Accident and Emergency – A&E), psychiatric consultations, socially sensitive cases. This poses serious risks to patient safety, including loss or distortion of clinically important information, breach of confidentiality, misinterpretation of symptoms.

Thus, the current system of training of medical interpreters in the UK is characterized by a combination of the high academic level of individual programs with a number of structural limitations. The unevenness of training, insufficient clinical integration, lack of standardization and the persistence of informal interpreting practices create challenges that directly affect the quality of clinical communication and patient safety in the NHS system (Bowen, S., 2001; World Health Organization, 2025).

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Research shows that language barriers in the UK healthcare system remain a significant risk factor for patient safety, leading to diagnostic errors and reduced quality of care. In this context, medical interpreting plays a key role in ensuring the accuracy of clinical communication and supporting safe decision-making.

Medical interpreter training in the UK is mainly provided within the framework of Translation Studies and Interpreting Studies programmes, where the medical component is integrated into general educational modules. Two main models of training have been identified: research-based and practice-based, the latter being closer to real clinical practice.

However, the training system remains heterogeneous and insufficiently standardized, creating a gap between academic education and NHS requirements. Increasing the level of interdisciplinary integration and practical training are key conditions for strengthening patient safety in clinical communication contexts.

Drawing on the UK experience is important for developing global practices in ensuring patient safety and improving healthcare systems internationally.

Prospects for further research include an in-depth study of the effectiveness of different models of training medical interpreters in the UK, as well as a comparative analysis of international educational practices with the aim of developing unified competency standards aimed at improving patient safety in clinical communication.

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Chapter II. HISTORICAL AND PHILOSOPHICAL ASPECTS OF PEDAGOGICAL RESEARCH

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DEVELOPMENT OF MEDICAL SCIENCE AND EDUCATION IN UKRAINE: A HISTORICAL PERSPECTIVE

Abstract. This article provides a comprehensive analysis of the development of medical science and medical education in Ukraine from a historical perspective. Particular attention is paid to the development of medical science in Galicia in the late nineteenth and first third of the twentieth century, when Lviv emerged as one of the leading centers of clinical medicine, sanitary and hygienic science, and medical education. Galicia, in turn, became a region of intensive development of public medical care for children and adults, hygiene, public health, health-promotion initiatives, and related areas. Lviv University, the Shevchenko Scientific Society, the Secret University in Lviv, the Ukrainian Medical Association, the Ukrainian Hygienic Society, the Medical Community Society, the Renaissance Society, and other organizations laid the intellectual foundations for the development of Ukrainian medical science and national medical education, as well as systems of community-based medical care for Ukrainians, widespread health-promotion practices, anti-smoking and anti-alcohol initiatives among children, young people, and adults, and public health education. The article examines the historical continuity of Ukrainian medical science, which subsequently found expression in the activities of the National Academy of Medical Sciences of Ukraine as the country's leading state scientific institution in the field of healthcare.

The study concludes that, by the late nineteenth century, the fundamental principles that remain relevant to contemporary medical education and science in Ukraine had already emerged: the integration of scientific research, clinical practice, and university education; international academic cooperation; interdisciplinary research; the prioritization of preventive medicine; the development of national scientific terminology; academic autonomy; and continuous professional development of physicians. These principles are currently implemented through the activities of the National Academy of Medical Sciences of Ukraine, medical universities, and research institutions.

Keywords: medical education, medical science, National Academy of Medical Sciences of Ukraine, Galicia, history of medicine, history of education, children, adults, medical societies, European integration, healthcare, medical biography, medical pedagogical local history, professional education, university, museum pedagogy.

РОЗВИТОК МЕДИЧНОЇ НАУКИ ТА ОСВІТИ В УКРАЇНІ КРІЗЬ ПРИЗМУ ІСТОРИЧНОГО ДОСВІДУ

Анотація. У статті здійснено комплексний аналіз розвитку медичної науки та медичної освіти в Україні крізь призму історичного досвіду. Особливу увагу приділено становленню медичної науки в Галичині наприкінці XIX – у першій третині XX століття, коли Львів сформувався як один із провідних центрів розвитку клінічної медицини, санітарно-гігієнічної думки та медичної освіти, а Галичина стала простором інтенсивного розвитку системи суспільного медичної опіки дітей і дорослих, гігієни, громадського здоров'я, здоров'язбережувальних ініціатив тощо. Львівський університет, діяльність Наукового товариства імені Шевченка, Таємного університету у Львові, Українського лікарського товариства, Українського гігієнічного товариства, товариства «Медична громада», товариства «Відродження» та ін. заклали інтелектуальні засади розвитку української медичної науки, національної медичної освіти, системи громадської медичної опіки українців, масових здоров'язбережувальних практик, поширення антинікотинової та антиалкогольної ідеї з-поміж дітей, юнацтва та

дорослих, гігієнічного просвітництва. Розкрито історичну тяглість розвитку української медичної науки, що знайшла своє продовження у діяльності Національної академії медичних наук України як провідної державної наукової установи у сфері охорони здоров'я. Зроблено висновок, що вже наприкінці XIX століття сформувалися основні принципи, які залишаються актуальними для сучасної медичної освіти та науки України: інтеграція науки, клінічної практики й університетської освіти; міжнародна академічна співпраця; міждисциплінарність досліджень; пріоритет профілактичної медицини; розвиток національної наукової термінології; безперервний професійний розвиток лікаря, які сьогодні реалізуються в діяльності Національної академії медичних наук України, медичних університетів і науково-дослідних установ.

Ключові слова: медична освіта, медична наука, Національна академія медичних наук України, Галичина, історія медицини, історія освіти, діти, дорослі, товариства, європейська інтеграція, охорона здоров'я, медична персоналістика, медичне педагогічне краєзнавство, професійна освіта, університет, музейна педагогіка.

INTRODUCTION

The Problem Formulation. The development of medical science is one of the key factors determining Ukraine's socioeconomic progress, innovation potential, and national security. Under the contemporary conditions of a full-scale war, the development of biomedical research, clinical science, military medicine, rehabilitation, and the training of highly qualified medical professionals has acquired particular significance for state-building. At the same time, contemporary processes of modernizing the medical education system cannot be considered outside their historical context, since historical experience shapes institutional memory, academic traditions, and scientific schools.

We agree with the view expressed by V. Lazoryshynets and V. Korolenko that "academic medical science will play an important role in Ukraine's post-war recovery by contributing to the development of human potential through improvements in the quality of education, healthcare, and scientific innovation," while its "integration into the national recovery strategy creates the prerequisites for strengthening the labor force and stimulating economic growth." At the same time, "support for scientific research and the development of medical infrastructure are important factors in building a sustainable society and enhancing the country's competitiveness at the international level" (Lazoryshynets & Korolenko, 2025, p. 17).

Ukrainian medical science has a centuries-old tradition of development; however, a particularly significant contribution to the formation of modern medicine was made in Galicia in the late nineteenth and early twentieth centuries. This region became a center for the intensive development of university medicine, public medical care for children and adults, hygiene, public health, and health-promotion initiatives. Lviv University, the Shevchenko Scientific Society, the Secret University in Lviv, the Ukrainian Medical Association, the Ukrainian Hygienic Society, the Medical Community, the Renaissance Society, and other organizations laid the intellectual foundations for the development of Ukrainian medical science and national medical education, community-based medical care for Ukrainians, widespread health-promotion practices, anti-smoking and anti-alcohol initiatives among children, young people, and adults, and public health education (Bilavych et al., 2022; Bilavych & Sultanova et al., 2023; Bilavych & Pantyuk, 2019; Bilavych, 2021).

The contemporary development of Ukrainian medicine is characterized by profound institutional transformations. A leading role in fundamental and applied biomedical research is played by the National Academy of Medical Sciences of Ukraine, which coordinates the activities of specialized research institutes, promotes the development of clinical research and the implementation of innovative treatment technologies, and provides training for highly qualified scientific personnel (Lazoryshynets, 2025).

Reconsideration of historical experience is particularly important in the context of Ukraine's contemporary European integration. The development of the European Higher Education Area, the expansion of academic mobility, the digitalization of education, the implementation of evidence-based medicine, interdisciplinary research, and the principles of open science underscore the need to combine the historical traditions of Ukrainian university medicine with contemporary global trends.

The relevance of this study is also determined by the need for a comprehensive understanding of the historical evolution of medical science as an integral component of the development of the national education system. This perspective corresponds to contemporary research priorities in pedagogy—including the history of pedagogy, professional pedagogy, higher education pedagogy, and comparative education—as well as in the history of medicine and related fields.

AIM OF THE RESEARCH

The aim of this article is to examine the development of medical science and medical education in Ukraine through the historical experience of Galicia in the late nineteenth and early twentieth centuries.

Analysis of Recent Research and Publications. Research into the development of medical science and education in Ukraine is characterized by an interdisciplinary approach, combining issues related to pedagogy, medicine, the historical development of these disciplines, the history of education, social history, and public health policy, among others. Contemporary historiography of this multidimensional problem encompasses several interconnected areas: studies of the internationalization of Ukrainian education and science, including medical education and science (Snitovska, 2023); the development of medical education under conditions of war and crisis (Bilavych et al., 2026; Bilavych & Bilavych, 2025a; Bilavych & Bilawicz, 2025b); the history of public medical care in Galicia from the late nineteenth century through the first third of the twentieth century (Bilavych et al., 2022; Bilavych, Pantyuk, & Slyvka, 2019; Bilavych & Pantyuk, 2018); the formation of Ukrainian medical scientific schools, the development of Ukrainian

medical societies, and regional studies (Bilavych & Bahriy, 2020; Bilavych et al., 2023; Bilavych et al., 2021; Bilavych, Pantyuk, & Slyvka, 2019; Hanitkevych, 2006; Magrlamova, 2019; Savaryn, 2022); Ukrainian medical biography (Hirna, 2025; Nadraga, Holyk, & Nadraga, 2024; Nadraga et al., 2023); the activities of the National Academy of Medical Sciences of Ukraine (Lazoryshynets, 2025); and contemporary transformations of the healthcare system under conditions of European integration and prolonged war (Snitovska, 2023; Bilavych et al., 2025; Bilavych et al., 2026; Bilavych & Bilavych, 2025a; Bilavych & Bilawicz, 2025b).

A particularly important place within pedagogical research is occupied by publications by Magrlamova (2019), Savaryn (2022), Hirna (2025), Nadraga, Holyk, and Nadraga (2024), and Nadraga et al. (2023), which address issues related to the subject of this article. Nevertheless, the development of medical science and education in Ukraine through the historical experience of Galicia requires further investigation.

RESEARCH METHODS

The study employs a combination of general scientific theoretical methods – including systems and structural analysis, retrospective analysis, and content analysis – specialized historical methods, including historical-genetic and comparative methods, and analytical methods, including source analysis and content analysis. This methodological framework enabled a comprehensive examination of the evolution of medical science and education from its centers in Galicia to the contemporary activities of the National Academy of Medical Sciences of Ukraine, while adhering to the principles of historicism and objectivity.

RESULTS OF THE RESEARCH

The late nineteenth and early twentieth centuries constituted one of the most important periods in the development of medical science in the western Ukrainian lands. During this period, Galicia became a powerful intellectual center where European university traditions, the rapid development of the natural sciences, the professionalization of medical practice, and the formation of a Ukrainian national medical community converged. Unlike Dnieper Ukraine, where the development of Ukrainian-language secondary and higher education was significantly restricted by the imperial policies of the Russian Empire, Galicia, as part of the Austro-Hungarian Monarchy, had greater opportunities for the operation of secondary and higher educational institutions, civic and professional societies, and scientific organizations. This facilitated the region's integration into the European scientific community and the active dissemination of modern medical knowledge, including knowledge in the Ukrainian language.

The origins of Ukrainian medical science in Galicia can be traced to the late nineteenth century, when, in 1898, the Medical Commission of the Shevchenko Scientific Society was established. It was the first national scientific institution of Ukrainian physicians and was intended to promote the development of medical sciences. The commission was headed by Yevhen Ozarkevych, a prominent Ukrainian physician, scholar, public educator, and leader of the Ukrainian medical movement. The first medical institution of Ukrainian physicians included not only prominent doctors from Galicia and beyond – Feliks Shchasnyi Selskyi, Petro Sushkevych, Osypa Dakur, Sofiia Morachevska-Okunevska, and Lev Kossak – but also Myron Vakhnianyn from Dnieper Ukraine and specialists from Prague, Vienna, and Przemyśl (Hanitkevych, 2006; Savaryn, 2022).

The key objectives identified by members of the Medical Commission of the Shevchenko Scientific Society included publishing scholarly works in all areas of medicine, creating medical literature in Ukrainian, and developing Ukrainian medical terminology. Yevhen Ozarkevych was particularly concerned with the future development of Ukrainian medical science through the involvement of medical students and a broader circle of practicing physicians in research.

In 1897, the Collection of the Mathematical, Natural History and Medical Section of the Shevchenko Scientific Society published the first scholarly works by Ukrainian physicians, including O. Dakur's “Contribution to the Clinical Diagnosis of Typhoid Fever (Ehrlich Diazo Reaction and Widal Serodiagnosis)” and F. Shchasnyi Selskyi's “On the Mechanics of Normal and Pathological Changes in the Position of the Uterus”, among others. Yevhen Ozarkevych's contribution to the development of public medical care also consisted in bringing medical science as close as possible to the health needs of the Ukrainian population and, conversely, closely linking practical medicine with theoretical knowledge. This approach was embodied in the establishment of the Narodna Lichnytsia (“People's Clinic”) in 1903, which became a foundation for the research activities of Ukrainian physicians (Bibliography of the Collection of the Mathematical, Natural History and Medical Section of the Shevchenko Scientific Society, 2023; Bilavych et al., 2021; Bilavych, Pantyuk, & Slyvka, 2019).

Ozarkevych acquired X-ray and physiotherapy equipment, laboratory equipment, and other medical apparatus in Vienna for the Narodna Lichnytsia. It soon became a center of Ukrainian medical science and developed into a major medical and social project of the first half of the twentieth century (Hirna, 2025; Nadraga, Holyk, & Nadraga, 2024).

The Narodna Lichnytsia was not merely the first Ukrainian hospital; it came to symbolize Ukrainian medicine. It served as a scientific center where Ukrainian medical terminology was developed, published the newspaper Narodne Zdorovlia (“People's Health”), and disseminated sanitary and hygienic knowledge among Ukrainians. In addition, the Ukrainian Medical Association established a Mothers' Consultation Center at the Narodna Lichnytsia, staffed by experienced pediatricians, including Teodoziia Tuna-Nadraga (Nadraga, Holyk, & Nadraga, 2024, p. 370).

Yevhen Ozarkevych's scientific intuition, far-sighted vision, and civic dedication – as well as the combination in one person of a highly erudite scholar, highly qualified practicing physician, outstanding organizer of medical services, dedicated public figure, and author and editor of scholarly and scientific-practical publications—help explain why his achievements remain relevant today. His work offers valuable responses to serious challenges facing Ukraine, including its medical science, under conditions of crisis and full-scale war.

This relevance concerns, above all, the sanitary and hygienic problems addressed by the scholar more than a century ago; his attention to people's living, nutritional, and working conditions; his emphasis on preventing infectious and occupational diseases; and his recognition of the importance of preventive medicine. His work also drew upon and disseminated the methods and achievements of theoretical medicine, biology, microbiology, physiology, biochemistry, physics, chemistry, and physical chemistry. Ozarkevych anticipated the development of evidence-based medicine as a direction of medical science. He attached considerable importance to the natural health resources of the Carpathians, resort areas, mineral springs, and climatotherapy, and advocated the importance and economic benefits of developing "climatic stations" (health resorts) in the Carpathian region, particularly in Hutsulshchyna (Bilavych et al., 2022; Bilavych & Bahriy, 2020).

Ozarkevych is regarded as a founder of Ukrainian scientific medical terminology and one of the pioneers of Ukrainian medical periodicals. His activities extended far beyond clinical practice. He systematically worked on a Ukrainian-language scientific dictionary, initiated publication of the first Ukrainian medical journal, Likarskyi Zbirnyk ("Medical Collection"), actively popularized sanitary and hygienic knowledge among the population, and contributed to the formation of a Ukrainian professional medical community.

Another important figure in the development of Ukrainian medical education and science was Sylvester Drymalyk (1855–1923). Through his tireless work, he distinguished himself in various areas of medical knowledge and practice. He served as the municipal physician of Zhovkva (Lviv region), a member of the Medical Commission of the Shevchenko Scientific Society, co-founder and director of the Ukrainian Medical Association, physician and director of the Narodna Lichnytsia in Lviv, and author of several medical guides for the general public. As an active civic leader, he was involved in the establishment and support of the Narodnyi Dim ("People's House") cooperative in Zhovkva, founded branches of the Prosvita educational society and reading rooms, and supported the establishment of a shelter for war orphans in Lviv, among other initiatives (Hirna, 2025).

Drymalyk's scholarly and educational activities were not limited to his first published work, Medical Advisor in People's Weaknesses (1906) (Dr. S. Drymalyk, 1906), the importance of which is difficult to overestimate. Written in accessible Ukrainian, it described common diseases, their symptoms, treatment methods, and home care before the arrival of a physician. Considerable attention was devoted to personal hygiene, sanitation, proper nutrition, and disease prevention. The book was significant both for the development of Ukrainian medical thought and for public medical education. It was intended for a broad readership as well as for the Ukrainian intelligentsia, who were expected to disseminate medical and preventive knowledge among the population. Copies were distributed free of charge to rural reading rooms, Prosvita societies, and the Silskyi Hospodar ("Peasant Farmer") organization. In 1921, the popular-science educational publication A Medical Guide to All Human Diseases appeared, incorporating the most recent achievements of medical science of the time and contributing significantly to the preservation of the health of the Ukrainian population and the development of Ukrainian medicine (Hirna, 2025).

Drymalyk also made a significant contribution to the development of Ukrainian medical textbooks, thereby supporting the professional training of Ukrainian physicians. In 1926, A Medical Textbook with an Illustrated Supplement was published and used to teach medical students at the Ukrainian Secret University. His work On Venereal Diseases was also important for the development of hygiene, obstetrics, and gynecology and was used in the education of students. In addition, Child Rearing, a guide for young mothers published in 1929, was the first Ukrainian-language publication of its kind (Hirna, 2025).

Drymalyk served as co-editor of Likarskyi Zbirnyk, which represented an important step in the development of Ukrainian medical science and professional terminology. The journal included a terminology section containing German-Ukrainian and Latin-Ukrainian dictionaries of medical terms. This contributed to the systematic formation of Ukrainian scientific medical terminology. Likarskyi Zbirnyk was published in Ukrainian and German, thereby facilitating the integration of Ukrainian medicine into the European scientific community. The publication circulated not only throughout Galicia but was also sent to libraries in Austria-Hungary and other countries. Despite restrictions imposed by the tsarist authorities, copies also reached Dnieper Ukraine. At Drymalyk's initiative, the journal introduced a section entitled "Medical Mail," in which physicians answered readers' questions and provided practical medical advice (Bilavych & Pantyuk, 2018; Bilavych, Pantyuk, & Slyvka, 2019).

Yaroslav Okunevskyi made an important contribution to the development of military medicine. While serving as chief physician of the Austro-Hungarian naval forces, he acquired unique clinical experience. His works contained not only medical observations but also analyses of the organization of military medicine, the sanitary support of armed forces, and the prevention of infectious diseases. Many of the principles he proposed remain relevant to the contemporary system of military medicine in Ukraine (Bilavych et al., 2022).

The Shevchenko Scientific Society played an exceptionally important role in the development of Ukrainian medical science. The establishment of the Medical Commission within its structure was a landmark event in the development of Ukrainian science. The commission was responsible for systematizing medical terminology, publishing scholarly works in Ukrainian, organizing scientific discussions, and disseminating the latest medical advances. It brought together leading Ukrainian physicians of Galicia who sought not only to advance medical science but also to establish Ukrainian as a fully functional language of medical education and research. It was during this period that the foundations of Ukrainian clinical terminology were laid, becoming an important component of the emerging national medical school (Bibliography of the Collection of the Mathematical, Natural History and Medical Section of the Shevchenko Scientific Society, 2023).

By the end of the nineteenth century, medical science in Galicia was increasingly oriented toward disease prevention and public health. Public sanitary education expanded, efforts intensified to combat epidemics of tuberculosis, cholera, typhoid fever, and diphtheria, and vaccination and the organization of medical care in rural areas were improved. Ukrainian physicians actively participated in the work of the Narodna Lichnytsia, the Ukrainian Medical Association, and charitable medical organizations that sought to improve access to healthcare for socially vulnerable groups.

Lviv occupies a special place in the history of medical education and science in Ukraine. One of the oldest university medical traditions in Central and Eastern Europe developed here. Its origins are associated with the establishment of Lviv University in 1661, whose structure included provision for a medical faculty. Despite numerous political and social transformations, changes in the city's political affiliation, and reforms of educational institutions, Lviv's university medical tradition was not interrupted. Instead, it gradually transformed while preserving the scientific, educational, and professional achievements of previous generations (Maglyovany & Hrynovets, 2020).

The modern Danylo Halytsky Lviv National Medical University is the direct heir to this centuries-old Lviv university medical tradition. It continues the traditions of physician training, the advancement of medical science, and the preservation of historical memory concerning the development of medicine in the region. This continuity of educational and scientific traditions ensures the ongoing development of medical education in Lviv, which today is represented by modern institutions of higher medical education, scientific schools, clinical training facilities, and museums.

An important component of preserving the historical and cultural heritage of medical education is museum pedagogy (Bilavych, 2025). University museums are not merely repositories of cultural heritage; they also constitute effective educational environments that contribute to the development of the professional competencies of future physicians. Working with museum exhibits enables students to understand the historical development of medicine and trace the evolution of medical knowledge, therapeutic methods, professional ethics, and the work of prominent physicians. Museums therefore become an important instrument of museum pedagogy, integrating education, research, and the development of professional identity.

The museums of the Danylo Halytsky Lviv National Medical University occupy a particularly important place in History of the Danylo Halytsky Lviv National Medical University, established in 1974 and granted the status of a people's museum in 1987, contains 2,814 collection this process. Their exhibitions reflect more than three centuries of medical education, present the history of the university during different historical periods, and introduce visitors to the contributions of Lviv scholars to the development of medicine. They simultaneously perform research, educational, memorial, and outreach functions (Museums of the Danylo Halytskyi National Medical University, n.d.).

For example, the People's Museum of the History of the Danylo Halytsky Lviv National Medical University, established in 1974 and granted the status of a people's museum in 1987, contains 2,814 collection items and is one of the most important centers for preserving the history of university medical education (see Table 1). Its exhibitions systematically trace the development of the medical faculty and university from the Austrian period to contemporary independent Ukraine, demonstrating the continuity of educational traditions regardless of political change. Particularly valuable are its collections of historical medical instruments, early printed books, archival documents, materials relating to university faculty and alumni, and exhibitions devoted to the Ukrainian medical movement and the struggle for national medical education.

Table 1

Representation of the History of Medical Education and Science in the Exhibitions of the People's Museum of the History of the Danylo Halytsky Lviv National Medical University

Historical stage of medical education	Museum exhibition content	Significance for studying the history of medical education and science
Formation of university medical education (late 18th–early 19th centuries)	Medical Faculty of the Josephine University (1784–1805)	Demonstrates the emergence of university medical education in Lviv and the development of academic physician training.
Development of professional medical education (1817–1875)	Medical-Surgical Institute of the Franciscan University	Illustrates the evolution of practical medical training and the development of clinical medicine.
Formation of pharmaceutical education	Pharmaceutical Department of the Faculty of Philosophy of Lviv University	Highlights the emergence of pharmaceutical education as a component of medical science.
Development of university medical science (1894–1918)	Medical Faculty of Lviv University	Represents the development of medical departments, scientific research, and clinical education.
Medical education during the interwar period	Medical Faculty of Jan Kazimierz University	Reflects the development of university medicine under the Polish state and the integration of European educational traditions.
Medical education during World War II	Lviv State Medical Institute; state medical and medical-natural science courses	Demonstrates the functioning of medical education under occupation regimes and the preservation of professional medical training.

Soviet period of medical education	History of the Lviv State Medical Institute (1939–1991)	Illustrates the development of higher medical education, scientific schools, and the university's clinical infrastructure.
Contemporary period	Danylo Halytsky Lviv National Medical University	Demonstrates the continuity of university traditions and the development of contemporary medical education and science.
History of medical science	Early medical literature; medical instruments of the 19th–20th centuries	Enables visitors to trace the evolution of medical knowledge, technologies, and therapeutic methods.
National dimension of medical education	Galician physicians involved in the national liberation struggle; Ukrainian Secret University	Highlights the role of the Ukrainian medical intelligentsia in the development of national science and education.

Source: Compiled by the author based on Maglyovany and Hrynovets (2020).

Museum exhibitions constitute an important source of information about the origins and development of medical education and science in Lviv. They reflect the principal stages in the development of university medicine, the establishment of medical faculties and professional societies, the evolution of clinical practice and pharmaceutical education, the development of medical instruments, and the formation of the Ukrainian medical community. Museums therefore function not only as repositories of historical artifacts but also as educational and research laboratories that integrate the history of medicine into contemporary educational processes.

CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

Thus, university museums in Lviv represent an important factor in the professional training of future physicians. They establish interdisciplinary connections among history, medicine, culture, and education and contribute to the development of students' historical thinking, professional consciousness, and academic culture. The preservation and educational use of museum collections not only promotes the history of Ukrainian medicine but also ensures the continuity of the traditions of the Lviv medical school, which for more than three centuries has remained one of the leading centers of medical education and science.

A brief analysis of the development of medical science and education in Galicia supports the conclusion that, by the end of the nineteenth century, the fundamental principles that remain relevant to contemporary medical education in Ukraine had already been established. These include the integration of science, clinical practice, and university education; international academic cooperation; interdisciplinary research; the prioritization of preventive medicine; the development of national scientific terminology; academic autonomy; and continuous professional development of physicians. These principles are now implemented through the activities of the National Academy of Medical Sciences of Ukraine, medical universities, and research institutions. They are acquiring new dimensions in the context of the digital transformation of education, the development of evidence-based medicine, international research cooperation, and Ukraine's integration into the European Research Area. Thus, the historical experience of Galicia is not merely an object of historical inquiry but also an important methodological resource for the modernization of contemporary medical science and education.

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THE FUNCTIONAL POTENTIAL OF UKRAINIAN FOLK EMBROIDERY IN THE PROCESSES OF IDENTIFICATION AND COMMUNICATION IN THE CONTEMPORARY SOCIO-CULTURAL SPACE

Abstract. The relevance of the research topic. In the context of contemporary social transformations, the intensification of globalisation processes and the need to preserve national identity, the study of the traditional cultural values of the Ukrainian people takes on particular significance. Ukrainian embroidery is not only an element of folk art, but also an important means of representing the national identity, historical memory and spiritual heritage of Ukrainians.

Aim of the study. To investigate the role of Ukrainian embroidery as a key artistic component of traditional national dress in the processes of forming the national consciousness of Ukrainians, strengthening social communication, and consolidating and uniting the people in the context of Ukraine's contemporary nation-building.

Research methodology. The theoretical and methodological basis of the study consists of methods of analysis, synthesis, generalisation and systematisation of scientific sources and factual material.

Scientific novelty. The article highlights the significance of Ukrainian embroidery as a factor in the national self-identification and cultural unity of the Ukrainian people. The mechanisms of national identity formation through traditional rituals and folk culture are analysed. The regional specificity of traditional Ukrainian clothing, the characteristics of ornamental motifs, symbolism and embroidery techniques, as well as their influence on the worldview, mentality and national consciousness of Ukrainians, are outlined.

Conclusions. Ukrainian traditional clothing is an important cultural and artistic heritage of the people, within which embroidery occupies a special place as a symbol of ethno-cultural heritage and a carrier of socio-cultural information. An embroidered shirt is one of the key functional and symbolic elements of Ukrainian attire, reflecting the level of cultural development of society, the characteristics of communicative behaviour, an individual's social status and their affiliation with a particular social group. At the same time, it represents a system of moral values, traditions and ethnic concepts that form the national identity of the Ukrainian people.

Keywords: Ukrainian embroidery, traditional Ukrainian clothing, folk costume, Ukrainian nation, embroidery techniques, ornamental motifs, symbolism, national self-identification, Ukrainian culture.

ФУНКЦІОНАЛЬНИЙ ПОТЕНЦІАЛ УКРАЇНСЬКОЇ НАРОДНОЇ ВИШИВКИ У ПРОЦЕСАХ ІДЕНТИФІКАЦІЇ ТА КОМУНІКАЦІЇ В СУЧАСНОМУ СОЦІОКУЛЬТУРНОМУ ПРОСТОРІ

Анотація. В умовах сучасних суспільних трансформацій, посилення глобалізаційних процесів та необхідності збереження національної самобутності особливого значення набуває вивчення традиційних культурних цінностей українського народу. Українська вишивка виступає не лише елементом народного мистецтва, а й важливим засобом репрезентації національної ідентичності, історичної пам'яті та духовної спадщини українців.

Метою дослідження є дослідити роль української вишивки як важливого мистецького складника традиційного національного одягу у процесах формування національної самосвідомості українців, зміцнення суспільної комунікації, консолідації та єднання народу в умовах сучасного державотворення України.

Теоретико-методологічну основу дослідження становлять методи аналізу, синтезу, узагальнення та систематизації наукових джерел і фактичного матеріалу.

У статті висвітлено значення української вишивки як чинника національної самоідентифікації та культурної єдності українського народу. Проаналізовано механізми формування національної ідентичності через традиційну обрядовість і народну культуру. Окреслено регіональну специфіку українського традиційного одягу, особливості орнаментальних мотивів, символіки та технік вишивання, а також їхній вплив на світоглядні уявлення, ментальність і національну свідомість українців.

Український традиційний одяг є важливим культурно-мистецьким надбанням народу, у структурі якого вишивка посідає особливе місце як символ етнокультурної спадщини та носій соціокультурної інформації. Вишита сорочка виступає одним із ключових функціональних і символічних елементів українського вбрання, відображаючи рівень культурного розвитку суспільства, особливості комунікативної поведінки, соціальний статус особи та її належність до певної суспільної групи. Водночас вона репрезентує систему моральних цінностей, традицій та етнічних уявлень, що формують національну ідентичність українського народу.

Ключові слова: українська вишивка, традиційний український одяг, народне вбрання, українська нація, техніки вишивання, орнаментальні мотиви, символіка, національна самоідентифікація, українська культура.

INTRODUCTION

The problem formulation. Ukrainian folk embroidery is an important part of the national cultural heritage and an art form of considerable value that serves a communicative as well as an aesthetic function. National consciousness cannot develop without an awareness of the historical past, cultural traditions and one's own national identity. In the context of contemporary social transformations, the challenges of globalisation and state-building, preserving the cultural heritage of the Ukrainian people, strengthening their national identity and developing national consciousness are therefore particularly relevant.

Analysis of recent research and publications. Many Ukrainian scholars have examined folk embroidery, its symbolism and its functional potential. The theoretical aspects of national identity and cultural consciousness are discussed in studies by V. Serhiichuk, O. Zadorozhnyi, V. Skliar, H. Kasianov and I. Kutsyi, which emphasise the historical and sociocultural factors involved in their formation.

Specific aspects of traditional culture and rituals, and their role in preserving ethnic memory, are explored by Yu. Katrina, S. Cherepanova, B. Bilei, O. Mazurkevych and V. Diachuk. Studies by O. Voropai, O. Vlasiuk, L. Ohneva, R. Zakharchuk-Chuhai, S. Haiova, O. Kosmina, S. Latanskyi, S. Sydorovych, B. Sushevskyi, Yu. Melnychuk, O. Katsan and others are also of considerable scholarly value. They examine folk dress, Ukrainian costume and weaving in the formation of a distinctive culture, the self-identification of Ukrainians as a people and the study of their ethnic culture.

AIM AND OBJECTIVES OF THE STUDY

The aim of the study is to examine how Ukrainian embroidery, as an artistic phenomenon of Ukrainian costume, influences the development of the Ukrainian people's consciousness, their communicative interaction, and their consolidation and unity under contemporary conditions of Ukrainian state development.

RESULTS OF THE RESEARCH

Presentation of the main material. Identity is a complex structure that develops throughout a person's life, changes in both progressive and regressive directions, and is shaped as the person overcomes life crises and challenges. Identity is a primary and necessary condition for personal development (Kozlovets, 2015, p. 58). It is understood as a person's awareness of belonging and connection to a particular nation, social group, set of cultural values, geographical environment and the social order of a given community.

Various aspects of national identity are discussed in the works of V. Serhiichuk and O. Zadorozhnyi. Yu. Katryna examines the significance of Christian rituals for the ethnonational development of Ukrainians. S. Cherepanova investigates the origins of folk rituals, while B. Bilei explores the role of the church in preserving rituals and culture. R. Zakharchuk-Chuhai's study, Folk Embroidery of Western Ukraine in the Nineteenth and Twentieth Centuries, provides valuable information on regional and local stylistic features of embroidery techniques, colour palettes and patterns in Bukovyna and Western Podillia.

Following O. Redko's view that a person's consciousness is expressed through national self-identification, national consciousness is an important component of spirituality and includes cultural and historical memory as an image of the past, present and future (Serhiichuk, 2017, pp. 26–35). Protective objects accompanied Ukrainians throughout their lives: Easter wax candles, wedding rushnyky (ritual towels), kerchiefs, embroidered shirts, wedding rings and others (Gurkina, Serdiuk, 2008, p. 95). One of the main functions of embroidery is to decorate clothing and household textiles. Traditionally, embroidery was worked on homespun woollen, linen and hemp fabrics (Shostak, Titor, 2023, pp. 125–133). Ukrainian clothing is classified by various characteristics, including the region in which it is worn (Polissia, Podillia, Poltava region, Volyn and others); how it is worn (around the hips, over the shoulders, as outerwear or underwear); cut (pleated, closed, one-piece, openwork or cut-out); material (homespun or factory-made, linen or wool); colour scheme (single-colour or multicolour); ritual purpose (family or seasonal); and gender (men's or women's) (Folk Culture of Ukrainians: The Human Life Cycle, 2010, vol. 3, p. 134). Traditional Ukrainian dress comprises several elements, including cloaks, headwear, footwear and ornaments.

The shirt is the principal element of Ukrainian national dress. It had many local names, including koshulia, morshynka, oplich, prysbirka, rubatka, sorochevna, khlopianka and chumachka. Although its cut varied, it was always associated with embroidery. A woman's shirt symbolised the continuation of life. A woman with many children would

lend her shirt to a woman who could not conceive. Shirt decoration reflected changes in a woman's age. Bright, vivid colours distinguished the attire of a "married" young woman, while older women's clothing was more subdued (Som, 1964, p. 89). Embroidered shirts were passed down through generations as family heirlooms. Embroidered motifs such as serrations, diamonds and zigzags represented earth and water, people and animals, birds and plants; they were intended to protect the human soul from destruction (Gurkina, Serdiuk, 2008, p. 95). Because the shirt is the garment closest to the body, it was associated with the magical power believed to reside in the human body; its embroidery therefore had symbolic significance as a person's protector and symbolic substitute (Skliar, 2017, pp. 24–32). Men wore sleeveless shirts, with cloaks, capes and hooded jackets serving as outerwear (Gurkina, Serdiuk, 2008, p. 95). Wedding shirts were always cut in a particular way and embroidered on a single piece of cloth for their full length, which gave them the highest ritual status in Ukrainian ceremonial culture (5; 7, 2010). The wedding shirt sewn by a young woman for her bridegroom symbolised his "rebirth" as his social status changed. Embroidered wedding shirts conveyed wishes for a happy family life. Everyday shirts were rarely embroidered and were made from coarse, unbleached fabric (Folk Culture of Ukrainians: The Human Life Cycle, 2010, vol. 2, p. 127). This symbolism reflected ancient Ukrainian ideas about the "cult of the earth" and the native land. The worldview of the Ukrainian people developed under the influence of the natural environment and traditions, which shaped their way of life. Diverse regional differences gradually gave way to a national consciousness grounded in the people's agrarian character, the value of land and the idea of Mother Earth. Dominant ideas in Ukrainian culture are closely connected with nature and its maternal origins and primacy, expressed in gentleness and lyricism, as well as tolerance, kindness and respect for elders in social life (Mazurkevych, Diachuk, 2015, pp. 43, 50–57).

Headwear was the principal indicator of age in Ukrainian women's dress and consisted of two components: a draped piece of fabric and a sewn head covering. The former was tied around the head in various ways over the sewn covering (a cap, bonnet or similar garment) and also served as a gender marker. Headwear was made from expensive fabrics and decorated with silk or velvet ribbons. The wreath was considered the head covering of unmarried girls. In the Poltava and Kyiv regions, for example, wreaths were made from silk ribbons arranged in different ways, including rosettes and pleats (Folk Culture of Ukrainians: The Human Life Cycle, 2010, vol. 3, p. 120). Festive headwear was decorated with several rows of multicoloured beaded ribbons, and its upper part with coloured duck feathers and woollen balls (Folk Culture of Ukrainians: The Human Life Cycle, 2010, vol. 2, p. 131). In addition to shirts, headwear and outerwear, girls' dress featured an apron that distinguished it from women's clothing. The apron indicated that a girl had reached an age at which she could attend evening gatherings and girls' festivities. Coral, amber, pearls and numerous necklaces formed an elaborate ensemble that complemented the clothing and served as a kind of protective barrier between the outside world and the wearer (Folk Culture of Ukrainians: The Human Life Cycle, 2010, vol. 2, p. 133).

The novelty of this study lies in its detailed examination of the influence of Ukrainian embroidery on the self-identification and unifying interactions of the Ukrainian people; its analysis of the ways national identity is formed through Ukrainian ritual art; and its identification of differences and typical regional features of Ukrainian clothing, symbolic imagery and embroidered ornaments, and their expression in the people's mentality and national identity. In the formation of social consciousness, national identity emerges as a complex system of ideas, values and cultural symbols connected with spiritual heritage, historical memory and the material expressions of culture. It develops under the influence of the social environment, historical experience and the cultural practices of an ethnic community. According to O. S. Redko, a system of traditions and customs shapes young people's worldview and values by transmitting the social experience and achievements of previous generations (Redko, 2009, pp. 288–289).

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The study leads to the following conclusions. First, the image of Ukrainian culture and national identity is inseparable from Ukrainian clothing and embroidery, including the decoration techniques, patterns, composition and colours characteristic of each region of Ukraine. These changed over the centuries, while traditional rules for wearing clothing in communicative contexts remained stable, expressing the character of the people through interaction and the formation of patterns in spiritual culture. Second, Ukrainian embroidery is an integral attribute and symbol of Ukrainian folk culture and a medium of ethnocultural information. Third, among Ukrainian garments, the shirt is the principal functional and symbolic element of women's dress. It reflects the development and specific features of Ukrainians' communicative behaviour and is used to indicate social status, membership of a particular social stratum, and links to ethnic conventions and moral norms of conduct. Further research is needed to systematise, evaluate and reassess embroidery as an artistic phenomenon, including national dress and its decoration, the prominence of particular colours and the communicative influence of inherited spiritual and material culture on the formation of the Ukrainian people's national consciousness.

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METHODOLOGY OF IMPLEMENTATION OF INTEGRATIVE-VALUE METHODS OF ACTIVITY TECHNOLOGY IN THE EDUCATIONAL SPACE ON THE BASIS OF THE ETHNOLOGICAL POTENTIAL OF UKRAINE

Abstract. The article reveals the theoretical and practical principles of implementing integrative-value methods in the activity technology of teaching on the basis of the ethnographic potential of Ukraine. The relevance of the study is substantiated, due to modern transformations of education, which orient it towards the formation of a competent, spiritually mature and socially active personality. An analysis of integration as a leading pedagogical approach that ensures the integrity of the content, methods and forms of the educational process is carried out.

The essence of integrative-value methods (game, modeling, dialogue, analysis of life situations, project activities, social projects, trainings, reflection, creation of a situation of success and choice, creative portfolio, etc.) is revealed, which provide a combination of cognitive-cognitive, emotional-value and behavioral-social components of education. It is shown that their systematic application contributes to the development of life competencies and basic values: civic, family, worldview, environmental, intellectual, aesthetic, valeological.

Special attention is paid to the ethnographic potential as a substantive basis for the formation of national-cultural identity, national self-consciousness, spiritual and moral values and a holistic worldview of the individual. The relevance of the implementation of the author's programs «Ethnographical Studies in Action» in primary and preschool education is highlighted, where integrative-value methods provide a natural combination of learning, upbringing and development of the child.

An important place is given to the educational and methodological manual «Family Tree – Tree of Life», on the basis of which the integrative and value methods of activity technology were tested. The manual presents a system of classes, master classes, creative workshops and educational activities that ensure the practical implementation of the proposed methods in the real educational process and prove their effectiveness in forming the value sphere of students.

An algorithm for implementing integrative and value methods is presented, which includes motivational and value, situational and activity, personal and developmental, project and social and reflective and behavioral components. It is proven that such a model contributes to the harmonious development of the personality, its socialization and ability to conscious activity.

Keywords: integration, activity technology, ethnology, integrative and value methods, «Family Tree – Tree of Life», values, value attitudes, competency-based approach, educational process.

МЕТОДИКА РЕАЛІЗАЦІЇ ІНТЕГРАТИВНО-ЦІННІСНИХ МЕТОДІВ ДІЯЛЬНІСНОЇ ТЕХНОЛОГІЇ В ОСВІТНЬОМУ ПРОСТОРІ НА ОСНОВІ НАРОДОЗНАВЧОГО ПОТЕНЦІАЛУ УКРАЇНИ

Анотація. У статті розкрито теоретичні та практичні засади реалізації інтегративно-ціннісних методів у діяльнісній технології навчання на основі народознавчого потенціалу України. Обґрунтовано актуальність дослідження, зумовлену сучасними трансформаціями освіти, що орієнтують її на формування компетентної, духовно зрілої та соціально

активної особистості. Здійснено аналіз інтеграції як провідного педагогічного підходу, що забезпечує цілісність змісту, методів і форм освітнього процесу.

Розкрито сутність інтегративно-ціннісних методів (гра, моделювання, діалог, аналіз життєвих ситуацій, проєктна діяльність, соціальні проєкти, тренінги, рефлексія, створення ситуації успіху та вибору, творче портфоліо тощо), які забезпечують поєднання когнітивно- пізнавального, емоційно-ціннісного та поведінково-соціального компонентів освіти. Показано, що їх системне застосування сприяє розвитку життєвих компетентностей та базових цінностей: громадянських, родинних, світоглядних, екологічних, інтелектуальних, естетичних, валеологічних.

Особливу увагу приділено народознавчому потенціалу як змістовій основі формування національно-культурної ідентичності, національній самосвідомості, духовно-моральних цінностей і цілісного світогляду особистості. Висвітлено актуальність упровадження авторських програм «Народознавство в дії» у початковій та дошкільній освіті, де інтегративно-ціннісні методи забезпечують природне поєднання навчання, виховання та розвитку дитини.

Важливе місце відведено навчально-методичному посібнику «Дерево Роду – Дерево життя», на основі якого здійснювалася апробація інтегративно-ціннісних методів діяльнісної технології. У посібнику представлено систему занять, майстер-класів, творчих практикумів і виховних заходів, що забезпечують практичну реалізацію запропонованих методів у реальному освітньому процесі та доводять їх ефективність у формуванні ціннісної сфери здобувачів освіти.

Представлено алгоритм реалізації інтегративно-ціннісних методів, що включає мотиваційно-ціннісний, ситуативно-діяльнісний, особистісно-розвивальний, проєктно-соціальний та рефлексивно-поведінковий компоненти. Доведено, що така модель сприяє гармонійному розвитку особистості, її соціалізації та здатності до усвідомленої діяльності.

Ключові слова: інтеграція, діяльнісна технологія, народознавство, інтегративно-ціннісні методи, «Дерево Роду – Дерево життя», цінності, ціннісні ставлення, компетентнісний підхід, освітній процес.

INTRODUCTION

The problem formulation. The relevance of the research is due to modern transformations of the educational process, which orient it towards the formation of a competent, value-based and socially active personality.

At the present stage, integration as a pedagogical process is actively being introduced into the Ukrainian and world education system, covering the content, methods, forms and technologies of education. In this regard, integrated approaches to the organization of the educational process are being developed, new models of education, integrated training courses, programs, textbooks, as well as innovative teaching methods and technologies are being created.

O. Savchenko emphasizing the positive impact of integration on the learning process, noted: «One of the directions of methodological enrichment of lessons is conducting them on the basis of integrating content selected from several subjects and united around one topic. This association aims to enrich the perception, thinking and feelings of students through the use of interesting material that allows them to learn a phenomenon or concept from different angles and achieve the integrity of knowledge» (Savchenko, 2014, p. 87).

Integration in the modern educational space is considered one of the leading pedagogical approaches that ensures integrity, systematicity and interdisciplinary nature of learning.

Analysis of recent research and publications. World pedagogical experience confirms the effectiveness of integration as a means of forming a holistic worldview of the individual. In particular, in German Waldorf schools, integration is implemented through a combination of intellectual, emotional and practical development of students, as well as through the interrelation of natural science and artistic and aesthetic education. Similar approaches can be traced in the Hibernia school and the pedagogical system of P. Petersen, where the content of education is organized in the form of integrated courses.

Integration trends are also characteristic of educational systems in other countries. In France, an integrated direction «Natural Sciences – Technologies» is being implemented, which combines knowledge of physics, chemistry, biology, geology and astronomy. In Japanese education, integration of learning is implemented through primary and junior high school programs, within which natural disciplines, where students master an integrated course of natural sciences, and geography and history are combined into the course «Social Studies. In Italy, integration is carried out through generalizing topics of the natural science cycle. Integrated educational courses are also widespread in US education, in particular, a general course of natural sciences, which is studied from primary to high school and is aimed at developing research skills through independent experimental activities, analysis, classification and practical application of knowledge (Pushkarova T. & Topuzov O., 2019, p. 45).

This indicates that integration has become an important direction of modernization of pedagogical science and practice and requires further systematic research.

In Ukrainian folk pedagogy, ethnography reveals a significant integrative potential of folk teaching aids. Ethnology as an integrated direction of study combines elements of history, Ukrainian language and literature, ethnography, art, music, ethics, cultural studies, natural science and labor training. This approach contributes to the formation of a holistic understanding of the national culture, traditions, spiritual values of the Ukrainian people in students and ensures the relationship between theoretical knowledge and practical life experience. Thus, in the educational and methodological manual «Spiritual Education. Education of Schoolchildren on the Principles of Folk Pedagogy», ethnography lessons were developed, which are based on the idea of integration of knowledge and holistic development of the personality in order to reveal the educational potential of the disciplines of the social and humanitarian and natural and mathematical cycles by deepening the content of the topics of current programs through the ethnographic aspect (Hrytsiv T, 2012).

The same goal is set in the educational and methodological manual for extracurricular work at school «Spiritual Education. Ukrainian System of Education on the Principles of Folk Pedagogy» where a methodology has been developed, built on the basis of the moral and ethical norms of the Ukrainian people, collected and systematized in the books of G. Makoviy, (Hrytsiv & Batryn, 2013)

In order to develop national education, the «Concept of Spiritual National Revival Based on the Ethnological Potential of Ukraine» (Vonitova N., Hrytsiv T. & Meleshko V., 2024). (Hrytsiv,2024)., (Hrytsiv, 2023). the program «Ethnological Studies in Action» (Vonitova & Hrytsiv, 2022) for grades 1-4 and the partial program for the development of preschool children on the principles of folk pedagogy «Ethnological Studies in Action» (Vonitova & Hrytsiv, 2024) were developed, aimed at updating the national cultural heritage in the modern educational space and strengthening the educational potential of education.

The use of ethnological potential in the educational process ensures the formation of basic universal and national values: civic, family, worldview, ecological, intellectual, aesthetic, valeological.

At the same time, the ethnographic approach contributes to the development of value attitudes of the individual towards himself, society, nature and cultural heritage, forms moral and ethical guidelines, an emotional and value sphere and the need to preserve the spiritual heritage of the Ukrainian people. This determines the relevance of integrating ethnography into modern educational technologies and educational systems.

The introduction of integrative and value methods into didactics is due to the need for modern education to form not only knowledge, but also value attitudes and a holistic worldview of the individual.

In scientific and pedagogical discourse, the terms «integrated» and «integrative» are related, but have different semantic accents. «Integrated» denotes an already formed result of combining disparate elements into a holistic system (for example, an integrated course, lesson, training). In turn, «integrative» characterizes a process, approach or property that ensures and directs the unification of components into a single whole. Thus, the first term fixes the result of integration, and the second its procedural and methodological nature.

Thus, in the article «Psychological and pedagogical features of integrative and value methods in ZZSO» integrative and value methods of teaching are substantiated as a component of activity technology, aimed at the formation of a holistic personality of the student (Hrytsiv, 2025, pp.125-132].

In modern conditions, the activity-based learning technology is of particular importance, which ensures not only the acquisition of knowledge, but also the development of cognitive activity, independence and practical application of educational experience. It is based on a combination of various methodological approaches, forms and sources of knowledge, levels of cognitive activity and a system of assessing competencies, and also involves the integration of traditional, innovative and integrative-value methods.

Integrative-value methods, which combine cognitive-cognitive, emotional-value and behavioral-social components, contribute to the formation of a system of values and the holistic development of the individual. Their use ensures the active participation of students in the educational process, the development of their initiative and self-development.

This meets the modern requirements of education aimed at the harmonious development of the individual, its successful socialization and active participation in public life.

Therefore, the educational and methodological manual «Family Tree Tree of Life» has developed a methodology based on the application of integrative-value methods of activity technology of learning. The methodology involves the integration of knowledge from ethnography, history, language, literature and ethics, which ensures the formation of a holistic understanding of family values and national culture. The use of integrative-value methods within the framework of this methodology ensures not only the assimilation of knowledge, but also the formation of spiritual and moral values, national-cultural identity and national self-consciousness, as well as respect for family history, which contributes to the harmonious development of the individual.

AIM AND TASKS RESEARCH

Theoretical substantiation and development of a methodology for implementing integrative-value methods in the activity technology of teaching based on the ethnographic potential of Ukraine, aimed at forming the value sphere of the individual, developing life competencies and activating the cognitive and social activity of students.

To achieve the set goal, the following tasks were defined:

1. To analyze scientific and pedagogical approaches to understanding integration and integrative-value methods in modern education.
2. To clarify the essence of the concepts of «integrated» and «integrative», to determine their common and distinctive features in pedagogical discourse.
3. To investigate the features of the implementation of integrated learning in domestic and foreign educational practice.
4. To characterize ethnography as an integrated direction of educational activity and to determine its educational potential.
5. To analyze the role of folk pedagogy in the formation of spiritual, moral and national values of education seekers.
6. To determine the psychological and pedagogical features of integrative-value methods in the activity technology of education.
7. To investigate the influence of integrative-value methods on the formation of value attitudes and social activity of education seekers.

RESEARCH METHODS

In the process of research, to achieve its goal and fulfill the tasks set, a complex of interrelated methods of scientific knowledge was used, which ensured a holistic study of the problem of implementing integrative-value methods in activity technology based on the ethnographic potential of Ukraine.

The theoretical basis of the research was the methods of analysis of scientific and pedagogical, psychological and methodological literature, which allowed to reveal the essence of the activity technology of education, the integrative-value approach and determine the role of ethnographic potential in the formation of the value sphere of the individual. Methods of synthesis and generalization were also used, which made it possible to systematize scientific approaches to the research problem, and comparative analysis ensured the identification of common and distinctive characteristics

of various pedagogical concepts. The modeling method was used to develop a holistic methodological system for the implementation of integrative and value-based methods in the educational process.

The empirical part of the study was based on the use of pedagogical observation, conversations with students, which made it possible to identify the level of their educational motivation, value orientations and attitude to educational activity. An important place was occupied by the analysis of the results of educational and creative activities of students, in particular projects, creative works and portfolios. A pedagogical experiment was also used, which made it possible to verify the effectiveness of the proposed methodology.

RESULTS OF THE RESEARCH

A comprehensive approach to studying the features of the activity technology of learning in combination with integrative-value methods based on the ethnographic potential of Ukraine made it possible not only to understand the problem under study more deeply, but also to move on to its practical solution.

In this regard, it is logical to turn to the analysis of the results obtained, which reflect the effectiveness of the proposed methodology, reveal the features of its implementation in the educational process and demonstrate the impact on the formation of the value sphere, life competencies and social activity of education seekers.

The results of the study showed that the activity technology of learning has a clearly structured nature and provides for the following components: methodological basis, source and form of knowledge presentation, level of cognitive activity, learning logic, degree of autonomy of education seekers and a system for controlling acquired competencies.

The basis of such technology is a combination of traditional, innovative and integrative-value teaching methods, which ensures the comprehensive development of the education seeker.

The methodology is based on activity technology, which combines traditional, innovative and integrative-value methods (Hrytsiv, 2025).

Integrative-value teaching methods are complex in nature, since, in addition to the integration of knowledge, they are aimed at the formation of value attitudes, spiritual and moral development and the formation of the personality of the student. They ensure harmonious development, self-actualization and the formation of a value system in accordance with modern cultural and personal requirements.

The algorithm of integrative-value methods in activity technology is defined as a structured and logical sequence of pedagogical actions aimed at the integration of knowledge, activity and value attitudes, which ensures the formation of personally significant experience, the development of key competencies and the ability to apply them in practice.

Algorithm of integrative-value methods in activity technology:

1. Motivational-value component (what value attitudes do we acquire)
2. Situational-activity component (cognition through activity)
3. Personal-developmental component (development of psychological qualities and emotional sphere)
4. Project-social component (transfer of competencies to life)
5. Reflective-behavioral component (regulation of personal behavior based on acquired value attitudes)

Integrative-value methods should be considered through the ethnographic potential, since it provides not only the assimilation of knowledge, but also the formation of spiritual and moral values of the individual. In this context, ethnography serves as the content basis for the integration of cognitive and educational components and contributes to the development of value attitudes of education seekers.

The motivational and value-based component in the context of the ethnocultural approach involves fostering intrinsic motivation for learning by drawing on the cultural heritage of the Ukrainian people, which holds personal, emotional, and value-based significance for learners. An important role in implementing this component is played by the development of emotional intelligence as the ability to recognize and regulate one's own emotions, demonstrate empathy, and interact effectively with others. This creates the conditions for social and emotional learning, fostering self-regulation skills, understanding of others' emotional states, and constructive interaction [12, p. 81].

Engagement with folk traditions, customs, rituals, symbols, and folklore promotes learners' emotional involvement in the educational process and fosters awareness of the significance of cultural heritage, respect for historical memory, family traditions, and social values. Personal reflection on ethnocultural learning materials enriches knowledge with value-based meaning, shapes worldviews and moral convictions, and develops an intrinsic commitment to preserving and transmitting cultural heritage to future generations. Thus, this component integrates cognitive interest, emotional experience, and a value-based attitude towards national cultural heritage, contributing to learners' personal development and spiritual and moral formation.

The situational and activity component is implemented through the active involvement of students in the reproduction of elements of traditional culture: participation in folk games, staging rituals, modeling life situations based on folk experience. Such activity ensures the acquisition of knowledge through practical experience and communication, contributes to the development of social and communicative skills, forms the ability to cooperate and collective interaction.

The personal-developmental component within the ethnographic potential is aimed at developing the inner world of the individual through the emotional experience of cultural phenomena. Folk art, art, customs contribute to the development of creativity, emotional intelligence, aesthetic feelings and moral consciousness. At the same time, conditions are created for self-expression, self-knowledge and harmonious development of the individual.

The project-social component involves transferring the acquired knowledge and values into practical activities. The use of ethnographic material in project work (researching genealogies, studying local traditions, creating cultural projects) contributes to the formation of social experience, responsibility and active civic position. This ensures the integration of national and cultural values in modern life.

The reflective-behavioral component ensures the comprehension of the acquired experience through the prism of folk moral and ethical norms and values. In the process of reflection, students correlate their own behavior with traditional ideas about goodness, justice, and dignity, which contributes to

The algorithm of activity technology in interaction with integrative-value methods based on ethnographic potential provides for a holistic organization of the educational process aimed at combining the cognitive activity of students with the formation of their value attitudes.

Integrative-value methods include: game methods (game, situational games, role-playing games), analysis of life situations, dialogic methods (dialogue), methods of facilitation and pedagogical support (supporting initiative, creating a situation of success and choice), methods of modeling and project activity, as well as methods of social orientation (life design, social project, social program). Targeted creative programs, maintaining a creative portfolio, training technologies, and reflection as a means of understanding the acquired experience also play an important role.

The systematic use of these methods in combination with ethnographic content (traditions, customs, rituals, folklore) contributes to the formation of a holistic value sphere of the individual, the development of life competencies and the ability to apply them in practice.

An important role in this process is played by the game method (in particular, situational and role-playing games), which acts as an effective means of actualizing ethnographic content, ensuring emotional involvement, active interaction and practical assimilation of cultural experience.

The game method (in particular, situational and role-playing games) is a way of organizing educational activities, which involves the acquisition of knowledge, the formation of skills and the development of personal qualities through game activities, modeling life situations and the performance of certain roles by participants.

In the educational and methodological manual «Family Tree - Tree of Life», the lesson «World of Folk Games» in the project «Family Tree – Tree of Life» using situational and role-playing games and training elements implements the integrative method of activity technology, as it combines cognitive, emotional-value and behavioral-social activities of students. Through involvement in folk games, the formation of life-saving, civic, environmental, ethnocultural and sociocultural competencies is ensured based on the assimilation of folk traditions and values.

Analysis of life situations is a method of educational activity, which consists in considering and discussing real or simulated life situations in order to understand them, identify causes and consequences, as well as develop the right decisions and behavioral strategies.

In the educational and methodological manual «Tree of the Family – Tree of Life», the hour of communication «Cognition of the World of the Life of Saints» using the method of analysis of life situations provides an understanding of the moral and spiritual content of the life path of saints through consideration of specific examples of their actions, decisions and life choices. This approach contributes to the combination of cognitive and value components of learning, activates reflection and emotional perception of spiritual ideals.

Dialogue is a method of organizing educational activity, which is based on equal communication between participants in the educational process in the form of an exchange of thoughts, questions and answers with the aim of a joint search for truth, the development of critical thinking, communication skills and mutual understanding.

In the educational and methodological manual «Family Tree – Tree of Life», the master class «Wedding Branch – a Symbol of the Family» (wedding attributes) using the dialogue method as an integrative-value method of activity technology ensures active interaction of participants through the exchange of stable traditional wedding verbal framing in rituals, which is implemented through speech and forms stable skills regarding wedding rituals.

The method of facilitation and pedagogical support is a way of organizing educational activities, in which the teacher acts as a facilitator (assistant, organizer of conditions), which creates a favorable environment for learning, self-development and active interaction of participants, provides support, stimulates independence, initiative and responsibility of students.

The lesson is a workshop «Easter in Ukraine. Pysanka – a symbol of life» within the framework of the educational and methodological manual «Tree of the Family – Tree of Life» is implemented through the method of facilitation and pedagogical support, which ensures the creation of a favorable educational environment for the active involvement of students in learning Easter traditions.

The method of supporting the initiative is a way of organizing educational activities, which consists in stimulating and encouraging independent actions, proposals and creative initiatives of participants, as well as in creating conditions for their implementation in order to develop activity, responsibility and independence of the individual.

In the educational and methodological manual «Tree of the Family – Tree of Life», the holiday «On a good Earth good bread grows» is implemented through the integrative-value method of supporting the initiative within the framework of the activity technology, which ensures the involvement of students in understanding the agricultural traditions of the Ukrainian people as the basis of life and cultural heritage.

Creating a situation of success and choice is a method of organizing educational activities, which involves creating conditions in which each participant can feel success in their own activities and has the opportunity to independently choose ways to complete tasks, which contributes to the development of confidence, motivation and responsibility.

Laboratory work «The relationship between man and nature. Water balance» within the framework of the educational and methodological manual «Tree of Family – Tree of Life» is implemented through the method of creating a situation of success and choice as an integrative-value method of activity technology, which ensures the individualization of educational activities and positive emotional reinforcement of the results of students.

The use of this method contributes to the formation of cultural, ecological, ethnocultural and sociocultural competencies, the development of a value-based attitude towards nature, water resources and the word as a spiritual phenomenon, as well as the upbringing of an environmentally and spiritually responsible personality.

Modeling is a method of cognition and educational activity, which consists in creating and using models (conditional or simplified samples) of real objects, phenomena or processes for their study, analysis and explanation.

The modeling method in the creative workshop «Plant and animal world to help man» consists in creating conditional models of natural relationships by students to understand the role of plants and animals in human life and develop practical skills in their application.

Project activity is a method of organizing educational activity, which involves creating a final product (project).

Within the framework of the educational and methodological manual «The Tree of the Family – the Tree of Life», the integrative-value method of project activity is implemented through the creation by students of an initial project during the communication hour «Ethnohistory is the bread of the soul of the people» aimed at awareness of national and cultural identity, spiritual heritage and the formation of a life position based on Christian values.

Life planning is a method that implements an approach to planning and organizing one's own life, which involves the conscious formation of life goals.

Within the framework of the educational and methodological manual «Family Tree – Tree of Life», the integrative-value method of life planning in the creative workshop «The Power of the Spoken Word» is aimed at the conscious formation of life goals by students through understanding the role of the Word in creating reality, the development of communicative culture and creative comprehension and transformation of the spiritual experience of previous generations into their own life activities.

A social project is a method of organizing educational activities aimed at solving specific problems in society, which allows participants to be active participants in positive changes.

Within the framework of the educational and methodological manual «The Tree of the Family – the Tree of Life», the integrative-value method of the social project in the conversation «Accuracy of Thought in Riddles, Proverbs and Sayings» is aimed at the study by students of folk wisdom as a means of knowing the world and forming national and cultural identity through active communication in their native language, generalization of observations and awareness of the role of folk pedagogy in social life.

A social program is a method of organizing and implementing social activity, which involves the development and implementation of a set of measures to solve a certain social problem and achieve a specific social goal.

Within the framework of the educational and methodological manual «The Tree of the Family – the Tree of Life», the integrative-value method of the social program in the lesson «When a Song Sounds – Everything Comes to Life» is aimed at involving students in the implementation of spiritually and value-oriented initiatives, the formation of a civic position and national-cultural identity through the creative use of folk song heritage and the development of information and communicative competence.

The communication hour «Our Honor to the Ukrainian Family, Which Has No Translation» was also implemented through the method of the social program, which consists in involving students in participating in social initiatives and projects aimed at understanding folk experience, forming spiritual and family values, modeling their own life behavior and effective interaction in solving current social problems.

A targeted creative program is a method in organizing activities that involves the creation and implementation of a complex of creative, educational, cognitive and practical activities, united by a common goal and aimed at the development of the individual, his abilities, values and competencies.

Within the framework of the educational and methodological manual «The Tree of the Family – the Tree of Life», the integrative-value method of the targeted creative program in the workshop «Painted Chest» is aimed at the phased creative activity of students with a clearly defined goal – the creation of a final product, as well as the formation of a value attitude towards the traditions of the Ukrainian people, in particular folk clothing, as an expression of high culture, the development of civic, ethnocultural and sociocultural competencies, the upbringing of a respectful attitude towards cultural heritage and awareness of the need to preserve folk traditions.

The motivational and value component forms a stable internal motivation through the awareness of the significance of ethnographic potential as a source of spiritual and cultural values, contributing to the development of creativity, responsibility and the desire for self-realization. The situational and activity component is implemented through the performance of creative tasks based on ethnographic material, where students plan work, choose means and create their own products. The personal and developmental component ensures the development of creativity, imagination, emotional intelligence, independence and positive self-esteem through creative self-realization. The project and social component provides for the presentation of results in the social environment (exhibitions, events, digital products), which contributes to the popularization of ethnographic values and the development of social activity. The reflective and behavioral component provides for the analysis of the creative process and results, awareness of their value significance and correction of further activity, which contributes to the formation of a responsible, value-oriented personality.

Thus, the method of a targeted creative program in the system of activity technology and an integrative-value approach based on ethnographic potential ensures the targeted development of creative potential, life competencies, and the spiritual and value sphere of the individual.

A creative portfolio is a method or form of presenting individual creative achievements, works, ideas and results of activity, which allows each participant to express their unique creativity, interests, abilities and personal achievements.

Within the framework of the educational and methodological manual «The Tree of the Family – the Tree of Life», the integrative-value method of a creative portfolio in the lesson «My Home, My Home» is aimed at systematizing the individual achievements of students through the creation of a personal portfolio that reflects their creative self-realization, assimilation of ethnographic knowledge, the formation of value orientations, the ability to cooperate to achieve a common goal and the awareness of the interrelationship of lifestyle, spiritual values and health.

Training is a method of active learning aimed at the formation of knowledge, skills, abilities and the development of personal qualities through practical activities, interaction and the performance of special exercises.

Within the framework of the educational and methodological manual "The Tree of the Family – the Tree of Life", the integrative-value training method at the conversation «When the Earth Lays Down to Rest» is aimed at the active interaction of participants in the educational process through exercises, discussion and reflection, which contributes to the formation of ecological consciousness, awareness of the cyclical nature of natural processes, the development of an emotional and value-based attitude towards nature and the ability to apply acquired knowledge in life situations.

Reflection is a method of awareness, analysis and evaluation by a person of his own activities, thoughts, feelings, experience and learning results for the purpose of self-knowledge and further development.

Within the framework of the educational and methodological manual «The Family Tree – the Tree of Life», the integrative-value method of reflection at the master class «The People Teach in Fairy Tales» is aimed at students' awareness and analysis of their own experience through the understanding of folk tales as a source of worldview and moral values, the development of the ability to build their own statements, model life behavior based on folk wisdom, and form creative initiatives in the process of national and cultural identification.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The study confirmed that modern transformations of the educational process necessitate the transition not only to competency-based, personally oriented, but also to value-oriented education, in which integration is one of the leading pedagogical approaches. It ensures the integrity of the content of education, interdisciplinary connections and the formation of a holistic worldview of education seekers.

The generalization of theoretical provisions and practical experience made it possible to establish that integrative-value methods within the framework of the activity technology of education are an effective tool for the formation of the value sphere of the individual, the development of his life competencies, cognitive activity and social maturity. Their use ensures the combination of cognitive-cognitive, emotional-value and behavioral-social components of the educational process.

A special role in the implementation of the proposed methodology is played by the ethnographic potential, which acts as the substantive basis for the formation of spiritual and moral values, national and cultural identity and national self-awareness of education seekers. Its integration into the educational process contributes to the combination of learning with upbringing, theoretical knowledge with life experience.

The study proved that activity technology in combination with integrative and value methods (project activities, modeling, trainings, reflection, dialogue, game, social projects, etc.) ensures the activation of educational activities, the development of independence, responsibility and initiative of education seekers.

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SOCIAL WORK WITH DIVERSE CLIENT GROUPS: THE ETHICAL ASPECT AND CHALLENGES OF THE MODERN STATE OF WAR

Abstract. The article provides a comprehensive analysis of the ethical and deontological foundations of social work under the conditions of full-scale martial law in Ukraine. It is substantiated that the moral activity of a specialist, based on the categories of goodness, conscience, and humanity, is the cornerstone of professional assistance. The author emphasizes that during a period of acute socio-economic crisis, ethics ceases to be a merely theoretical construct and becomes a practical guarantee for protecting the dignity of the individual.

Special attention is paid to the transformation of social work under the influence of war. Key contemporary challenges are identified: massive traumatization of the population, loss of housing and resources, and the need to integrate millions of internally displaced persons (IDPs). The paper details the specifics of interaction with various client groups. In particular, the ethical aspects of supporting veterans and their families are revealed, where resocialization and respect for combat experience are priorities. The features of socio-pedagogical support for children affected by war are described through the prism of the «best interests of the child» doctrine. Moral dilemmas arising during the provision of assistance to low-mobility groups and the elderly in conflict zones are considered.

A separate emphasis is placed on the implementation of international experience (the «social cohesion» model and the trauma-informed approach) into national practice. The author proves that the «Ethics of Social Work» course is fundamental in personnel training, as specialists form the nation's spiritual potential, asserting the ideals of justice in spite of aggression. It is concluded that the combination of professional skills with high ethical standards is a prerequisite for the successful adaptation of society to wartime realities and overcoming the consequences of trauma.

Keywords: social work ethics, professional ethics, professional training, client groups, martial law, internally displaced persons, moral values, social pedagogue sphere specialist, social worker, social social work specialist.

СОЦІАЛЬНА РОБОТА З РІЗНИМИ ГРУПАМИ КЛІЄНТІВ: ЕТИЧНИЙ АСПЕКТ ТА ВИКЛИКИ ВОЄННОГО СТАНУ

Анотація. У статті проведено комплексний аналіз етико-деонтологічних засад соціальної роботи в умовах повномасштабного воєнного стану в Україні. Обґрунтовано, що моральна діяльність фахівця, яка ґрунтується на категоріях добра, совісті та людяності, є наріжним каменем професійної допомоги. Автором наголошено, що в період гострої соціально-економічної кризи етика перестає бути лише теоретичним конструктом і стає практичним гарантом захисту гідності особистості.

Особливу увагу приділено трансформації соціальної роботи під впливом війни. Визначено ключові виклики сьогодення: масова травматизація населення, втрата житла та ресурсів, необхідність інтеграції мільйонів внутрішньо переміщених осіб (ВПО). У роботі деталізовано специфіку взаємодії з різними групами клієнтів. Зокрема, розкрито етичні аспекти підтримки ветеранів та їхніх родин, де пріоритетом є ресоціалізація та повага до бойового досвіду. Описано особливості соціально-педагогічного супроводу дітей, які постраждали від війни, через призму доктрини «найкращих інтересів дитини». Розглянуто моральні дилеми, що виникають при наданні допомоги маломобільним групам населення та особам похилого віку в зоні конфлікту.

Окремий акцент зроблено на імплементації міжнародного досвіду (моделі «соціальної згуртованості» та травмо-фокусованого підходу) у вітчизняну практику. Автор доводить, що курс «Етика соціальної роботи» є базовим у



підготовці кадрів, оскільки фахівці формують духовний потенціал нації, утверджуючи ідеали справедливості всупереч агресії. Зроблено висновок, що поєднання професійних навичок із високими етичними стандартами є запорукою успішної адаптації суспільства до воєнних реалій та подолання наслідків травми.

Ключові слова: етика соціальної роботи, професійна етика, професійна підготовка, групи клієнтів, воєнний стан, внутрішньо переміщені особи, моральні цінності, фахівець соціальної сфери, соціальний працівник,соціальний педагог, фахівець соціальної роботи.

INTRODUCTION

The problem formulation. Social work in Ukraine today is carried out under conditions of unprecedented challenges caused by a full-scale military invasion and a profound economic crisis. The war has led to the emergence of a large number of individuals who simultaneously found themselves in a crisis situation and require immediate social and psychological support. The role of social work during the war period is extremely important for maintaining social stability and providing humanitarian assistance to those affected by the war. Social workers, social work specialists, and social educators continue to perform their duties despite the difficult conditions, providing aid to those who need it most. It is the specialists of the social sphere who play a key role in supporting vulnerable segments of the population during the war period. They face new challenges that they encounter every day, ensuring interaction with various institutions in providing support to the disadvantaged. Under such conditions, the problem lies in the need to rethink ethical standards through the prism of martial law, where the line between professional assistance and personal compassion becomes extremely thin. Accordingly, the professional ethics of a specialist ceases to be merely a theoretical discipline and becomes a practical safeguard against dehumanization, professional burnout, and social tension among social sphere specialists. After all, it is professional morality that becomes the cornerstone of the profession, guaranteeing the preservation of humanity and social stability in society.

Analysis of recent research and publications. The issues of social work with various groups of clients have been analyzed in the works of N. Zemlianska, T. Semigina, O. Kupenko and V. Yaroshenko. Theoretical developments regarding moral categories and principles of activity are presented in the works of I. Zaichenko, S. Marchenko, V. Teslenko, I. Trubavina, L. Kharchenko and others. Professional ethics and moral values in social work are the object of close attention of such scholars as R. Zozuliak-Sluchyk, O. Ponomarenko, N. Sultanova and others. The issues of social adaptation and integration of internally displaced persons (IDPs) in the conditions of modern conflicts were analyzed by V. Antonyuk, O. Balakireva, I. Voinalovych, I. Mazur, O. Novikova, I. Titar and other researchers focusing on the interaction of displaced persons with host communities.

Thus, T. Semigina in her studies introduces us to both modern theoretical concepts of social work and the results of research on social assistance to various groups of clients. In her research, she also outlines the issues of values and principles of social work [Semigina T., 2017, p. 139].

In the study by O. Ponomarenko, the professional-ethical culture of a social pedagogue and its formation are outlined, which serves as the basis for the structural components of socio-pedagogical work as a profession (goal, content, organizational forms, principles, professional qualities), as well as the leading socio-cultural principles that determine the nature of this profession. In particular, it refers to the principles of competence, ethical responsibility to society and the client, and professional ethics; the leading trends in the formation of ethics and professional culture related to social work in the children's and youth environment are identified; the psychological and pedagogical conditions for the effective formation of the professional-ethical culture of a social pedagogue are substantiated (familiarizing students with professional knowledge, ethical norms, and humanistic values of socio-pedagogical activity; the presence of a wide range of practical forms of work aimed at developing the skills of professional and interpersonal interaction; combining all components of the process of forming professional-ethical culture into a single purposeful system of educating future social pedagogues in higher education institutions) [Ponomarenko O., 2001].

In contrast, the scientist I. Trubavina revealed the ethical aspects of the work of social sphere specialists with different types of families. Through the prism of the professional morality of a social pedagogue, she characterized the peculiarities of the activities of social sphere specialists [Trubavina I., 2015].

However, we do not encounter a holistic study regarding the role of the ethical foundations of social work with various groups of clients under martial law.

PURPOSE OF THE STUDY: is to theoretically substantiate the ethical foundations of social work with various groups of clients under martial law, highlight the role of moral values in overcoming crisis situations, and analyze the practical challenges faced by social sphere specialists during the integration of vulnerable segments of the population.

RESEARCH METHODS

The work utilizes a complex of scientific methods: analysis and synthesis of scientific sources for the description of ethical concepts; a systematic approach for the classification of challenges (economic, psychological, logistical); and the method of theoretical generalization.

RESULTS OF THE RESEARCH

Modern social work in Ukraine is work «at the cutting edge of time». The war has changed the structure of the population's needs, bringing issues of survival and basic security to the forefront. Social workers face socio-economic challenges, in particular, infrastructure destruction, mass loss of housing by the population, and a sharp increase in poverty, all of which require immediate solutions. They also face the need for the rapid evacuation of people from dangerous zones of military conflict and the redistribution of humanitarian flows.

New groups of clients have also appeared, to whom it is necessary to apply various forms and methods of social work. Thus, work with internally displaced persons (IDPs) requires from social workers not only professionalism but also high ethical resilience. In solving the series of problems encountered by IDPs during their adaptation in new communities, social workers perform various functions. Acting as mediators between IDPs and the local population, social workers prevent the emergence of conflicts and promote the social cohesion of the community.

One of the primary problems for IDPs is the provision of housing that meets basic standards of safety and comfort. Many IDPs lost their homes as a result of hostilities and found themselves in difficult living conditions. In the initial stages of relocation, the majority of IDPs were accommodated in temporary centers, including schools, sports halls, tent cities, or other specially equipped premises. However, such conditions are often not sustainable and do not provide proper comfort [Balakireva O., 2016, p. 34].

Together with local authorities and charitable organizations, social workers are engaged in finding long-term housing options for IDPs. This may include subsidized rental housing or the provision of temporary benefits for utility payments.

Another serious challenge for IDPs is employment, which simultaneously facilitates their integration. People who have left their homes often lack the opportunity to find work in new communities due to a lack of accessible information about vacancies, difficulties with documents, or the need for retraining. In wartime conditions, the labor market is also changing, which complicates the job search.

State employment services and social workers conduct trainings, seminars, and programs for professional development, retraining, and adaptation of IDPs to new labor market conditions. At the same time, important aspects of social workers' activity in this direction include providing information on vacancies, support in drafting resumes and cover letters, preparation for interviews, and providing guidance due to the absence of their usual social connections [Nadraga V., 2015, p. 135].

In some communities of the western and central regions, problems arise with the overcrowding of schools, as the infrastructure is not always able to accommodate new students. In such cases, temporary classes are created or distance learning forms are introduced to enable all children to have access to knowledge [Mazur I. 2020, p. 128].

A separate priority area of modern social work during the war period is the comprehensive support of war veterans and their family members. The ethical aspect of interaction with this group of clients requires special sensitivity from the specialist and an understanding of the specifics of combat trauma. Social support here is not limited only to assistance in obtaining benefits or processing statuses; it involves creating a safe environment for the resocialization of warriors. An important ethical challenge is overcoming the alienation between veterans and civilian society, where the social worker acts as a mediator helping the family adapt to the defender's new psychological states, while ensuring unconditional respect for their experience and dignity.

Another significant area is socio-pedagogical work with children who have been affected by the war, which is based on the principles of preventing long-term psychological disorders and protecting the rights of the child in conditions of armed conflict. Social sphere specialists encounter categories of orphaned children, children separated from their families, and those who have been under occupation. The ethical doctrine of the «best interests of the child» becomes key when making decisions regarding custody, adoption, or granting the status of a war-affected person. Social work is directed toward restoring a sense of basic security through art-therapeutic techniques, inclusive education, and the creation of child-friendly spaces, where the moral support of a specialist helps the child integrate traumatic experiences without losing faith in humanistic ideals.

It is impossible to leave out such an area of social work as support for the elderly and people with disabilities in the conflict zone. Indeed, under martial law, special attention is required for low-mobility population groups and the elderly, who often remain alone in frontline areas or in places of compact residence for displaced persons. In this context, the ethics of social service manifests in ensuring physical survival and preserving human dignity under conditions of resource scarcity. Social work specialists must resolve complex ethical dilemmas related to the evacuation of persons who refuse to leave their homes or the organization of care in unsuitable premises. Social work with this group of clients requires high self-sacrifice and adherence to the principle of personal autonomy, combining patronage assistance with deep spiritual communication, which prevents the social isolation of the most vulnerable members of the community [Kostyshyn E., 2024, p. 42-43].

Thus, in carrying out social work with various groups of clients, social work specialists, possessing a wide range of knowledge in sociological, legal, psychological-pedagogical, and medico-biological fields, must have a formed professional-ethical competence, which becomes significantly more relevant during the war period. It is this competence that serves as the basic component indicating a specialist's readiness for work in difficult wartime.

Moral activity in the field of social work with various groups of clients is revealed through a complex system of values and virtues. As researchers note, ethics and morality in the context of social work are interpreted in a single absolute sense [Ponomarenko O., 2001]. The social worker acts as a guarantor of humanism, where the category of goodness is contrasted with indifference.

Readiness for effective activity with various groups of clients is characterized by the formation in a social work specialist of such categories as:

- conscience and honor, which outline the internal regulator and allow for making fair decisions in extremely difficult circumstances, resolving many moral dilemmas, and overcoming the modern challenges of the war period;
- the «do no harm» principle, which acts as a fundamental rule requiring a deep analysis of the consequences of each specialist's intervention in the client's life;

- confidentiality, which is a basic ethical obligation regarding the non-disclosure of private information, critical for building trust with people who have experienced trauma;
- goodness and mercy, which act as fundamental professional virtues that clearly distinguish sincere kindness from formal indifference [Zozuliak-Sluchyk R., 2019, p. 234], which becomes especially relevant in wartime when a large number of clients daily experience the horrors of war directly or indirectly.

Ethical foundations in social work with various groups of clients are not just a set of rules; they are the «science of goodness» in its highest manifestation. According to research materials, the moral activity of a specialist is revealed through a system of values where humanity is the main criterion. Every day, the social worker faces a choice between the formal performance of duties and a sincere act of assistance. As Montesquieu noted, knowledge of the sciences can harm those who do not possess the foundations of goodness [Zozuliak-Sluchyk R., 2019, p. 56]. This statement is extremely relevant today, in wartime: technical assistance without ethical fulfillment can be perceived by the client as humiliation.

Therefore, we can assert that the foundation of effective professional activity of social sphere specialists is seen in moral activity, which is revealed through a system of values, the underpinnings of virtues, and goodness in behavior, serving as the primary factor. When it comes to social work, special meaning is embedded in professional morality and ethics. It is the social worker who must understand and nurture morality, internalize it, and clearly distinguish between the qualities of goodness and indifference in relationships with various categories of clients. The effectiveness of analytical-planning, advocacy, intermediary, and educational activities of social workers, as well as other types of social work with various groups of clients, largely depends on the level of formation of professional ethics. Its formation affects the system of future-oriented thinking, that is, the specialist's competence, which runs through the recommendations of the European Parliament and the European Council [Zozuliak-Sluchyk R., 2019, p. 8].

In the context of the above, the professional training of future social sphere specialists acquires particular importance, specifically in the context of forming professional-ethical competence.

Based on over 20 years of personal experience working at a university, I would like to note that the professional training of future social sphere specialists in higher education institutions is defined as a unity of a specially organized, purposeful psycho-pedagogical, professional-ethical, socio-humanitarian classroom and extracurricular educational and upbringing professional system, containing subject-subject, target, motivational, content, and procedural components. Therefore, holistic professional-ethical training consists of separate, professionally integrated processes, types, and forms of activity that have their own specificity but are directed toward a single goal – ensuring the personal-social paradigm of upbringing and the personal professional trajectory of development of future specialists, including the formation of their professional-ethical competence [Zozuliak-Sluchyk R., 2019, p. 258].

Based on theoretical modeling and the generalization of practical experience, a substantive model for the professional-ethical training of future social sphere specialists has been scientifically substantiated. We include the following components in its structure: the goal, which involves the formation of future specialists with a high level of personal and professional-ethical motives; organizational forms and types of activities; functions of the subjects of activity; substantive directions of activity; a set of external (objective) and internal (subjective) pedagogical conditions; and a system of principles and means for forming the morality of social sphere specialists in higher education institutions.

Professional training, specifically the formation of the professional-ethical competence of future specialists, consists of interconnected stages, each having its own goal and content.

Thus, the «establishment» stage is implemented during the first year of study at a higher education institution and involves the gradual introduction of students into the process of forming professional ethics. This is achieved by establishing an initial understanding of the essence of social work or socio-pedagogical activity, its value and moral aspects, the role of the Code of Ethics for social sphere specialists in professional activity, the acquisition of primary knowledge and skills of moral culture, and the fostering of a positive attitude toward the profession of social worker or social pedagogue. At this stage, initial moral-ethical attitudes are formed, and students are integrated into professional-ethical relationships and adapted to the conditions of university life.

At the «individual-correctional» stage, which takes place during the second and third years of study at the higher education institution, there is an accumulation of knowledge, norms, and rules of personal, professional, and professional-moral behavior of the future specialist. This stage involves the acquisition and consolidation of skills and habits of moral behavior by intensifying students' industrial activities and engaging them in all forms and types of activities provided by the professional training educational program. At this stage, which is oriented toward the formation of the intellectual and practical-behavioral components of professional-ethical competence, there is an improvement of humane relationships and a fuller manifestation of feelings of personal and professional dignity and honor, which lie at the basis of the activity.

The third stage – «self-forming» – covers the fourth year of study. At this designated stage, the systematization of students' knowledge regarding professional-ethical competence takes place, along with the practical testing of acquired skills and habits of moral behavior through extensive involvement of students in industrial practice. The goal of this stage is to consolidate the results of the work on forming professional-ethical competence, mobilize and activate self-knowledge, create conditions for self-improvement, and expand students' skills in the field of self-education. The main content involves deepening the experience of moral activity, acquiring stable moral skills, the

ability to make correct decisions in complex situations, and the self-improvement of professionally important and personal qualities.

Thus, the formation of ethical foundations is fundamental to social work with various groups of clients. After all, the moral and mental health of the nation, as well as progressive reforms that will ensure a happy future, depend to a certain extent on the level of moral development of social sphere specialists. Social sphere specialists represent that spiritual potential which, at a secular level, must humanize the inner world of the individual, uphold the ideals of goodness, justice, honor, mercy, and love, and resist moral degradation, aggressiveness, confrontation, and alienation in society – that become especially acute during the times of war experienced by modern Ukrainian society.

The affirmation of the ideals of mercy and justice becomes a form of professional resistance to the destructive influence of war.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Social work during the war period is a mission of humanizing society. The ethical aspect is decisive, as it is precisely what transforms a formal service into an act of supporting human dignity. The main client groups remain IDPs, veterans, and children, and working with them requires a combination of professionalism and high moral virtues.

Perspectives for further research lie in the development of digital ethical protocols for remote social assistance and the study of the experience of veteran rehabilitation in countries that have survived prolonged conflicts, with the aim of adapting it to Ukrainian realities.

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EDUCATIONAL AND CULTURAL MISSION OF SCIENTIST MARIA KITSIUK IN SHAPING THE UKRAINIAN IDENTITY OF DIASPORA CHILDREN

Abstract. The article presents a comprehensive scholarly study of the activities of the Tkachenko family in Ivano-Frankivsk as a unique sociocultural phenomenon of contemporary museum pedagogy in Ukraine viewed through a personalistic perspective. The relevance of the study is determined by the need to conceptualize new forms of cultural heritage

preservation and to examine the role of private initiatives in the development of the museum-pedagogical environment amid transformations in the cultural sphere and the growing importance of creative industries.

The study explores the specific combination of artistic creative practices, private museum initiatives, collecting, exhibition activities, cultural communication, and cultural tourism development within the activities of the Tkachenko family. It is substantiated that the Tkachenko family functions not merely as a bearer of cultural values but also as an active subject involved in their creation, interpretation, preservation, and transmission into the public sphere. It is demonstrated that the family's activities extend beyond traditional private collecting and can be interpreted as an example of a family creative industry within which an integrated cultural product is created and publicly represented.

Particular attention is paid to the personalistic approach, which makes it possible to conceptualize the family as an integrated creative community in which individual creative strategies are combined with collective cultural-production practices. The stages of the private museum's development, the specific features of collection formation, and the implementation of unique artistic and record-setting projects are analyzed, including series devoted to the coats of arms of the regions of Ukraine and European countries. Their significance for promoting Ukrainian culture, strengthening national identity, and fostering intercultural dialogue is determined.

The article proposes an original approach to understanding the functions of a private museum as a contemporary actor within the creative industries. Such a museum performs educational, developmental, cultural-creative, communicative, and tourism-related functions. It is argued that activities of this kind contribute to the development of cultural tourism, the revitalization of local cultural practices, and the preservation, interpretation, and transmission of both tangible and intangible cultural heritage.

Keywords: museum pedagogy, personalistics, personalistic approach, cultural heritage, private museum, family creative industry, cultural tourism, exhibition activity, collecting, cultural communication, national identity, cultural production, sociocultural phenomenon.

ПЕРСОНАЛІСТИЧНИЙ ВИМІР МУЗЕЙНОЇ ПЕДАГОГІКИ: ПРОБЛЕМИ ЗБЕРЕЖЕННЯ КУЛЬТУРНОЇ СПАДЩИНИ ТА РОЗВИТКУ СІМЕЙНИХ КРЕАТИВНИХ ІНДУСТРІЙ

Анотація. У статті здійснено комплексне наукове дослідження діяльності родини Ткаченків у місті Івано-Франківську як унікального соціокультурного феномену сучасної музейної педагогіки України у персоналістичному вимірі. Актуальність дослідження зумовлена необхідністю осмислення новітніх форм збереження культурної спадщини та ролі приватних ініціатив у розвитку музейно-педагогічного простору в умовах трансформації культурної сфери та зростання значення креативних індустрій. Розкрито специфіку поєднання у діяльності родини творчої художньої практики, приватної музейної ініціативи, колекціонування, виставкової діяльності, культурної комунікації та розвитку культурного туризму. Обґрунтовано, що родина Ткаченків виступає не лише як носій культурних цінностей, а як активний суб'єкт їх створення, інтерпретації та трансляції у суспільний простір. Доведено, що діяльність родини виходить за межі традиційного приватного колекціонування і може бути інтерпретована як приклад сімейної креативної індустрії, у межах якої формується цілісний культурний продукт. Акцентовано на персоналістичному підході, що дозволяє розглядати родину як інтегровану творчу спільноту, де індивідуальні творчі стратегії поєднуються з колективною культуротворчою діяльністю. Проаналізовано етапи становлення приватного музею, особливості формування колекцій, а також реалізацію унікальних мистецьких і рекордних проєктів, зокрема створення серій, присвячених гербам областей України та держав Європи. Визначено їхнє значення для популяризації української культури, формування національної ідентичності та розвитку міжкультурного діалогу. Запропоновано авторський підхід до розуміння функцій приватного музею як сучасного суб'єкта креативних індустрій, що виконує освітню, виховну, культуротворчу, комунікативну та туристичну функції. Доведено, що діяльність подібних інституцій сприяє розвитку культурного туризму, активізації локальних культурних практик і збереженню нематеріальної та матеріальної культурної спадщини.

Ключові слова: музейна педагогіка, персоналістика, культурна спадщина, приватний музей, музейно-освітній простір, сімейна креативна індустрія, культурний туризм, виставкова діяльність, колекціонування, культурна комунікація, національна ідентичність, культуротворчість, соціокультурний феномен.

INTRODUCTION

The problem formulation. Transformational processes in the contemporary sociocultural space lead to an increasing role of museum pedagogy as an important instrument for the preservation, interpretation, and transmission of national cultural heritage. In the context of total digitalization and the development of creative industries, new forms of organizing museum activities are gaining particular relevance, among which private museums and family cultural initiatives occupy a significant place. They function not only as centers for preserving cultural values and folk traditions, but also as active agents of cultural communication, education, and the development of cultural tourism (Chervinska, & Chervinskyi, 2021).

In this context, the personalistic approach becomes especially important, as it allows cultural phenomena to be examined through the prism of the activities of a creative community or a particular individual. Within museum pedagogy, the personalistic approach opens up broad opportunities for a deeper understanding of the role of individual and family factors in shaping the sociocultural space, preserving national identity, and developing innovative cultural practices.

Analysis of recent research and publications. The issues of preserving cultural heritage, developing museum studies, creative industries, and cultural management are the subject of active scholarly research both in Ukraine and abroad. The analysis of scientific sources shows that, despite a significant number of studies devoted to museum pedagogy (N. Drobna,

I. Chervinska, O. Paliychuk, O. Karamanov, O. Klyuchko, H. Maslai, O. Mikhno, H. Panakhyd, O. Topylko, N. Filipchuk, etc.), there is no holistic approach to understanding the activity of family cultural initiatives in creating family museums as integrated cultural-creative systems. This concerns the study of specific cases that demonstrate effective models of combining creative activity, museum practice, and private cultural entrepreneurship.

In this context, the activity of the Tkachenko family in the city of Ivano-Frankivsk appears as a unique example of combining artistic creativity, private museum initiative, collecting, exhibition activity, and the popularization of cultural heritage. Their experience makes it possible to reveal new opportunities for museum pedagogy in the context of the development of creative industries and cultural tourism.

In the foreign scholarly discourse, issues of museum education, cultural heritage, and new forms of museum communication are studied in the works of E. Huebner (2023), A. Okvuran, C. Karadeniz (2021), L. Phillips (2022), N. Prottas (2019), where emphasis is placed on innovative approaches to museum education, the digitalization of the museum environment, and decolonial practices in the museum field.

At the same time, the analysis of contemporary scientific sources shows that, despite a significant number of studies, the issues of the personalist dimension of museum pedagogy remain insufficiently explored, particularly in the context of the functioning of private museums and family creative industries as integrated cultural-creative systems. The study of specific practices that demonstrate effective models of combining creative activity, museum initiative, and cultural entrepreneurship is especially relevant, which determines the choice of the topic of this research.

Despite the considerable number of scholarly works, the literature analysis allows us to identify several research gaps. First, there are practically no comprehensive studies of family private museums as a specific form of organizing socio-cultural activity. Second, theoretical approaches to analyzing family creative cooperation as a model of functioning of a creative industry have not been developed. Third, the role of record-breaking artistic projects in the popularization of cultural heritage, the formation of the cultural brand of a territory, and the development of cultural tourism has not been sufficiently studied. Finally, in contemporary scholarly literature, there are virtually no works devoted to the activity of the Tkachenko family as an integrated socio-cultural phenomenon combining a private museum, a creative workshop, exhibition activity, authorial artistic projects, cultural diplomacy, and active public communication. These research gaps determine the relevance of this study and define its scientific novelty.

AIM AND TASKS OF THE RESEARCH

The aim of the research is a comprehensive analysis of the personalist dimension of museum pedagogy through the prism of the activity of the Tkachenko family, as well as the identification of problems of cultural heritage preservation and the specifics of the development of family creative industries as modern forms of cultural-creative activity.

The objective of the research is to reveal the theoretical and methodological foundations of the personalist approach in museum pedagogy through the prism of the cultural-creative activity of the Tkachenko family as a socio-cultural phenomenon and a subject of the museum-pedagogical process.

RESULTS OF THE RESEARCH

At the international level, the conceptual foundations for the development of cultural heritage and creative industries are systematized in UNESCO program documents, in particular ReShaping Policies for Creativity: Addressing Culture as a Global Public Good (2022), in which culture is regarded as a global public good, and creative industries are seen as an important factor of social resilience, economic development, and post-crisis recovery of states. In contemporary UNESCO documents related to the cultural heritage of Ukraine, special emphasis is placed on supporting cultural institutions, creative initiatives, processes of digitization of cultural heritage, and the development of partnership models between state and non-state actors in cultural activity.

In recent years, growing attention has been paid to the role of culture as a factor ensuring social resilience in conditions of war. UNESCO documents, the Ukrainian Cultural Foundation, and international cultural programs emphasize “that support for local cultural initiatives, non-governmental museums, and creative projects is one of the key factors in preserving cultural identity, developing communities, and post-war recovery of Ukraine” (UNESCO, 2022).

Museum pedagogy in scientific education reveals their diversity and describes their role in society; it also emphasizes the importance of museums in the development of formal and non-formal education and lifelong learning. As researcher O. Mikhno notes, “an important role in the formation of museum affairs in Ukraine was played by educators, scholars, and cultural and educational figures who, relying on European experience and national traditions, contributed to the expansion of the functional field of museums as educational and research institutions. Their initiatives were aimed not only at forming concepts for integrating museums into the educational process, but also at creating institutional mechanisms that ensured their stable interaction with the education system” (Mikhno, 2025).

In this context, we agree with the well-known museologist N. Filipchuk that “a modern museum is a multidisciplinary center whose activity is based on the fundamental principles of an activity-based approach, the principle of communication and dialogue between museum staff and visitors, ideas of lifelong education, the implementation of information and communication technologies, etc.” (Filipchuk, 2019).

The described aspects of research in the personalist direction of museology are connected with the study of family museums, which we consider through the prism of socio-cultural activity management as a vivid and successful example of the functioning of a family creative industry, and the work of a family private museum as a multifunctional cultural institution that integrates the preservation of cultural heritage, the creation of an innovative cultural product, the expansion of cultural tourism boundaries, the study of achievements in museum pedagogy, the use of positive experience in establishing public interaction and cultural diplomacy. A vivid example of this is the activity of the private museum of the family of Lyudmyla

and Valentyn Tkachenkos in Ivano-Frankivsk. The study of the Tkachenkos' family activities is carried out on the basis of an interdisciplinary approach that combines the provisions of socio-cultural activity management, cultural studies, creative industries theory, cultural heritage, museology, and cultural tourism. Such an approach is conditioned by the complexity of the research subject, which cannot be fully revealed within a single scientific field. After all, a private museum in modern conditions acts not only as an institution for preserving cultural heritage but also as an active subject of cultural production, social communication, creative entrepreneurship, and local development of certain territories.

The theoretical foundations of the study are the concepts of cultural heritage as a strategic resource for social development, the provisions of the theory of creative industries, and modern approaches to interpreting its essence both in national and international documents on cultural management and principles of sustainable development. This makes it possible to consider cultural heritage not as a static object of protection, but as a dynamic resource capable of generating new cultural practices, social meanings, and innovative forms of cultural interaction.

At the same time, the research is not limited to the description of a single museum case. Since the artistic and educational activity of the Tkachenkos' family is an example of broader transformational processes in the cultural sphere, where private initiative becomes a self-sufficient socio-cultural institution. Therefore, the results of the analysis have not only theoretical and methodological but also practical significance for the further development of the cultural industry and socio-cultural management.

The scientific logic of the research involves a transition from the analysis of a specific case to theoretical generalization. Such an approach makes it possible to formulate two interconnected authorial concepts. The first is the justification of the concept of "family creative industry," which is proposed to be understood as a form of organization of socio-cultural activity based on the cooperative creative interaction of family members aimed at creating, interpreting, popularizing, and socially disseminating cultural products. The second concept concerns the functional model of a private museum, which in modern realities performs not only traditional collection-keeping and exhibition functions but also integrates cultural-creative, communicative, tourism, educational-cognitive, representational, socio-consolidational, and innovative activities. It is precisely the interconnection of these two models that defines the authorial approach to the study, in which the family acts as the subject of cultural product creation, while the private museum serves as an institutional platform for its representation, development, and public communication. In this interaction, a new model of socio-cultural management is formed, combining creative self-realization, preservation of cultural heritage, development of cultural tourism, and active participation in contemporary creative industries.

A special place among such initiatives is occupied by the private museum of the Tkachenkos' family. Its uniqueness lies in the combination of authorial architectural miniatures, decorative and applied art, collecting activities, and preservation of local cultural memory. Over many years, the couple worked on creating hundreds of authorial compositions, among which miniature castles, fortresses, architectural ensembles, decorative landscape compositions, and artistic works made using their own technologies from natural stone, wood, metal, and other materials occupy a special place.

The creative work of the family has received wide public recognition, has become the subject of journalistic research, and has been repeatedly presented in numerous regional press publications. In 2018, the catalog of the museum's works was officially registered as an object of copyright of Ukraine (2018). Despite such popularity, the museum's activities have still not become the subject of comprehensive scientific analysis in the context of contemporary research on cultural heritage, private museology, and creative industries.

At the beginning of the 21st century, there is a certain rethinking of the role of the museum as a socio-cultural institution and an educational-cognitive center. If traditionally the museum was considered mainly as an institution for collecting, recording, preserving, and exhibiting historical and cultural artifacts, then modern museology increasingly interprets it as an open communication space that ensures interaction between cultural heritage, society, and creative practices. Accordingly, private museums are gaining special importance, their activities being based not only on collecting, but also on the personal initiative of their founders, creative approach, civic responsibility, and the desire to preserve local cultural memory (Behal, 2026).

The emergence of a significant number of private museums in Ukraine is a natural response of society to the transformational processes of the late 20th and early 21st centuries. It is precisely private initiatives of concerned artists that often make it possible to preserve those objects of tangible and intangible cultural heritage that remain outside the attention of state institutions. Unlike traditional museums, private museum spaces are characterized by greater mobility, flexibility in forming exhibitions, the ability to quickly respond to social demands, and the implementation of innovative forms of cultural communication in various cultural and educational environments.

One of the effective innovative educational directions directly related to the effective organization of the educational environment and its use in the education and upbringing of the younger generation is museum pedagogy. In contemporary scholarly discourse, museum pedagogy is considered an interdisciplinary field that combines pedagogy, cultural studies, and museology and is aimed at organizing the process of transferring cultural experience within the museum environment. Unlike traditional educational practices, it is based on the principles of visualization, interactivity, emotional engagement, and personal interpretation of cultural artifacts.

According to the approaches presented in the works of N. Filipchuk, "museum pedagogy functions as a system of educational and communicative interaction between the exhibit, the interpreter, and the visitor, within which not only knowledge transfer takes place, but also the formation of value orientations, cultural memory, and identity" (Filipchuk, 2017). In this context, the personalist approach, which allows museum-pedagogical processes to be considered through

the prism of the activities of specific individuals or cultural-artistic centers that intensively care for cultural heritage, becomes particularly significant.

Personalism as a scientific direction emphasizes the uniqueness of individual experience, creative contribution, and the role of personality in the creation of museum space. The application of a personalist approach in museum pedagogy makes it possible to interpret the museum not only as an institution but as a result of purposeful cultural-creative activity of specific actors who are carriers of cultural heritage.

A special manifestation of this approach is the activity of family museums, which represent a specific form of organizing cultural space based on intergenerational transmission of experience, traditions, and creative practices of multiple generations. In such circumstances, the family museum functions not only as a place where material objects are preserved, but as a holistic cultural-communicative environment where individual creative strategies of family members are combined with collective activity aimed at creating, interpreting, and popularizing cultural products. This form of museum activity contributes to the preservation of intangible cultural heritage, the actualization of local identity, and the formation of cultural and artistic capital of the community. An important feature of family museums is their integration into modern creative industries. They function as flexible cultural platforms that combine exhibition activity, authorial art, cultural tourism, educational practices, and communication strategies. In contrast to institutional museums, family initiatives are characterized by greater adaptability, innovativeness, and personalization, which allows them to effectively respond to the demands of contemporary society and integrate into the global cultural space.

Thus, the combination of museum pedagogy, personalism, and the activity of family museums forms a new methodological foundation for the study of cultural heritage, within which the individual and the family are considered active subjects of cultural creation, capable not only of preserving but also of producing and transmitting cultural meanings in the contemporary socio-cultural environment.

This issue has become particularly relevant in the context of the Russian-Ukrainian war, when the question of preserving national cultural heritage has acquired not only scientific but also strategic significance. The destruction of historical monuments, museums, religious buildings, and cultural infrastructure has actualized the need to develop alternative models for the protection of cultural values, among which private museum initiatives occupy an important place.

Contemporary international practice demonstrates that private museums are increasingly integrated into the system of creative industries. This is due to the fact that they combine artistic activity, entrepreneurship, cultural tourism, educational programs, and social communications. According to the provisions of the Law of Ukraine “On Culture” (2010), “creative industries include types of economic activity based on individual creativity, talent, intellectual potential, and the creation of cultural products” (Law of Ukraine “On Culture”, 2010). That is why the activities of many contemporary private museums extend far beyond classical museology and acquire the characteristics of cultural entrepreneurship.

An important feature of private museums is the personalized nature of their development (Klyuchko, 2018). Most often, they are formed around a creative personality a family member or an individual civic initiative which determines the concept of the exposition, methods of collection formation, design solutions, and ways of interacting with visitors. Such a model ensures the authenticity of the museum space, creates a special atmosphere of direct communication between the author and the visitor, and forms an emotional perception of the exhibition, which significantly distinguishes private museums from traditional state institutions.

In contemporary museology, the concept of the “living museum” is gaining increasing popularity, according to which the museum space ceases to be exclusively a place for displaying exhibits. It transforms into an environment of constant creative activity, cultural dialogue, artistic experiments, educational practices, and civic engagement (Komova, 2022). Such characteristics are typical of many private museums in Ukraine, which often emerge without significant state support but, thanks to the enthusiasm of their founders, become important cultural centers of regional artistic development.

Special attention should be paid to the interconnection between private museums and the development of cultural tourism. In contemporary conditions, tourists increasingly seek not only information about historical monuments but also a unique emotional experience, the opportunity for direct communication with the creator of the exposition, participation in creative processes, and familiarization with local traditions and crafts (Holynskyi, 2016). That is why authorial museums often become tourist magnets of certain territories, forming a positive image of the community and stimulating the development of the local economy. The formation of private museums in Ukraine is mostly associated with the activity of individual personalities who, through many years of creative work, create unique cultural spaces capable of performing museum, educational, tourist, and communicative functions (Krainii, 2007).

The creation of the Tkachenkos’ family museum became the result of many years of creative activity of the spouses, united by a shared desire for artistic self-expression, preservation of historical and cultural heritage, and popularization of architectural monuments (Stepaniuk, 2008). The history of the museum did not begin as the implementation of a special museum project but as a family hobby in artistic modeling and decorative-applied art. Gradually, individual works evolved into a holistic artistic complex, which today constitutes a unique collection of architectural miniatures, decorative compositions, authorial models of historical buildings, and other artistic objects (Skavron, 2010).

A distinctive feature of the museum is that practically every exhibit was created by the founders themselves. Unlike most museum institutions, where collections consist of items gathered by various collectors or obtained through archaeological or ethnographic expeditions, the Tkachenkos’ family museum is an authorial collection. This determines its special cultural value, as each exhibit is not only a museum object but also the result of a creative interpretation of historical architecture.

A significant influence on the formation of the museum’s authorial concept was the life experience of Valentyn Tkachenko. For many years, he worked in law enforcement agencies, engaging in responsible professional activity that

required a high level of discipline, attention to detail, and analytical thinking. After completing his professional career, creativity became an opportunity for him to realize his artistic potential, which gradually turned into the work of his life. It was perseverance, meticulousness, and exceptional diligence that made it possible to create hundreds of unique artistic compositions (Krainii, 2007).

An analysis of the history of the museum's creation provides grounds to assert that Liudmyla Tkachenko performed a much broader role than is traditionally assigned to family members of an artist. She was a generator of many creative ideas, actively participated in forming the museum concept, artistic design of the exposition, creation of decorative compositions, and ensuring the integrity of the museum environment. Thanks to her organizational abilities, individual works gradually merged into a unified cultural space.

An important area of Liudmyla Tkachenko's creative activity is decorative-applied art. Her embroidery, artistic works, and decorative design elements not only complement Valentyn Tkachenko's architectural compositions but also create a holistic emotional and aesthetic environment of the museum. The combination of different art forms ensures a multidimensional perception of the exhibition, in which architectural miniatures, folk art, natural landscape, and family history interact as a unified artistic complex. In fact, she performed functions that in modern museum institutions are assigned to curators, project coordinators, and cultural communication specialists.

The family model of creativity implemented by Liudmyla and Valentyn Tkachenko demonstrates the effectiveness of synergy between different competencies. While Valentyn Tkachenko focused mainly on creating architectural compositions and artistic modeling, Liudmyla Tkachenko ensured the conceptual integrity of the museum space, its aesthetic content, and openness to communication with the community. It is precisely this interaction that made it possible to create not just a collection of artistic works but a full-fledged private museum that became an important center of cultural life in the Prykarpattia region.

Materials from the regional press indicate that as early as the late 2000s, the creative work of the Tkachenkos' family attracted the attention of journalists and the general public. In the publication "Handmade Castles of the Tkachenkos' Family," it was emphasized (Skavron, 2010) that the authors created architectural compositions using natural stone, decorative elements, wood, metal, and mirrored surfaces, achieving a high level of artistic authenticity. Miniature castles, which combined artistic expressiveness with meticulous elaboration of the smallest architectural details, attracted particular admiration.

Further development of creative activity is evidenced by the article "Castles in the Yard" (Skavron, 2010), in which the museum is described as a kind of open artistic space. The author of the publication emphasizes that the courtyard of the estate has transformed into an open-air exhibition, where visitors have the opportunity not only to view finished compositions but also to communicate directly with the author, learn about the technology of creating exhibits, and observe the creative process. Such a format fully corresponds to the modern concept of a "living museum," in which the demonstration of cultural values is combined with communication, creative process, and informal education.

An important stage of public recognition of the creative work was the receipt in 2018 of the Certificate of State Registration of Copyright for the collection of fine art works "Catalog of Works of Folk Talents of Prykarpattia of the spouses Liudmyla and Valentyn Tkachenkos." This document has not only legal but also cultural significance. It confirms the state recognition of the authorship of the created collection and proves that the family's creative output constitutes an independent artistic value (Certificate, 2018).

Thus, the private museum of the Tkachenkos' family is the result of many years of purposeful creative activity that combines artistic mastery, historical memory, family traditions, and civic initiative. Its development demonstrates that even without significant institutional support, a private cultural initiative is capable of forming a unique museum space that performs important functions of preserving cultural heritage, popularizing history, and developing creative industries.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The contemporary development of the cultural sphere in Ukraine is characterized by an active search for new models of preserving, promoting, and utilizing cultural heritage. Alongside state and municipal museums, private museum initiatives are gaining increasing importance, emerging thanks to personal creative activity, civic responsibility, and the desire of individual enthusiasts to preserve historical memory for future generations. Museums of this format perform not only a memorial or exhibition function but also become centers of cultural communication, tourist attractiveness, artistic practices, and the development of local creative industries.

Thus, the private museum of the Tkachenkos' family is a multifunctional cultural and artistic center in which museum activity is integrated with authorial decorative-applied art, exhibition practice, cultural management, creative experiments, and public cultural communication. It is precisely this multidimensionality that allows the museum to be considered a successful model for the development of creative industries at the local level.

Under conditions of competency-oriented learning, the museum environment functions as an effective information-didactic resource that ensures the integration of educational content with real objects of natural and cultural heritage (Bielova, Borys, Chervinskyi, 2025).

Prospects for further scientific research are associated with the exploration of the educational and pedagogical potential of museum pedagogy and the achievements of private museums.

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SOCIAL EDUCATION OF YOUTH ON THE BASIS OF ETHNOCULTURAL TRADITIONS IN WAR CONDITIONS

Abstract. The article analyzes scientific research on the problem of social education of children and youth based on ethnocultural traditions in wartime and determines their potential in the formation of national identity and patriotism. The purpose of the article was to determine the possibilities of using ethnocultural traditions as a means of developing national identity, patriotism and resilience of children and youth in wartime in Ukraine. The scientific novelty lies in studying the genesis of views on the essence of the concepts of "patriotism" and "national-patriotic education", determining the features of educational influences using ethno-pedagogical means and their possibilities for increasing the potential of resilience and forming national identity and patriotic orientation of children and youth, outlining effective forms and methods of social education of youth based on ethnocultural traditions in wartime, as well as the possibilities of training social sphere specialists to carry out volunteer activities in the specified direction. Conclusions of the study: the essence of social education of youth based on ethnocultural traditions was determined, the genesis of the formation of the essence of the concepts of "patriotism" and "national-patriotic education" was analyzed, the content and features of implementing social and educational influences on children and youth based on ethnocultural traditions were highlighted using elements of digitalization of ethnocultural influences in order to form socially important personality traits and develop patriotism in war conditions, modern forms of social and educational influences using ethno-pedagogical means were proposed: interactive ethno-quests, folklore digital projects, discussion platforms and clubs, which can be used by social sphere specialists in professional activities with children and youth to form national identity and patriotic orientation, as well as develop the resilience of youth in war conditions. The results of the testing of volunteer initiatives for the implementation of socio-educational influences based on ethnocultural traditions in specialized social institutions in wartime conditions are presented, which allow strengthening the indicators of stress resistance and patriotic orientation of youth in the local territorial community.

Keywords: social education, patriotism, national-patriotic education, means of ethno-cultural traditions, resilience, youth, war.

СОЦІАЛЬНЕ ВИХОВАННЯ МОЛОДІ НА ЗАСАДАХ ЕТНОКУЛЬТУРНИХ ТРАДИЦІЙ В УМОВАХ ВІЙНИ

Анотація. У статті здійснено аналіз наукових досліджень з проблеми соціального виховання дітей і молоді на засадах етнокультурних традицій в умовах війни, визначено їх потенціал у формуванні національної ідентичності та патріотизму. Метою статті було визначення можливостей використання етнокультурних традицій як засобів розвитку національної ідентичності, патріотизму та резильєнтності дітей та молоді в умовах війни в Україні. Наукова новизна полягає у дослідженні генези поглядів на суть понять «патріотизм» та «національно-патріотичне виховання», визначенні особливостей виховних впливів з використанням етнопедагогічних засобів та їхніх можливостей для підвищення потенціалу резильєнтності та формування національної ідентичності та патріотичної спрямованості дітей та молоді, окресленні дієвих форм та методів соціального виховання молоді на засадах етнокультурних традицій в умовах війни, а також можливостей підготовки фахівців соціальної сфери до здійснення волонтерської діяльності в зазначеному напрямі. Висновки дослідження: визначено суть соціального виховання молоді на засадах етнокультурних традицій, проаналізовано генезу становлення суті поняття «патріотизм» та «національно-патріотичне виховання», висвітлено зміст та особливості здійснення соціально-виховних впливів на дітей та молодь на засадах етнокультурних традицій

з використанням елементів діджиталізації етнокультурних впливів з метою формування соціально важливих рис особистості та розвитку патріотизму в умовах війни, запропоновано сучасні форми соціально-виховних впливів з використанням етнопедагогічних засобів: інтерактивні етно-квести, фольклорні цифрові проєкти, дискусійні платформи та клуби, що можна використовувати фахівцям соціальної сфери у професійній діяльності з дітьми та молоддю для формування національної ідентичності та патріотичної спрямованості, а також розвитку резильєнтності молоді в умовах війни. Наведено результати апробації волонтерських ініціатив з упровадження соціально-виховних впливів на засадах етнокультурних традицій у спеціалізованих соціальних інституціях в умовах війни, що дозволяють зміцнити показники стресостійкості та патріотичної спрямованості молоді у місцевій територіальній громаді.

Ключові слова: соціальне виховання, патріотизм, національно-патріотичне виховання, засоби етнокультурних традицій, резильєнтність, молодь, війна.

INTRODUCTION

The problem formulation. Modern Ukraine is experiencing an era of profound transformations, the identity of its citizens is acquiring new aspects. As the survey results showed, the vast majority of respondents, answering the question about their main identity, indicated that they primarily consider themselves citizens of Ukraine (79%). When it comes to ethnic identity, the survey results reveal a whole range of answers that emphasize the multiculturalism of Ukrainian society. The majority of respondents identify themselves as Ukrainians by ethnic origin (94%), which indicates the dominant role of Ukrainian ethnicity in the formation of the national image. Thus, Ukraine preserves its cultural uniqueness and at the same time opens the door to integration into the pan-European context. (State Service of Ukraine for Ethnopolitics and Freedom of Conscience, 2024, p.4). Zagoriy Foundation, together with the Center for Social and Marketing Research "Sotsis", conducted a study of traditions in Ukraine and found that "60% of Ukrainians consider traditions important for society; 83.7% of Ukrainians consider the most important sources and carriers of traditions to be family and household, 46.4% – school, 41.3% – church, 34.3% – literature and books, 28.6% the Internet, 23% – preschool institutions. Kyiv and Precarpathia turned out to be the trendsetters of Ukrainian traditions – these are regions whose residents actively study, support and cultivate customs in their lives (Horon D. 60% of Ukrainians consider traditions important..., 2025).

Thus, the relevance of the study is due to a number of socio-cultural changes and socio-political transformations that our country is experiencing against the backdrop of many years of war. The main factors that necessitate the study of the problem of social education of different age groups on the basis of ethnocultural traditions are: the need to preserve and protect national identity in conditions of war, when the sovereignty of the state is under constant threat, which necessitates the search for reliable levers of resistance to enemy aggression, which will allow the formation of a stable national self-consciousness and identity in the younger generation; the era of digitalization and the influence of the virtual world, which erases borders and levels the unique ethnic characteristics of different peoples, requires a return to ethnocultural origins, which will help the individual find additional reliable landmarks in the changing and unpredictable world of BANI;

The intensification of state confrontation and the presence of global military conflicts, which leads to population migration and the emergence of a large number of forcibly displaced persons (IDPs) who require socio-psychological support at the level of local host communities, necessitates the need to find means that will facilitate the adaptation of both the IDPs themselves and the local population to the characteristics of the new residents.

Analysis of recent research and publications. As evidenced by the analysis of scientific research (Ivanchuk, 2023), the ethnocultural environment is an important factor in the social education of the individual, which affects the success of its further socialization, through the formation of a national identity, which helps the individual, through the development of specific cultural and national codes, to increase the adaptive capabilities of the individual in adapting to the challenges of a changing world, while preserving their own ethnic characteristics and a certain psychological resilience. The issues of using the means of ethnocultural traditions were addressed by famous teachers of the past H. Skovoroda, V. Sukhomlynsky, M. Stelmahovich, K. Ushynsky and other researchers, who developed the fundamental principles of Ukrainian ethnopedagogy and a methodological basis for understanding folk traditions as a holistic system of education and the formation of national character and mentality. Researchers have emphasized the need to use ethnopedagogical tools in the process of teaching and educating the younger generation (Stelmahovich, 1997; Sukhomlynsky, 1997; Ushynsky, 1983). In the modern realities of globalization processes in the 21st century, the issue of education based on ethnocultural traditions has acquired new meanings: in the context of trans-nationalization of cultures, European integration, and especially in the context of the war in Ukraine, the preservation of the unique features of Ukrainian identity becomes important for a large part of the population in forced migration and for the population remaining in the territories occupied by Russian invaders. Modern researchers (Bekh, 2012, 2023; Bekh., Kyrychenko, Petrochko, 2015; Zhurba et al., 2019; Korniyenko, 2012; Kharahirlo, 2020, etc.) emphasize the importance of forming national identity and patriotism as necessary features of personal development through the prism of ethno-pedagogical cultural influences at the level of the family, educational institutions and the community through the revival of Cossack traditions, traditional for each locality Ukrainian folk customs and rituals, etc. Modern researchers T. Alekseenko, O. Berezyuk, G. Kovganych, I. Orlenko, Romanchykova, G. Popova (Alekseenko, 2018; Berezyuk, 2014; Kovganych, 2023, Orlenko and Romanchykova, 2024; Popova, 2022) emphasize that the ethnocultural environment is an important factor in the overall development of an individual, his interaction with society and the formation of the ability to navigate in a multicultural world. Scientists study the issues of developing technologies and

means of introducing the ethnocultural component into extracurricular activities with children and youth (Korniyenko, 2012) and educational and upbringing work with children of different age groups (Ivanchuk, 2023; Kostina, Silyverst, 2023). Therefore, despite the detailed description of the educational significance of Ukrainian folklore, folk crafts and family traditions, as well as their importance for the full socialization of the individual and its harmonious development, the problem of social education of the individual in wartime using elements of digitalization of ethnocultural influences, as well as finding additional resources for forming the resilience of the individual in wartime, forming national identity and implementing patriotic education, taking into account the need to solve the problems of IDPs and people who are temporarily displaced abroad, requires more detailed consideration.

THE PURPOSE OF THE RESEARCH – to determine the possibilities of using ethnocultural traditions as a means of developing ethnic identity, patriotism and resilience of children and youth in war conditions in Ukraine.

RESEARCH METHODS

Theoretical analysis and generalization of scientific literature on the problem of using ethnocultural traditions as a means of developing ethnic identity, patriotism and resilience in children and youth in war conditions, development and testing of methodological support for organizing socio-educational influences aimed at developing ethnic identity, patriotism and resilience in children and youth in war conditions using ethnopedagogical means.

RESULTS OF THE RESEARCH

For modern Ukraine, as a country that has been in a state of full-scale war for many years, the issues of social education of the younger generation in such important characteristics as citizenship, patriotism, and national identity are of particular importance. Based on the research conducted among modern youth, represented by the sociological group "Rating", a high level of patriotic feelings and the formation of state values, which researchers associate with the response to the existential challenges of life, was recorded. Thus, in the structure of key life priorities of young people, pro-social and state orientations occupy a prominent place: “44% of respondents identify Ukraine’s victory in the war as the main priority, 41% — family and loved ones, and 39% — active participation in the restoration of the state,” which indicates a high level of social maturity and involvement of young people in general social processes (Sociological Group “Rating” (2025). The results of the All-Ukrainian Youth Survey in 2025, published by the “GURT” portal, showed that 64.3% of young people consciously plan to associate their future exclusively with Ukraine, and only 4.3% are focused on final emigration, which is also an indicator of a formed civic identity (GURT Portal).

According to a national survey by the research company Info Sapiens, Ukrainian youth (aged 16–35) recorded high indices of perception of various social groups that need support. In particular, the level of positive perception of the elderly is 89%, people with disabilities - 86%, and internally displaced persons (IDPs) - 78%. At the same time, the study revealed rather low indicators in terms of ethno-cultural tolerance and readiness to fully accept the Roma minority, which is only 29% and indicates the need to strengthen ethno-pedagogical influences aimed at fostering a culture of interethnic communication. Despite the above-mentioned rather high indicators of the upbringing of the youth community, against the background of the negative impact of the war and the consequences of psychosocial distress caused by it, researchers note the presence of certain threats and risks. According to the results of the Rating Group study (2025), 21% of young people see one of the greatest risks for the country as the growth of internal conflicts in society, which leads to the emergence of the threat of social tension (United Nations Development Programme, 2025). Important for the future development of our country are the data of an international study published by the Ministry of Health of Ukraine, according to which young people aged 18–24 have the lowest assessment of their mental state (6.70 on a 10-point scale). The most common conditions are stress (56%), depression (53%) and exhaustion (45%), which in social pedagogy and social work are indicators that can increase the risks of social apathy, depressive disorders or, conversely, affective aggressive behavior of children and youth. In conditions of an acute need to support and create conditions for the development of youth as a priority area of state policy during a long-term war, unfortunately, one can observe a change in certain state priorities to areas more significant for wartime (Ministry of Health of Ukraine, 2023). As the survey showed, 53% of respondents indicate an acute lack of state support in financing youth initiatives, and 43% feel a lack of real opportunities for self-realization, which may have the risk of transforming into antisocial manifestations without proper pedagogical support and proper use of youth potential.

Thus, despite the high level of self-esteem of patriotism (44%) and tolerance (up to 89%) among representatives of the modern young generation, these data come into some contradiction with their high level of anxiety (over 50%) and a feeling of lack of space for self-realization. That is why, the use of ethnocultural traditions (as collective memory and stable rituals of interaction) and other ethnopedagogical means in the process of social education of youth in conditions of war in Ukraine can be a condition for increasing both personal resilience and socio-adaptive, supportive capabilities of the environment surrounding a young person, which will help transform the internal anxiety and lack of opportunities for self-realization of the younger generation into constructive social actions and socially active, patriotic behavior. Quite important in this context is the phenomenon of "Post-traumatic growth". Based on modern research in the field of resilience, it can be argued that in war conditions, a special type of individual and collective social capital is formed, where mutual assistance becomes a basic survival mechanism (Syniakova, Bokhonkova, Minin, 2025). Psychological studies of adolescents who have experienced a threat to their lives prove that trauma can transform into a high level of altruism and young people begin to acutely feel the value of human life, family and belonging to the community. According to the study "The Impact of War on Youth in Ukraine - 2025", published in 2026, there is a rapid growth in the public subjectivity of youth. In particular, 44% of young people are clearly aware that they can

personally influence changes in their community (United Nations Development Programme, 2026). Meanwhile, 77% of respondents expressed a direct willingness to join the country's post-war reconstruction and over 50% of Ukrainian youth currently have real, sustainable experience in volunteering (Trade Union of Education and Science Workers of Ukraine, 2026).

Analysis of UNICEF global reports (United Nations Children's Fund, 2024, 2025) showed that children in conflict zones demonstrate high rates of adaptability to new learning and living conditions when they have support from their family or community. It should also be noted that the modern world has changed considerably and is now one where success is measured by the ability to act in conditions of uncertainty (VUCA-world) and unpredictability (BANI-world), and the younger generation receives this harsh experience in adulthood. For successful existence in the modern unpredictable world, "soft skills" have become important: flexibility, adaptability, critical thinking and the ability to interact in crisis situations. All of the above characteristics are actively developed in organized joint interaction, but, unfortunately, as recorded in the UNICEF report (United Nations Children's Fund, 2025), in Ukraine, where a full-scale war has been going on for the fifth year in a row, there is a risk of educational and social losses, which is caused by the forced distance learning and difficult learning conditions in which Ukrainian children are forced to study. Reduced attention span, anxiety and lack of lively, emotional communication with peers inhibit the development of emotional intelligence, which is critically important for successful integration in modern society.

Against the background of these changes, the use of such ethno-pedagogical means (folk games, holidays, involvement in folk crafts) in the social education of children and youth makes it possible to fully satisfy this need and contribute to the acquisition by young people of such important characteristics as reducing anxiety and building resilience to the complex challenges of modern life in conditions of war, the formation of traits of a common identity with their own ethnic group, love for their homeland and the cultural heritage of their ancestors, the development of patriotic feelings and the desire to participate in public activity aimed at improving the well-being of their immediate environment and the local community.

An analysis of modern practices of the dissemination and use of Ukrainian traditions has shown that active figures in the public sphere are doing a lot of work in this direction. Thus, the NGO Zagoriy Foundation implements the Projects “Origins” and “Generous Tuesday”, through which they collect and disseminate Ukrainian folk traditions by organizing authentic cultural spaces and publishing and distributing interesting ethno guides (Spring, Summer, Summer-Autumn, Winter, etc.), which allow returning traditions to various centers of society; family, educational and cultural institutions, offices, coffee shops, bookstores and other spaces (Guides to Ukrainian Customs, 2025). In order to spread traditions in modern society, activists of the public space use such innovative forms as interactive ethno-quests, introduce folklore digital projects, and also try to involve in volunteering on the basis of traditional Ukrainian mutual aid – “toloki”.

In the conditions of war in Ukraine, when everyone is in a state of chronic stress, ethnopedagogical tools perform a therapeutic function, returning a sense of security, rootedness and psychological stability to children, youth and adults. To this end, an effective method is the use of traditional crafts in therapeutic practice: clay therapy (pottery), Easter egg making, wicker weaving or creating motany dolls – which are used not only for educational purposes, but also as micro-group therapy. The inclusion of fine motor skills in combination with stories about the protective symbols of ancestors reduces the level of anxiety and activates the internal resource of the participants of the master classes. Another effective method of therapeutic influence that can be used to strengthen the resilience potential of young people is Toloki, as a form of joint work that historically saved Ukrainian communities after hardship. Today, “youth groups” aimed at improving territories, weaving camouflage nets with the study of ritual songs, and restoring destroyed spaces integrate children and young people who belong to the category of forcibly displaced persons (IDPs) into new communities, giving them a sense of community and usefulness. “Digital ethnopedagogy” can be considered a relevant direction of ethnopedagogical influences for modern youth, which is very attractive precisely for the “Alpha” and “zoomer” generations, because modern youth is more interested if ethnocultural heritage “speaks” to them in one language — the “language of technology.” In this context, an interesting form could be offered to teenagers to create a "Digital Folklore Project" using content: TikTok series about little-known Ukrainian traditions, or recording podcasts with famous folklorists or ethnographers, or developing interactive maps of local identity that involve interviewing older people in their local communities about local customs and digitizing this data in the form of a cultural heritage of a particular area.

Also, an interesting type of ethnoactivity for modern youth is the use of ethno-gamification, when they are offered to join interactive quests, mobile applications or create virtual rooms, where young people, through solving puzzles and crosswords based on Ukrainian mythology, history and traditions, discover new "codes of national identity". A useful type of socio-educational influence in the conditions of war in Ukraine is the involvement of young people in active volunteer and public ethno-activity on certain integrative platforms, where they, by participating in interesting ethno-projects, can join activities that contribute to the formation of patriotism and social activity. These can be specially organized discussion clubs, video lectures, where conditions are created for discussing current events through the prism of historical parallels (for example, comparing the modern volunteer movement and Cossack mutual aid), and young people engage in historical and cultural reflections that help them realize that they are part of the continuous chain of Ukrainian statehood.

In the conditions of a full-scale war in Ukraine, national-patriotic education becomes especially important. The analysis of scientific literature on the problem of national-patriotic education allows us to trace the genesis of its

formation from ethnographic-cultural awareness through the prism of the civil-state to the military-defense dimension, when the essence of the concept of "patriotism" goes through certain stages of its formation from cultural-ethnic (late 19th-late 20th centuries), when it was considered mainly as the need to preserve the spiritual heritage, language, customs and attachment to the native land (small homeland), through (the period of independence from 1991 to 2014), which is associated with Ukraine gaining independence as a separate state, when the emphasis shifted from a purely ethnic feeling to the legal and political plane, which implied the awareness of oneself as a citizen of a sovereign state, to the modern stage (the period of the ATO/JFO and full-scale war) filled the essence of the concept of "patriotism" with an effective, protective content, as readiness for self-sacrifice and active resistance to the aggressive actions of attackers. A vivid example of the understanding of the essence of the concept of "patriotism" by teachers of the first stage is the definition of V. Sukhomlynsky "patriotism begins from the cradle... One cannot be a true patriot who does not love and honor his mother, his father" (Sukhomlynsky, 1977, p. 373). I. Bekh gives the following definition of the concept of "patriotism" - "this is a spiritual height, without which a person is only a wayfarer, wandering in the darkness of his life. The feeling of patriotism as love for his people, for the values that a person has accumulated, also means love for the land on which he lives and continues to live, creating both himself and his unique being" (Bekh, 2023, p. 1). During the war in Ukraine, the meaning of "patriotism" acquired additional meaning and was defined as "a national socio-cultural shield, the basis of national security, expressed in the direct volunteer, defensive, and civic subjectivity of the individual" (National Institute for Strategic Studies, 2024). In accordance with the above, one can also trace a certain genesis in defining the essence of the concept of "national-patriotic education" from the traditional one, where it was defined as a purposeful, systematic pedagogical process of forming patriotic feelings, national self-awareness, spirituality and moral qualities in the younger generation on the basis of the historical and cultural heritage of the people, which provided for involvement in ethnographic circles before the transition to our wartime to "complex, systematic and purposeful activities of state authorities and local self-government bodies, educational institutions, family, public associations and charitable organizations, religious organizations and other institutions to form in the younger generation a high patriotic consciousness, a sense of loyalty, love for the Motherland, concern for the welfare of one's people, readiness to fulfill one's civic and constitutional duty to protect national interests, integrity, independence of Ukraine, and to promote its establishment as a legal, democratic, social state" (Ministry of Education and Science of Ukraine, 2022). Modern researchers (Karaman, Olejnikova, 2023; Kyrychenko, Necherda, 2022) prove that in times of war, national-patriotic education also involves the formation of military-patriotic resilience and digital resistance. So, summing up the above, we can state that in the course of the historical perspective, not only the focus of activity changes from emotional, ethnographic and cultural-educational in the first period to state-related, defensive and effective-practical in modern conditions of war and digitalization of influences, which necessitated a change in the content, basic forms, methods and means of activity, which, in turn, led to a different result - from a passive object of educational influence, in which knowledge about culture, respect for national symbols and love for the Motherland are formed, to an active subject (volunteer, digital content developer), in which national identity, resilience and readiness to protect and restore the state are formed.

Based on the results of the analysis of scientific research and our own socio-pedagogical work based on ethno-cultural traditions (Kostina 2018; Kostina, Silyverst, 2023; Kostina, Mohylka O, 2025), we have developed and implemented a number of social and educational activities involving students of the specialties "Social Work" and "Social Work and Counseling" of the H.S. Skovoroda Kharkiv National Pedagogical University on the basis of a partner network of social institutions (BOBF "Caritas-Kharkiv", BOKHF "Social Assistance Service", BOKHF "Blago", KZ "Kharkiv Lyceum No. 43 of the Kharkiv City Council, KZ "Kharkiv Special School No. 2 of the Kharkiv Regional Council; KZ "Kharkiv Lyceum No. 4 of the Kharkiv City Council), during which students of higher education participated on a volunteer basis in the organization and conduct of social and educational events for Christmas, the Day of Defenders of Ukraine, Taras Shevchenko's Birthday, the Day of Ukrainian Embroidery, the celebration of Maslenitsa, etc., as well as participation in cultural and artistic festivals and competitions of various levels with the preparation of digital tools of ethnocultural influence. Active volunteer social and pedagogical activities of higher education students, active figures of the student scientific society on the basis of ethnocultural traditions, contributed to the development of leadership qualities, communicative tolerance, "soft skills", patriotic feelings, as well as readiness for active pro-social activities at the level of micro-centers of educational institutions, social assistance and territorial community.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Therefore, the conducted study allowed us to determine the essence, content and features of the implementation of socio-educational influences on children and youth on the basis of ethno-cultural traditions in order to form socially important characteristics (leadership qualities, resilience, social activity), national identity and patriotism in wartime conditions. The genesis of the formation of the essence of the concept of "patriotism" from ethnographic and cultural awareness through the prism of the civil-state to the military-defense dimension and the concept of "national-patriotic education" from the traditional to the wartime dimension were analyzed. Among the important modern socio-educational influences, the following were identified: interactive ethno-quests, folklore digital projects, discussion platforms and clubs, which allow increasing the effectiveness of national-patriotic education of youth in wartime conditions.

A promising direction for further research is to determine the continuity in the implementation of socio-educational influences based on ethnocultural traditions in childhood and youth, as well as the development of technological support for relevant activities.

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HISTORICAL AND PEDAGOGICAL PRINCIPLES OF REFORMING VOCATIONAL EDUCATION IN UKRAINE: FROM TRADITIONS TO MODERN TRANSFORMATIONS

Abstract. The article presents a comprehensive historical and pedagogical analysis of the reform of vocational education in Ukraine in the context of socio-economic, political, and educational transformations. The relevance of the study is determined by the need to reinterpret the historical experience of vocational education development under the conditions of European

integration, digital transformation, post-war recovery, and the modernisation of the national education system. Understanding the historical patterns of vocational education reform provides a scientific basis for ensuring continuity in educational policy, identifying sustainable development trends, and substantiating strategic directions for further modernisation.

The aim of the study is to conduct a comprehensive historical and pedagogical analysis of vocational education reform in Ukraine, identify the main stages of its development, determine the historical and pedagogical foundations of the transformation of the vocational education system, and substantiate the current trends in its modernisation. The research methodology is based on a combination of historical-genetic, historical-comparative, structural-logical, analytical, synthetic, systematisation, generalisation, and periodisation methods, which enabled the authors to examine the evolution of vocational education and reveal the continuity of educational reforms.

The scientific novelty of the study lies in the comprehensive substantiation of the historical and pedagogical periodisation of vocational education reform in Ukraine, taking into account modern transformational processes, European integration priorities, and recent legislative changes. Four major stages in the development of vocational education are identified and characterised. The study reveals the relationship between historically established traditions of vocational training and the contemporary competency-based model of education. Particular attention is devoted to the influence of digitalisation, dual education, employer partnerships, European quality assurance mechanisms, and the implementation of the new Law of Ukraine "On Vocational Education" (2025), which establishes updated legal foundations for further development of the sector.

The practical significance of the research consists in the possibility of applying its findings to the improvement of educational policy, legislative and methodological support for vocational education, the development of educational programmes and teaching materials, and the training of future education managers and vocational education teachers. The obtained results may also be used in the activities of vocational education institutions, institutions of postgraduate education, public authorities responsible for education, and in further historical and pedagogical research on the development of vocational education within the European educational area.

Keywords: vocational education; vocational education reform; history of vocational education; vocational pedagogy; European integration; competency-based approach; digitalisation of education; dual education.

ІСТОРИКО-ПЕДАГОГІЧНІ ЗАСАДИ РЕФОРМУВАННЯ ПРОФЕСІЙНОЇ ОСВІТИ В УКРАЇНІ: ВІД ТРАДИЦІЙ ДО СУЧАСНИХ ТРАНСФОРМАЦІЙ

Анотація. У статті здійснено комплексний історико-педагогічний аналіз реформування професійної освіти в Україні в контексті суспільно-політичних, соціально-економічних та освітніх трансформацій. Актуальність дослідження зумовлена необхідністю наукового осмислення історичного досвіду розвитку професійної освіти в умовах сучасних реформ, європейської інтеграції, цифровізації освітнього процесу та післявоєнного відновлення України. Вивчення історичних закономірностей реформування професійної освіти дає можливість визначити основні тенденції її еволюції, забезпечити наступність освітніх змін та окреслити перспективні напрями модернізації відповідно до сучасних викликів.

Метою дослідження є комплексний історико-педагогічний аналіз реформування професійної освіти в Україні, визначення основних етапів її розвитку, виявлення історико-педагогічних засад трансформації системи професійної освіти та обґрунтування сучасних тенденцій її модернізації. Методологічну основу дослідження становлять історико-генетичний, історико-порівняльний, структурно-логічний методи, а також методи аналізу, синтезу, систематизації, узагальнення та періодизації, що дали змогу простежити еволюцію професійної освіти та визначити закономірності її реформування.

Наукова новизна дослідження полягає у комплексному обґрунтуванні історико-педагогічної періодизації реформування професійної освіти України з урахуванням сучасних трансформаційних процесів, європейських інтеграційних орієнтирів і нових законодавчих змін. Виокремлено чотири основні етапи розвитку професійної освіти, розкрито їх характерні особливості, визначено взаємозв'язок між історично сформованими традиціями професійної підготовки та сучасною компетентнісною моделлю освіти. Особливу увагу приділено впливу цифровізації, розвитку дуальної освіти, партнерства з роботодавцями, європейських механізмів забезпечення якості професійної освіти та впровадженню нового Закону України «Про професійну освіту» як нормативної основи подальшої модернізації галузі.

Практичне значення одержаних результатів полягає у можливості використання узагальнених положень і висновків під час розроблення освітньої політики, удосконалення нормативно-правового забезпечення професійної освіти, підготовки навчально-методичних матеріалів, викладання дисциплін історико-педагогічного циклу, професійної педагогіки, освітнього менеджменту та порівняльної педагогіки. Результати дослідження можуть бути використані в діяльності закладів професійної освіти, установ післядипломної освіти, органів управління освітою та під час подальших наукових досліджень проблем розвитку професійної освіти України в європейському освітньому просторі.

Ключові слова: професійна освіта; реформування професійної освіти; історія професійної освіти; професійна педагогіка; європейська інтеграція; компетентнісний підхід; цифровізація освіти; дуальна освіта.

INTRODUCTION

The problem formulation. Vocational education is one of the key drivers of a country's socio-economic development, as it ensures the training of a skilled workforce in accordance with labour market demands, technological progress, and societal needs. In the context of Ukraine's European integration, the digital transformation of the economy, the country's post-war recovery, and the modernisation of the education system, rethinking the historical experience of vocational education reform has become particularly relevant. Analysing the evolution of vocational education makes it possible to identify the patterns of educational change, trace the continuity of pedagogical ideas, assess the effectiveness of previous reforms, and determine the conceptual foundations for the further improvement of educational policy.

The history of vocational education in Ukraine demonstrates that its reform has been shaped by socio-economic, political, and cultural transformations. Each historical stage was characterised by its own approaches to the organisation of vocational training, curriculum content, cooperation between education and industry, and the role of the state in developing human

resources. At the same time, contemporary reforms of vocational education are based not only on national traditions but also on European principles of competency-based education, human capital development, lifelong learning, the digitalisation of the educational process, and the expansion of partnerships between educational institutions and employers. From this perspective, historical and pedagogical analysis acquires not only retrospective but also prognostic significance, as it makes it possible to identify promising directions for the further development of vocational education in Ukraine.

The scientific novelty of the study lies in a comprehensive historical and pedagogical analysis of vocational education reform in Ukraine through the prism of historical continuity, contemporary transformational processes, and European integration trends. The practical significance of the research consists in generalising the historical experience of vocational education development, identifying the principal stages of its reform, and outlining current directions for its further modernisation.

Analysis of recent research and publications. The issues of the establishment and development of vocational education in Ukraine have been addressed in the works of numerous Ukrainian scholars. The historical features and stages of vocational education development have been investigated by Anisimov, 2011; Bidenko, 2010; Hren, 2018; Ivchenko, 2016; and Seletskyi, 2011. The history of Ukrainian education and pedagogy has been comprehensively examined by Bondarchuk, 2008; Liubar et al., 2003; Siropolko, 2001, as well as in the textbooks by Luzan and Vasiuk, 2010; Zadorozhna-Kniahnytska, 2020; Dedovych, 2025, and others.

Significant contributions to the theoretical foundations and contemporary trends in vocational education development have been made by Holovko, 2015; Likarchuk, 1999; Nychkalo, 2008, 2015; and Radkevych, 2017, 2022, 2025. The collective monograph by Radkevych et al., 2021 examines the development of vocational education in the context of European integration. Their studies address the modernisation of vocational education, its scientific and methodological support, European integration, and reforms implemented in response to contemporary societal challenges. Comparative analyses of vocational education development in Ukraine and European countries have been presented by Fedoryshyn et al., 2026 and Lukashevych, 2024, whereas current development prospects have been summarised by Nikolaienko, 2026.

The analysis of the available scholarly literature indicates the need for a more comprehensive examination of the historical and pedagogical prerequisites for the development of vocational education in Ukraine, particularly the patterns of its evolution across different historical periods and the influence of European integration processes on the transformation of the national vocational education system.

AIM AND TASKS OF THE RESEARCH

The aim of the study is to conduct a comprehensive historical and pedagogical analysis of vocational education reform in Ukraine, identify the major stages of its development, determine the historical and pedagogical foundations of the transformation of the vocational education system, and substantiate the current trends in its modernisation within the context of European integration, digitalisation, and contemporary societal challenges.

To achieve this aim, the following research objectives were formulated:

1. to analyse the historical and pedagogical prerequisites for the establishment and development of vocational education in Ukraine;
2. to identify the principal stages of vocational education reform and characterise their distinctive features;
3. to determine the influence of socio-economic, political, and pedagogical factors on the transformation of the vocational education system;
4. to reveal the role of European integration processes in the modernisation of vocational education in Ukraine;
5. to identify current trends in vocational education reform and outline promising directions for its further development.

RESEARCH METHODS

The methodological framework of the study is based on a combination of general scientific and specialised historical-pedagogical methods. The historical-genetic method was employed to examine the evolution of vocational education and identify the patterns of its establishment and development throughout different historical periods. The historical-comparative method was used to compare the content, objectives, and mechanisms of vocational education reform at different stages of its development and to determine their continuity. Methods of analysis, synthesis, generalisation, and systematisation made it possible to identify the historical and pedagogical approaches to vocational education reform. The periodisation method was applied to distinguish and substantiate the major stages in the development of vocational education in Ukraine. In addition, the structural-logical method was used to establish the interrelationships between historical traditions, contemporary reforms, and prospective directions for the further development of vocational education.

RESULTS OF THE RESEARCH

Vocational education in Ukraine has evolved through a long historical process during which socio-economic conditions, forms of labour organisation, and approaches to workforce training have continuously changed. An analysis of the historical and pedagogical prerequisites makes it possible to trace the patterns of vocational education development, identify the factors that determined the content of reforms during different historical periods, and assess the degree of continuity between traditional models of vocational training and contemporary transformational processes. Previous studies (Anisimov, 2011; Bidenko, 2010; Bondarchuk, 2008; Holovko, 2015; Hren, 2018; Dedovych, 2025; Zadorozhna-Kniahnytska, 2020; Ivchenko, 2016; Likarchuk, 1999; Nychkalo, 2015; Nychkalo, 2008; Seletskyi, 2011; Siropolko, 2001; Fedoryshyn et al., 2026; Chyrva, 2019; Lukashevych, 2024) demonstrate that the

reform of vocational education in Ukraine has not been an isolated phenomenon but has reflected broader European trends in the modernisation of vocational education and training (VET).

The first organised forms of vocational training in the Ukrainian lands emerged during the Middle Ages and the Early Modern period (the fourteenth to eighteenth centuries), when crafts and urban self-government were developing intensively. Training was provided directly in craftsmen's workshops, where apprentices gradually mastered their trade through long-term practical experience. This system was based on the principles of individual mentorship, the continuous transfer of professional expertise, and the integration of learning with productive work (Anisimov, 2011; Bondarchuk, 2008; Holovko, 2015; Luzan & Vasiuk, 2010; Liubar et al., 2003; Siropolko, 2001; Chyrva, 2019). Despite the absence of specialised educational institutions, this model laid the pedagogical foundation for integrating theoretical knowledge with practical activity, which remains one of the fundamental principles of vocational education today.

The further development of vocational training was closely associated with the activities of craft guilds, which performed not only economic but also educational functions. Guild organisation regulated apprentices' training, the duration of instruction, professional competency requirements, and the procedures for attaining the status of master craftsman. Importantly, vocational training encompassed not only the acquisition of occupational skills but also the formation of professional ethics, responsibility, corporate culture, and adherence to quality standards (Anisimov, 2011; Bondarchuk, 2008; Holovko, 2015; Luzan & Vasiuk, 2010; Liubar et al., 2003; Siropolko, 2001; Chyrva, 2019). From a pedagogical perspective, the guild system can be regarded as one of the earliest examples of the institutionalisation of vocational education, as it combined educational, developmental, and socialisation functions.

During the nineteenth century, under the influence of the Industrial Revolution, vocational education acquired a fundamentally new character. Industrial production created a growing demand for skilled workers capable of operating new technologies, which stimulated the establishment of craft, technical, industrial, commercial, and agricultural educational institutions. During this period, vocational training gradually evolved from individual apprenticeship to a systematic educational process based on structured curricula, the integration of general and specialised education, and state regulation of workforce preparation (Anisimov, 2011; Bondarchuk, 2008; Holovko, 2015; Hren, 2018; Likarchuk, 1999; Liubar et al., 2003; Nychkalo, 2015; Seletskyi, 2011; Fedoryshyn et al., 2026; Chyrva, 2019). This transition effectively marked the emergence of the modern understanding of vocational education as an independent component of the national education system.

The subsequent stage in the development of vocational education was associated with the industrialisation of the first half of the twentieth century. Large-scale industrial production led to the establishment of factory apprenticeship schools, factory training schools, technical colleges, and vocational schools. The primary objective was to prepare skilled workers in accordance with the needs of the economy, which resulted in strengthening the practical component of education, expanding workplace training, and promoting close cooperation between educational institutions and industrial enterprises (Hren, 2018; Likarchuk, 1999; Seletskyi, 2011; Siropolko, 2001; Chyrva, 2019). It was during this period that the organisational foundations of vocational education were established, many of which were subsequently transformed and adapted to the contemporary vocational education system of Ukraine.

The development of vocational education was also significantly influenced by pedagogical concepts of labour education, according to which productive work was regarded as an essential factor in personal development, the formation of professional culture, and civic responsibility. The ideas of integrating learning with productive activity, fostering independence, developing a creative attitude towards work, and ensuring the practical orientation of education became the methodological basis for the subsequent reform of vocational education (Anisimov, 2011; Holovko, 2015; Hren, 2018; Ivchenko, 2016; Luzan & Vasiuk, 2010; Nychkalo, 2015; Seletskyi, 2011; Siropolko, 2001). Contemporary scholars emphasise that the historically established principle of integrating education with production has now evolved into models of dual education, employer partnerships, and competency-based learning, which correspond to European approaches to the development of national vocational education systems.

The reform of vocational education in Ukraine has been a continuous process reflecting the country's socio-economic and political transformations. Changes in social relations, technological advances in production, labour market modernisation, and integration into the European educational area have necessitated revisions to the content of vocational training, governance models of educational institutions, funding mechanisms, and cooperation with employers. An analysis of historical development makes it possible to distinguish four interrelated stages of reform, each characterised by its own priorities, regulatory framework, and pedagogical approaches.

The first stage, the emergence and institutionalisation of vocational education (until 1914), was characterised by the establishment of an organised vocational education system, the creation of specialised educational institutions, and the formation of the corresponding theoretical and pedagogical foundations. Whereas vocational training had initially been provided mainly through apprenticeship under master craftsmen and the guild system, the nineteenth century witnessed the development of a network of specialised craft, technical, commercial, and agricultural educational institutions. The industrial modernisation of the Ukrainian lands within different state entities contributed to the establishment of real schools, lower technical schools, industrial schools, and vocational courses aimed at preparing skilled workers for industry, transport, and agriculture. During this period, the principle of combining theoretical instruction with practical training was established, later becoming one of the fundamental principles of vocational education (Anisimov, 2011; Holovko, 2015; Nychkalo, 2008).

The second stage was associated with the Soviet period (1917–1991), when vocational education became an integral component of the centralised state system for workforce training. Its primary objective was to provide the labour resources required for industrialisation and the planned economy. The most characteristic organisational forms

of vocational education during this period included factory apprenticeship schools, craft schools, vocational schools, and technical colleges, whose activities were coordinated in accordance with state economic development plans (Holovko, 2015; Hren, 2018; Ivchenko, 2016; Seletskyi, 2011).

A distinctive feature of the Soviet model was the close integration of vocational education with industrial production. Enterprises actively participated in developing the material resources of educational institutions, organising workplace training, and employing graduates. At the same time, the centralised governance system limited the autonomy of educational institutions, while the content of vocational training was determined primarily by the requirements of the planned economy, with insufficient consideration given to learners' individual educational needs and regional specificities.

The third stage began after Ukraine gained independence in 1991 and was characterised by the transition to a market economy. Fundamental economic changes required the comprehensive modernisation of the vocational education system. A significant milestone was the adoption of the Law of Ukraine "On Vocational (Vocational-Technical) Education" (1998), which established new legal foundations for the sector, introducing the principles of institutional diversity, programme flexibility, institutional autonomy, and cooperation with employers (Bidenko, 2010; Holovko, 2015; Likarchuk, 1999; Nychkalo, 2015; Nychkalo, 2008).

During this period, vocational education gradually shifted from fulfilling the state workforce order to addressing the needs of regional labour markets. Considerable attention was devoted to the implementation of state vocational education standards, the competency-based approach, modular learning technologies, and the expansion of international educational projects and cooperation with European organisations. At the same time, the system faced substantial challenges associated with reduced funding, declining student enrolment, and the mismatch between vocational training and the contemporary needs of the economy (Nychkalo, 2015; Radkevych, 2022; Radkevych, 2017).

The most dynamic phase has been the contemporary stage of reform (2014–2026), which began after the signing of the Association Agreement between Ukraine and the European Union and has been characterised by the comprehensive modernisation of vocational education in accordance with European standards. The principal reform priorities have included the decentralisation of governance, the establishment of Centres of Vocational Excellence, the revision of state standards based on the competency-based approach, the development of public-private partnerships, the digitalisation of the educational process, and the implementation of elements of dual education (Lukashevych, 2024; Nikolaienko, 2026; Radkevych, 2022; Radkevych, 2017; Radkevych et al., 2021; Radkevych, 2025).

Particular emphasis has been placed on integrating vocational education into regional development strategies, strengthening employers' participation in the design of educational programmes, modernising the material and technical infrastructure of educational institutions, and developing professional competencies in accordance with the National Qualifications Framework. Additional impetus for reform has been provided by the challenges associated with the COVID-19 pandemic, the full-scale war, and the need for Ukraine's post-war recovery, all of which have accelerated the development of digital learning technologies, short-term reskilling programmes, and flexible models of vocational training (Lukashevych, 2024; Nikolaienko, 2026; Radkevych, 2022; Radkevych, 2017; Radkevych et al., 2021; Radkevych, 2025).

This historical retrospective makes it possible to distinguish four principal stages in the development of vocational education in Ukraine (Table 1).

Table 1

Stages of the Reform of Vocational Education in Ukraine

Historical Period	Main Characteristics	Major Reforms	Features of Vocational Training
Emergence and Institutionalisation (before 1914)	Formation of the vocational education system; development of craft, technical, and industrial schools	Establishment of specialised vocational educational institutions; expansion of technical education	Integration of theoretical instruction with practical training; preparation for crafts, industry, and agriculture
Soviet Period (1917–1991)	Centralised workforce training system serving the planned economy	Establishment of a network of Factory Apprenticeship Schools (FZU), vocational schools, and vocational-technical schools (PTUs); state planning of workforce training	Large-scale preparation of skilled workers; close integration with industrial production; guaranteed employment
Period of Independence (1991–2013)	Reorientation towards a market economy; modernisation of the legislative framework	Adoption of the Law of Ukraine "On Vocational (Vocational-Technical) Education" (1998); introduction of state educational standards; implementation of the competency-based approach	Diversification of educational programmes; cooperation with employers; modernisation of curricula
Contemporary Stage (2014–2026)	European integration, digitalisation, decentralisation, and development of partnerships	Revision of educational standards; expansion of dual education; establishment of Centres of Vocational Excellence; digital transformation	Competency-based training model; integration of digital technologies; lifelong learning; adaptation to labour market needs

The proposed periodisation demonstrates that the reform of vocational education has followed an evolutionary trajectory. Whereas the primary objective during the early stages was to prepare craftsmen and workers for individual sectors of the economy, the Soviet system was designed to meet the workforce requirements of a centrally planned economy. Following Ukraine's independence, the principal priority became the adaptation of vocational education to market conditions, while the contemporary stage has been characterised by the transition to a competency-based model founded on partnership among the state, employers, and educational institutions.

Several stable patterns of vocational education reform can also be identified. First, every major socio-economic transformation has been accompanied by the renewal of the vocational education system. Second, governance has gradually become more decentralised, accompanied by an expansion of the institutional autonomy of vocational education providers. Third, the relationship between education and the labour market has been strengthened, resulting in the increasing involvement of employers in shaping the content of vocational training. Finally, the current stage is characterised by the transition from a qualification-based to a competency-based model of vocational education, the extensive use of digital technologies, and integration into the European educational area, all of which define the strategic directions for the further development of the system.

Since the beginning of the twenty-first century, the reform of vocational education in Ukraine has increasingly been implemented in accordance with European approaches to education and vocational training. Whereas previous stages of modernisation were primarily aimed at adapting the system to domestic socio-economic changes, the contemporary stage has been driven by the need to integrate into the European Education Area, ensure learner mobility, promote the mutual recognition of qualifications, and enhance the competitiveness of human capital.

One of the defining trends in the modernisation of vocational education has been the implementation of the competency-based approach. Unlike the traditional model, which primarily focused on the transmission of knowledge and the development of specific occupational skills, the contemporary system aims to develop integrated competencies combining professional knowledge, practical experience, communication skills, digital literacy, teamwork, decision-making, and the ability to adapt to rapid technological change. Today, the competency-based approach constitutes the methodological foundation for the development of state vocational education standards and educational programmes (Nikolaienko, 2026; Nychkalo, 2015; Radkevych, 2022; Radkevych, 2017; Radkevych et al., 2021; Radkevych, 2025).

Digitalisation has also exerted a significant influence on the modernisation of vocational education. The use of digital educational platforms, distance learning systems, virtual laboratories, simulators, augmented and virtual reality technologies, electronic educational resources, and artificial intelligence tools has substantially expanded the possibilities for vocational training. These technologies facilitate personalised learning, improve access to education, enable the rapid updating of educational content in line with technological advances, and contribute to the development of the digital competencies required of the contemporary workforce. At the same time, the effectiveness of digital transformation in vocational education depends substantially on teachers' digital competence and their capacity to integrate technological tools into professional practice (Cattaneo et al., 2022).

A landmark in the modernisation of Ukraine's vocational education system was the adoption of the Law of Ukraine "On Vocational Education" on 21 August 2025, which replaced the Law of Ukraine "On Vocational (Vocational-Technical) Education" (1998) and established a new legal framework for the sector. The new legislation is aimed at creating a flexible and modern vocational education system responsive to labour market demands, promoting competency-based education, expanding the autonomy of educational institutions, strengthening the role of employers in workforce training, introducing new funding mechanisms, and ensuring opportunities for lifelong learning. The Law also provides for the development of vocational colleges and Centres of Vocational Excellence, supports the implementation of dual education, facilitates integration into the European educational area, and creates the regulatory conditions necessary for the further digital transformation of vocational education in Ukraine.

The comprehensive implementation of European approaches has fundamentally transformed the philosophy of vocational education. Whereas the traditional system was primarily intended to fulfil the state's workforce demand, the contemporary model is based on partnership among the state, educational institutions, employers, and learners, thereby ensuring flexibility, openness, and responsiveness to the needs of an innovation-driven economy (Table 2).

The data presented in Table 2 demonstrate that contemporary vocational education is undergoing not only technological but also conceptual transformation. The defining features of the new model include the competency-based approach, the integration of education and industry, the digitalisation of the educational process, academic mobility, and an orientation towards lifelong professional development. These trends determine the strategic directions for the further reform of vocational education in Ukraine in accordance with European standards.

Vocational education in Ukraine is currently undergoing profound transformation driven simultaneously by the digital revolution, integration into the European Union, structural changes in the labour market, and the necessity of the country's post-war recovery. Unlike previous stages of reform, contemporary changes are comprehensive in nature and affect not only the content of workforce training but also governance models, funding mechanisms, the organisation of the educational process, and cooperation with social partners. The principal objective of vocational education has become the preparation of competitive professionals capable of rapidly adapting to technological change, mastering new occupations, and engaging in lifelong learning.

A new phase of digital transformation has been marked by the increasing use of artificial intelligence (AI) technologies. Generative AI models are being widely employed in the development of educational materials, the automation of assessment, the design of personalised learning pathways, the simulation of workplace situations, and the provision of academic support for learners. At the same time, the rapid integration of AI has intensified concerns

regarding academic integrity, the development of critical thinking, digital literacy, and the cultivation of responsible AI use. Consequently, contemporary vocational education must not only exploit the opportunities provided by artificial intelligence but also prepare future professionals to critically evaluate AI-generated outputs.

Table 2

Traditional and Contemporary Models of Vocational Education

Criterion	Traditional model	Contemporary model
Educational objective	Training individuals to perform specific occupational functions	Developing competitive, competent professionals
Foundation of training	Acquisition of knowledge and skills	Development of professional competencies and learning outcomes
Organisation of learning	Predominantly classroom-based instruction	Combination of formal, dual, and distance learning
Role of employers	Occasional involvement	Full partners in workforce training
Assessment	Knowledge assessment	Assessment of learning outcomes and competencies
Curriculum content	Relatively stable	Flexible and labour market-oriented
Educational technologies	Traditional teaching methods	Digital technologies, simulators, online platforms, and artificial intelligence
Professional development	Education as a completed stage	Lifelong learning and continuous professional development

Another important trend in contemporary reform is the strengthening of partnerships between vocational education institutions and employers. Business representatives are increasingly involved in developing occupational standards, updating educational programmes, organising practical training, assessing learning outcomes, and modernising the material and technical infrastructure of educational institutions. Such cooperation ensures that vocational training corresponds to actual labour market needs, shortens graduates' transition into employment, and improves the overall efficiency of educational resources.

At the same time, the regionalisation of vocational education continues to expand. Under the conditions of decentralisation, regional authorities are assuming greater responsibility for shaping the network of vocational education institutions, determining regional workforce demand, and developing educational infrastructure. This approach makes it possible to take into account regional economic characteristics, labour market structures, and investment priorities. As a result, vocational education is increasingly becoming one of the principal instruments of regional development.

The post-war recovery of vocational education in Ukraine has become a matter of particular importance. Military actions have resulted in the destruction of educational infrastructure, the relocation of educational institutions, the loss of material and technical resources, and a considerable shortage of qualified personnel across many sectors of the economy. At the same time, post-war reconstruction provides new opportunities for the modernisation of vocational education. The growing demand for specialists in construction, transport infrastructure, energy, mechanical engineering, information technology, healthcare, and social services requires the prompt revision of educational programmes, the expansion of short-term reskilling programmes for adults, and the wider implementation of lifelong learning mechanisms (Nikolaienko, 2026; Radkevych, 2022; Radkevych, 2025).

The contemporary transformation of vocational education is inseparably linked to the expansion of academic mobility. Ukrainian educational institutions are increasingly participating in international educational programmes that promote exchanges of learners, teachers, and administrators, joint curriculum development, and the implementation of European quality assurance standards. Academic mobility facilitates the dissemination of innovative pedagogical practices, the development of intercultural competence, and the integration of Ukrainian vocational education into the European educational area (Nikolaienko, 2026; Radkevych, 2025).

International projects and technical assistance programmes remain important mechanisms for modernisation. Projects supported by the European Union, Erasmus+, the European Training Foundation (ETF), GIZ, UNESCO, and other international partners contribute to the renewal of educational infrastructure, the establishment of Centres of Vocational Excellence, the professional development of teachers, the implementation of dual education, and the introduction of digital technologies. Through international cooperation, Ukrainian vocational education gains access to best European practices and accelerates its own modernisation process.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The conducted study has demonstrated that the reform of vocational education in Ukraine is a long-term and consistent historical-pedagogical process closely associated with the country's socio-economic development, labour market transformation, and changing educational priorities. The analysis of historical development made it possible to identify the principal stages in the establishment and modernisation of vocational education, determine their distinctive characteristics, and reveal the continuity between traditional models of vocational training and the contemporary

competency-based education system. The findings indicate that the defining features of the current stage include European integration, the digitalisation of the educational process, the expansion of dual education, strengthened cooperation with employers, and the implementation of new approaches to quality assurance in vocational education.

The study substantiates that contemporary state policy in the field of vocational education is aimed at developing a flexible and open system of vocational training capable of responding promptly to technological change, labour market demands, and the challenges of Ukraine's post-war recovery. Particular importance is attached to the new Law of Ukraine "On Vocational Education", which establishes the legal foundations for the further modernisation of the sector, the development of Centres of Vocational Excellence, the improvement of public-private partnership mechanisms, and the integration of the Ukrainian vocational education system into the European educational area.

Prospects for further research include investigating the practical outcomes of implementing the new legislative framework governing vocational education, conducting comparative analyses of vocational education reforms in Ukraine and the Member States of the European Union, examining the development of dual education, digital technologies, and artificial intelligence in vocational training, and developing scientific and methodological foundations for preparing competitive professionals capable of con.

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THE PERSONALISTIC DIMENSION OF MUSEUM PEDAGOGY DEVELOPMENT IN LVIV: A CONTEMPORARY DISCOURSE

Abstract. The article analyses the development of museum pedagogy in Lviv through the lens of the personalistic approach. It substantiates the importance of personalistics as a methodological tool for studying the formation and evolution of the city's museum and educational space. The contribution of leading figures to the development of the theoretical foundations and practices of museum pedagogy, as well as their role in the development of the Lviv studies discourse, is explored. Particular attention is paid to the relationship between cultural heritage, educational innovations and museum activities in the context of contemporary social transformations. The main trends and prospects for the development of museum pedagogy in Lviv as an important component of the cultural and educational environment are identified. It is emphasised that during 1991–2026, a distinctive model of museum pedagogy has been developing in Lviv under the influence of traditional regional experience in cultural and educational work in museums, as well as the introduction of museum pedagogy practices in Ukraine and abroad. It is stressed that the development of museum pedagogy in Lviv is systematic and based on the principles of comprehensive interdisciplinary interaction: the integration of pedagogy, psychology, museum studies and cultural studies with school subjects (history, Ukrainian language and literature, art, mathematics, physics, computer science, chemistry, English, etc.). It is emphasised that teachers, scholars and museum researchers in Lviv have developed and implemented original and progressive forms of educational interaction. Based on their joint work, they prepare methodological and academic publications containing recommendations for organising the educational process in the museum environment, lesson plans and didactic materials, and share their practical experience with colleagues, which contributes to increasing the effectiveness of museum pedagogy in the educational process.

Keywords: personalistics, Lviv studies, museum pedagogy, education, museum, exhibition, museum lesson, integration, cultural heritage, educational space of Lviv, educational projects, personalities, museum and educational activities.

ПЕРСОНАЛІСТИЧНИЙ ВИМІР РОЗВИТКУ МУЗЕЙНОЇ ПЕДАГОГІКИ У ЛЬВОВІ: СУЧАСНИЙ ДИСКУРС

Анотація. У статті здійснено аналіз розвитку музейної педагогіки у Львові крізь призму персоналістичного підходу. Обґрунтовано значення персоналістики як методологічного інструменту дослідження становлення та еволюції музейно-освітнього простору міста. Розкрито внесок провідних діячів у формування теоретичних засад і практик музейної педагогіки, а також їх роль у розвитку львовознавчого дискурсу. Акцентовано увагу на взаємозв'язку культурної спадщини, освітніх інновацій та музейної діяльності у контексті сучасних суспільних трансформацій. Визначено основні тенденції та перспективи розвитку музейної педагогіки у Львові як важливого складника культурно-освітнього середовища. Наголошено, що впродовж 1991-2026 рр. у Львові вибудовується самобутня модель музейної педагогіки, що розвивається під впливом традиційного регіонального досвіду культурно-освітньої роботи в музеях та впровадження заходів із музейної педагогіки в Україні та за кордоном. Завдяки діяльності високопрофесійних особистостей-ентузіастів (музейників, педагогів-новаторів) щодо збереження в музейному просторі зразків матеріальної та нематеріальної культури, імплементації музейної педагогіки в освітній процес шкіл, підготовку вчителів (майбутніх фахівців зі спеціальності «Музеєзнавство, пам'яткознавство» в Педагогічному фаховому коледжі Львівського національного університету імені Івана Франка, вчителів-слухачів курсів підвищення кваліфікації Львівського обласного інституту післядипломної педагогічної освіти та ін.) Наголошується, що розвиток музейної педагогіки у Львові має системний характер, який відбувається на принципах цілісної міждисциплінарної взаємодії, під час якої музейні експозиції та освітні заклади інтегруються у єдиний навчально-виховний комплекс, що базується на новітніх технологіях навчання та вбудований в освітньо-професійні програми освітній контент. Завдяки закладеній у поняття «музейна педагогіка» інтеграції педагогіки, психології, музейництва, культурології з шкільними предметами (історією, українською мовою та літературою, мистецтвом, математикою, фізикою, інформатикою, хімією, англійською мовою та ін.), інтерпретаційним можливостям діяльності здобувачів освіти у музейному просторі львівські педагоги та музейники розробили і впроваджують оригінальні прогресивні форми освітньої взаємодії.. Наголошується, що педагоги, науковці, наукові співробітники музеїв м. Львова за результатами спільних напрацювань готують науково-методичні посібники з методичними рекомендаціями щодо організації освітнього процесу в музейному просторі, конспекти уроків, розробляють дидактичні матеріали, діляться своїм практичним досвідом з колегами, що сприяє підвищенню ефективності застосувань музейної педагогіки в освітньому процесі.

Ключові слова: персоналістика, львовознавство, музейна педагогіка, освіта, музей, експозиція, музейний урок, інтеграція, культурна спадщина, освітній простір Львова, освітні проєкти, персоналії, музейно-освітня діяльність.

INTRODUCTION

The problem formulation. Contemporary educational development is characterised by the active integration of cultural and educational practices, among which museum pedagogy occupies a special place as an interdisciplinary field that combines pedagogy, cultural studies and museum studies. In the second half of the 20th and at the beginning of the 21st century, museum pedagogy became established as an independent field of scientific knowledge focused on personality development through engagement with cultural heritage and the museum environment (Filipchuk, 2018).

Museum pedagogy is a relatively young field of pedagogical science: the concept entered academic discourse in Germany in the first half of the 20th century, while by the end of the 20th century a regional model of teaching students in the museum environment had emerged in Lviv. In the absence of a sufficient methodological framework that could serve as a scientific foundation for developing a system of education in museums, Lviv teachers, scholars and museum professionals, drawing on the traditions of cultural and educational activities of Lviv museums, regional local history studies and valuable pedagogical practices, determined the direction of museum pedagogy development in Lviv. The experience of developing museum pedagogy in formal, non-formal and informal education in Lviv during the period of the establishment of Ukraine's independence deserves particular attention in the regional context. The cultural and educational activities of Lviv museum professionals and teachers, including the use of art therapy and inclusive education principles, became particularly relevant during the period of the war in Ukraine. This has been supported by the implementation of cultural preservation and educational initiatives, artistic activities and event-based practices, including charitable volunteer work. In the context of the transformation of Ukraine's educational space, the study of regional models of museum pedagogy development is becoming increasingly relevant, particularly in the city of Lviv, which has traditionally been an important cultural and educational centre. Lviv museums perform not only a preservation function but also a strong educational function, contributing to the formation of national identity, civic consciousness and cultural competence of the individual.

Analysis of recent research and publications. The problems of the development of museum pedagogy in Ukraine have been addressed in the scholarly works of L. Haida, R. Mankovska, O. Mikhno, V. Snahoshchenko, N. Filipchuk, I. Chervinska and others. Among them, particular attention should be paid to the research of Lviv scholars S. Voloshyn, O. Huryn, I. Zeman, O. Kvas, O. Karamanov, S. Muravska, O. Nevmerzhytska and O. Surmach. The experience of Lviv teachers and museum professionals has been reflected in the dissertation research of O. Huryn, "Multicultural Education of Senior Secondary School Students through Interaction between General Secondary Education Institutions and Art Museums" (2015); O. Karamanov, "Theory and Practice of Museum Pedagogical Activities in the Contemporary Educational Space of Ukraine" (2020); S. Muravska, "Museums of Higher Education Institutions in Western Ukraine in the Context of Historical Development (19th – Early 21st Century)" (2019); I. Zeman, "Museum Pedagogy as a Means

of Developing Competencies in the 'Natural Sciences' Educational Field among Basic Secondary Education Students" (2023); and S. Voloshyn, "Patriotic Education of Primary School Students through Museum Pedagogy" (2019).

Scholars O. Huryn (2014), O. Karamanov and I. Laskii (2009) devoted scholarly articles in professional publications to analysing the innovations introduced into museum pedagogy by I. Laskii, a teacher of arts at Secondary School No. 50 in Lviv and an Honoured Teacher of Ukraine, who is one of the founders of this educational field in Lviv. The articles by O. Karamanov (Karamanov, 2023) and O. Surmach (Surmach, 2023) highlight the experience of volunteer activities in museums, including Lviv museums, and describe examples of informal education through museum pedagogy, including activities held within the framework of the pan-European initiative European Heritage Days in Lviv (2024). They also present examples of theatricalisation in museums, including the activities of the «Levenia» Mobile Song Theatre at Secondary School No. 50 in Lviv (2024).

At the same time, the demand for the experience of implementing museum pedagogy in Lviv educational institutions, particularly useful educational practices developed by Lviv teachers and museum professionals involving innovative forms of work in museums (authorial pedagogical technologies), didactic materials, as well as methodological recommendations developed by scholars and practising teachers on organising educational activities in museums and general secondary education institutions during the implementation of distance learning, requires more comprehensive research and demonstrates its relevance in the contemporary educational space.

At the same time, an analysis of scholarly sources shows that, despite the considerable number of studies, the personalistic aspect of the development of museum pedagogy in Lviv remains insufficiently explored. This determines the need for the present study.

THE PURPOSE OF THE RESEARCH

The aim of the article is to reveal the scholarly and practical contributions to the development of museum pedagogy, determine the influence of individual figures on its formation in Lviv during 1991–2026, and identify trends and prospects for its development in the context of contemporary educational discourse.

RESEARCH METHODS

To achieve the research objective, the following methods were used: the theoretical method was applied to examine scholarly sources on museum pedagogy, personalistics and Lviv studies, and to clarify the conceptual and categorical framework of the research. The historical-pedagogical method was used to identify the stages of the formation and development of museum pedagogy in Lviv; the personalistic method was applied to examine the contribution of individual figures to the creation of the museum and educational space and to substantiate their role in the development of contemporary educational discourse. The comparative method was used to compare approaches to museum pedagogy in different historical periods and to identify their evolution; the interpretation and content analysis methods were used to analyse scholarly texts, museum programmes, educational practices and publications reflecting the development of museum pedagogy in Lviv.

RESULTS OF THE RESEARCH

The development of museum pedagogy in Lviv from the early 1990s to the first quarter of the 21st century has been influenced by a number of important factors, including a change in the cultural and worldview paradigm (from Soviet ideology towards a nation-building orientation in the development of cultural and artistic practices), transformation of value priorities in the educational and academic space, increased educational and outreach activities of museum professionals, teachers and scholars, and the renewal of the content, forms and methods of educational activities in the museum sector. An important factor in the development of museum pedagogy in Lviv since Ukraine gained independence has been the educational, research and scholarly activities of educators and researchers, which contributed to substantiating the theoretical foundations of an innovative field in contemporary pedagogical science and to the expansion of formal, non-formal and informal learning practices in museum institutions in cooperation with educational institutions (Filipchuk & Zheleznyk, 2024). The activities of a number of museum studies scholars, researchers of museum heritage and other professionals have also had a significant influence on the development of museum pedagogy. This group of scholars and museum professionals includes I. Laskii, O. Karamanov, O. Huryn, A. Vasilieva.

The activities of Iryna Valentynivna Laskii (born on 9 April 1952 in Lviv) are distinguished by her focus on promoting museum heritage among school and university students, as well as various groups of adults. A teacher-methodologist at Secondary School No. 50 in Lviv and an Honoured Teacher of Ukraine, I. Laskii, the author of the pedagogical technologies "A School Day at the Museum" and "Pedagogical Marathon", developed an original system for teaching students through art in the museum environment. The programmes of the Pedagogical Marathons and School Days held in Lviv museums and at Secondary School No. 50 included integrated lessons in various subjects: the integrated course Art, music and visual arts, artistic culture, Ukrainian literature, Christian ethics, history, geography, Lviv studies, foreign languages, physical education, physics and chemistry. According to the educator, "important questions for teachers of the humanities are: How can we awaken students' interest in art? How can we engage schoolchildren with museums and theatres? How can we introduce children to the beauty, uniqueness and distinctive character of the city of Lviv?" In her view, the Museum Pedagogy course can provide answers to these questions (Laskii, 2008, p. 8).

The events initiated by I. Laskii were organised on the basis of partnerships between museums and educational institutions. Thus, alongside museum researchers, pupils and students of Ivan Franko National University of Lviv repeatedly acted as guides, offering their own thematic tours during the Marathons. An effective form of interaction during such events was the presentation of collective and individual artistic projects, as well as round-table discussions

involving teachers from general secondary education institutions, museum professionals, scholars from Lviv, and representatives of the school's creative council of pupils and parents.

At the initiative of Iryna Laskii, twenty Pedagogical Marathons were held based on a concept that combined lessons in the museum environment and at school with guided tours, exhibitions of students' works, visits to theatre performances, and city quests through the streets and parks of Lviv. These included the quests "Architecture – Frozen Music," "Walk around Lviv with Pleasure," "Artistic Lviv," "Find a Musical Symbol in Architecture" (Kopernyka Street, M. Skoryk), "Heraldry of Lviv" (a quest through the city centre), and others. There were also repeated educational trips along tourist routes through the Carpathian mountain ranges and to the castles of Lviv Region.

Following I. Laskii's concept, museum lessons within the Pedagogical Marathons were held at the Andrey Sheptytskyi National Museum, the Borys Voznytskyi Lviv National Art Gallery, the «Shevchenkivskyi Hai» Open-Air Museum, the «Arsenal» Museum, the Lviv National Academy of Arts, the workshop of Honoured Artist of Ukraine V. Hinzburg, the Lviv Historical Museum, the V. Pylypiuk Photo Gallery and other institutions.

I. Laskii also initiated the organisation of lessons in Lviv museums and educational institutions in accordance with the themes of the Pedagogical Marathons. In particular, the Fourth Pedagogical Marathon was held to mark the 750th anniversary of Lviv (25 May–15 June 2006). The programme of the Sixth Pedagogical Marathon, "Palaces and Castles of Lviv Region," consisted of 38 events, including guided tours "Palaces of Kopernyka Street," "Palaces of Rynok Square," "The Castle on Chuprynky Street," and the excursion walk to the High Castle, "Lviv from a Bird's-Eye View"; as well as integrated lessons such as "Music at the Korniakt Palace." As part of the Pedagogical Marathon, a round table entitled "Pages of Memory: Outstanding Teachers of Galicia – Y. Lvova" was held to mark the 90th anniversary of the birth of Y. Lvova, Candidate of Pedagogical Sciences and an outstanding educator who worked at Secondary School No. 50 in Lviv. Within the Pedagogical Marathons, lessons were held in museum environments focusing on the history of Lviv and the work of prominent Lviv artists, including S. Hordynskyi, O. Novakivskyi, O. Kulchytska, S. Liudkevych, L. Levytskyi, S. Krushelnytska and I. Trush. The leitmotifs of these Pedagogical Marathon events included poems by Lviv poets S. Hordynskyi, A. Kanych, B. Stelmakh, R. Lubkivskyi and others.

In this context, the researcher rightly notes that "it would not be an exaggeration to say that there are no analogues of the Pedagogical Marathon in Ukraine. The Pedagogical Marathon is a kind of practical laboratory for improving teachers' professional skills and fostering creative cooperation with cultural, artistic, scientific and educational institutions in Lviv" (Laskii & Karamanov, 2022, p. 16).

A pedagogical innovation introduced by I. Laskii was her original educational technology "A School Day in the Museums of Lviv." Within the framework of this technology, events were initiated and held to commemorate the 200th anniversary of Taras Shevchenko, "Kobzar, I come to you again, because you are my conscience and law" (L. Kostenko) (6–10 March 2014); "A School Day at the National Museum in Lviv" (23 March and 16 November 2012); and others.

"School Days in the Museums of Lviv" (2014) focused on the themes "Following in the Footsteps of Metropolitan Andrey Sheptytskyi" and "Ukrainian Knights." An important event was the city quest "Following in the Footsteps of Heroes" along Heroes of Maidan Street, as well as integrated lessons for students in grades 5–11: "Songs of the Ukrainian Sich Riflemen," "The Christian Feast of the Protection of the Holy Mother of God," "A Tribute to Women Heroes," "The Sich Riflemen through the Eyes of O. Kulchytska," and others.

During 1993-2010, I. Laskii developed, organised and conducted a series of original lesson-concerts entitled "From Bach to Skoryk" for Lviv schoolchildren at the Concert Hall of the Lviv Philharmonic. The educator was also actively engaged in research and methodological work: from 2005 to 2014, she collaborated with the Institute for Problems of Education of the National Academy of Educational Sciences of Ukraine on the implementation of the courses "Artistic Culture" and "Art."

In 2017, I. Laskii participated in a UNESCO project on integrating arts education into the educational process of general secondary education institutions, led by L. Masol.

A significant contribution to the development of the theory and practice of museum pedagogy in Lviv, from the establishment of Ukraine's independence to the present day, has been made by Oleksii Vladyslavovych Karamanov (born 21 July 1974 in Lviv), Doctor of Pedagogical Sciences, Professor of the Department of General Pedagogy and Higher Education Pedagogy, and Head of the Scientific and Educational Laboratory of Museum Pedagogy at Ivan Franko National University of Lviv. In his numerous scholarly works, the researcher has substantiated the theoretical and methodological aspects and specific features of pedagogical interaction between museums and learners, and has generalised the conceptual foundations of cooperation between museums and institutions of formal and non-formal education. In his doctoral dissertation, "Theory and Practice of Museum Pedagogical Activities in the Contemporary Educational Space of Ukraine" (2020), he examines the genesis of museum pedagogy in Lviv Region and Ukraine.

O. Karamanov focuses on the sociocultural nature of museum pedagogy and museum psychology, conducts psychological and pedagogical research of various visitor target groups, monitors the application of contemporary museum-pedagogical technologies, and studies the impact of the museum's educational environment, including universal thematic zones within the museum space, on the effectiveness of the educational process.

The scholar has made a significant contribution to the development of the theory and methodology of museum pedagogy by outlining the terminological discourse surrounding such concepts as "museum pedagogy," "museum didactics," "museum communication," "museum space," "museum learning environment," "museum-pedagogical

process," "means of museum pedagogy," "pedagogical activities of museums," and others within the context of the contemporary educational paradigm.

In his dissertation research, "Theory and Practice of Museum Pedagogical Activities in the Contemporary Educational Space of Ukraine," O. Karamanov systematised and specified the theoretical foundations of the pedagogical activities of museums of various profiles in the contemporary educational space of Ukraine. In his dissertation and scholarly articles, drawing on the relevant contexts of different educational paradigms and philosophical and pedagogical approaches, he clarified the essence of the philosophical, legal, psychological and pedagogical foundations of museum activities, identified gaps and shortcomings in the regulatory and legal framework, and highlighted the need to regulate the basic legal principles governing the activities of museums in Ukraine (Karamanov, 2020).

The scholar conducts extensive research and scholarly and methodological work in the field of museum pedagogy and is a co-organiser of academic conferences, including "Museum Pedagogy – Problems, Present and Prospects," which has been held annually since 2012 at the National Preserve Kyiv-Pechersk Lavra under the auspices of the Ministry of Culture of Ukraine, the National Kyiv-Pechersk Historical and Cultural Preserve, and the Ivan Ziaziun Institute of Pedagogical Education and Adult Education of the National Academy of Educational Sciences of Ukraine.

In developing museum pedagogy in Ukraine, O. Karamanov places particular emphasis on establishing academic cooperation and exchanging experience among educators, museum professionals and scholars. He analyses and systematises educational processes reflected in the practical activities of colleagues and teacher-museum professionals. He has developed an original theoretical model of museum pedagogical activities and prepares methodological materials (lesson design tools, lesson guides, museum-pedagogical programmes, etc.) for work with school and university students within formal, non-formal and informal education in the museum environment (Website of the Faculty of Pedagogical Education of Ivan Franko National University of Lviv, accessed 24 July 2026).

The scholarly significance of O. Karamanov's research in the field of museum pedagogy in Ukraine lies in the fact that he has scientifically substantiated the directions of functioning of the contemporary museum and identified prospects for the pedagogical activities of museums in Ukraine as centres of educational and cultural practices – hubs of a "knowledge society". Their primary mission is to actualise and reconstruct the cultural heritage of the past, as well as to promote tourism and serve as centres of regional development in Ukraine.

For more than two decades, scholars and students of Ivan Franko National University of Lviv, under the supervision of O. Karamanov, have maintained creative cooperation with the team of teachers at Secondary School No. 50 in Lviv. O. Karamanov contributed to the publication of scholarly and methodological guides on museum lessons developed by teachers of Secondary School No. 50 in Lviv, including "Lviv's Cultural and Artistic Space: Variations of the Beautiful" (2022). Assessing the potential of museum lessons in Lviv, the researcher rightly noted that they "have unique content and a distinctive vision, as they not only take place in a special museum or museum-related environment, which enables full immersion in the historical period, but also reflect the entire range of pedagogical interaction with the respective group of visitors" (Karamanov, Methodological Recommendations for Working with the Guide "Lviv's Cultural and Artistic Space: Variations of the Beautiful", 2022, p. 6).

A significant contribution to the research and promotion of museum pedagogy in Lviv Region and Ukraine is made by Oleksandra Mykhailivna Huryn (born 12 December 1960 in Lviv), a lecturer at the Department of Humanities Education of the Lviv Regional Institute of Postgraduate Pedagogical Education, Doctor of Philosophy and Candidate of Pedagogical Sciences. O. Huryn is a co-author of the Concept of School Arts Education of the Department of Education and Science of the Lviv Regional State Administration and a participant in the methodological school "Implementation of the Integrated Course 'Art' in the Educational Process." Her research interests focus on multicultural education of senior secondary school students through interaction between general secondary education institutions and art museums, as well as the experience of implementing museum pedagogy activities in educational institutions in Lviv (Website of the Lviv Regional Institute of Postgraduate Pedagogical Education, accessed 24 July 2026). O. Huryn's research demonstrates that "a special role in establishing interaction between a general secondary education institution and an art museum in the process of multicultural education of senior secondary school students belongs to active forms and methods of work that rely not only on processes of perception, memory and attention, but above all on creative and productive thinking, behaviour and communication" (Huryn, 2015).

O. Huryn provides scholarly and methodological support for the educational activities of general secondary education institutions, including on the principles of museum pedagogy, as a methodologist at the Educational and Methodological Centre of Lviv (now the Centre for Professional Development of Pedagogical Workers). At the round table devoted to the development of museum pedagogy in Lviv, "Pedagogical Marathon: 20 Years of the Pedagogical Technology," which O. Huryn organised at the Lviv Regional Institute of Postgraduate Pedagogical Education, the researcher presented the educational and methodological guide on museum pedagogy "Lviv's Cultural and Artistic Space: Variations of the Beautiful", prepared by the team of authors from Secondary School No. 50 in Lviv and published to mark the 20th anniversary of the Pedagogical Marathons at the school. The guide was also presented during the international conference "Museum Pedagogy in the Context of Contemporary Educational Challenges" (Pedagogical Museum of Ukraine, 2022).

In her research, O. Huryn focuses on unlocking the educational potential of museum pedagogy in implementing the competency-based approach to organising the educational process and developing the general cultural competence of arts teachers in the New Ukrainian School, including through the use of a local history component. Her scholarly and methodological contributions include a series of educational session plans developed with teachers from Lviv and

Lviv Region, including the integrated session “The City as a Space for Intercultural Dialogue,” as well as lesson plans for teaching in Lviv museums and other materials. O. Huryn’s methodological materials have been published in the guides “School and Museum: Working Together” (2008, 2009) and “Lviv’s Cultural and Artistic Space: Variations of the Beautiful” (2021).

According to the researcher, “The project ‘School and Museum: Working Together’ (2008–2009) reflects the most important requirement for modernising the educational process – a transition to activity-based forms of organising educational work. This corresponds to the trends of student-centred education, which ensures the formation of a new way of thinking and the development and self-development of the student’s personality through identifying their individual characteristics” (Huryn, 2015, p. 125).

In cooperation with A. Vasilieva, a consultant at the Centre for Professional Development of Pedagogical Workers of Lviv, O. Huryn organises arts and local history projects, including the student arts and local history project competition “Lviv Rondo” and the project “Pearls of the Galician Crown.” Their aim is to promote the history of Lviv through the study of the city’s history, art, architecture, and the lives of both prominent and ordinary Lviv residents, while expanding interdisciplinary links between social sciences and humanities subjects as part of studying the history of the students’ home city. The projects are designed to familiarise students with forms of work characteristic of historical research. They have been implemented through educational excursions, meetings with notable individuals, museum, library and outdoor lessons, and creative competitions throughout 2013–2026. Each year, the “Lviv Rondo” competition presents 70-85 research projects from more than 60 educational institutions in Lviv across 30 categories (Website of the Centre for Professional Development of Pedagogical Workers of Lviv, accessed 24 July 2026).

A significant contribution to the development of museum pedagogy in Lviv Region is made by Alisa Viacheslavivna Vasilieva (born 27 October 1966 in Lviv), a history teacher at Secondary School No. 43 in Lviv and a methodologist specialising in local history and Lviv studies at the Centre for Professional Development of Pedagogical Workers of Lviv.

Among the areas of her work are conducting guided tours and museum lessons, organising online conferences and workshops for schoolchildren and teachers from Lviv schools, teachers at extracurricular education institutions and internally displaced persons, as well as training sessions for teachers on teaching the Lviv studies course and organising innovative forms of local history work. The term “Lviv studies” emerged within the development of local history and Ukrainian studies at the end of the 20th century and is used to refer to the comprehensive study of the historical and cultural space of the city of Lviv.

A. Vasilieva is the organiser of a permanent seminar on local history projects and innovative activities, including a seminar for Lviv studies teachers participating in the “Lviv Rondo” and “Pearl of the Galician Crown” projects (14 September 2017), a round table for local history teachers at the Regional Teachers’ House (27 April 2017), and others. She also organises the city local history project “School Guide” of the Centre for Professional Development of Pedagogical Workers of Lviv and the Centralised Library System of Lviv. Within these projects, the educator has developed and conducted integrated museum lessons, including, for example, the Lviv studies and physics lesson “In the Radio Garage.” She also regularly develops tourist routes around Lviv and presents them to pupils of Lviv schools and practising educators (Lviv Portal, 19 July 2006).

Together with schoolchildren and teachers from Lviv schools, A. Vasilieva participates in the projects “Lesson at the Museum,” the Centralised Library System’s children’s project “History Book Forest,” and “A Book to Help.” Her project work as an educator includes “Lviv Water Towers,” “Lviv Springs,” “Historical Heritage: The History of Lviv Villas and Palaces,” and others. She has initiated interdisciplinary events for teachers from Lviv and Lviv Region, including “Historical Heritage: The History of the UTOS Library,” “A Virtual Journey through the Museums of Lviv,” and “Educational Dialogues: An Excursion to Lychakiv Cemetery.” At her initiative, regular guided tours are organised for internally displaced persons, including “Musical Lviv,” “The Underground of Lviv,” “Lviv Churches,” and “The Streets of Academics and Professors.”

A. Vasilieva has established cooperation with German television journalists, promoting the project “Preservation of Lviv’s Architectural Heritage,” and participated in a Lviv television programme dedicated to the preservation of historical heritage (August 2021). A. Vasilieva develops and presents didactic games and methodological guides. Among them are the motivational game “Lviv in Retro Photography” and the methodological guides “Staffage and Setting,” “Lviv in Millimetres and Centimetres,” “Images of the Horse in Lviv Architecture,” “The Horseshoe – a Symbol of Happiness,” “The Water Elements of Lviv,” and “An Accessible Environment” (Website of the Centre for Professional Development of Pedagogical Workers of Lviv, accessed 24 July 2026).

As part of the “Days of Lviv’s Historical Heritage”, A. Vasilieva presented the quest tour “Military Themes in Lviv Architecture” and an excursion to the Horseshoe Museum (2022). The educator also became a co-organiser of the city local history and tourism project “School Guide” and the excursion project marking the 300th anniversary of Hryhorii Skovoroda, “Outstanding Residents of Lviv – People of Kindred Work.” Among the educator’s original developments are “Children’s Day for Guests of Lviv,” “The Work of Jan Henryk Rosen: An Example of the Paintings in the Refectory of the Roman Catholic Seminary,” the quest tour “Depictions of Saints in Lviv Architecture,” and a special guided tour for Tourism Day organised for the Tourism and Local History Department of Lviv City Council (Website of the Centre for Professional Development of Pedagogical Workers of Lviv, accessed 24 July 2026).

Alisa Vasilieva is an initiator of projects in the field of museum pedagogy aimed at actualising historical events and rethinking them through the lens of artistic and cultural narratives: “The Holodomor in Ukraine,” “The History of Educational Buildings in Lviv,” “The UPA, OUN and UVO in the History of Lviv,” “Multinational Lviv,” “Lviv in the

Novels of R. Ivanychuk," "The History of Lviv Town Hall," "Lviv in the Time of Markiian Shashkevych," "Masonic Lviv," "The Union of Ukrainian Women through the Patriotic Activities of the Safiyan-Lozynskyi Family," "Mozart's Addresses in Lviv," "Lviv under the Protection of Athena Pallas," "Coffee Lviv," the excursion quest "Lviv in Detail: Uniforms, Weapons, Armour and Awards," "Names of Heroes of Ukraine in the Names of Lviv Streets," as well as resource materials for the Day of Dignity and the Defender of Ukraine, commemorations of the 100th anniversary of the Western Ukrainian People's Republic, and the video films "The November Uprising: 500 Seconds in the History of the City," "Jewish Necropolises of Lviv," "The History of a Street in Rury," and others. "An open-air lesson is not simply leaving the classroom for the city space; it is entering the real science that writes the history of humanity and human achievements in the field of science," emphasises the educator and researcher (A. Vasilieva) (Website of the Centre for Professional Development of Pedagogical Workers of Lviv, accessed 24 July 2026).

The author of the study has also made a substantial contribution to the development of museum pedagogy in Lviv, primarily by introducing interactive forms and methods of organising formal, non-formal and informal learning in museums while ensuring compliance with the principles of inclusivity.

Olha Feliksivna Zheleznyk (born 8 February 1970 in Riscani village, Zaikanskyi District, Moldova) is a music teacher who has been implementing museum pedagogy in the educational process at Secondary School No. 50 in Lviv for more than twenty years. The educator systematically organises formal, non-formal and informal education activities for schoolchildren, students of the Pedagogical Professional College of Ivan Franko National University of Lviv, and adult audiences, including participants in professional development courses at the Lviv Regional Institute of Postgraduate Pedagogical Education (LRIPPE) and the Centre for Professional Development of Pedagogical Workers of Lviv (CPDPW).

O. Zheleznyk actively participates in Lviv museum pedagogy projects, including "School and Museum: Working Together" (Huryn & Zheleznyk, 2009) and the arts and local history projects "Lviv Rondo" and "Pearls of the Galician Crown." Of particular note are the methodological guides for museum lessons authored by teachers of Secondary School No. 50 in Lviv, which include methodological materials developed by O. Zheleznyk (Zheleznyk, 2022). An important area of the educator's work is the development of integrated lessons in collaboration with teachers from Secondary School No. 50 in Lviv and research staff of the "Literary Lviv of the First Half of the 20th Century" Museum (Artistic Meetings, 2017).

O. Zheleznyk is the author of didactic games based on museum materials (Karamanov & Zheleznyk, 2021). The educator has developed innovative teaching methods for students with special educational needs in the museum environment. Her lesson "A Fashionable Journey with the Lion Cub" for students with special educational needs won the 2021 annual competition for the best lesson at the "Ancient Lviv" Museum (Ancient Lviv, 2021).

O. Zheleznyk places particular emphasis on non-formal education activities in Lviv museums based on the use of museum materials in the context of educational initiatives during the period of military hostilities in Ukraine, especially the organisation of volunteer activities within the museum environment (Karamanov & V. Zheleznyk, 2022, pp. 129–135). Thus, in 2015, the "Lion Cub" Mobile Song Theatre began its charitable volunteer activities at Secondary School No. 50 in Lviv (director, scriptwriter and stage director – O. Zheleznyk) (Karamanov, Zheleznyk, & Surmach, 2024). The theatre participates in non-formal education activities for patients and staff of the Western Regional Military Medical Clinical Centre, as well as in European Heritage Days events in Lviv (Karamanov, Zheleznyk, & Surmach, 2024). An important aspect of O. Zheleznyk's work in promoting museum heritage is involving internally displaced persons who have left their homes in areas affected by hostilities in museum activities (Zheleznyk, 2024).

Among O. Zheleznyk's practical contributions to informal education for children and adults through storytelling is the writing of detective novels in which an adventurous plot is interwoven with worldview, pedagogical and psychological narratives, as well as artistic information. Based on these detective novels, didactic games have been developed and conducted in museums, libraries and bookshops in Lviv and across Ukraine. Four novels have been published by the Navchalna Knyha – Bohdan publishing house under the pseudonym Olha Vakkaus: "The Adventure" (2022), "Bella Donna" (2023), "Valkyrie" (2023), and "Dalila from the Relict Valley" (2023).

O. Zheleznyk is an active organiser of museum and pedagogical practice for students pursuing a teaching qualification. Thus, an educational museum and pedagogical internship for students of the Separate Structural Unit "Pedagogical Professional College of Ivan Franko National University of Lviv" is regularly held at Secondary School No. 50 in Lviv. The College offers an educational and professional programme in the speciality "Museum Studies and Heritage Studies" (Karamanov, Sulym, Bilan, Zheleznyk, & Laskii, 2023).

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Thus, educators and museum professionals in Lviv provide a theoretical and methodological foundation for museum pedagogy, develop innovative pedagogical technologies, create educational and methodological resources, establish effective models of partnership between museums and educational institutions, and contribute to the training of highly qualified future educators and museum professionals with different levels of professional competence.

Further scholarly research into the development of museum pedagogy in Lviv could focus on studying the scholarly and practical contributions of Lviv teachers, museum professionals and researchers to the introduction of innovative teaching methods, techniques and technologies into the educational activities of general secondary education institutions.

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Chapter III. THEORETICAL-METHODICAL FUNDAMENTALS OF PROFESSIONAL TRAINING OF FUTURE TEACHERS

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USE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN THE METHODOLOGICAL TRAINING OF PRE-SERVICE TEACHERS FOR TEACHING THE SCIENCE EDUCATION FIELD

Abstract. The article presents a theoretical analysis of the possibilities of using artificial intelligence technologies in the methodological training of future teachers for teaching the science education field. The relevance of the study is determined

by the rapid spread of generative artificial intelligence in educational environments, the digital transformation of teacher education, and the need to prepare teachers capable of effectively applying intelligent technologies in their professional activities. The purpose of the study is to provide a theoretical substantiation of the possibilities of using artificial intelligence technologies in the methodological training of future teachers of the science education field and to identify the pedagogical conditions for their effective implementation. To achieve this purpose, a set of theoretical research methods was employed, including literature analysis, comparison, systematization, generalization, modelling, and structural-functional analysis.

The findings demonstrate the educational potential of generative artificial intelligence in teacher education, including learning personalization, support for students' independent learning, educational content generation, preparation for teaching practice, and the development of reflective competence. The study substantiates the main directions of using artificial intelligence technologies in the methodological training of future teachers of the science education field, including lesson planning, development of teaching materials, preparation of science experiments, modelling of educational situations, organization of inquiry-based learning, development of STEM projects, and creation of educational assessment tools. Examples of methodological tasks based on generative artificial intelligence are proposed to facilitate the development of future teachers' professional competencies.

The study also identifies the major risks associated with the use of intelligent systems in education, including the generation of inaccurate information, AI hallucinations, reduced cognitive independence of students, violations of academic integrity, and ethical challenges of digital interaction. Furthermore, pedagogical conditions for the effective use of artificial intelligence technologies are substantiated, including the development of critical thinking, reflection, AI competence, and responsible attitudes toward the outputs generated by intelligent systems.

Keywords: artificial intelligence; generative artificial intelligence; methodological training; future teachers; science education field; professional training.

ВИКОРИСТАННЯ ТЕХНОЛОГІЙ ШТУЧНОГО ІНТЕЛЕКТУ В МЕТОДИЧНІЙ ПІДГОТОВЦІ МАЙБУТНІХ УЧИТЕЛІВ ДО ВИКЛАДАННЯ ПРИРОДНИЧОЇ ОСВІТНЬОЇ ГАЛУЗІ

Анотація. У статті здійснено теоретичний аналіз можливостей використання технологій штучного інтелекту в методичній підготовці майбутніх учителів до викладання природничої освітньої галузі. Актуальність дослідження зумовлена активним поширенням генеративного штучного інтелекту в освітньому середовищі, цифровою трансформацією педагогічної освіти та необхідністю підготовки вчителів, здатних ефективно використовувати інтелектуальні технології у професійній діяльності. Метою дослідження є теоретичне обґрунтування можливостей використання технологій штучного інтелекту в методичній підготовці майбутніх учителів природничої освітньої галузі та визначення педагогічних умов їх ефективного застосування. Для досягнення мети використано комплекс теоретичних методів дослідження: аналіз наукової літератури, порівняння, систематизацію, узагальнення, моделювання та структурно-функціональний аналіз.

У результаті дослідження визначено освітні можливості генеративного штучного інтелекту в професійній підготовці майбутніх педагогів, зокрема персоналізацію навчання, підтримку самостійної роботи студентів, створення навчального контенту, підготовку до педагогічної практики та розвиток рефлексивної компетентності. Обґрунтовано основні напрями використання технологій штучного інтелекту в методичній підготовці майбутніх учителів природничої освітньої галузі, серед яких розроблення конспектів уроків, створення дидактичних матеріалів, підготовка природничих дослідів, моделювання навчальних ситуацій, організація дослідницької діяльності учнів, розроблення STEM-проєктів і засобів педагогічного оцінювання. Запропоновано приклади методичних завдань із використанням генеративного штучного інтелекту, спрямованих на формування професійних компетентностей майбутніх учителів. Визначено основні ризики використання інтелектуальних систем в освітньому процесі, зокрема можливість генерування недостовірної інформації, виникнення галюцинацій штучного інтелекту, зниження пізнавальної самостійності студентів, порушення принципів академічної доброчесності та етичні проблеми цифрової взаємодії. Обґрунтовано педагогічні умови ефективного використання технологій штучного інтелекту, які передбачають розвиток критичного мислення, рефлексії, ШІ-компетентності та відповідального ставлення до результатів роботи інтелектуальних систем.

Ключові слова: штучний інтелект; генеративний штучний інтелект; методична підготовка; майбутні вчителі; природнича освітня галузь; професійна підготовка.

INTRODUCTION

The problem formulation. The current stage of educational development is characterized by an intensive digital transformation that encompasses all levels of the educational system and leads to the emergence of new approaches to the professional training of teachers. One of the most dynamic directions of these changes is the implementation of artificial intelligence (AI) technologies, which are gradually being integrated into the educational, research, and methodological activities of educational institutions. Generative artificial intelligence (GenAI) systems, capable of creating texts, visual materials, learning tasks, projects, and other educational products based on the analysis of large data sets, have become particularly widespread. The use of ChatGPT, Gemini, Copilot, and other AI tools opens up new opportunities for the personalization of learning, automation of routine operations, and support of teachers' professional development (Kasneci et al., 2023; UNESCO, 2023).

The issue of AI implementation is of particular relevance in the context of training future teachers of the science education field. The implementation of the conceptual principles of the New Ukrainian School requires teachers to be prepared to apply inquiry-based, activity-oriented, and STEM-oriented approaches, which necessitates the continuous modernization of methodological tools. AI technologies can become an effective means of developing educational materials, modelling scientific investigations, creating interactive tasks, and organizing students' project activities. At

the same time, their use requires appropriate methodological training of pre-service teachers and the development of their ability to critically evaluate the outputs generated by intelligent systems.

Analysis of recent research and publications. The issue of AI use in education has been actively investigated by both international and Ukrainian scholars. The pedagogical potential of GenAI, possibilities for its integration into the educational process, and associated risks have been highlighted in the works of Holmes et al., 2022, Kasneci et al., 2023, Laupichler et al., 2022, Long and Magerko, 2020, Tlili et al., 2023, Zhang and Magerko, 2025. Certain aspects of the digital transformation of teacher education, the development of digital competence, and the use of AI in the professional preparation of future teachers have been examined in the studies of Boiko and Morze, 2025, Honcharova, 2024, Hrebenichenko, 2024, Hunaza, 2023 and other researchers. In the context of teacher education, Kotyk (2024) also emphasizes the importance of preparing future teachers for the pedagogically appropriate integration of digital and multimedia technologies into the educational process.

At the same time, an analysis of contemporary scientific publications indicates that most studies focus on general issues of AI use in education, whereas the problem of applying AI specifically in the methodological training of pre-service teachers for teaching the science education field remains insufficiently explored. Further scientific substantiation is required regarding the possibilities of using GenAI for the development of teaching and methodological materials, the organization of inquiry-based learning, the preparation of STEM projects, and the formation of professional competencies of future teachers.

THE AIM AND RESEARCH TASKS

The purpose of the study is to provide a theoretical substantiation of the possibilities of using artificial intelligence technologies in the methodological training of pre-service teachers for teaching the science education field and to identify the pedagogical conditions for their effective implementation in the educational process of higher education institutions.

To achieve this purpose, the following research objectives were defined:

1. To analyse contemporary scientific approaches to the use of AI technologies in education and teacher training.
2. To identify the educational opportunities of generative artificial intelligence within the system of pre-service teacher education.
3. To substantiate the main directions of using AI technologies in the methodological training of future teachers of the science education field.
4. To develop examples of methodological tasks based on the use of generative artificial intelligence.
5. To determine the risks and pedagogical conditions for the effective use of AI technologies in the professional training of future teachers.

RESEARCH METHODS

To achieve the purpose of the study, a set of theoretical research methods was employed. The method of scientific literature analysis was used to examine contemporary approaches to the implementation of AI technologies in education and to determine the current state of research on the issue in both international and Ukrainian scholarship. The comparative method was applied to compare the functional capabilities of modern generative AI systems and to identify the prospects for their use in the methodological training of future teachers of the science education field. The methods of systematization and generalization were employed to classify the educational opportunities of generative artificial intelligence, identify the main directions of its use in methodological training, and determine the pedagogical conditions for the effective application of these technologies. The modelling method was used to develop a system of methodological tasks based on generative AI and to substantiate the possibilities of their implementation in the professional training of future teachers of the science education field. The structural-functional method was applied to identify relationships between the capabilities of AI technologies, the types of methodological activities performed by future teachers, and the expected outcomes of professional training.

RESULTS OF THE RESEARCH

An analysis of contemporary scientific research indicates that GenAI is becoming an important component of the digital transformation of education and teacher training. Over recent years, the possibilities for using intelligent systems in educational activities have expanded significantly due to the development of large language models and generative services. Research findings demonstrate the considerable potential of these technologies for personalizing learning, supporting students' independent work, creating educational content, and developing professional competencies (Kasneci et al., 2023; Tlili et al., 2023; UNESCO, 2023).

Unlike traditional digital resources, GenAI provides interactive communication with users, adapts responses to their needs, and supports individualized learning pathways (Kasneci et al., 2023; Tlili et al., 2023). In the field of teacher education, such GenAI tools as ChatGPT, Gemini, and Copilot have become widely used. Their application enables pre-service teachers to obtain information promptly, analyse educational materials, create methodological resources, and improve professional competencies. According to researchers, GenAI is gradually evolving from a tool for information retrieval into a digital educational assistant capable of supporting learning activities at all stages of professional training (Boiko & Morze, 2025; UNESCO, 2023; Zhang & Magerko, 2025).

One of the major advantages of GenAI is its ability to personalize learning. Intelligent systems can adapt educational content and its level of complexity to students' individual needs, provide personalized explanations of complex concepts, and generate additional examples and tasks of varying difficulty levels. As a result, future teachers are able

to study at their own pace while focusing on those aspects of professional training that require additional attention (Boiko & Morze, 2025; Honcharova, 2024; Hunaza, 2023).

Equally important is the role of GenAI in supporting students' independent learning. Modern AI tools enable automated searches for scientific information, summarization of large volumes of textual data, comparison of different scientific approaches, and generation of structured notes. Consequently, the efficiency of working with information resources increases, creating favourable conditions for the development of self-directed learning skills, which constitute an important component of a modern teacher's professional competence.

Of particular value for the methodological training of future teachers is the ability of GenAI to generate educational content. With the help of ChatGPT, Gemini, or Copilot, students can develop lesson plans, teaching materials, test items, educational cases, inquiry-based learning scenarios, and STEM projects. The effectiveness of using such tools largely depends on users' ability to formulate high-quality prompts, critically evaluate generated outputs, and verify the reliability of the information produced (Boiko & Morze, 2025; Hrebenichenko, 2024; Laupichler et al., 2022).

The synthesis of research findings allows us to conclude that GenAI is gradually becoming an important component of the digital educational environment of higher education institutions. Its application contributes to the personalization of learning, enhancement of students' independent work, expansion of opportunities for creating teaching and methodological materials, and improvement of the overall effectiveness of pre-service teacher education (Table 1).

Table 1

Educational Opportunities of Generative Artificial Intelligence in the Professional Training of Pre-Service Teachers

Educational Opportunity	Characteristics	Potential Outcome
Personalization of Learning	Adaptation of content and complexity to students' individual needs	Improved quality of knowledge acquisition
Support for Independent Learning	Consultation, explanation of concepts, and provision of examples	Development of self-directed learning skills
Information Search and Analysis	Summarization of sources, data structuring, and formulation of conclusions	Optimization of information and analytical activities
Creation of Educational Content	Generation of lesson plans, tests, exercises, and educational cases	Improvement of methodological training
Preparation for Teaching Practice	Modelling of professional situations and educational scenarios	Development of professional skills
Reflective Support	Analysis of completed tasks and provision of recommendations	Development of reflective competence

Source*: Developed by the authors based on Boiko & Morze (2025), Long and Magerko (2020), Kasneci et al. (2023), and UNESCO (2023).*

The integration of AI technologies into the system of teacher education opens new opportunities for improving the methodological component of the educational process. Their significance is particularly evident in the preparation of teachers for the science education field, as they enable the integration of scientific information, inquiry-based learning, project-based learning, and digital educational resources. Consequently, GenAI serves as a tool for supporting methodological activities that can be employed at various stages of pre-service teacher preparation.

One important area of application is the development of lesson plans and individual components of classroom instruction. By using ChatGPT, Gemini, or Copilot, students can generate lesson structures, formulate learning objectives in accordance with the State Standard of Primary Education, select teaching methods, and design stages of classroom activities. However, work with AI should not be reduced to the mechanical copying of generated materials. Future teachers must critically analyse such materials and adapt them to students' age characteristics and specific educational contexts.

Another important direction involves the creation of teaching and learning materials for science education lessons. With the help of GenAI, students can develop observation sheets, science-related tasks, interactive exercises, experiment instructions, crosswords, quizzes, and other educational resources. This significantly reduces the time required for preparing instructional materials and allows greater focus on their methodological improvement.

GenAI also demonstrates considerable potential for organizing students' inquiry-based activities. Intelligent systems can suggest procedures for conducting observations, describe possible experimental outcomes, and assist in formulating research questions and hypotheses. Particularly valuable is the use of AI in preparing future teachers to implement an inquiry-based approach, which is one of the key principles of science education within the New Ukrainian School framework. This direction is supported by empirical research demonstrating that AI literacy is among the significant factors influencing pre-service science teachers' intention to integrate generative artificial intelligence into inquiry-based teaching (Ramnarain et al., 2025).

Another important area of application is the modelling of educational situations and the development of problem-based tasks. GenAI makes it possible to create a variety of pedagogical cases that reflect real or simulated situations related to science education. Such cases can be used during practical classes in higher education institutions to foster the professional thinking of future teachers and to develop their ability to make pedagogical decisions.

A promising direction is the use of AI in the preparation of STEM projects. Modern generative systems are capable of suggesting project topics, assisting in planning implementation stages, selecting the necessary resources, and evaluating expected outcomes. This creates additional opportunities for the development of students' integrated thinking and their readiness to implement the STEM approach in primary education.

No less important is the application of AI for selecting interactive tasks and assessment tools for evaluating students' learning achievements. Intelligent systems enable the creation of test items of varying levels of complexity, tasks aimed at identifying cause-and-effect relationships, activities for formative assessment, and differentiated learning assignments. As a result, future teachers gain the opportunity to quickly generate diverse educational content in accordance with learners' educational needs.

The generalized possibilities of using GenAI in the methodological training of future teachers of the science education field are presented in Table 2.

Table 2

Use of Artificial Intelligence Tools in the Methodological Training of Future Teachers of the Science Education Field

Type of Activity	AI Tool	Expected Outcome
Development of Lesson Plans	ChatGPT, Gemini, Copilot	Formation of skills in designing educational activities
Creation of Teaching Materials	ChatGPT, Gemini, Canva AI	Development of high-quality methodological support
Preparation of Science Experiments	ChatGPT, Gemini	Improvement of students' inquiry-based training
Modelling of Educational Situations	ChatGPT, Copilot	Development of future teachers' professional thinking
Development of STEM Projects	ChatGPT, Gemini	Formation of readiness for STEM education
Selection of Interactive Tasks	ChatGPT, Quizizz AI, Kahoot AI	Diversification of students' learning activities
Organization of Inquiry-Based Activities	ChatGPT, Gemini	Development of scientific inquiry skills
Creation of Tests and Assessment Tools	ChatGPT, Copilot	Improvement of the effectiveness of assessing learning achievements

Source: Developed by the authors.

Alongside the use of AI for creating teaching and methodological materials, an important area of its application in the professional training of future teachers of the science education field is the development of specialized methodological tasks. The completion of such tasks makes it possible to integrate the capabilities of GenAI directly into the process of developing the professional competencies of future teachers and ensures the transition from simple familiarity with digital tools to their conscious and pedagogically appropriate use. As researchers emphasize, the effectiveness of GenAI implementation in education largely depends on the nature of learning activities in which students not only receive information but also analyse, evaluate, and improve the outputs generated by intelligent systems (Long & Magerko, 2020; Kasneci et al., 2023).

Tasks that involve students' critical interaction with generated content are of particular value in methodological training. Under such conditions, AI functions not as a source of ready-made solutions but as a pedagogical design tool that stimulates reflection, creative thinking, and the ability to evaluate the quality of educational materials. In particular, future teachers may use ChatGPT, Gemini, or Claude to develop lesson fragments, create inquiry-based tasks, model educational situations, prepare STEM projects, and analyse different ways of explaining scientific phenomena. Such activities contribute to the development of pedagogical design skills, digital literacy, and readiness to implement innovative technologies in school practice (Holmes et al., 2022; Tlili et al., 2023).

Taking into account current trends in the digitalization of education and the findings of contemporary research, examples of methodological tasks were developed for use in the professional training of future teachers of the science education field. Their content is aimed at integrating subject-specific, methodological, and digital training, as well as developing students' ability to critically evaluate the outputs of generative systems and apply them to the solution of professionally oriented tasks.

As can be seen from Table 3, most of the proposed tasks are focused not on obtaining a ready-made product with the help of AI, but rather on students' active cognitive engagement related to the analysis, verification, revision, and improvement of generated outputs. Such an organization of learning activities makes it possible to utilize the potential of AI for the development of future teachers' professional thinking and the formation of their readiness for pedagogical activity in the context of the digital transformation of education (Long & Magerko, 2020; Holmes et al., 2022). The implementation of these methodological tasks contributes to the integration of subject-specific knowledge, methodological expertise, and digital competence, which corresponds to the requirements for the training of specialists in the science education field.

The implementation of AI technologies in the educational process brings to the forefront a number of pedagogical, ethical, and methodological challenges. Their use cannot be regarded as an exclusively positive factor in professional training, since the outputs generated by AI systems require critical analysis, verification, and pedagogical interpretation (Kasneci et al., 2023; Tlili et al., 2023).

Table 3

Examples of Methodological Tasks Based on the Use of Generative AI Task | Learning outcome

Task	Learning Outcome
Development of a lesson fragment using ChatGPT followed by an expert analysis of its structure and content	Formation of pedagogical design skills and the ability to analyse educational content
Creation of a series of inquiry-based tasks for pupils using generative AI	Development of skills for organizing pupils' inquiry-based activities
Analysis of factual errors and inaccuracies in AI-generated explanations of scientific phenomena	Development of critical thinking and skills for verifying the reliability of information
Comparison of several explanations of the same scientific phenomenon generated by different AI systems	Development of the ability to adapt educational materials to learners' age characteristics
Development of a STEM project using generative AI tools	Formation of project-design and interdisciplinary competencies
Creation of an environmental case and modelling possible solutions to the proposed problem	Development of environmental thinking and decision-making skills
Generation of test items of different difficulty levels followed by improvement of their content	Formation of competence in educational assessment
Development of instructions for conducting a science experiment and verification of their scientific accuracy	Improvement of methodological skills related to organizing pupils' practical activities

Source: Developed by the authors.

One of the most common risks is the phenomenon of so-called AI hallucinations, manifested in the generation of inaccurate or partially incorrect responses. This is particularly dangerous in the preparation of educational materials for science disciplines, where even minor inaccuracies may lead to the formation of misconceptions and erroneous scientific understandings among learners. Researchers emphasize that large language models frequently generate non-existent facts, fabricated references, or incorrect explanations of scientific phenomena, which makes expert verification of generated outputs essential (Kasneci et al., 2023; Mesky & Topol, 2023).

Another significant risk is the reduction of students' cognitive independence. When future teachers use AI exclusively as a tool for the automatic creation of lesson plans, presentations, or methodological materials, the need for independent information searching, source analysis, and instructional design gradually decreases. Under such circumstances, there is a danger of developing a passive model of professional training in which students become consumers of ready-made content rather than its creators and critical evaluators (Holmes et al., 2022; Honcharova, 2024; Long & Magerko, 2020).

The issue of academic integrity is also of considerable importance. The use of GenAI may result in the uncritical copying of generated texts, concealed authorship, or the presentation of AI-generated outputs as one's own educational product. Therefore, teacher education should focus not only on teaching students how to use AI tools but also on fostering a responsible attitude toward their outputs, adherence to the principles of academic integrity, and transparency in educational activities (UNESCO, 2023).

A separate group of challenges includes ethical risks associated with algorithmic bias, the lack of transparency of certain AI models, potential copyright violations, and the use of personal data. Future teachers should understand the limitations of AI application in education, recognize their responsibility for pedagogical decisions, and maintain the primacy of professional judgment over automatically generated recommendations (UNESCO, 2023).

Consideration of these risks necessitates the creation of specific pedagogical conditions that ensure the effective and safe use of AI technologies in the methodological training of future teachers. First and foremost, it is important to develop students' skills in critically evaluating AI-generated responses, whereby they not only obtain information but also verify it using scientific sources, educational literature, and empirical evidence. Equally important is the integration of AI tools with inquiry-based activities, allowing AI to be used as a means of supporting scientific investigation rather than replacing it.

Another essential pedagogical condition is the development of reflective practice among future teachers. Analysis of personal experience in interacting with intelligent systems, evaluation of the strengths and weaknesses of generated outputs, and awareness of one's own mistakes contribute to the formation of a responsible professional position. At the same time, a central task of contemporary teacher education is the development of AI competence, which encompasses knowledge of the capabilities and limitations of artificial intelligence, the ability to use AI tools effectively in educational settings, the capacity to critically evaluate generated outputs, and adherence to ethical principles of digital interaction (Boiko & Morze, 2025; Laupichler et al., 2022; UNESCO, 2023).

The identified pedagogical conditions are summarized in Table 4.

Table 4

Pedagogical Conditions for the Effective Use of Artificial Intelligence Technologies in the Methodological Training of Future Teachers

Pedagogical Condition	Practical Implementation
Critical Evaluation of AI-Generated Responses	Verification of generated information using scientific sources, textbooks, and research findings
Integration of AI with Inquiry-Based Activities	Use of AI for generating hypotheses, analysing data, and developing inquiry-based tasks
Development of Reflection	Analysis of personal experience of interaction with AI, identification of errors, and determination of ways to overcome them
Adherence to Academic Integrity	Ethical use of generated outputs and acknowledgement of the role of AI in completing tasks
Formation of an Ethical Culture of AI Use	Discussion of ethical cases, copyright issues, and personal data protection
Development of AI Competence	Training in the use of generative systems and evaluation of their capabilities and limitations
Integration of AI into Practice-Oriented Training	Development of lessons, STEM projects, and inquiry-based cases using intelligent tools

Source: Developed by the authors.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The findings of the study indicate that artificial intelligence technologies are becoming an important factor in the digital transformation of teacher education and provide new opportunities for improving the methodological training of future teachers in the science education field. The most promising areas of their application include the development of lesson plans, creation of teaching materials, organization of inquiry-based learning activities, modelling of educational situations, preparation of STEM projects, selection of interactive tasks, and development of educational assessment tools. It has been substantiated that the use of generative artificial intelligence contributes to the personalization of learning, enhancement of students' independent work, development of pedagogical design skills, and improvement of the overall effectiveness of professional training.

The study has demonstrated that an important component of pre-service teacher education is the implementation of specially designed methodological tasks based on generative artificial intelligence. Such tasks encourage students to analyse, evaluate, improve, and pedagogically interpret the outputs generated by intelligent systems. This organization of the educational process ensures the integration of subject-specific, methodological, and digital training of future teachers. It has also been established that the use of AI technologies is associated with several risks, including the generation of inaccurate information, AI hallucinations, reduction of students' cognitive independence, violations of academic integrity, and ethical issues related to digital interaction. In response to these challenges, pedagogical conditions for the effective use of artificial intelligence technologies in the methodological training of future teachers have been substantiated. These include critical evaluation of AI-generated outputs, integration of AI with inquiry-based activities, development of reflection, adherence to academic integrity principles, formation of an ethical culture of digital technology use, and development of future teachers' AI competence.

Prospects for further research are associated with the development and experimental verification of a methodology for integrating artificial intelligence technologies into the methodological training of future teachers of the science education field, the identification of criteria and indicators for assessing the formation of AI competence among teacher education students, and the investigation of the impact of generative artificial intelligence on the quality of teacher preparation in the context of the digital transformation of education.

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CONTENT AND STRUCTURAL COMPONENTS OF THE PROFESSIONAL TRAINING OF FUTURE SCIENCE TEACHERS FOR THE APPLICATION OF STEM TECHNOLOGIES

Abstract. The article explores the content and structural components of the professional training of future science teachers for the application of STEM technologies in the educational process. The relevance of the study is determined by the growing importance of interdisciplinary integration, the development of inquiry-based and project-based learning, the digitalization of education, and the need to modernize science teacher education. The significance of integrating STEM approaches into the teaching of professional disciplines, organizing experimental and research activities, implementing interdisciplinary projects, and using digital educational resources is substantiated. The expediency of combining theoretical, practical, and methodological training with pedagogical modeling, microteaching, and professionally oriented tasks is established. Five interrelated structural components of professional training are identified: motivational-value, cognitive, operational-activity, design-methodological, and reflective-evaluative. Their significance in fostering positive motivation towards STEM education, acquiring interdisciplinary knowledge, developing practical skills, designing integrated learning, and improving professional activities is revealed. It is emphasized that the interaction of these components ensures the integrity of professional training and promotes the development of research culture, creative thinking, and professional autonomy among future teachers. The practical significance of the study lies in the possibility of using its findings to improve the content of subject-specific and methodological educational components, develop STEM-oriented tasks, and organize project-based activities for higher education students. Further research prospects involve developing and experimentally validating a model of professional training, identifying the pedagogical conditions for its implementation, and establishing criteria for assessing the development of the corresponding readiness.

Keywords: professional training, future science teachers, STEM technologies, STEM education, interdisciplinary integration, research activities, project-based learning, motivational-value component, cognitive component, operational-activity component, design-methodological component, reflective-evaluative component.

ЗМІСТ ТА СТРУКТУРНІ КОМПОНЕНТИ ПРОФЕСІЙНОЇ ПІДГОТОВКИ МАЙБУТНІХ УЧИТЕЛІВ ПРИРОДНИЧИХ ДИСЦИПЛІН ДО ЗАСТОСУВАННЯ STEM-ТЕХНОЛОГІЙ

Анотація. У статті розкрито зміст і структурні компоненти професійної підготовки майбутніх учителів природничих дисциплін до застосування STEM-технологій в освітньому процесі. Актуальність дослідження зумовлена посиленням міждисциплінарної інтеграції, розвитком дослідницького та проєктного навчання, цифровізацією освіти й необхідністю модернізації природничої підготовки педагогів. Обґрунтовано значення інтеграції STEM-підходів у викладання фахових дисциплін, організації експериментальної та навчально-дослідницької діяльності, виконання міждисциплінарних проєктів і використання цифрових освітніх ресурсів. Визначено доцільність поєднання теоретичної, практичної та методичної підготовки з педагогічним моделюванням, проведенням мікроуроків і виконанням професійно орієнтованих завдань. Виокремлено п'ять взаємопов'язаних структурних компонентів професійної підготовки: мотиваційно-ціннісний, когнітивний, операційно-діяльнісний, проєктувально-методичний і рефлексивно-оцінювальний. Розкрито

їхнє значення для формування позитивної мотивації до STEM-освіти, засвоєння міждисциплінарних знань, розвитку практичних умінь, проєктування інтегрованого навчання та вдосконалення професійної діяльності. Наголошено, що взаємодія визначених компонентів забезпечує цілісність підготовки, розвиток дослідницької культури, творчого мислення та професійної самостійності майбутніх педагогів. Практичне значення дослідження полягає в можливості використання його результатів для вдосконалення змісту фахових і методичних освітніх компонентів, розроблення STEM-орієнтованих завдань та організації проєктної діяльності здобувачів вищої освіти. Перспективи подальших досліджень пов'язані з розробленням та експериментальною перевіркою моделі професійної підготовки, визначенням педагогічних умов її реалізації й критеріїв оцінювання сформованості відповідної готовності.

Ключові слова: професійна підготовка, майбутні вчителі природничих дисциплін, STEM-технології, STEM-освіта, міждисциплінарна інтеграція, дослідницька діяльність, проєктне навчання, мотиваційно-ціннісний компонент, когнітивний компонент, операційно-діяльнісний компонент, проєктувально-методичний компонент, рефлексивно-оцінювальний компонент.

INTRODUCTION

The problem formulation. The modern transformation of science education highlights the need to rethink the content of the professional training of future teachers of biology, chemistry, physics, geography, and integrated courses within the natural science educational field. This is associated with the transition from a predominantly subject-knowledge-based model of learning to an integrated, competency-based, activity-oriented, and research-oriented educational paradigm. STEM technologies are becoming particularly important in this process, as their application involves the integration of natural sciences, technology, engineering, and mathematics to solve practice-oriented and research tasks.

In the context of updating the content of science education, improving the professional training of future teachers of biology, chemistry, physics, geography, and integrated courses within the natural science educational field is becoming particularly relevant. This need is driven by changing educational priorities: instead of the traditional acquisition of a system of subject-specific knowledge, increasing importance is being attached to interdisciplinary integration, the competency-based approach, practical activities, and the involvement of students in research inquiry.

An important means of implementing these priorities is the use of STEM technologies, which ensure the integration of natural science knowledge with technological, engineering, and mathematical tools for analyzing real-world problems, conducting experiments, and developing practically significant solutions.

Despite the existence of theoretical studies and practical developments concerning the implementation of STEM technologies in the educational process, their application in the professional activities of science teachers requires a systematic and methodologically substantiated approach.

The effectiveness of STEM education depends not only on the availability of digital resources, laboratory equipment, or innovative teaching tools, but also on teachers' readiness to integrate natural science knowledge with mathematics, technology, and engineering; organize students' research activities; develop interdisciplinary projects; and create conditions for fostering critical thinking, creativity, and the ability to solve practice-oriented tasks. As V. Onipko emphasizes in her research, «The professional training of future teachers in the natural science educational field should focus on developing an integrated set of general and professional competencies defined in the Strategy for the Development of Higher Education in Ukraine for 2022–2032 (critical thinking, research, digital, environmental, communication, and innovation competencies), the outcome of which is a graduate's readiness to organize experimental research, integrated learning, and STEM-oriented instruction in the context of the New Ukrainian School» (Onipko, 2025).

Under these circumstances, the professional training of future science teachers for the application of STEM technologies is becoming particularly relevant. It is important to consider that proficiency in individual digital tools or knowledge of the theoretical foundations of STEM education does not, in itself, guarantee a future teacher's ability to independently design and implement STEM-oriented learning. This requires the integration of fundamental natural science training, psychological and pedagogical knowledge, methodological competence, practical skills in organizing research and project activities, as well as readiness for reflection and continuous improvement of one's own professional practice.

Analysis of recent research and publications. An important direction in the renewal of higher pedagogical education is the development of a professionally competent generation of teachers capable of generating innovative ideas, finding unconventional ways to address pedagogical problems, and creatively applying modern educational technologies in their professional activities. The scientific and theoretical foundations of the professional development and training of future teachers in higher education institutions have been addressed in the works of numerous Ukrainian and international researchers, including N. Bibik, V. Bondar, N. Huzii, N. Kichuk, L. Kondrashova, Z. Kurland, L. Martynets, V. Radul, and other scholars.

An important place in the scientific discourse is occupied by studies devoted to substantiating the theoretical and methodological foundations of vocational education, as represented in the scholarly contributions of I. Bekh, M. Yevtukh, S. Nikolaienko, V. Prykhodko, A. Silveistr, S. Sysoieva, L. Khoruzha, and other researchers.

The essence of the problem associated with highlighting the specific features of training this category of teachers within the educational process of modern educational institutions is examined in the scholarly works of Ukrainian researchers O. Barna, I. Chervinska, N. Valko, O. Hirnyi, N. Polikhun, and others.

N. Polikhun, I. Slipukhina, and I. Chernetskyi investigated the foundations of the emergence and development of STEM as an educational strategy, its relevance, and the didactic features of its implementation in the Ukrainian education system. The scholars analyzed the main trends and processes involved in introducing the STEM approach into national educational practice, particularly in the context of gifted education, and outlined the prospects for its application as a tool for reforming the national education system (Polikhun, & Slipukhina, Chernetskyi, 2017).

Researcher O. Hirnyi focused on examining the interrelationships between STEM education and other educational fields. To this end, the author conducted a comparative analysis of the lists of academic subjects and educational fields represented in various STEM models implemented in the United States and European countries, comparing them with STEM subjects included in the curricula of Ukrainian educational institutions and the leading STEM fields recommended by the U.S. National Science Foundation (Hirnyi, 2019). A group of researchers comprising N. Stetsula, N. Novykova, U. Malaniak, and N. Lisnianska are studying the specific features of applying the fundamental principles of STEM education in geography lessons.

O. Barna substantiated specific organizational and methodological measures for implementing STEM education in educational institutions. Among the main areas, the researcher identifies the selection of an optimal model for implementing STEM education in accordance with the specific nature of an educational institution's activities and its chosen areas of specialization, as well as the development and implementation of didactic and digital tools to support it. The author places particular emphasis on creating a team of motivated professional teachers committed to innovation and change, whose activities are «aimed at achieving defined goals and expected learning outcomes» (Barna, 2019). The author considers the particular value of STEM education to lie in the integration of natural sciences, mathematics, technology, and engineering into a coherent learning system that ensures the interdisciplinary nature of the educational process and its practical orientation.

Researcher N. Valko, in the article «Theoretical and Methodological Foundations of Training Future Teachers of Natural Sciences and Mathematics for the Application of STEM Technologies», examined the specific features of the «professional training of future teachers for the use of STEM technologies and the development of their readiness to introduce the STEM approach into the practice of general secondary education institutions. The researcher identified the main stages of the professional and practice-oriented training of future teachers and developed organizational and methodological guidelines for implementing this process, aimed at ensuring the effective application of STEM technologies in their future professional activities» (Valko, 2018; 2020). The above demonstrates the relevance of seeking innovative approaches to developing their professional competence, creative potential, and readiness to implement modern educational technologies.

THE AIM AND RESEARCH TASKS

The purpose of the article. The purpose of the study is to reveal the content and describe the structural components of the professional training of future science teachers for the application of STEM technologies.

Research objectives: to analyze the specific features of applying STEM technologies, taking into account the integration of natural sciences, technology, engineering, and mathematics, project-based activities, and inquiry-based learning; to identify and substantiate the structural components of the professional training of future science teachers for the application of STEM technologies, and to reveal their functions and interrelationships.

RESEARCH METHODS

The methodological basis of the study comprises a set of complementary theoretical and empirical methods, the selection of which is determined by the research purpose and the defined objectives. The theoretical methods include analysis and synthesis, comparison, systematization, and generalization of scientific and pedagogical sources, regulatory and legal documents, and the content of educational and professional programmes. Their application is aimed at clarifying the theoretical foundations of the research problem, identifying the main approaches to the professional training of future teachers, and determining the possibilities for integrating STEM technologies into this process. The structural-systemic method is used to identify the structural components of professional training, establish the relationships between them, and develop a holistic understanding of future teachers' readiness to use STEM technologies.

RESULTS OF THE RESEARCH

In the context of the technologization and digitalization of education, the content and structural organization of the training of future educators for the application of STEM technologies are becoming particularly important. This process involves the integration of natural science knowledge, engineering thinking, digital tools, and project-based research activities. At the same time, the potential of STEM technologies for developing future teachers' creative initiative, their ability to develop original methodological solutions, and their capacity to design an innovative educational environment requires further theoretical substantiation and methodological support.

In this context, the statement made by scholars O. Akimova and V. Haluziak in their monograph Pedagogical Support for the Personal and Professional Development of Future Teachers is particularly relevant. The authors «emphasize that the system of professional training, as a social value, encompasses a set of knowledge, skills, abilities, and attitudes that determine future teachers' capacity for activity-based research, the integration of digital and STEM technologies into science teaching, and the implementation of sustainable development principles. In the context of modern higher education, the development of such competencies is becoming an integral component of training a competitive specialist capable of making independent decisions in the scientific and environmental domain and adhering to innovative and ethical standards» (Akimova & Haluziak, 2019).

We agree with the positions outlined above and believe that efforts to improve the level of professional training of future science teachers should be analyzed not only in terms of the process of acquiring subject-specific knowledge and methodological skills, but also as a comprehensive system for developing readiness to use technologies creatively in future teaching practice. Its content should encompass the acquisition of interdisciplinary approaches, project-based and problem-based learning technologies, methods for organizing experimental and research activities, digital modeling tools, and instruments for assessing learning outcomes.

The challenges outlined above concerning «the professional training of future teachers in the natural science educational field determine the need to introduce modern educational technologies and teaching methods into the educational process of higher education institutions, adapted to the requirements of the contemporary educational environment. In particular, teachers should possess not only theoretical knowledge but also skills in using experimental research methods, interactive technologies, virtual laboratories, and so forth» (Zasekina & Truskavetska, 2024, p. 76).

The structural components of such training should ensure the interrelationship of all elements aimed at developing motivation for teaching, creating a body of STEM-oriented knowledge, acquiring practical skills for designing and implementing integrated learning tasks, as well as developing the ability to analyze and improve one's own professional experience. Thus, the application of STEM technologies is not merely a means of modernizing science education but also an indicator of readiness to independently design an innovative educational process. A schematic representation of this multifaceted process is presented in Fig. 1.

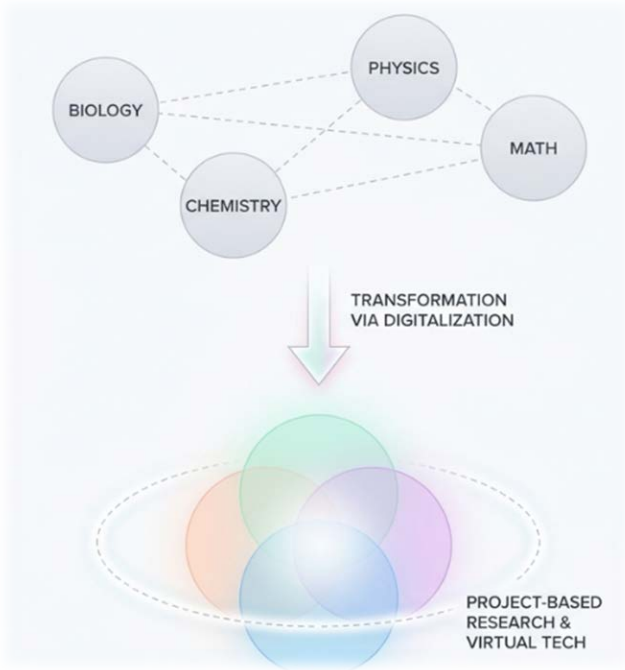


Fig. 1. Professional Training of Future Science Teachers for the Application of STEM Technologies

This complex process should be viewed as a holistic, consistent, and multi-component process involving the implementation of interrelated areas. The first area encompasses the integration of STEM technologies into the teaching of subject-specific disciplines, the completion of laboratory and practical assignments, the conduct of educational research, and the implementation of interdisciplinary projects.

This will enable future teachers not only to deepen their natural science knowledge but also to gain first-hand experience in using STEM tools as learners, understand their didactic potential, and identify the conditions for their effective application in future teaching practice.

The second area involves the purposeful development of teachers' methodological readiness. Methodology courses should provide for the acquisition of algorithms for designing STEM tasks, methods for organizing students' research and project activities, approaches to integrating the content of biology, geography, physics, chemistry, and mathematics, as well as methods for assessing learning outcomes. A fundamental component of such training is the modeling of pedagogical situations, the development of STEM projects, the delivery of micro-lessons, and teaching practice, during which students learn to adapt technologies to learners' age-related characteristics, educational objectives, and the resources available at an educational institution (Fig.2).

The above-mentioned areas of professional training necessitate the identification of its structural components. Within the scope of the research problem and taking into account the findings presented in the dissertation studies by K. Yurchenko and O. Lozova (Yurchenko, 2024; Lozova, 2025), we have identified the following components: motivational-value, cognitive, operational-activity, design-methodological, and reflective-evaluative. The content of

each component is aimed at providing a comprehensive understanding of the process of preparing future science teachers for the application of STEM technologies.

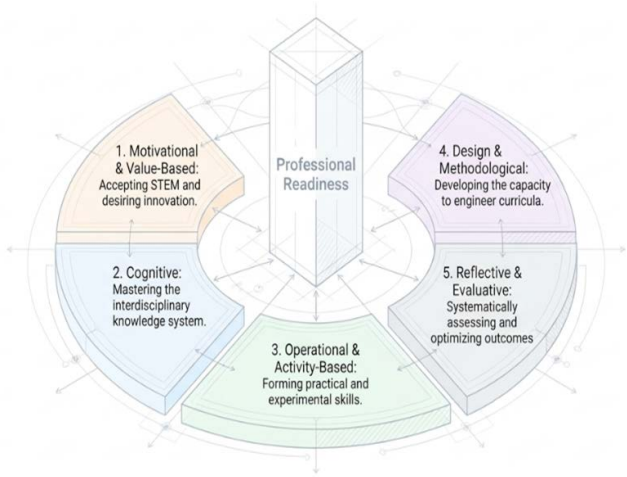


Fig. 2. Content of the Components of the Training of Future Science Teachers

Within the context of our study of the identified problem, we propose considering five interrelated components that reflect the main areas of this activity: motivational acceptance of STEM education, acquisition of the necessary knowledge, development of practical skills, enhancement of the ability to undertake methodological design, and reflective understanding of the outcomes of professional activities. Let us examine these components in greater detail.

The motivational-value component reflects the development of future teachers' professional motivation to implement STEM technologies, their awareness of the importance of these technologies for improving the quality of science education, and their readiness for continuous professional self-improvement.

The motivational-value component is an important element of the professional training of future teachers for the implementation of STEM education. It characterizes a future teacher's internal readiness to introduce STEM approaches into the educational process, their aspiration to use modern teaching methods, organize students' research and project activities, and develop their own professional competencies.

An important aspect of this component is future teachers' awareness of the educational potential of the STEM approach, which involves the integration of natural sciences, technology, engineering, and mathematics, as well as an orientation towards the practical application of knowledge. Particularly relevant in this regard is the statement that «Positive motivation towards STEM activities is a necessary condition for the effective implementation of interdisciplinary learning» (Yurchenko, 2024). Thus, the motivational-value component encompasses future teachers' interest in STEM education, their awareness of its pedagogical appropriateness, readiness for creative inquiry, responsibility for students' learning outcomes, and aspiration for continuous professional development. The effectiveness of this component is manifested in students' active participation in STEM projects, their interest in innovative educational technologies, readiness to collaborate with colleagues, and openness to experimentation. Its development is ensured by engaging future teachers in practice-oriented tasks, research activities, professional discussions, educational projects, and reflective analysis of the outcomes of their own activities.

The cognitive component encompasses a system of knowledge about the conceptual foundations of STEM education, interdisciplinary integration, the patterns governing natural phenomena, modern teaching technologies, digital tools, methods of scientific inquiry, and principles for organizing students' research activities. It characterizes the system of professional knowledge that future teachers need to understand the theoretical foundations of STEM education, identify its didactic potential, and organize integrated learning in a methodologically sound manner. Its content includes knowledge of the conceptual principles of the STEM approach, interdisciplinary connections between natural sciences, mathematics, technology, and engineering, methods of inquiry-based learning, the design of educational situations, and the use of modern teaching tools.

Scientific studies emphasize that «The cognitive component of readiness involves the development of a system of knowledge about the essence of STEM education, interdisciplinary connections, and methods of organizing research activities» (Yurchenko, 2024). This provides grounds for considering the cognitive component not merely as a body of acquired theoretical information, but also as a foundation for making informed choices regarding the content, methods, and technologies of teaching in accordance with established educational objectives. The integrated nature of professional knowledge is of particular importance. A teacher needs to know how to establish meaningful connections between academic disciplines, explain natural phenomena on the basis of the principles of different sciences, identify opportunities for the practical application of theoretical concepts, and select learning materials for solving complex tasks. Such an approach contributes to the development of a holistic scientific worldview.

An important element of this component is familiarity with modern STEM technologies, digital educational resources, modeling tools, virtual laboratories, and data visualization instruments. Future teachers should understand the didactic potential of these tools, the criteria for their selection, and the specific features of their application, taking into account students' age-related characteristics, the content of educational materials, and expected learning outcomes.

Another defining feature is the integrative nature of professional knowledge, which enables future teachers to establish interdisciplinary connections, explain natural phenomena and processes on the basis of the principles of various sciences, use mathematical methods to process research results, and employ technological tools to solve learning problems. An important component is an understanding of the methodology of scientific inquiry, the principles of research-based learning, algorithms for experimental activities, and engineering design.

Knowledge of modern information and digital resources, virtual laboratories, digital measurement systems, geographic information systems, computer modeling tools, and data visualization technologies is becoming particularly important. Future teachers should not only be familiar with the variety of such tools but also understand their didactic potential, limitations, and appropriateness for teaching specific natural science disciplines. The development of the cognitive component is manifested in the systematic and conscious nature of professional knowledge, an understanding of the essence of the STEM approach, the ability to substantiate interdisciplinary connections, explain natural science principles, select information and digital resources, and apply knowledge to analyze complex learning situations.

The operational-activity component characterizes the practical readiness of future science teachers to implement STEM technologies in their professional activities and involves the development of a range of pedagogical, research, experimental, technological, and communication skills. Its essence lies in the ability to transform acquired theoretical knowledge into specific ways of organizing educational activities aimed at active exploration of natural phenomena, conducting research, and solving practical problems. The distinctive characteristics of this component include the need to master various methods and technologies of STEM learning, particularly problem-based and inquiry-based learning, experimental learning, project-based learning, heuristic learning, and practice-oriented learning.

Future teachers should be able to organize observations, laboratory investigations, measurements, modeling of natural processes, construction of educational objects, and work with digital laboratories and specialized software. Particular emphasis should be placed on the ability to organize productive interaction among participants in the educational process, ensure teamwork, coordinate research tasks, guide students towards independent information seeking, hypothesis testing, and the reasoned formulation of conclusions. At the same time, future teachers should be able to create safe conditions for experimental activities, use educational equipment efficiently, and adapt practical tasks to students' educational capabilities.

The impact of the operational-activity component is manifested in the ability to apply STEM technologies in practice, conduct educational experiments, use digital tools, organize research and teamwork activities, solve interdisciplinary tasks, and ensure the practical orientation of science teaching. The design-methodological component reflects a future teacher's ability to purposefully design a STEM-oriented educational process, develop methodological support for integrated learning, and determine the content, forms, methods, technologies, and means of implementing interdisciplinary educational tasks. It characterizes a teacher's readiness to independently design learning situations in which natural science knowledge is integrated with mathematical, technological, and engineering approaches to activity. Its distinctive feature lies in the need to combine subject-specific and methodological training with pedagogical design skills. Future teachers should be able to identify an educational problem, formulate objectives and expected learning outcomes, select interdisciplinary content, develop STEM tasks, determine the sequence of research activities, and establish criteria for assessing students' performance.

A leading area of implementation of this component is the development of original STEM projects, integrated lessons, educational research cases, practical tasks, and methodological scenarios in natural science disciplines. For example, future geography teachers may design tasks involving the geoinformation modeling of natural processes; biology teachers may develop research projects focused on studying ecosystems; and chemistry teachers may construct experimental tasks investigating the properties of substances and environmental safety.

The ability to select information and digital resources, laboratory equipment, software, and educational materials in accordance with the subject content, educational objectives, and resource capacities of an educational institution is of particular importance. Design and methodological activities also involve anticipating potential difficulties, identifying ways to differentiate tasks, taking into account students' individual educational needs, and planning the assessment of learning outcomes.

The development of the design-methodological component is manifested in the ability to develop STEM-oriented lessons, design interdisciplinary projects, create original methodological materials, make informed choices of pedagogical technologies, and ensure the coherence of the content-related, organizational, and technological components of the educational process.

The reflective-evaluative component characterizes a future teacher's ability to systematically analyze their own professional activities, evaluate the effectiveness of the STEM technologies applied, assess the quality of achieved educational outcomes, and identify areas for further professional improvement. Its content encompasses self-analysis, self-assessment, critical reflection on pedagogical experience, evaluation of learning activities, and adjustment of selected methodological decisions. The specific nature of this component in the context of STEM education lies in the need to evaluate not only the final outcome of a learning project but also the entire process of its implementation. Future teachers should be able to analyze how effectively students formulated research problems, put forward hypotheses,

conducted experimental activities, used digital tools, interacted in teams, and presented their findings. It is also important to emphasize proficiency in various methods of assessing STEM activities, including pedagogical observation, analysis of research reports, assessment of project outcomes, self-assessment, peer assessment, portfolios, and reflective discussions. This makes it possible to determine not only the level of mastery of educational components but also the dynamics of the development of students' research, communication, creative, and practical skills.

The reflective-evaluative component also involves the ability to critically assess one's own methodological decisions, identify difficulties encountered during the implementation of STEM tasks, and determine the reasons for the insufficient effectiveness of particular technologies. An important characteristic is an orientation towards continuous professional learning, self-development, the study of innovative teaching practices, and the improvement of one's own methodological expertise.

The development of the reflective-evaluative component is manifested in the ability to objectively analyze the outcomes of pedagogical activities, carry out self-assessment, determine the effectiveness of the STEM technologies applied, use feedback, and adjust methodological approaches. These aspects are presented in greater detail in Table 1.

Table 1

Content characteristics of the components of readiness of future science teachers to apply STEM-technologies in professional practice

Readiness Component	Brief Content Characteristics
Motivational and Value-Based	Reflects professional motivation, interests, values, and positive attitudes towards STEM education and the use of innovative teaching technologies.
Cognitive	Encompasses knowledge of STEM education, interdisciplinary integration, natural sciences, teaching methods, and digital technologies.
Operational and Activity-Based	Involves the practical application of STEM technologies, research methods, experimentation, modelling, and project-based learning.
Design and Methodological	Encompasses the ability to design STEM-oriented lessons, develop interdisciplinary projects, and select appropriate teaching methods, tools, and resources.
Reflective and Evaluative	Involves self-assessment, analysis of teaching effectiveness, evaluation of learning outcomes, and improvement of professional practice.
Information and digital competence of the teacher	The ability to navigate in the information space, receive infor-mation and operate with it in accordance with one's own needs and the requirements of a modern high-tech socie-ty.

**Source: Developed by the author based on a theoretical synthesis of the structural characteristics of future science teachers' readiness to apply STEM technologies in professional practice.*

Thus, the content of the professional training of future science teachers for the application of STEM technologies should encompass not only the acquisition of relevant knowledge and technological tools but also the development of sustained professional motivation, practical skills, methodological competence, and the ability to engage in reflective improvement of pedagogical activities. The interrelationship between the identified structural components ensures the integrity of this process and facilitates the transition from theoretical familiarization with STEM technologies to their conscious, substantiated, and systematic application in teaching.

The interaction of these components creates the prerequisites for developing comprehensive professional readiness to organize research-based and practice-oriented learning. Their consistent development throughout professional training contributes to the formation of a teacher capable of effectively implementing STEM approaches, fostering students' research and creative abilities, and ensuring that the educational process meets contemporary requirements.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Contemporary transformations in the system of higher pedagogical education necessitate rethinking the essence and content of the professional training of future science teachers, particularly in the context of implementing STEM technologies. In scientific research, professional training is viewed as a holistic, multifaceted process aimed at transforming the educational environment. «In the context of STEM education, these skills acquire particular importance, as they ensure the future teacher's ability to integrate knowledge of natural sciences, technology, engineering, and mathematics, as well as to organize students' research and project activities» (Martin, 2025). Therefore, understanding the structure of professional training as an integrative system is of particular importance. «The use of innovative STEM-based learning technologies will contribute to the more effective development of students' critical thinking skills and cognitive interests, encourage them to demonstrate imagination and creativity, and develop their ability to analyse problem situations quickly» (Chervinska, 2017). The structure of the professional training of future science teachers is considered as the unity and interrelationship of social, psychological, and pedagogical aspects implemented in the learning process.

The prospects for further research are focused on developing a structural-functional model for the professional training of future science teachers to apply STEM technologies in their professional activities.

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RECONSTRUCTION OF DIDACTIC SPACE: PARADIGMATIC REORIENTATION AND NEW PEDAGOGICAL PRACTICES

Abstract. The need for a paradigm shift in existing didactic solutions and for the modernization of the internal "architecture" of educational courses, driven by a large-scale transition from traditional linear models to interactive engagement in a virtual environment, is highlighted. It is substantiated that modern digitalization cannot be limited to the "mechanical" transfer of classroom instruction to web platforms but requires a deep transformation of the entire learning trajectory: from the design of didactic tools to technologies for individual support for subjects of knowledge. The axiological potential of the concept of multimodality is investigated, focusing on the systematic use of various sources of information to enhance the perception of educational material. The specifics of cognitive knowledge acquisition through auditory, visual, tactile-motor, and mixed-perception channels are summarized. It has been determined that the modern information flow has destroyed artificial boundaries between academic disciplines and fields of knowledge, acquiring a pronounced interdisciplinary, pragmatic, and applied character, thereby raising new requirements for learners to interact with, requiring a wide range of soft skills. The transformation of leadership styles of academic staff in the virtual classroom is characterized. The ineffectiveness of authoritarian approaches in the online environment is empirically proven by the lack of physical influence and by the destructiveness of excessive liberalism, which leads to a loss of control over the learning process. A mixed style, grounded in democratic principles, is identified as the optimal tool for maintaining a balance between discipline and academic freedom. The phenomenon of "role inversion" within the "teacher-student" system is analyzed, in which representatives of the digital generation become equal partners with teachers in overcoming technical barriers. Associated institutional challenges include the risk of information deficit, increased competition between higher education institutions in the open market for educational services, and a tendency to strengthen administrative control, which is sometimes perceived by the community as a threat to the creative autonomy of the teacher. It is stated that, under the distance format, responsibility for learning outcomes is significantly shifted to the student's self-organization. The theoretical and practical significance of the topic is formulated as substantiating the reconstruction of the didactic space of higher education, the development of integrated courses in professional communication, and the implementation of teacher training programs with an emphasis on the regularities of distance didactics. A promising direction for further research is outlined, calling for an empirical assessment of the optimal ratio of traditional to innovative digital practices to achieve a sustainable balance between online and offline learning formats.

Keywords: higher education, digitalization, blended learning, multimodality, soft skills, didactic tools, leadership styles, parity partnership, role inversion, online didactics.

РЕКОНСТРУКЦІЯ ДИДАКТИЧНОГО ПРОСТОРУ: ПАРАДИГМАЛЬНА ПЕРЕОРІЄНТАЦІЯ ТА НОВІ ПЕДАГОГІЧНІ ПРАКТИКИ

Анотація. Актуалізовано необхідність парадигмального переосмислення наявних дидактичних рішень та модернізації внутрішньої «архітектури» навчальних курсів під впливом масштабного переходу від традиційних лінійних моделей до інтерактивної взаємодії у віртуальному середовищі. Обґрунтовано, що сучасна цифровізація не може обмежуватися «механічним» перенесенням аудиторних занять на вебплатформи, а вимагає глибокої модифікації усієї траєкторії навчання: від проєктування дидактичного інструментарію до технологій індивідуального супроводу суб'єктів пізнання. Досліджено аксіологічний потенціал концепту мультимодальності, який сфокусовано на системному використанні різноманітних джерел інформації задля підвищення рівня сприйняття навчального матеріалу. Узагальнено специфіку когнітивного засвоєння знань через аудіальний, візуальний, тактильно-моторний та змішаний канали сприйняття. Визначено, що сучасний інформаційний потік зруйнував штучні академічно-галузеві розмежування, набувши вираженого міждисциплінарного, прагматичного

та прикладного характеру, що висунуло нові вимоги до володіння суб'єктами взаємодії широким спектром soft skills. Охарактеризовано трансформацію стилів лідерства науково-педагогічних працівників у віртуальному класі. Емпірично доведено неефективність авторитарних підходів в онлайн-середовищі через відсутність засобів фізичного впливу, а також деструктивність надмірного лібералізму, який призводить до втрати керованості процесом навчання. Визначено змішаний стиль із перевагою демократичних засад як оптимальний інструмент утримання балансу між дисципліною та свободою академічних висловлювань. Проаналізовано феномен «інверсії ролей» на рівні системи «викладач – студент», за умов якого представники цифрового покоління стають паритетними партнерами викладачів у подоланні технічних бар'єрів. Виявлено супутні інституційні виклики, зокрема ризики інформаційного дефіциту, загострення конкуренції між закладами вищої освіти на відкритому ринку освітніх послуг, а також тенденцію до посилення адміністративного контролю, що подекуди сприймається спільнотою як загроза творчій автономії викладача. Констатовано, що за умов дистанційного формату суттєво зміщується фокус відповідальності за результати навчання в напрямку самоорганізації здобувача освіти. Сформульовано теоретичну та практичну значущість тематики, яка полягає в обґрунтуванні реконструкції дидактичного простору вищої школи, розробці інтегрованих курсів із професійної комунікації та впровадженні програм підвищення кваліфікації викладачів з акцентом на закономірності дистанційної дидактики. Окреслено перспективний напрям для подальших науково-тематичних розвідок, яким визначено емпіричне оцінювання оптимального співвідношення традиційних та інноваційних цифрових практик задля досягнення стійкого балансу між онлайн- та офлайн-форматами навчання.

Ключові слова: крос-культурна картина світу; майбутні перекладачі; філософські методологічні принципи; рекреаційна діяльність; рекреаційні ресурси; міжкультурна комунікація; діалог культур.

INTRODUCTION

The problem formulation. The continuous scientific and technological development, which was reflected in the trajectory of educational progress, actualized the search for the most effective didactic solutions on the agenda. The initial result of such a search was the task of implementing optimization and modernization transformations to achieve educational goals and program learning outcomes.

Ensuring proper educational conditions for subjects of knowledge in conditions of limited resources (in particular, due to the destructive impact of wartime conditions) has acquired special socio-pedagogical significance. The preservation of the practice of a mixed education format at the academic level also created a new spectrum of challenges for the scientific and pedagogical community, the consideration of which became a prerequisite for ensuring optimal conditions for the functioning of the educational space.

Analysis of recent research and publications. Certain aspects of the researched issues can be found in some academic works devoted to the consideration of the problems:

- transitional transformations of higher education under the influence of digitalization and innovation prerequisites (V. Bykov, S. Lytvynova, O. Hlazunova, O. Tsiuniak, T. Hotsaniuk etc.);
- development of professional and pedagogical competence of teachers in the media space (N. Morse, G. Onkovych, O. Buynytska, etc.);
- development of parity partnership in the system "teacher - subject of knowledge" (O. Ogienko, S. Sysoeva, L. Lukyanova, etc.);
- optimal ratio of traditional and innovative digital practices in crisis conditions (in particular, during pandemic restrictions and security threats of wartime) (O. Spirin, T. Vakulenko, V. Kukharenko, etc.).

However, the stated topic does not exhaust its theoretical and practical potential given the level of relevance of the studied matter. The latter also affected the choice of a specific research topic.

THE AIM AND RESEARCH TASKS

The purpose of the article is to provide a theoretical justification and systematic analysis of the structural and functional transformations of the didactic space of higher education in the context of the digitalization of the educational process, as well as to determine the optimal ways of adapting the scientific and pedagogical community to the latest interdisciplinary and multimodal teaching practices.

To achieve the set goal, the following scientific tasks were defined and solved:

1. To clarify the essence and specifics of the transition from traditional linear models of knowledge translation to interdisciplinary, pragmatically oriented information flows in a virtual environment.

2. To reveal the axiological potential of the concept of multimodality through the prism of different types of cognitive assimilation of educational material (auditory, visual, tactile-motor, mixed).

3. To characterize the new challenges and risks of digitalization, in particular the problem of "role inversion" in the "teacher – student" system, strengthening institutional control of university administration, and redistribution of responsibility for learning outcomes.

RESEARCH METHODS

To solve the tasks outlined in the study, the following range of research methods was used: theoretical (systemic and comparative analysis, induction and deduction, synthesis, generalization, and systematization of specialized scientific literature), and empirical (pedagogical observation).

RESULTS OF THE RESEARCH

The modernization of higher education has accelerated the global shift from traditional classroom instruction to interactive learning in virtual environments. However, the digitalization of the educational process did not serve as a tool for the "mechanical" transfer of lectures or seminars to digital platforms. Such conditions of educational progress have problematized the deep structural and functional transformation of all educational components without exception.

The internal "architecture" of the educational course has also undergone profound "modification" transformations: from the trajectory of designing didactic tools to technologies for individual support of each subject of knowledge (Myronchuk, & Antonova2025). In the context of a virtual educational environment, methods of representing scientific

content have also been radically updated, as have tools for monitoring and evaluating learning outcomes, thereby problematizing the issue of adapting the scientific and pedagogical community to such innovations.

In the context of the impact of the above-mentioned adaptive transformations on educational realities, the average teacher found himself in the need to "reform" his didactic "arsenal". At the same time, the strategic goal of the functioning of higher education in the socio-cultural space remained unchanged – creating the most optimal environment to ensure effective "transfer" of knowledge, the formation of professional competencies, and the creation of conditions for their successful practical application by future specialists in practical conditions (Bozkurt, 2023). It is these conditions that have actualized, in the academic landscape, the need for the practical implementation of the "global" educational goal through the logical integration of methodological techniques and tools to strengthen cognitive processes within the academic environment. Consideration of the features of the functioning of the scientific and pedagogical community within a particular educational environment has become one of the key tasks for reflecting on the impact of modern educational transformations on academic realities in general.

The latest approaches to the formation and dissemination of educational and scientific information among the subjects of knowledge have changed significantly from traditional linear models. If the classical system was mostly homogeneous and reflected direct contact only with the sectoral-hierarchical structure, then the modern information flow has acquired a clearly expressed interdisciplinary character with clear outlines of the pragmatic and applied context. Modern knowledge has destroyed the boundaries of artificial academic and sectoral distinctions and problematized the issue of each subject's of knowledge personal readiness to demonstrate soft skills and to involve various communication sources to achieve the expected effectiveness of the whole educational process (Savchenkova, 2025).

At the level of the subject under study, the concept of multimodality also stood out with a special axiological potential. The latter, in turn, focused on the prospect of systematic use by subjects of knowledge of various sources to increase the level of perception and assimilation of educational material. The new model of educational interaction actualized on the agenda of the academic community such types of cognitive assimilation as: auditory (perception of the teacher's speech by ear); visual (perception of visual analyzers of visual support of the cognitive process); tactile-motor (direct contact of subjects of knowledge with interactive interfaces); and mixed (problematized by a complex combination of all levels of the cognitive process).

The effectiveness of academic institutions' innovative activities, in the context of modern educational progress, was clearly revealed through the prism of technology and knowledge transfer in socio-cultural progress. The latter tendency has been fully actualized: the development of higher education, the integration of science into production, and the increase in the state's intellectual security, which has become particularly relevant in wartime conditions.

The massive transfer of educational processes to the web space has intensified competition between higher education institutions. Digital technologies have enabled applicants and their parents to conduct rapid monitoring of the educational services market, from analyzing educational programs and curricula to assessing the potential of departmental personnel. Unlike in past decades, when internal academic life was relatively close to external observers, the present has revealed to universities the need to ensure an information presence in the media space, thereby increasing their recognition. The official website, pages on social networks, and specialized platforms have become real business cards that reflect not only the academic institution's overall achievements, but also the personal portfolios of teachers.

However, even such conditions, which exert a broad influence on the target audience of subjects of knowledge in the information and academic space, did not diminish the pedagogical significance of the teacher within the educational process. The individual pedagogical skill of the teacher, reflected in a unique pedagogical and communicative manner, the ability to facilitate, and the possession of didactic and digital tools, served as real indicators of their professional competence. At the same time, the number of requests from subjects of knowledge regarding the presentation by teachers of real fragments of the educational process (in particular, video recordings of lectures, webinars, scientific discussions, etc.) has also increased, which has further accumulated the need for the teacher to expand their own didactic "arsenal" based on the development of the latest industry developments. The above-mentioned facts once again indicated the need for systematic holding of online events, master classes, and virtual round tables by scientific and pedagogical workers. The transparency of teaching has also made the issue of developing oratory skills in front of the camera and the ability to build effective communication with an audience of subjects of knowledge, which are dispersed territorially, relevant to modern higher education teachers.

Real pedagogical observations have shown that leadership styles of scientific and pedagogical personnel have been reformed in the virtual classroom. Traditionally, at the level of pedagogical science, three key models of interaction have been consistently distinguished:

1. Authoritarian, assuming the presence of strict control and a unidirectional flow of information.
2. Democratic – actualizing dialogue, collegiality, and mutual respect.
3. Liberal – characterized by the absence of a clear system of subject-subject influence (Bozkurt, 2023).

Many years of experience in higher education have shown that a mixed style, with a greater emphasis on democratic principles, dominates the online space. The authoritarian approach in the online learning format has lost its effectiveness, since the teacher was deprived of the means of physical and administrative influence available in classroom conditions (Myronchuk, & Antonova, 2025). In contrast, excessive liberalism led to a complete loss of control over the educational process due to the high level of distracting factors affecting the subject's of knowledge personality outside the classroom. The democratic style in the modern scientific and pedagogical community has become a truly optimal solution, allowing the maintenance of a balance between discipline and freedom of academic expression. Interaction in the "teacher - student" system in the distance format has naturally evolved to the origins of parity partnership. This was especially evident in the initial stages of digitalization, when some experienced teachers encountered objective difficulties due to the level of their own digital literacy. In such circumstances, the phenomenon of "role inversion" emerged: students, as

representatives of the digital generation, began to actively help teachers overcome technical barriers (e.g., by setting up broadcasts, managing session rooms, connecting interactive applications, etc.).

At the same time, the online format also revealed weaknesses in the level of training of scientific and pedagogical personnel. Thus, teachers, accustomed to holding the audience's attention only at the expense of personal charisma and physical presence, were forced to seek new didactic and methodological tools to stimulate the target audience's interest in the turned-on monitor screens.

Along with this, there was an expansion of interaction in the triad "subject of knowledge – teacher – academic group". In the virtual space, the teacher ceased to be the sole moderator of the educational process, as the platforms' technical capabilities enabled any participant to share their screen, play a media file, or organize a micro-group discussion.

Along with the obvious advantages, digitalization brought new challenges to the academic landscape, which were perceived by some in the academic community as a threat to the freedom of teaching. We are talking about strengthening institutional control by the university administration (Northcote, & Gosselin, 2024). The use of specific corporate platforms, automatic monitoring of time spent online, and unification of requirements for posting materials – all this put the issue of violating the creative component of the teacher's pedagogical activity on the agenda. This tendency has also given rise to discussion within the academic community, which has led to considering the university from the position of an autonomous community of researchers and like-minded people, rather than solely from the perspective of the plurality of digital tools and system monitoring.

The organization of educational interaction in an online format imposed greater responsibility on the teacher for the quality of content structuring. The scientific vector of such material had to be as concise as possible, logically complete, and didactically adapted to the specifics of the perception of information by subjects of cognition from the monitor.

Significant changes have also occurred in the distribution of responsibility for learning outcomes. Under the traditional classroom lecture presentation system, the teacher directly monitored all processes at the audience level, acting as the primary moderator of the learning process. In the online learning system, the focus of responsibility shifted to the student, with an emphasis on his level of self-organization and responsibility, as well as the level of his material and technical support. It is precisely this nature of online learning that has also problematized the emergence of relevant technical risks that can affect the effectiveness of the learning process.

The above-mentioned limiting factors have made it impossible to directly copy traditional teaching methods that were effective at the classroom level in offline conditions. Attempts to conduct multi-hour monologue lectures in virtual space have been deemed completely unjustified within the academic environment. Web communication has problematized the teacher's task by requiring the use of clear, short, and, at the same time, highly informative theses that can maintain the attention of the subjects of knowledge. The work of a scientific and pedagogical worker with a target audience in an online format has raised the question of the prospects for reviewing one's own pedagogical discourse to ensure the speed of perception and understanding of educational material.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Based on the above, we can conclude that the combined impact of the factors has problematized the issue of reconstructing the didactic space in the direction of a paradigmatic reorientation of existing practices and the actualization of new pedagogical practices on the agenda. The integration of various learning formats at the level of educational and pedagogical discourse was reflected in the transformation of the educational and academic space into a global open environment for knowledge exchange. It also problematized the issue of expanding the list of requirements for a modern teacher's professional competence.

The theoretical and practical significance of the research was fully revealed in the need to optimize teachers' professional communication in the digital academic environment, and in the development of integrated training courses in professional communication and thematic programs for advanced training for teaching staff, with an emphasis on mastering the laws of distance didactics.

A promising direction for further scientific and thematic exploration is the empirical assessment of the optimal ratio of traditional and innovative digital practices to achieve a balance between online and offline learning formats.

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THE STEM APPROACH IN THE METHODOLOGICAL TRAINING OF FUTURE PRIMARY SCHOOL TEACHERS FOR TEACHING MATHEMATICS

Abstract. The article examines the possibilities of implementing the STEM approach in the methodological training of future primary school teachers for teaching mathematics. The relevance of modernising teacher education in accordance with the principles of the New Ukrainian School, competency-based education, and digital transformation is substantiated. Current scientific interpretations of STEM education are analysed, the role of mathematics as the integrative basis of STEM learning is clarified, and international experience in preparing future teachers for interdisciplinary instruction is reviewed.

The purpose of the study is to substantiate the potential of the STEM approach in the methodological training of future primary school teachers for teaching mathematics and to identify the main directions for its implementation in higher education institutions.

The methodological framework of the study is based on analysis, synthesis, comparison, generalisation, systematisation, comparative pedagogical analysis, and structural-logical methods. These methods made it possible to generalise national and international research findings, identify the didactic potential of the STEM approach, and develop an author's model of methodological training for future primary school teachers.

The study identifies the professional competencies developed through STEM-oriented teacher education and characterises effective methodological tools, including STEM projects, inquiry-based tasks, mathematical modelling, case-based learning, problem-based learning, digital technologies, and generative artificial intelligence. An original model of methodological training for future primary school teachers is proposed, incorporating conceptual foundations, pedagogical conditions, stages of implementation, expected outcomes, and criteria for assessing methodological readiness. Practical examples of integrated STEM tasks and educational projects aimed at developing methodological, mathematical, research, digital, and project competencies are presented.

The practical significance of the study lies in the possibility of applying the proposed model and methodological recommendations to improve teacher education curricula, mathematics teaching methodology courses, and the professional preparation of future primary school teachers.

Keywords: STEM approach; methodological training; future primary school teachers; mathematics teaching; professional competencies.

STEM-ПІДХІД У МЕТОДИЧНІЙ ПІДГОТОВЦІ МАЙБУТНІХ УЧИТЕЛІВ ПОЧАТКОВОЇ ШКОЛИ ДО НАВЧАННЯ МАТЕМАТИКИ

Анотація. У статті досліджено можливості використання STEM-підходу у методичній підготовці майбутніх учителів початкової школи до навчання математики. Обґрунтовано актуальність модернізації професійної підготовки педагогів відповідно до вимог Нової української школи, цифрової трансформації освіти та розвитку компетентнісного навчання. Проаналізовано сучасні наукові підходи до трактування STEM-освіти, визначено роль математики як інтеграційної основи STEM-навчання та охарактеризовано міжнародний досвід підготовки майбутніх учителів до використання інтегрованих освітніх технологій.

Метою дослідження є теоретичне обґрунтування можливостей STEM-підходу у методичній підготовці майбутніх учителів початкової школи до навчання математики та визначення основних напрямів його реалізації в освітньому процесі закладів вищої освіти.

Методологічну основу дослідження становлять аналіз, синтез, порівняння, узагальнення, систематизація, порівняльно-педагогічний та структурно-логічний методи, що дали змогу дослідити сучасні підходи до STEM-освіти, узагальнити вітчизняний і зарубіжний досвід професійної підготовки майбутніх учителів та обґрунтувати авторську модель методичної підготовки.

У роботі визначено професійні компетентності майбутнього вчителя, що формуються засобами STEM-підходу, охарактеризовано методичні інструменти його реалізації, зокрема STEM-проєкти, дослідницькі завдання, математичне моделювання, кейс-метод, проблемне навчання, цифрові технології та генеративний штучний інтелект. Розроблено авторську модель методичної підготовки майбутніх учителів початкової школи до навчання математики на засадах STEM, яка охоплює концептуальні положення, педагогічні умови, етапи професійної підготовки, критерії сформованості методичної готовності та очікувані результати. Запропоновано приклади STEM-завдань, навчальних проєктів і практичних видів діяльності, спрямованих на формування методико-математичної, дослідницької, цифрової та проєктувальної компетентностей майбутніх педагогів.

Практичне значення дослідження полягає у можливості використання запропонованої моделі, методичних рекомендацій і практичних завдань під час удосконалення освітніх програм підготовки майбутніх учителів початкової школи та викладання методики навчання математики у закладах вищої освіти.

Ключові слова: STEM-підхід; методична підготовка; майбутній учитель початкової школи; навчання математики; професійні компетентності.

INTRODUCTION

The problem formulation. The current stage of educational development is characterised by a transition from a subject-centred model of teaching to a competency-based, integrated, and practice-oriented one. One of the key directions for modernising the educational system of Ukraine is the implementation of the STEM approach, which corresponds to global trends in the development of science, technology, and the digital society. This issue is of particular importance in the context of implementing the concept of the New Ukrainian School (NUS), where the integration of educational content, the development of inquiry skills, critical thinking, and the ability to apply knowledge in practical activities are identified among the priority objectives of learner education.

At the same time, the results of international educational quality monitoring studies indicate the need to improve the mathematical literacy of Ukrainian schoolchildren, enhance their interest in mathematics and science, and develop their ability to solve real-life problems using mathematical tools. Achieving these objectives largely depends on the professional preparation of future primary school teachers, since it is at the primary level of education that the foundations of logical, mathematical, and algorithmic thinking are established and positive motivation for learning and cognitive activity is developed.

Under these conditions, the methodological training of future primary school teachers for teaching mathematics based on the STEM approach becomes particularly relevant. The implementation of this approach ensures the integration of mathematics with science, technology, and engineering, orientates the educational process towards inquiry-, project-, and practice-based learning, and promotes the development of creativity, teamwork skills, digital competence, and the ability to solve complex educational tasks.

The scientific novelty of the study lies in substantiating the potential of the STEM approach as a methodological foundation for improving the methodological training of future primary school teachers for teaching mathematics, identifying its didactic potential, and systematising effective directions for its implementation in the educational process of higher education institutions. The findings may be used to update the content of methodological and mathematical training courses, develop STEM-oriented lessons, practical and inquiry-based tasks, instructional materials, and improve the professional preparation of students majoring in Specialty 013 Primary Education.

Analysis of recent research and publications. The theoretical and methodological foundations of STEM education and its implementation in the educational process have been extensively investigated by Ukrainian and international researchers. Contemporary conceptual approaches to the development of STEM education in Ukraine have been substantiated by Honcharova, 2017; Polikhun et al., 2017; Balyk and Shmyher, 2021; Tanska et al., 2024, who consider STEM as an innovative educational model integrating science, technology, engineering, and mathematics.

Particular attention has been devoted to the methodological training of future teachers for implementing STEM education. Various aspects of this issue have been examined by Kysla et al., 2025; Marynchenko et al., 2024; Rakhmanina, 2024; Sahaidakivska, 2025, whose studies emphasise inquiry-based learning, interdisciplinary integration, project activities, and the use of digital technologies in teacher education. The integration of multimedia technologies and digital tools into teacher preparation has also been analysed by Kuchai et al., 2022.

International studies have confirmed the positive impact of the STEM approach on the development of mathematical literacy, inquiry competencies, engineering thinking, and students' motivation. These issues have been addressed by Kurup et al., 2019; Garcна-Carrillo et al., 2021; Mayes and Rittschof, 2021, while the strategic role of STEM education in strengthening national innovation capacity has been highlighted by the Office of the Chief Scientist, 2013. In Ukraine, the implementation of STEM education has also been supported by the methodological recommendations of the Ministry of Education and Science of Ukraine, 2017, 2019.

Despite the considerable body of research devoted to STEM education, insufficient attention has been paid to the methodological training of future primary school teachers specifically for teaching mathematics through the STEM approach.

AIM AND TASKS OF THE RESEARCH

The purpose of the study is to substantiate theoretically the potential of the STEM approach in the methodological training of future primary school teachers for teaching mathematics and to identify the main directions for its

implementation in the educational process of higher education institutions. To achieve this purpose, the following research objectives were defined: 1) to analyse contemporary scientific approaches to interpreting the essence of the STEM approach and its role in the professional preparation of future teachers; 2) to generalise the theoretical foundations of the methodological training of future primary school teachers for teaching mathematics in the context of STEM education; 3) to determine the didactic potential of the STEM approach for developing the methodological and mathematical competence of future teachers; 4) to systematise effective forms, methods, and instructional tools for implementing the STEM approach in the methodological training of future primary school teachers.

RESEARCH METHODS

The methodological framework of the study is based on a set of interrelated general scientific and pedagogical research methods: analysis, synthesis, comparison, generalisation, and systematisation were used to examine the scientific literature, identify contemporary approaches to the implementation of STEM education, and generalise the findings of previous studies; comparative pedagogical analysis was employed to analyse Ukrainian and international experience in implementing the STEM approach in the professional preparation of future primary school teachers; the structural-logical method was applied to establish the relationships among the components of methodological training and identify the possibilities for integrating the STEM approach into the process of teaching mathematics; modelling was used to substantiate the directions for implementing the STEM approach and to systematise its methodological tools in the preparation of future primary school teachers.

RESULTS OF THE RESEARCH

One of the leading directions in the modernisation of contemporary education is the implementation of the STEM approach, which ensures the integration of science, technology, engineering, and mathematics into a unified system of practice-oriented learning. Unlike the traditional subject-based model, STEM education is aimed not only at acquiring isolated knowledge but also at developing the ability to apply it to solving real-life and professional problems. Consequently, STEM is currently regarded as one of the most promising directions for educational development, meeting the demands of the digital society, the innovation-driven economy, and the labour market (Honcharova, 2017; Polikhun et al., 2017; Tanska et al., 2024)

Ukrainian researchers emphasise that the STEM approach is not merely a separate pedagogical technology but a contemporary model of organising the educational process that combines competency-based, activity-based, inquiry-based, and project-based approaches. Its key characteristics include the integration of educational content, practical orientation, the use of digital technologies, and the development of critical thinking, creativity, communication, and teamwork skills (Balyk & Shmyher, 2021; Honcharova, 2017; Marynchenko et al., 2024; Rakhmanina, 2024). The analysis of previous studies indicates that the STEM approach has evolved from integrating individual academic disciplines to creating a comprehensive educational environment in which learning is organised through inquiry, modelling, experimentation, and solving practical problems (Rakhmanina, 2024; Tanska et al., 2024)

STEM education acquired particular significance following the adoption of the Concept for the Development of Science and Mathematics Education (STEM Education) in 2020. According to the regulatory documents of the Ministry of Education and Science of Ukraine, STEM has been identified as one of the priority directions for modernising educational content by promoting interdisciplinary integration, developing key competencies, fostering inquiry skills, and implementing innovative teaching technologies (Ministry of Education and Science of Ukraine, 2017, 2019). Moreover, the principles of STEM are fully consistent with the conceptual foundations of the New Ukrainian School, particularly competency-based education, partnership pedagogy, integrated educational content, activity-based learning, and the development of transversal skills.

Mathematics occupies a special place within the STEM framework, serving as its integrative foundation. Mathematical knowledge provides the basis for data analysis, process modelling, quantitative description of phenomena, logical reasoning, and informed decision-making. Unlike traditional approaches, mathematics in a STEM environment functions as a universal tool for investigating natural, technological, and social processes. Therefore, mathematics teaching increasingly emphasises real-world problem solving, mathematical modelling, interdisciplinary connections, project-based activities, data analysis, and the use of digital tools (Rakhmanina, 2024; Tanska et al., 2024; Tretiak, 2023)

For primary education, the STEM approach is particularly promising because primary school pupils demonstrate high cognitive activity, a natural inclination toward experimentation, and genuine curiosity about the surrounding world. Consequently, integrated lessons, inquiry-based learning, engineering activities, practical tasks, modelling, and STEM projects contribute to the development of mathematical thinking, logical reasoning, creativity, communication skills, and the ability to work collaboratively (Kysla et al., 2025; Sahaidakivska, 2025; Tretiak, 2023)

International experience also confirms the effectiveness of the STEM approach in preparing learners for education and professional activity within the digital economy. Researchers emphasise that STEM learning enhances students' motivation to study mathematics, develops inquiry competencies, engineering thinking, and the ability to apply knowledge to solving complex practical problems (Garcна-Carrillo et al., 2021; Kurup et al., 2019; Mayes & Rittschof, 2021). In many countries, STEM has already become a cornerstone of national educational policy and is regarded as one of the key factors contributing to economic competitiveness and human capital development (Office of the Chief Scientist, 2013).

To summarise the differences between the traditional model of mathematics teaching and the contemporary STEM-oriented approach, their principal characteristics are presented in Table 1.

Table 1

Comparative Characteristics of Traditional and STEM-Oriented Mathematics Teaching

Criterion	Traditional Teaching	STEM-Oriented Teaching
Purpose of instruction	Acquisition of mathematical knowledge and algorithms	Development of competencies and application of mathematics to solving real-world problems
Organisation of content	Subject-based instruction	Integrated learning combining science, technology, engineering, and mathematics
Nature of learning activities	Completing exercises according to established examples	Inquiry, projects, experimentation, and modelling
Teacher's role	Source of knowledge	Organiser, facilitator, and consultant
Student's role	Performer of learning tasks	Active inquirer and collaborative team member
Types of mathematical tasks	Mainly instructional and abstract	Practical, interdisciplinary, and problem-based tasks
Use of digital technologies	Occasional	Systematic use of digital platforms, simulations, and interactive resources
Main learning outcomes	Subject knowledge and computational skills	Mathematical literacy, critical thinking, inquiry competencies, and project skills

As shown in Table 1, unlike traditional methodological preparation, which mainly focuses on mastering individual teaching methods for separate subjects, the STEM approach prepares future teachers to integrate the content of different educational domains. Particular emphasis is placed on integrating mathematics, science, and technology within the methodological training of future primary school teachers. In contemporary primary education, mathematics is increasingly used as a universal tool for measurement, analysis, modelling, and prediction, thereby ensuring effective interdisciplinary integration. Future teachers should therefore learn to design integrated lessons in which mathematical concepts are applied during scientific investigations, model construction, technological activities, and the analysis of obtained results. Such an approach enables pupils to recognise the practical value of mathematical knowledge and to develop a holistic understanding of the surrounding world (Kysla et al., 2025; Sahaidakivska, 2025; Tretiak, 2023).

One of the major advantages of the STEM approach is the development of inquiry skills among future teachers. During their professional preparation, students participate in educational investigations, analyse problem situations, design STEM projects, model experiments, and interpret research findings. These activities develop the ability to identify problems, formulate hypotheses, select appropriate research methods, analyse collected data, and justify conclusions with evidence. In their future professional practice, these competencies enable teachers to organise inquiry-based learning for primary school pupils and foster their scientific ways of thinking (Marynchenko et al., 2024; Rakhmanina, 2024; Garcна-Carrillo et al., 2021).

Another important outcome of implementing the STEM approach is the development of creativity, critical thinking, and collaboration skills. Working on integrated projects, group investigations, analyses of practical situations, and solving open-ended problems encourages students to search for alternative solutions, critically evaluate information, justify their viewpoints, and interact effectively within a team. These competencies are currently regarded as among the most essential for the professional activity of contemporary primary school teachers (Marynchenko et al., 2024; Tanska et al., 2024; Garcна-Carrillo et al., 2021; Mayes & Rittschof, 2021).

The implementation of the STEM approach substantially transforms the content of methodological training. Students learn not only how to explain mathematical concepts but also how to design integrated learning tasks, organise inquiry-based activities for primary school pupils, use digital educational resources, develop STEM projects, and ensure interdisciplinary integration in accordance with the State Standard of Primary Education. Such preparation promotes professional flexibility, readiness for innovation, and continuous professional development (Balyk & Shmyher, 2021; Kuchai et al., 2022; Kysla et al., 2025; Rakhmanina, 2024).

To summarise the impact of the STEM approach on the professional preparation of future primary school teachers, the key competencies developed through STEM-oriented education are presented in Table 2.

The effectiveness of implementing the STEM approach largely depends on the use of contemporary methodological tools that integrate theoretical preparation with the practical activities of future teachers. The methodological training of students majoring in Primary Education should focus not only on mastering methods of teaching individual mathematical topics but also on developing their ability to design an integrated educational environment, employ modern digital technologies, organise inquiry-based learning, and create educational situations closely related to authentic real-life problems (Balyk & Shmyher, 2021; Kysla et al., 2025; Rakhmanina, 2024).

Table 2

Professional Competencies of Future Primary School Teachers Developed through the STEM Approach

Professional Competency	Manifestation in Methodological Training
Methodological and mathematical competency	Designing contemporary mathematics lessons, selecting STEM tasks, and integrating mathematical content with other educational domains
Integrative competency	Combining mathematics, science, technology, and informatics while designing educational activities
Inquiry competency	Organising educational investigations, identifying problems, analysing results, and applying inquiry-based teaching methods
Project competency	Designing STEM projects, educational case studies, practice-oriented tasks, and instructional models
Digital competency	Using digital platforms, mathematical simulations, interactive resources, and online services
Engineering and design competency	Modelling objects and processes, constructing educational models, and applying elements of STEM engineering design
Critical thinking	Analysing information, evaluating alternative approaches to problem-solving, and making well-reasoned decisions
Creative competency	Generating innovative ideas, designing non-standard learning situations, and applying creative teaching methods
Communicative competency	Organising teamwork, professional interaction, and presenting project outcomes
Reflective competency	Self-assessment of professional performance, evaluation of instructional methods, and continuous improvement of pedagogical practice

One of the most effective instruments of STEM-oriented teacher preparation is the implementation of STEM projects. Project-based learning integrates mathematics with science, technology, engineering design, and information technologies. While working on projects, students learn to identify problems, plan solution strategies, select appropriate mathematical methods, analyse the obtained results, and present their own developments. Of particular educational value are projects that simulate authentic real-life contexts, such as designing ecological routes, measuring the area of school grounds, constructing building models, or investigating symmetry in architecture and Ukrainian folk art (Kysla et al., 2025; Sahaidakivska, 2025; Tretiak, 2023).

Inquiry-based tasks also play a crucial role by facilitating the transition from reproductive learning to active cognitive engagement. Unlike traditional exercises, these tasks require students to formulate hypotheses, design investigations, conduct measurements, analyse collected data, and draw evidence-based conclusions. Future teachers learn to organise inquiry activities in such a way that mathematics becomes a tool for explaining natural and social phenomena rather than merely an isolated subject of study (Marynchenko et al., 2024; Rakhmanina, 2024).

Another essential component of contemporary methodological training is mathematical modelling, which enables students to apply mathematical concepts to the analysis of real-world situations. Students complete tasks involving the construction of diagrams, drawings, charts, tables, graphs, geometric models, statistical data analysis, and prediction of outcomes. Such activities promote mathematical literacy, analytical thinking, and the ability to transfer mathematical knowledge into practical contexts (Mayes & Rittschof, 2021; Tanska et al., 2024;)

The case-study method also provides broad opportunities for the professional preparation of future teachers. Analysing pedagogical situations enables students to examine various approaches to organising mathematics lessons, evaluate their effectiveness, anticipate possible learning difficulties, and select the most appropriate methodological solutions. Case studies may involve designing integrated lessons, organising STEM projects, applying digital resources, or addressing challenging pedagogical situations arising during mathematics instruction in primary school (Marynchenko et al., 2024; Rakhmanina, 2024).

Problem-based learning is another important instructional tool that creates favourable conditions for students' active cognitive engagement. While solving open-ended educational problems, future teachers independently determine solution strategies, compare alternative approaches, justify their conclusions, and reflect on the outcomes of their learning activities. Such an approach promotes professional autonomy, critical thinking, and the ability to design innovative mathematics lessons (Polikhun et al., 2017; Tanska et al., 2024).

Digital technologies constitute an essential component of STEM-oriented methodological training. Contemporary teachers should be able to use interactive mathematical environments, dynamic geometry systems, digital simulations, online platforms, cloud-based services, and virtual laboratories. These technologies facilitate the visualisation of mathematical concepts, process modelling, inquiry-based learning, and personalised instruction. Moreover, they contribute to the development of the digital competence of both future teachers and their pupils (Kuchai et al., 2022; Kurup et al., 2019).

One of the newest directions in improving methodological preparation is the integration of generative artificial intelligence (GenAI). GenAI-based tools can be used to design STEM tasks, create practical case studies, generate mathematical problems of varying complexity, develop integrated projects, select interdisciplinary examples, prepare instructional materials, and construct assessment tasks. Furthermore, GenAI supports the generation of alternative explanations of mathematical concepts, the creation of educational scenarios and visual models, and the design of personalised learning tasks tailored to pupils' levels of preparedness. At the same time, the use of such tools requires future teachers to develop critical thinking, verify the reliability of AI-generated outputs, adhere to the principles of academic integrity, and recognise the limitations of generative models. Within professional teacher education, GenAI should therefore be regarded as a supportive methodological tool rather than a substitute for teachers' professional judgement or pedagogical creativity.

To systematise the principal methodological tools for implementing the STEM approach in the professional preparation of future primary school teachers, they are summarised in Table 3.

Table 3

Methodological Tools for STEM-Oriented Teacher Preparation

Methodological Tool	Primary Purpose	Professional Training Outcome
STEM projects	Integration of mathematics, science, and technology	Development of project and integrative competencies
Inquiry-based tasks	Organisation of educational investigations	Development of inquiry skills and scientific thinking
Mathematical modelling	Analysis of real-world processes using mathematics	Development of mathematical literacy and analytical thinking
Case-study method	Analysis of professional pedagogical situations	Development of professional thinking and decision-making skills
Problem-based learning	Solving open-ended educational problems	Development of critical thinking, creativity, and independence
Digital technologies	Use of interactive platforms, simulations, and digital resources	Development of the future teacher's digital competence
Generative artificial intelligence	Development of STEM tasks, instructional materials, projects, and case studies	Enhancement of methodological preparation and development of critical digital literacy

The conducted analysis provides a basis for developing an original model of the methodological training of future primary school teachers for teaching mathematics based on the STEM approach. The proposed model integrates competency-based, activity-based, learner-centred, inquiry-based, and STEM approaches and is aimed at developing future teachers' methodological readiness to organise contemporary mathematics instruction in primary education.

The conceptual foundation of the model is based on the premise that methodological training should not be limited to mastering individual methods of teaching mathematical content. Instead, it should develop future teachers' ability to integrate mathematics, science, technology, and informatics; employ inquiry-based teaching methods; organise STEM projects; apply digital technologies; and create an educational environment in which mathematical knowledge acquires practical significance. This approach fully corresponds to the principles of the New Ukrainian School and the Concept for the Development of STEM Education (Balyk & Shmyher, 2021; Kysla et al., 2025; Ministry of Education and Science of Ukraine, 2019; Rakhmanina, 2024).

The proposed model is built upon the interaction of four interrelated components: the target, content, procedural, and outcome components. Their essence and stages of implementation are presented in Table 4.

Table 4

Author's Model of the Methodological Training of Future Primary School Teachers for Teaching Mathematics Based on the STEM Approach

Model Component	Content
Purpose	Developing the methodological readiness of future primary school teachers to teach mathematics based on the STEM approach.
Methodological approaches	Competency-based, activity-based, learner-centred, integrative, inquiry-based, and STEM approaches.
Principles of implementation	Scientific validity, integration of educational domains, practical orientation, interdisciplinarity, inquiry-based learning, digitalisation, student-centredness, and continuous professional development.

Pedagogical conditions	Integration of the STEM component into methodological training; practice-oriented learning; application of digital technologies; organisation of project- and inquiry-based activities; development of professional reflection.
Stage 1. Motivational and orientation stage	Developing positive motivation for implementing the STEM approach and awareness of the role of integrated mathematics instruction in teachers' professional practice.
Stage 2. Theoretical and methodological stage	Mastering the theoretical foundations of STEM education, contemporary mathematics teaching methodology, integrated instruction, and digital technologies.
Stage 3. Practical activity stage	Designing STEM projects, integrated lessons, inquiry-based tasks, mathematical models, and applying digital platforms and generative artificial intelligence.
Stage 4. Reflective and evaluation stage	Self-analysis, evaluation of professional performance, refinement of methodological decisions, and planning further professional development.
Methodological tools	STEM projects; inquiry-based tasks; mathematical modelling; case-study method; problem-based learning; digital technologies; interactive platforms; generative artificial intelligence.
Expected outcomes	Well-developed methodological and mathematical, integrative, inquiry, digital, project, creative, and reflective competencies, together with readiness to implement the STEM approach in primary mathematics teaching.
Criteria for assessing methodological readiness	Motivational criterion – professional motivation and readiness for innovative activity; cognitive criterion – level of methodological and STEM knowledge; activity-based criterion – ability to design STEM lessons and apply contemporary technologies; reflective criterion – ability to conduct self-assessment, critical analysis, and continuous professional improvement.

The proposed author's model provides a holistic vision of the methodological training of future primary school teachers for teaching mathematics based on the STEM approach. Its implementation creates favourable conditions for integrating pedagogical technologies, inquiry-based learning, project activities, and digital technologies into teacher education, thereby ensuring the development of methodological readiness for implementing the STEM approach in primary school mathematics instruction. The model may serve as a theoretical and methodological foundation for improving teacher education curricula, developing instructional and methodological resources, and organising the practical preparation of future primary school teachers.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The findings of the study confirm that the STEM approach provides an effective methodological foundation for modernising the methodological training of future primary school teachers for teaching mathematics. Its implementation promotes the integration of mathematics, science, and technology, facilitates the development of inquiry, project, digital, and communicative competencies, and enhances future teachers' readiness to organise practice-oriented mathematics instruction in accordance with the principles of the New Ukrainian School. The analysis and generalisation of scientific literature made it possible to identify the principal methodological tools for implementing the STEM approach and to determine their didactic potential for the professional preparation of future teachers.

Prospects for further research are associated with the experimental validation of the proposed model in the professional preparation of future primary school teachers, the development of a system for assessing the levels of STEM competency formation, and the investigation of the potential of GenAI, adaptive digital platforms, and other innovative technologies in the methodological training of future teachers for teaching mathematics.

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THEORETICAL SUBSTANTIATION OF THE STRUCTURAL AND FUNCTIONAL MODEL OF PROFESSIONAL TRAINING OF FUTURE PHYSICAL EDUCATION TEACHERS FOR TEACHING BADMINTON IN GENERAL SECONDARY EDUCATION INSTITUTIONS

Abstract. The article highlights the problem of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions in the context of the modernization of higher pedagogical education and the reform of school physical education.

The purpose of the article is to reveal the conceptual foundations, structure, and content of the structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions.

Research methods: theoretical methods—analysis, synthesis, comparison, generalization, and systematization of scientific sources, regulatory and legal documents, and educational and professional programmes; modelling—for designing the structural and functional model of the professional training of future Physical Education teachers.

Scientific novelty of the study lies in the theoretical substantiation and development of the structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions, which ensures the integration of theoretical, methodological, and practical components, the application of educational and digital technologies, and orients the educational process towards the formation of the motivational, cognitive, and praxeological components of the professional readiness of future Physical Education teachers to teach badminton. Its conceptual foundations, structure, content, and interrelationships between the structural components have been determined. The model consists of target, methodological, content, organizational and procedural, and diagnostic and resultative blocks, which function as an integral pedagogical system.

The practical significance of the obtained results lies in the possibility of using the proposed model in the modernization of educational and professional programmes for the training of future Physical Education teachers, the development of educational and methodological support for educational components, the improvement of the content of sports and pedagogical disciplines, the organization of teaching practice, specialised courses and training sessions, as well as in the system of postgraduate pedagogical education.

Keywords: professional training, future Physical Education teachers, badminton, structural and functional model, general secondary education institutions, professional readiness.

ТЕОРЕТИЧНЕ ОБГРУНТУВАННЯ СТРУКТУРНО-ФУНКЦІОНАЛЬНОЇ МОДЕЛІ ПРОФЕСІЙНОЇ ПІДГОТОВКИ МАЙБУТНІХ УЧИТЕЛІВ ФІЗИЧНОЇ КУЛЬТУРИ ДО ВИКЛАДАННЯ БАДМІНТОНУ В ЗАКЛАДАХ ЗАГАЛЬНОЇ СЕРЕДНЬОЇ ОСВІТИ

Анотація. У статті актуалізовано проблему професійної підготовки майбутніх учителів фізичної культури до викладання бадмінтону в закладах загальної середньої освіти в умовах модернізації вищої педагогічної освіти та реформування шкільної фізкультурної освіти.

Мета статті полягає у розкритті концептуальних засад, структури та змісту структурно-функціональної моделі професійної підготовки майбутніх учителів фізичної культури до викладання бадмінтону в закладах загальної середньої освіти.

Методи дослідження: теоретичні – аналіз, синтез, порівняння, узагальнення та систематизація наукових джерел, нормативно-правових документів і освітньо-професійних програм; моделювання – для проєктування структурно-функціональної моделі професійної підготовки майбутніх учителів фізичної культури.

Наукова новизна дослідження полягає в теоретичному обґрунтуванні та розробленні структурно-функціональної моделі професійної підготовки майбутніх учителів фізичної культури до викладання бадмінтону в закладах загальної середньої освіти, яка забезпечує інтеграцію теоретичної, методичної та практичної складових, застосування освітніх і цифрових технологій та орієнтує освітній процес на формування мотиваційного, когнітивного, праксеологічного компонентів професійної готовності майбутніх учителів фізичної культури до викладання бадмінтону. Визначено її концептуальні засади, структуру, зміст і взаємозв'язки між структурними компонентами. Модель складається з цільового, методологічного, змістового, організаційно-процесуального та діагностично-результативного блоків, які функціонують як цілісна педагогічна система.

Практичне значення одержаних результатів полягає в можливості використання запропонованої моделі під час модернізації освітньо-професійних програм підготовки майбутніх учителів фізичної культури, розроблення навчально-методичного забезпечення освітніх компонентів, удосконалення змісту дисциплін спортивно-педагогічного циклу, організації педагогічної практики, спеціальних курсів і тренінгів, а також у системі післядипломної педагогічної освіти.

Ключові слова: професійна підготовка, майбутні учителі фізичної культури, бадмінтон, структурно-функціональна модель, заклади загальної середньої освіти, професійна готовність.

INTRODUCTION

The problem formulation. The current stage of modernization of the education system of Ukraine is characterised by increasing requirements for the quality of the professional training of future Physical Education teachers who are capable of effectively carrying out educational activities under the conditions of the reform of general secondary education, digital transformation, and the competency-based orientation of the educational process.

The professional training of a new generation of teaching staff, in particular future Physical Education teachers, is regulated by the Laws of Ukraine "On Higher Education" (2017, as amended), "On Education" (2017), "On Professional Pre-Higher Education" (2019), "On Complete General Secondary Education" (2020), "On Amendments to Certain Laws of Ukraine Regarding Ensuring the Quality of Higher Education" (2023), "On Physical Culture and Sport" (as amended in accordance with the Laws No. 2704-VIII of 25 April 2019 and others), "On Amendments to Certain Laws of Ukraine Regarding the Development of Individual Educational Trajectories and the Improvement of the Educational Process", the Strategy for the Development of Higher Education in Ukraine for 2022–2032 of 23 February 2022, the Resolution of the Cabinet of Ministers of Ukraine No. 988-r of 14 December 2016 "On Approval of the Concept for the Implementation of the State Policy in the Field of Reforming General Secondary Education 'The New Ukrainian School' for the Period until 2029", the National Strategy for Health-Enhancing Physical Activity in Ukraine for the Period until 2025 "Physical Activity – Healthy Lifestyle – Healthy Nation" (2016), the Strategy for the Development of Physical Culture and Sport for the Period until 2028 (2020), and others.

The conceptual foundations for implementing the reform of the New Ukrainian School actualise the need to train teachers who possess modern teaching methods, innovative technologies, digital tools, and are capable of developing learners' motivation for systematic physical activity, a healthy lifestyle, and participation in various sports.

The teaching of badminton in general secondary education institutions is one of the promising means of implementing the above-mentioned tasks, as it combines health-promoting, educational, and developmental potential. As practice shows, teaching badminton in general secondary education institutions contributes to the development of speed-strength abilities, coordination of movements, endurance, reaction speed, and spatial thinking, as well as to the formation of communication skills, responsibility, discipline, and a culture of a healthy lifestyle.

The results of the analysis of educational and professional programmes, curricula, and the content of the training of future Physical Education teachers indicate that the issues of badminton teaching methodology are often covered fragmentarily, without proper integration of the theoretical, methodological, practical, and digital components of professional training. This complicates the formation of the readiness of higher education students for high-quality badminton teaching in general secondary education institutions.

Therefore, there is an increasing need for the scientific substantiation of a structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions. We believe that such a model should ensure the integrity and systematic nature of professional training, integrate methodological approaches, pedagogical principles, modern educational content, innovative forms, methods, digital tools, and teaching technologies, and determine the interrelationships among all structural components of this process.

Analysis of recent research and publications. The analysis of scientific works demonstrates that the problem of the professional training of future Physical Education teachers is the focus of attention of both Ukrainian and foreign scholars. In particular, the issues of modelling the professional training of future Physical Education teachers are highlighted in the works of I. Tkachivska (Tkachivska, I., 2024, pp. 75–81); the peculiarities of the formation of subject knowledge and professional readiness of future Physical Education teachers for teaching sports games are revealed in the studies of W. S. Chey, P. Ward, K. Cho, E. Tsuda, L. Dillon, and their co-authors (Chey, W. S., Ward, P., Dillon,

L., Watanabe, R., Meyerhoff, S., Arroyo-Rojas, F., 2025, 261–271); the theoretical and methodological foundations of professional training models in physical education are substantiated in the works of R. L. Fjellner, V. Varea, and D. Barker (Fjellner, R. L., Varea, V., Barker, D., 2024, 329–345).

At the same time, the issue of the theoretical substantiation of the structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions remains insufficiently investigated, which necessitates the development of an integral model aimed at forming the readiness of future Physical Education teachers for teaching badminton.

AIM OF THE RESEARCH

To reveal the conceptual foundations and the structural and content characteristics of the model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions.

RESEARCH METHODS

Theoretical methods: analysis, synthesis, generalisation, systematisation, and comparison of scientific literature, regulatory and legal documents, and educational and professional programmes; modelling—for developing the structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions.

RESULTS OF THE RESEARCH

The choice of modelling as a research method is explained by the fact that a model makes it possible to comprehensively represent the process of the professional training of future specialists, determine its structure, the regularities of its functioning, and the mechanisms of interaction among the components of the process under study. According to S. Kryshtanovych, L. Sushchenko, and D. Skalskyi, modelling is an important research tool because it makes it possible to interpret scientific knowledge, verify conceptual provisions, and ensure the closest possible correspondence between the developed model and the real pedagogical process (Kryshtanovych, S., Sushchenko, L., Skalskyi, D., 2021, pp. 36–39).

In the context of the stated problem, D. Bermudes substantiates a model for preparing future Physical Education teachers to implement elective modules, which combines the target, content, procedural, and resultative components of professional training (Bermudes, D., 2017, pp. 26–36).

I. Tkachivska developed and theoretically substantiated a model for the formation of the didactic competence of students majoring in 014 Secondary Education (Physical Education), aimed at improving the quality of the professional training of future teachers by means of Physical Education pedagogy and didactics. The model proposed by the author includes three interrelated components: motivational and informational, cognitive and content-related, and technological. The researcher pays particular attention to the interdisciplinary integration of the discipline "Pedagogy of Physical Education with the Fundamentals of Didactics" with professionally oriented educational components, which ensures the integrity of the professional training of future Physical Education teachers (Tkachivska, I., 2024, pp. 75–81).

In turn, A. Khodakovska states that a structural and functional model should integrate methodological approaches, teaching principles, pedagogical conditions, the content of training, and a system for diagnosing learning outcomes (Khodakovska, A., 2023, pp. 17–33).

Foreign studies devoted to modelling the educational process in the system of physical education teacher training are also important for substantiating the structural and functional model of the professional training of future Physical Education teachers. In particular, the studies by W. Chey, P. Ward, and their co-authors have demonstrated that the effectiveness of the professional training of future teachers is ensured through the systematic integration of Common Content Knowledge (CCK) and Specialized Content Knowledge (SCK), practical mastery of techniques, analysis of students' typical errors, and modelling of professional pedagogical situations (Chey, W. S., Ward, P., Cho, K., Tsuda, E., Atkinson, O., & Oh, D., 2022, pp. 87–101).

The authors emphasise that such a training model contributes not only to the formation of subject competence but also to the future teacher's ability to design the educational process, select effective teaching methods, and carry out pedagogical reflection (Chey, W. S., Ward, P., Dillon, L., Watanabe, R., Meyerhoff, S., Arroyo-Rojas, F., 2025, pp. 261–271).

The views of R. L. Fjellner, V. Varea, and D. Barker are valuable for our study. They argue that modern models of professional training in physical education should be based on the principles of Models-Based Practice, which involve the integration of methodological approaches, content, forms, methods, and teaching technologies into a single holistic system focused on achieving the defined learning outcomes. The researchers are convinced that the effectiveness of any professional training model depends not on the mechanical reproduction of its components but on the teacher's ability to adapt the model to the specific conditions of the educational environment, integrate different pedagogical approaches, and creatively design the educational process (Fjellner, R. L., Varea, V., & Barker, D., 2024, pp. 329–345).

We have developed a structural and functional model aimed at the theoretical substantiation, design, and implementation of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions, which ensures the formation of their readiness for effective professional and pedagogical activity in general secondary education institutions.

Achieving the stated objective involves solving the following interrelated tasks:

forming sustainable motivation for teaching badminton in general secondary education institutions; ensuring that higher education students acquire a system of psychological-pedagogical, methodological, and specialised knowledge concerning the organisation and conduct of Physical Education lessons using badminton; developing professional abilities and practical skills in teaching badminton techniques, tactics, and methodology; developing the ability to apply modern educational, digital, and health-preserving technologies in the educational process; acquiring experience in organising educational, extracurricular, and sports activities in badminton; developing reflective skills, the ability to carry out self-assessment, self-improvement, and continuous professional development.

The structural and functional model consists of interconnected blocks: target, methodological, content, organizational and procedural, and diagnostic and resultative. Let us consider these blocks in more detail.

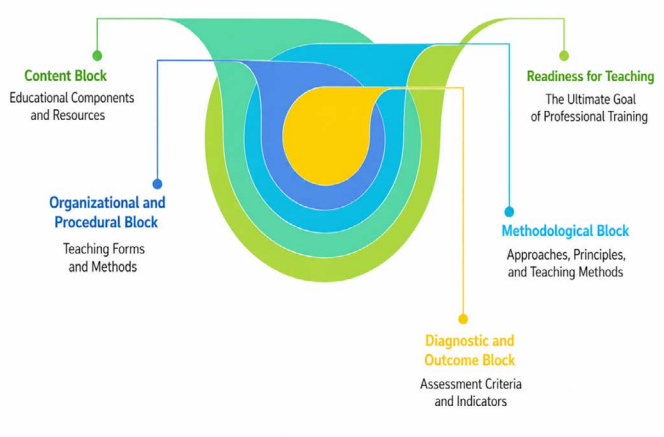


Fig. 1.1. Structural and functional model of professional training of future physical education teachers for teaching badminton in secondary education institutions.

Let us consider these blocks in more detail.

The target block defines the social demand of society, the purpose, objectives, and the expected outcome of professional training, which consists in forming the readiness of future Physical Education teachers for effective badminton teaching in general secondary education institutions.

The methodological block includes a set of methodological approaches (systemic, activity-based, practice-oriented, competence-based, axiological, and health-preserving) as well as general didactic principles (scientific character, systematicity and consistency, professional orientation, practical orientation, and individualisation) and specific principles (competence orientation, health preservation, pedagogical partnership, and sports-pedagogical orientation) of professional training. These determine the logic of organising the educational process, as well as the general concept of the model's functioning, the content of its structural components, the peculiarities of their interaction, and the mechanisms for achieving the stated objective.

The content block integrates educational components (compulsory and elective), educational and methodological support, digital educational resources, specialised courses, training sessions, practical classes, and teaching practice, the content of which is aimed at developing the professional, methodological, technical and tactical, organisational, digital, and reflective competencies of the future teacher.

The organizational and procedural block characterises the forms, methods, technologies, and pedagogical conditions for implementing the model. A leading role is assigned to interactive teaching methods, modelling of professional situations, project-based activities, digital technologies, video analysis of exercise performance techniques, blended learning, teaching practice, and the independent work of higher education students.

The diagnostic and resultative block provides for the determination of the criteria, indicators, and levels of the formation of the readiness of future Physical Education teachers to teach badminton. It is advisable to use motivational and value-based, cognitive, activity-practical, and reflective criteria, which comprehensively characterise the professional readiness of future teachers.

The result of the functioning of the proposed structural and functional model is the formed readiness of the future Physical Education teacher to teach badminton in general secondary education institutions, which is manifested in a high level of professional motivation, profound theoretical knowledge, well-developed methodological skills, the ability to organise the educational process in accordance with the modern requirements of the New Ukrainian School, use digital technologies, carry out pedagogical reflection, and ensure the physical development of learners by means of badminton.

It should be noted that the practical implementation of the developed structural and functional model was also based on the long-term experience of the author of the dissertation, Dmytro Korotkyi, as an Assistant at the Department of Sports and Pedagogical Disciplines of Vasyl Stefanyk Precarpathian National University and Deputy Chairman of the Ivano-Frankivsk Regional Badminton Federation.

The author's high level of sports mastery is confirmed by his victory at the 2026 Ukrainian Badminton Championship among Veterans and Amateur Players in the MS45 category (https://surl.li/ccsrpi), where he won the title of Champion of Ukraine for the third consecutive time (2024–2026).

The practical experience gained was used in the development of the educational and methodological complex, the conduct of practical classes, master classes, and internal training tournaments, which contributed to strengthening the practice-oriented component of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The theoretically substantiated structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions is an integral pedagogical system built on the interrelationship of methodological approaches, general didactic and specific principles, coordinated structural components, pedagogical conditions, content, forms, methods, and teaching tools aimed at achieving the defined research objective.

A distinctive feature of the proposed structural and functional model is its focus on the comprehensive combination of sports-technical, psychological-pedagogical, methodological, and health-preserving training of future Physical Education teachers, which ensures the formation of the professional competencies necessary for the effective organisation of the educational process by means of badminton.

Prospects for further research are seen in determining the criteria for evaluating the effectiveness of the proposed model and in the experimental verification of the effectiveness of the proposed pedagogical conditions.

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MOTIVATIONAL LEARNING STRATEGIES IN THE TRAINING OF FUTURE VOCATIONAL EDUCATION SPECIALISTS: MODERN APPROACHES AND EDUCATIONAL PRACTICE

Abstract. The article examines the specific features of applying motivational learning strategies in the training of future vocational education specialists in the context of modern requirements for the quality of professional training and the need to develop active, independent, and professionally oriented individuals. The relevance of this study stems from the need to improve the educational process, identify effective ways to foster and sustain students' long-term motivation to learn, and develop their cognitive activity, independence, responsibility, and readiness for continuous professional self-development.

The aim of the article is to theoretically substantiate and experimentally investigate motivational learning strategies, determine their motivational potential and identify the specific features of their practical implementation in the professional training of future vocational education specialists. The study employed theoretical methods, including analysis, synthesis, comparison, generalization, and systematization of scholarly sources and regulatory documents, as well as classification and modelling. An empirical questionnaire survey was also conducted, followed by quantitative and qualitative analysis, interpretation, and generalization of the obtained results. Six interrelated motivational learning strategies are theoretically substantiated: professionally oriented, problem-based inquiry, digital-interactive, project-based research, reflective-autonomous and social interaction. A model for their implementation is proposed, and their motivational, value-and-meaning-based, cognitive, career-oriented, self-actualization, and reflective functions are identified.

An experimental study was conducted with students enrolled in the "Vocational education. Digital technologies" educational and professional program at Vasyl Stefanyk Carpathian National University. The study's results demonstrated a predominantly high level of student motivation toward professional training and confirmed the effectiveness of a comprehensive approach to implementing specific strategies. The most significant factors were found to be the professional focus of educational activities, the opportunity to apply knowledge in practice, the use of digital technologies, independence, and professionally

oriented activities. The study demonstrated the effectiveness of a comprehensive approach to implementing these strategies for enhancing educational activities and fostering the professional development of future vocational education specialists.

Ключові слова: motivation, motivational learning strategies, vocational education, digital technologies, professional training, future specialists, educational process, students, modern educational technologies, educational practice.

МОТИВАЦІЙНІ СТРАТЕГІЇ НАВЧАННЯ У ПІДГОТОВЦІ МАЙБУТНІХ ФАХІВЦІВ ПРОФЕСІЙНОЇ ОСВІТИ: СУЧАСНІ ПІДХОДИ ТА ОСВІТНЯ ПРАКТИКА

Анотація. У статті розкриваються особливості застосування мотиваційних стратегій навчання у підготовці майбутніх фахівців професійної освіти в контексті сучасних вимог до якості фахової підготовки та необхідності розвитку активної, самостійної й професійно спрямованої особистості. Актуальність дослідження зумовлена потребою вдосконалення освітнього процесу, пошуку ефективних способів формування та підтримання стійкої навчальної мотивації здобувачів освіти, розвитку їхньої пізнавальної активності, самостійності, відповідальності та готовності до безперервного професійного саморозвитку.

Метою статті є теоретичне обґрунтування та експериментальне дослідження мотиваційних стратегій навчання, визначення їхнього мотиваційного потенціалу й особливостей практичної реалізації у професійній підготовці майбутніх фахівців професійної освіти. У дослідженні використано теоретичні методи аналізу, синтезу, порівняння, узагальнення, систематизації наукових джерел і нормативно-правових документів, класифікацію та моделювання, а також емпіричний метод анкетування з подальшим кількісним і якісним аналізом, інтерпретацією та узагальненням отриманих результатів. Теоретично обґрунтовано шість взаємопов'язаних мотиваційних стратегій навчання: професійно орієнтовану, проблемно-пошукову, цифрово-інтерактивну, проєктно-дослідницьку, рефлексивно-автономну та стратегію соціальної взаємодії. Запропоновано модель їх реалізації та визначено стимулювальну, ціннісно-смислову, пізнавальну, професійно-орієнтаційну, самореалізаційну й рефлексивну функції.

Експериментальне дослідження проведено зі здобувачами освіти освітньо-професійної програми "Професійна освіта. Цифрові технології" Карпатського національного університету імені Василя Стефаника. Результати дослідження засвідчили переважно високий рівень мотивації здобувачів до професійної підготовки та підтвердили доцільність комплексного застосування визначених стратегій. Найбільш значущими виявилися професійна спрямованість освітньої діяльності, можливість практичного застосування знань, використання цифрових технологій, самостійність і професійно орієнтована діяльність. Доведено доцільність комплексного застосування визначених стратегій для активізації освітньої діяльності та професійного становлення майбутніх фахівців професійної освіти.

Keywords: мотивація, мотиваційні стратегії навчання, професійна освіта, цифрові технології, професійна підготовка, майбутні фахівці, освітній процес, здобувачі освіти, сучасні освітні технології, освітня практика.

INTRODUCTION

The problem formulation. Current transformational processes in Ukraine's higher and vocational education system highlight the need to improve the quality of professional training for future specialists who are capable of self-development, continuous professional growth, and effective performance in a rapidly changing environment. An important factor in the effectiveness of the educational process is academic motivation, which determines the focus, activity, and perseverance of students in acquiring professionally relevant knowledge, skills, and competencies. This issue takes on particular significance in the professional training of future vocational education specialists, for whom a well-developed motivational framework is not only a prerequisite for successful learning but also the foundation for their readiness for future teaching practice.

At the same time, traditional approaches to organizing the educational process do not always ensure an adequate level of intrinsic motivation among learners, their active engagement, and their awareness of the personal and professional significance of learning outcomes. This necessitates the search for and implementation of modern motivational learning strategies based on a combination of person-centered, competency-based, activity-based, and digital approaches that take into account the individual educational needs of future vocational education specialists. In this regard, research into modern approaches to fostering and sustaining learning motivation, as well as the synthesis of educational practices involving the application of motivational strategies in the professional training of future educators, has become particularly relevant.

Analysis of recent research and publications. The issue of motivation in the educational process and its impact on the activity, independence, cognitive interest, and professional self-development of students has been thoroughly explored in the works of Ukrainian scholars. The theoretical foundations of motivation, its essence, structure, and role in personality development have been studied by O. Vasyuk, S. Vyhovska, A. Vyhovskyi, T. Golubenko, O. Dniprova, L. Zagray, A. Kvyatkovska, I. Kipych, H. Kovalchuk, O. Kovalova, V. Korniyenko, M. Levchenko, A. Lukiyanchuk, O. Maievska, A. Melnyk, A. Pinska, N. Rodinova, N. Skrypnyk, S. Symovonyk, Ya. Semenov, O. Tishchuk, T. Chernova, S. Fedenko, V. Shkrabyuk, A. Tsapko, and others. In Poland, the theoretical foundations of motivation, including its essence, mechanisms, and theoretical foundations, as well as its structure and connections with personality, were described by H. Gasiul, W. Łukaszewski, M. Marszał-Wiśniewska, et al., M. K. Obuchowski, J. Reykowski, and E. Trzebińska.

Certain aspects of academic and professional motivation, as well as its relationship to the effectiveness of educational activities, are explored in the works of M. Hutsol, V. Denysenko, O. Denysenko, I. Zaychenko, T. Kurbatova, G. Kravchuk, V. Odyntsova, O. Pinska, S. Riabokon, T. Shevchuk, V. Yalovyi, and others. In Polish literature, the

issue of motivation in education has been and is currently widely addressed in many areas. Student activity and independence (autonomy) were studied by M. Ledzińska and A. Czerniawska, B. Niemierko, and W. Okoń. Cognitive interests and intrinsic motivation can be found in the works of A. I. Brzezińska, M. Cywińska, B. Tołwińska, and D. Uszyńska-Jarmoc. Research on students' self-development and future professional activity was conducted by, among others, S. M. Kwiatkowski, M. Łaguna, and Z. Wiatrowski. Researchers emphasize the need to create an educational environment that fosters cognitive activity, professional orientation, independence, and a sustained desire among students for professional development.

The theoretical foundations of vocational education, the content of vocational training, the development of vocational pedagogy, and the organization of the educational process were studied by H. Bilavych, T. Blyzniuk, O. Budnyk, H. Vasyanovych, O. Vnukova, V. Volodavchyk, T. Gelzhynska, I. Zaychenko, O. Kondur, N. Kolomiyets, O. Malyshevskyi, O. Melnyk, V. Onyshchenko, M. Pryhodiy, L. Prokopiv, V. Radkevych, V. Stynska, S. Tkachuk, O. Tsiuniak, M. Chepil, and others. In Polish literature, the following authors have written on the theoretical foundations of vocational education, the content of vocational education, work pedagogy, vocational didactics, and the organization of the vocational education process: B. Baraniak, R. Gerlach, S. M. Kwiatkowski, T. W. Nowacki, F. Szlosek, Z. Wiatrowski. These scholarly works substantiate the competency-based foundations of professional training and define its content, principles, and organizational and pedagogical conditions. At the same time, despite the significant body of work by these scholars, the issue of systematically combining various motivational learning strategies specifically in the training of future vocational education specialists – including the identification of their motivational functions, mechanisms of interaction, and practical effectiveness – remains under-researched.

AIM AND TASKS RESEARCH

The aim of this article is to theoretically substantiate and experimentally investigate motivational learning strategies in the training of future vocational education specialists, to determine their motivational potential, and to identify the characteristics of their practical implementation in the educational process.

To achieve the stated goal, the following objectives have been identified: to analyze the nature of motivation and motivational learning strategies in the context of professional training; to justify and characterize the main motivational learning strategies for future vocational education specialists; to develop a model for their implementation and identify their motivational functions; to conduct an experimental study of the level of motivation among students and their attitudes toward the identified strategies; to summarize the research findings and outline prospects for further study of the issue.

RESEARCH METHODS

To achieve the objective and address the identified tasks, a set of theoretical and empirical research methods was employed. During the theoretical phase, analysis, synthesis, comparison, generalization, and systematization of scientific sources and regulatory documents were applied, which made it possible to clarify the essence of key concepts and substantiate the theoretical foundations of the study. The classification method was used to identify motivational learning strategies, and modeling was used to develop a model for their implementation. The main empirical method was a survey using a questionnaire developed by the author, aimed at determining the level of motivation among students, factors influencing educational engagement, and attitudes toward specific motivational learning strategies. To analyze the results, quantitative and qualitative analysis, comparison, interpretation, and generalization of the obtained data were applied. The comprehensive application of these methods ensured the validity of the theoretical propositions and the reliability of the study's results.

RESULTS OF THE RESEARCH

Current requirements for the quality of training future vocational education specialists necessitate a rethinking of approaches to organizing the educational process and strengthening its person-centered, competency-based, and practice-oriented components. Under these conditions, fostering sustainable learning motivation among students takes on particular importance, as it is this motivation that largely determines the level of their cognitive activity, their readiness to acquire knowledge independently, their desire for professional self-improvement, and their ability to consciously plan their own educational and professional paths.

The legal basis for defining the goals and objectives of vocational training is the Law of Ukraine "On Education" (2017), according to which the purpose of education is the comprehensive development of the individual as a person and as society's highest value, the realization of their talents and intellectual, creative, and physical abilities, to foster the values and competencies necessary for successful self-actualization, as well as to raise responsible citizens capable of making informed social choices and acting for the benefit of others and society (On Education, 2017). Thus, the legally defined guidelines for education are directly linked to an individual's active stance, their readiness for self-development, and their conscious professional growth, which underscores the need for the purposeful cultivation of positive motivation toward educational activities.

At the same time, the specific nature of vocational education is defined by its focus on preparing individuals for specific professional activities and providing opportunities for their further self-actualization. The Law of Ukraine "On Vocational Education" (2025) states that the field of vocational education "is aimed at forming and developing the personal competencies necessary for lifelong self-actualization, to foster responsible citizens and professionals who direct their activities toward serving the best interests of people and society, in particular through the high-quality and conscientious performance of work, the provision of services, the production of goods, and the conduct of other professional activities" (On Vocational Education, 2025). This provision emphasizes the need to train professionals who not only possess a

specific set of professional competencies but also recognize the social value of their chosen profession and demonstrate a willingness to perform their duties with high quality and responsibility.

According to contemporary scholars, one of the priority tasks of the teacher education system is the development and implementation of innovative technologies aimed at improving the effectiveness of the professional and pedagogical training of future specialists and fostering their professional competence (Tovkanets et al., 2024). In this context, the use of innovative technologies and pedagogical approaches creates the conditions for strengthening the motivational component of professional training, increasing students' educational engagement, and fostering their interest in professional development.

To thoroughly examine the issue at hand, it is first necessary to define the essence of the concept of "motivation". Researcher I. Zaichenko notes that motivation is "a set of internal and external driving forces that prompt people to act and give that action a direction aimed at achieving certain values" (Zaichenko, 2022, p. 538). Polish researchers J. Penc (2000) and J. Reykowski (1992) write about it in a similar way. This interpretation emphasizes the dual nature of motivational factors and their guiding function. Accordingly, motivation determines not only the very fact of an individual's engagement in a particular activity but also the extent to which this activity corresponds to their needs, value orientations, and expected outcomes.

Researchers V. Odyntsova and O. Denysenko argue that "motivation consists of so-called psychological phenomena that serve as an impetus for performing a particular action or deed, which determine an individual's activity and their focus on achieving a planned result" (Odyntsova & Denysenko, 2015, p. 60). This interpretation emphasizes the activity-based nature of motivation and its direct connection to an individual's activity. W. Łukaszewski writes that "motivation is the process of inducing, directing and maintaining activity until the goal is achieved or until the conditions in which this activity takes place change" (Łukaszewski, 2023, p. 24).

O. Lavryniuk and V. Kyrychenko emphasize the need to view motivation as a system of interrelated factors, defining it as "a set of factors that trigger activity, direct it toward achieving goals, and sustain that activity until the goals are achieved" (Lavryniuk & Kyrychenko, 2023, p. 36). This approach provides grounds for viewing motivation as a dynamic phenomenon whose functioning is not limited to the initial impulse to act. Equally important is maintaining activity throughout the entire period of achieving the set goal. J. Penc assumes that "motivation is an internal state of a person that directly determines his or her readiness to undertake a specific activity, gives this activity the desired direction and determines the degree of commitment to achieving a goal" (Penc, 2000, p. 45).

Summarizing the scientific approaches outlined above, we define motivation as a dynamic system of internal and external incentives, needs, motives, values, and goals of the individual, which determines the direction, intensity, and persistence of the individual's activity in educational and professional pursuits.

Motivation takes on particular significance directly in the process of obtaining an education, since it is motivation that largely determines the nature of a student's attitude toward educational activities. T. Shevchuk and H. Kravchuk note that for students, motivation serves as a "key element for an effective learning process, acting as a catalyst in the process of learning and acquiring new knowledge. It serves as the primary driving force in human activity, including the development of professional skills in future specialists, emphasizing the importance of incentives and motives in the educational and professional activities of students" (Shevchuk & Kravchuk, 2025, p. 147). Polish pedagogical literature also emphasizes that the motives accompanying learning constitute the main dynamic force determining the educational and professional success of an individual (Chodkowski, 2019, pp. 137-150). This position confirms the direct interconnection between the motivational and professional components of training future specialists.

S. Riabokon, I. Hanberher, and M. Mykhalkiv explore important aspects of how motivation influences students' engagement and performance, emphasizing that "students' motivation is one of the key factors determining their level of academic engagement, their attitude toward the educational process, and their academic achievement. It contributes to the formation of cognitive interest, the development of independence, responsibility, and the desire to achieve high results" (Riabokon, Hanberher & Mykhalkiv, 2025). M. Ledzińska and A. Czerniawska (2011) also write about motivation as one of the key factors determining student engagement. This statement allows us to view motivation as an integral factor that combines the cognitive, activity-based, personal, and professional components of training future specialists.

Contemporary research on student motivation demonstrates the need to view it not only as an individual psychological phenomenon but also as the result of social interaction and the influence of the interpersonal environment. In particular, G. A. D. Liem substantiates the significance of interpersonal relationships, role obligations, and cultural norms as important motivational factors, emphasizing the interconnection between the personal and social aspects of students' motivation (Liem, 2026). At the same time, the results of empirical studies confirm the interconnection between academic motivation and psychological factors, particularly self-esteem and emotional well-being, which underscores the need to create a supportive psychological and social environment within the educational process to foster intrinsic motivation (Majauskiene et al., 2026). Therefore, modern approaches to motivational strategies should involve not only the selection of methods to stimulate cognitive activity but also the creation of conditions for social interaction, the promotion of autonomy, and the fostering of a positive attitude among students toward their own educational and professional activities.

In the context of professional training, it is important to distinguish between general motivation for educational activities and professional motivation. While the former ensures a person's general orientation toward obtaining an education, professional motivation links educational activities to one's future profession, its content, social significance, and prospects for personal self-actualization. According to researcher O. Pinska, professional motivation as a personality trait is "a system of goals and needs that drive a student toward the active acquisition of knowledge, the mastery of skills and

abilities, and a conscious attitude toward their profession" (Pinska, 2009). In Polish literature, research on the connection between the motivational and vocational elements of education was conducted by Z. Chodkowski (2019, pp. 137-150). This interpretation emphasizes the interconnection between the motivational and professional components of training. Awareness of professional prospects can transform a student's attitude toward educational activities: individual academic tasks cease to be perceived as mere formal requirements and take on the significance of elements in preparation for future professional activity.

Of particular interest in the context of this study is the experience of European Union countries in fostering and sustaining student motivation. Researchers M. Hutsol, V. Denysenko, and T. Kurbatova examined the experience of European Union countries regarding motivational strategies in higher education. They note that EU countries systematically implement motivational strategies through "the digitization of learning, the expansion of academic mobility, support for students' psychosocial well-being, and financial incentives for faculty, which ensure a high level of engagement among participants in the educational process and the development of human capital" (Hutsol, Denysenko & Kurbatova, 2025, p. 9). W. Walat, based on EU reports and numerous scientific studies, presented an outline of the future competences of students and academic teachers focused on digital functional literacy (Walat, 2026, p. 119).

For the purposes of our study, we define motivational learning strategies as a systematically organized set of goals, pedagogical approaches, methods, techniques, and means of organizing the educational process, aimed at forming, stimulating, and sustaining the internal and external motivation of learners, as well as developing their cognitive activity, professional orientation, independence, and focus on achieving educational outcomes.

V. Yalovyi emphasizes the need to implement modern pedagogical strategies to increase the motivation of vocational education students. The researcher notes that "effectively increasing the academic motivation of vocational education students is linked to the implementation of innovative pedagogical strategies that stimulate both students' cognitive activity and their intrinsic desire for professional growth" (Yalovyi, 2025, p. 4). Thus, the motivational potential of innovative strategies is determined not by the mere fact of using new methods or technologies, but by their ability to create conditions for active engagement, independent decision-making, the practical application of knowledge, and an awareness of career development prospects.

The concept of "vocational training" is important in the context of this study, since it is within this framework that the professional competencies of future specialists are developed and the foundations for their future professional activities are laid. The normative definition of the concept is contained in the Law of Ukraine "On Vocational Education" (2025), where vocational training is defined as "an individual's acquisition of professional qualifications for the first time" (On Vocational Education, 2025). In the report on the state and prospects of development of education in Poland, the authors point to the need to build strong motivation among students to learn to teach others as future teachers (Beyond the Horizon, 2020, p. 69). The legal understanding of this concept emphasizes the outcome-oriented aspect of vocational education – an individual's acquisition of the relevant professional qualification. At the same time, in pedagogical research, it is advisable to consider vocational training more broadly – as a holistic process of shaping a future specialist, combining cognitive, activity-based, personal, value-and-motivation-based, and reflective components.

Researcher V. Volodavchyk defines professional training as "a purposeful, systematic process of developing, in future professionals, the professional competencies necessary for the successful performance of professional duties, carried out in a specially created educational environment using appropriate forms, methods, and teaching tools" (Volodavchyk, 2026, p. 108). This definition emphasizes the systematic and purposeful nature of professional training, as well as the importance of the educational environment and pedagogical tools for developing the competencies required of future professionals.

Thus, we understand the professional training of future vocational education specialists as a purposeful, systematic, and competency-based process of preparing individuals to perform professional functions, encompassing the acquisition of professional knowledge, skills, and abilities; the development of professionally relevant qualities, value orientations, motivation for professional activity; and the capacity for continuous self-development. In this sense, the motivational component is an integral part of professional training, as it is precisely this component that ensures the trainee's internal drive to master the profession, readiness for active educational engagement, and further professional development.

The practical implementation of the motivational component of vocational training involves the targeted selection of pedagogical strategies capable of fostering not only situational interest among students but also a sustained focus on professional development. Given the specific nature of training future vocational education specialists, it is appropriate to identify six interrelated motivational learning strategies: career-oriented, problem-based inquiry, digital-interactive, project-based research, reflective-autonomous, and social interaction. Their combination makes it possible to address the main mechanisms of motivational influence: awareness of professional prospects, cognitive interest, the practical significance of activities, autonomy, self-actualization, and the need for interaction.

Given the content of the professional training for future vocational education specialists, it is advisable to implement these strategies not in isolation, but as a mutually complementary system. Their specific details, focus, and motivational potential are presented in Table 1, which we have developed.

The strategies presented here cover various levels of motivational influence and can be adapted to the content of the educational component, the stage of vocational training, and the individual needs of learners. At the same time, the greatest effectiveness can be expected when these strategies are used in combination: career guidance defines the purpose of the activity, problem-solving and digital-interactive strategies support cognitive engagement, project-based research ensures practical implementation, while reflective-autonomous and social interaction strategies help reinforce intrinsic motivation.



Table 1

Motivational learning strategies in the training of future vocational education specialists

Motivational strategy	Key aspects of implementation	The primary mechanism of motivational influence	Appropriate forms and means
Career-oriented	Aligning the content of educational components with future professional roles and professional practice scenarios	Recognizing the professional significance of learning	Professional case studies, scenario-based exercises, and practice-oriented assignments
Problem-based learning	Involving students in solving challenging and non-standard career-oriented problems	Cognitive curiosity and the need for independent exploration	Problem-based situations, discussions, research tasks, the “brainstorming” method
Digital and interactive	The use of digital technologies and interactive tools to enhance educational activities	Interest, engagement, prompt feedback	Digital platforms, simulations, interactive services, multimedia resources
Project and research	Independent planning and implementation of individual or group career-oriented projects	Self-actualization, accountability for results, achievement	Projects, mini-research projects, presentations, portfolios
Reflexive-autonomous	Providing opportunities for setting personal goals, self-assessment, and analyzing one’s own professional progress	Autonomy, intrinsic motivation, self-awareness	Reflective journals, self-assessment, individual educational goals
Social interaction strategy	Organizing collaborative activities, peer learning, and professional communication	A sense of belonging, mutual support, social recognition	Group work, peer assessment, discussions, professional communities

Based on the identified strategies, we propose a model for their implementation in professional training, which involves sequentially completing four interrelated stages: the motivational-goal-setting stage, the content-activity stage, the reflective-evaluation stage, and the corrective-developmental stage. In the first stage, professionally significant goals are defined and the needs of trainees are identified; in the second, forms, methods, and digital tools are selected in accordance with the defined strategies; in the third, results are assessed, and self-assessment and reflection take place; in the fourth, future educational tasks are adjusted based on the results achieved and the identified motivational needs. This model ensures the cyclical nature of motivational influence and its gradual shift from external stimulation to internal professional motivation.

Taking into account the functional purpose of motivational strategies, we have proposed a classification of their motivational functions, which includes: the stimulatory function – encouraging engagement in educational activities; the value-and-meaning function – raising awareness of the significance of one’s profession and educational outcomes; the cognitive function – fostering interest in exploring, researching, and mastering new knowledge; career-orientation – establishing a connection between educational activities and one’s future profession; self-actualization – creating conditions for autonomy, creativity, and the expression of individual potential; and reflective – awareness of one’s own achievements, challenges, and prospects for further development. This classification allows us to view motivational strategies not merely as a set of pedagogical techniques, but as a systematic tool for fostering an active, professionally oriented, and self-directed stance in future professionals.

In order to identify the characteristics of students’ motivation, assess the effectiveness of motivational learning strategies, and justify the possibilities for their systematic integration into the training of future vocational education specialists during 2025-2026, we conducted an experimental study. To address these objectives, we used a questionnaire survey involving 44 students enrolled in the “Vocational education. Digital technologies” educational and professional program at the first (bachelor’s) level of higher education at the Faculty of Education of Vasyl Stefanyk Carpathian National University. Respondents were given a questionnaire titled “Motivational learning strategies in the training of future vocational education specialists”, which contained closed-ended, semi-closed-ended, and open-ended questions aimed at determining the level of academic and professional motivation, factors influencing educational engagement, attitudes toward various motivational strategies, and self-assessments of their effectiveness.

First and foremost, the level of motivation among students toward learning and professional training was assessed. 59.1% of respondents rated it as high, 34.1% as sufficient, and 6.8% as unstable. The results indicate a generally positive attitude among most future professionals toward educational activities, while also highlighting the need for systematic support to boost the motivation of students with less stable levels of motivation.

An analysis of the main motivational factors showed that the most significant factors for respondents are the awareness of the connection between educational activities and their future profession (86.4%), the opportunity to apply knowledge in practice (81.8%), interest in the content of educational components (75%), the use of modern digital technologies (70.5%), and the ability to independently choose methods for completing tasks (65.9%). This confirms the pivotal role of professional orientation, practical relevance, and active engagement in shaping the motivation of future professionals.

A key focus of the survey was the question regarding motivational learning strategies that students consider most effective for their own professional training. The highest percentage – 88.6% – was recorded for the career-oriented strategy, which involves a direct link between the content of educational activities and the future profession. The digital-interactive

strategy was identified as effective by 81.8% of respondents, the project-based and research-oriented strategy by 77.3%, the problem-based and exploratory strategy by 72.7%, the reflective and autonomous strategy by 68.2%, and the social interaction strategy by 63.6%. The results indicate that future vocational education specialists view most favorably those forms of organizing the educational process that allow them to see the practical application of the knowledge they acquire, use modern technologies, independently solve professionally oriented tasks, and create a concrete educational product.

The impact of career-oriented tasks on motivation for educational activities was examined separately. 77.3% of respondents noted that tasks resembling real-life professional situations significantly increased their interest, 18.2% noted a moderate impact, and 4.5% did not observe any significant changes. At the same time, 84.1% of respondents believe that the use of digital and interactive tools increases their engagement in educational activities, 11.4% assess this impact as partial, and 4.5% do not see a significant motivational effect.

An analysis of the responses to the open-ended question regarding what changes in the organization of the educational process could increase motivation for vocational training revealed a predominance of suggestions related to increasing the number of practical and career-oriented assignments, the use of modern digital technologies, the implementation of individual and group projects, granting greater autonomy when completing tasks, and receiving regular constructive feedback. Some respondents also emphasized the importance of diversifying the forms of educational activities, using real-world professional case studies, and creating opportunities to present their own results to classmates.

The practical implementation of the identified motivational learning strategies takes place during the study of the courses “Motivational learning strategies in vocational education” and “Modern educational technologies in the field.” Within the framework of these educational components, students complete professionally oriented and problem-solving tasks, participate in discussions and group work, develop individual and team projects, use digital tools, and engage in self-assessment and reflection on the results of their own activities. This organization of the educational process makes it possible to practically implement the identified motivational learning strategies and combine them with the development of professional competencies among future vocational education specialists.

Thus, the results of the experimental study revealed a predominantly high level of motivation among students toward professional training and confirmed the effectiveness of a comprehensive approach to motivational teaching strategies. The most significant factors for the respondents were the professional orientation of educational activities, their practical focus, the use of digital and interactive technologies, and the opportunity for independent work and the implementation of their own educational initiatives. This provides grounds for asserting that the systematic combination of professionally oriented, problem-based, digital-interactive, project-based research, reflective-autonomous strategies, and strategies for social interaction creates favorable conditions for increasing motivation and fostering the professional development of future vocational education specialists.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Theoretical analysis has shown that motivation is a systemic and dynamic factor in the training of future vocational education specialists, one that determines the direction, intensity, and sustainability of their educational activity. Motivational learning strategies are considered as a systemic set of pedagogical tools and methods for organizing the educational process, aimed at developing and maintaining intrinsic and extrinsic motivation. The feasibility of the systematic application of six interrelated motivational strategies is substantiated: professionally oriented, problem-solving, digital-interactive, project-based research, reflective-autonomous, and social interaction strategies. A model for their implementation and a classification of motivational functions are proposed, encompassing the stimulatory, value-and-meaning-based, cognitive, career-oriented, self-actualization, and reflective functions.

The results of an experimental study conducted during 2025-2026 with 44 students enrolled in the “Vocational education. Digital technologies” program at Vasyl Stefanyk Carpathian National University confirmed the effectiveness of a comprehensive approach to applying specific motivational learning strategies in vocational training. Respondents identified the connection between educational activities and their future profession, the opportunity to apply knowledge in practice, and the use of modern digital technologies as the most significant motivational factors. The students noted the highest effectiveness of career-oriented, digitally interactive, and project-based research strategies, which confirms the importance of a practical, activity-based, and career-oriented approach to the educational process.

We see opportunities for further research in conducting an in-depth experimental study of the effectiveness of specific motivational strategies at various stages of professional training, identifying the dynamics of changes in students’ academic and professional motivation, and developing diagnostic tools to assess the level of its development.

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TRAINING OF FUTURE PRIMARY SCHOOL TEACHERS FOR THE AESTHETIC EDUCATION OF PRIMARY SCHOOL STUDENTS IN THE CONTEXT OF INCLUSIVE EDUCATION

Abstract. The article actualizes the problem of the aesthetic development of junior schoolchildren with special educational needs (SEN) as an important factor in their socialization and rehabilitation in the educational space of the New Ukrainian School. To achieve the stated goal, a complex of theoretical research methods was used: analysis, synthesis, comparison, and generalization of scientific sources, as well as the method of pedagogical design and modeling.

Within the framework of the study, a theoretical justification of the essence of aesthetic education in inclusive settings was carried out, and it was proven that it is not merely the teaching of artistic skills, but an effective space for non-verbal communication and psycho-emotional support for children with various nosologies. The essence and rehabilitative potential of such integrated learning tools as art-pedagogy, music therapy, and fairy-tale therapy were revealed. In the structure of professional teacher training, three basic components of readiness were characterized: the motivational-value, cognitive, and activity-practical components.

It is substantiated that the effective preparation of future primary school teachers for the aesthetic education of pupils in inclusive settings requires a systemic modernization of the educational process in higher education institutions. The author conclude that developing the professional readiness of future educators to work in a modern inclusive classroom is possible only through a comprehensive approach that combines updating course content, implementing active learning methods, and targeted organization of pedagogical practice.

Based on the conducted analysis, concrete practical ways of training specialists in higher education institutions were proposed. The study determined the expediency of updating the content of educational disciplines; conducting workshops and training on manufacturing adapted didactic materials; and engaging students in conducting integrated lessons and educational events during pedagogical practice in real inclusive primary school classrooms.

Keywords: primary school teacher training, aesthetic education, junior schoolchildren, special educational needs, inclusive education, art-pedagogy, professional readiness, higher education institutions, rehabilitation pedagogy.

ПІДГОТОВКА МАЙБУТНІХ УЧИТЕЛІВ ПОЧАТКОВИХ КЛАСІВ ДО ЕСТЕТИЧНОГО ВИХОВАННЯ МОЛОДШИХ ШКОЛЯРІВ В УМОВАХ ІНКЛЮЗИВНОГО НАВЧАННЯ

Анотація. У статті актуалізовано проблему естетичного розвитку молодших школярів з особливими освітніми потребами (ООП) як важливого чинника їхньої соціалізації та реабілітації в освітньому просторі Нової української школи. Для досягнення поставленої мети використано комплекс теоретичних методів дослідження: аналіз, синтез, порівняння й узагальнення наукових джерел, а також метод педагогічного проєктування та моделювання.

У межах дослідження здійснено теоретичне обґрунтування сутності естетичного виховання в інклюзивних умовах та доведено, що воно є не просто навчанням художніх навичок, а дієвим простором невербальної комунікації й психоемоційної підтримки дітей із різними нозологіями. Розкрито сутність та реабілітаційний потенціал таких інструментів інтегрованого навчання, як арт-терапія, музикотерапія та казкотерапія. У структурі професійної підготовки вчителя початкових класів схарактеризовано три базові складники готовності: мотиваційно-ціннісний, когнітивний та діяльнісно-практичний.

Обґрунтовано, що ефективна підготовка майбутніх учителів початкових класів до естетичного виховання учнів в умовах інклюзії потребує системної модернізації освітнього процесу в закладах вищої освіти. Автор дійшла висновку, що формування професійної готовності майбутнього вчителя до роботи в сучасному інклюзивному класі можливе лише за умови реалізації комплексного підходу, який поєднує оновлення змісту дисциплін, впровадження активних методів навчання у вищій школі та цілеспрямовану організацію педагогічної практики.

На основі проведеного аналізу запропоновано конкретні практичні шляхи підготовки фахівців у закладах вищої освіти. Визначено доцільність оновлення змісту навчальних дисциплін; проведення воркшопів та тренінгів із виготовлення адаптованих дидактичних матеріалів; залучення студентів до активного проведення інтегрованих уроків та виховних заходів під час педагогічної практики в реальних інклюзивних класах початкової школи.

Ключові слова: підготовка вчителів початкових класів, естетичне виховання, молодші школярі, особливі освітні потреби, інклюзивне навчання, арт-педагогіка, професійна готовність, заклади вищої освіти, реабілітаційна педагогіка.

INTRODUCTION

The problem formulation. In the modern educational paradigm, the understanding of inclusive education is undergoing significant transformational changes. Work with children with special educational needs (SEN) in primary school has long gone beyond a purely academic component, such as teaching basic reading, writing, or numeracy skills. Today, inclusion is viewed as a process of a child's holistic personal development, comprehensive socialization, and integration into the sociocultural space of society (Kolupaieva, A., 2009). Aesthetic education serves as a universal tool that allows for the development of the creative imagination and sensory sphere of primary school students with SEN, ensuring their harmonious spiritual formation, cultural development, and successful adaptation among peers. However, in the context of the modern digitalization of everyday life, art and its classical forms, as tools of aesthetic education, are losing popularity to virtual spaces and social networks. Such an obvious shift in the interests of the child audience, including those with special educational needs, highlights the need for a purposeful and systematic development of the individual's aesthetic culture from the very first years of schooling in an inclusive setting, while value orientations are still in their formative stage. In view of this, higher education institutions should focus on training primary school teachers who can offer innovative educational strategies to students with SEN and flexibly applying adaptive pedagogical technologies in an inclusive classroom.

The necessity of forming cultural and aesthetic competences in primary school students with diverse educational needs is declared in modern regulatory documents of Ukraine. The Law of Ukraine «On Education», the Law of Ukraine «On Complete General Secondary Education», and the Concept of the New Ukrainian School (NUS) define «cultural competence» as one of the key factors for successful personal self-realization. The State Standard of Primary Education provides for the systematic artistic and aesthetic development of students through the integration of the arts educational field; this is highly relevant in the context of modern primary school reform, allowing for the formation of a child's holistic cultural identity and the development of their creative autonomy (State Standard of Primary Education, 2018).

For learners with SEN, this opens additional opportunities for compensatory development, as the means of art and aesthetic activity possess a pronounced rehabilitative and therapeutic potential, significantly contributing to overcoming barriers in communication and cognitive exploration of the world.

The realization of these educational guidelines places a high responsibility on the primary school teacher, who is a key figure in organizing the inclusive process during the child's first years of schooling. However, practice shows that future educators often experience methodological difficulties when trying to combine traditional tools of aesthetic education with the principles of inclusive didactics in a diversified children's group. There is an obvious need to modernize the professional training of pedagogical students in higher education institutions, which would involve developing their readiness to integrate corrective-developmental, rehabilitative-pedagogical, and art-therapeutic methodologies into the general system of educational and upbringing work. The outlined scope of issues highlights the relevance of this article and necessitates the search for effective ways to prepare future teachers for conducting the aesthetic education of primary school students in inclusive learning environments.

Analysis of recent research and publications. An analysis of the scientific literature indicates that the theoretical and practical foundations of the investigated problem have been studied in various aspects by both Ukrainian and foreign scholars. Specifically, general issues of the professional development of future teachers, the advancement of their professional competence, and professionalism have been investigated in the works of O. Dubaseniuk (Dubaseniuk, O., 2009), I. Ziaziun (Ziaziun, I., 2010), and others; the problem of preparing primary school teachers to work with children with special needs has been addressed in the article by M. Savchuk (Savchuk, M., 2024); the theoretical and practical aspects of the aesthetic education of children are reflected in the studies of G. Tarasenko (Tarasenko, G., 2008); the experience of children's aesthetic education based on the ideas of I. Ziaziun has been revealed by S. Vdovych (Vdovych, S., 2021); and the use of fairy tales in the educational process of primary school for therapeutic purposes has been examined in the study of L. Slyvka (Slyvka, L., 2025).

The conceptual foundations of organizing inclusive education and supporting children with special educational needs in Ukraine have been thoroughly disclosed in the works of A. Kolupaieva and O. Taranshenko (Kolupaieva, A., Taranshenko, O., 2016); the basic principles of inclusive education through the prism of the pedagogy of partnership have been highlighted in the works of N. Matveieva, M. Klepar, and O. Nych (Matveieva, N., Klepar, M., Nych, O., 2023). The conditions for organizing an inclusive educational environment for children with special needs have been described in the article by domestic researchers H. Bilavych, N. Bakhmat, T. Pantyuk, M. Pantyuk, and B. Savchuk (Bilavych, H., Bakhmat, N., Pantyuk, T., Pantyuk, M., Savchuk, B., 2022).

The issue of using innovative pedagogical technologies in training teachers to work in conditions of inclusive education has been studied in the works of I. Demchenko (Demchenko, I., 2014), M. Savchuk (Savchuk, M., 2024), and others, while the peculiarities of art teachers' activities in the context of inclusive education have been discussed in the works of N. Pakhomova and N. Sulaieva (Sulaieva, N., Pakhomova, N., 2026). Among foreign researchers, a significant contribution to understanding the role of creativity, art therapy, and the holistic development of children with diverse educational opportunities has been made by H. Gardner (theory of multiple intelligences) (Gardner, H., 2004), C. Malchiodi (art pedagogy and therapy in education) (Malchiodi, C. (Ed.), 2012), K. Robinson (development of creativity), and others.

Despite the significant scholarly value of the works, the issue of purposefully preparing future primary school teachers to conduct the aesthetic education of primary school students with SEN in inclusive learning environments is currently not fully explored. Furthermore, comprehensive, dedicated studies directly addressing this topic are virtually absent from the Ukrainian scholarly discourse. This gap determined the choice of the article's topic and the direction of our study.

AIM OF THE RESEARCH

The aim of the article is to theoretically substantiate and determine practical ways of preparing future primary school teachers to conduct the aesthetic education of primary school students with special educational needs in inclusive learning environments.

RESEARCH METHODS

The study employed a complex of theoretical research methods. Specifically, the methods of analysis, synthesis, comparison, and generalization of pedagogical, psychological, and special educational literature were used to examine and systematize existing scientific approaches to the stated problem. The structural-functional method was applied to identify, characterize, and scientifically justify the components (motivational-value, cognitive, and activity-practical) of future primary school teachers' readiness for the aesthetic education of junior schoolchildren with special educational needs. Additionally, the method of pedagogical design and modeling was used to determine concrete practical ways, active methods, and curricular updates for teacher training within higher education institutions.

RESULTS OF THE RESEARCH

Traditionally, in classical pedagogical science, aesthetic education was considered a process of forming the ability to perceive, feel, and understand the beauty in art and life, and often, in a narrow sense, as the teaching of basic artistic skills such as drawing, singing, or modeling. The scientific understanding of the essence of aesthetic education as an active factor in personal development is based on the fundamental tenets of Ukrainian scholars, particularly I. Ziaziun, who stated that «aesthetic education is not simply an acquaintance with art, but, above all, the purposeful formation of the culture of a personality's feelings, the harmonization of their relations with the surrounding world, and the development of the creative potential of a person as the creator of their own life» (Vdovych, S., 2021, p. 77). This concept finds its logical continuation in modern research characterizing aesthetic education as a multidimensional integrated system that ensures the development of an individual's artistic and aesthetic competence, their capacity for barrier-free sociocultural interaction, and creative self-expression through art (Tarasenko, G., 2008; Mazur, P. et al., 2020). Thus, it adapts arts education to the challenges of the inclusive paradigm.

That is, aesthetic education today is not limited to the transmission of cultural values or the mastery of artistic techniques. It emerges as a holistic system of a child's emotional and sensory development aimed at harmonizing their inner world, building psychological resilience, and unlocking inner potential through interaction with the artistic environment.

The specifics of implementing this process in working with primary school students are revealed by G. Tarasenko, who defines aesthetic education as the foundation of a child's spiritual development, since it is a process of the holistic formation of their emotional-value attitude toward the world, where artistic and aesthetic activity acts as the primary factor in the development of a child's spiritual culture and the basis of their creative self-realization (Tarasenko, G., 2008).

In this context, artistic activity functions not as an end, but as a unique therapeutic space where barriers caused by a child's physical or intellectual impairments are eliminated. Through the perception and creation of the beautiful, the psycho-emotional state is corrected, anxiety levels are reduced, and the body's natural compensatory capacities are stimulated. Consequently, aesthetic education is transformed into an effective mechanism of psychological and pedagogical rehabilitation, contributing to the successful integration of children with SEN into their peer group and society.

An important advantage of art in inclusive environments is that it serves as a universal tool of non-verbal communication. As Ukrainian scholars note, «art is an effective means of emotional support, because artistic activity provides opportunities for self-expression, anxiety reduction, and the formation of a positive emotional state in children» (Kolupaieva, A., Taranchenko, O., 2016). Therefore, for children who have difficulty verbalizing their feelings and thoughts, artistic images, sounds, and body movements become an alternative language for communicating with their surroundings. In the process of creativity, the child is given the opportunity to safely express their experiences, inner conflicts, and joys, which often cannot be expressed in words due to physiological or psychological characteristics. This allows for the establishment of strong emotional contact among the child, the educator, and classmates, laying the groundwork for building an inclusive community based on mutual understanding and empathy.

In the practical implementation of aesthetic education in an inclusive classroom, integrated areas such as art pedagogy, music therapy, and fairytale therapy occupy a special place. Art pedagogy, through visual arts and work with various plastic materials, helps develop fine motor skills, spatial orientation, and visual-motor coordination. Music therapy, utilizing tempo-rhythmic structures and sound vibrations, exerts a stabilizing effect on the nervous system, stimulates speech zones, and improves motor coordination. In the context of inclusive education, music, as noted by N. Sulaieva and N. Pakhomova, performs the function of a means of development, as it promotes the formation of cognitive processes, speech, motor skills, and creative abilities of students. It is an important means of communication, especially for children with speech disorders or difficulties in social interaction, as musical activity creates alternative channels for interaction and self-expression (Sulaieva, N., Pakhomova, N., 2026, p. 213). Fairytale therapy, through a system of metaphorical images, helps the child understand moral categories, safely role-play difficult life scenarios, and find internal resources to overcome difficulties (Malchiodi, C., 2012). In the context of inclusive education, future primary school teachers need to master integrative methods that simultaneously foster aesthetic development and provide emotional support to children with diverse learning needs. Fairy tale therapy, which combines creative expression with psychological relief, serves as a valuable tool in this process. Dramatic activities such as puppetry allow children to safely explore their inner experiences through artistic play. As L. Slyvka points out, working with dolls allows a child to improve and express through the doll those emotions that they usually (for certain reasons) cannot afford to express» (Slyvka, 2025, p. 110). Therefore, preparing future educators to implement these aesthetic and therapeutic techniques is essential for creating a supportive, creative, and inclusive classroom environment.

Thus, artistic and aesthetic activity in an inclusive primary school classroom creates a unique therapeutic and compensatory space in which traditional communication barriers are eliminated, allowing children with special educational needs to express their inner state and successfully socialize through non-verbal channels of creativity.

These tools prove highly effective when working with children with various nosological impairments. Thus, for learners with severe speech impairments, fine arts become the primary channel of self-expression, which significantly reduces the level of social frustration. For children with sensory impairments (in particular, visual or hearing impairments), aesthetic education opens opportunities to perceive the world through preserved sensory systems: tactile perception of textures in art therapy or the perception of vibrational waves in music therapy. In cases of intellectual disabilities, artistic activity simplifies the perception of complex abstract concepts through visual-figurative metaphors and promotes the development of cognitive processes in a form accessible to the child. Moreover, such activity creates conditions for establishing an atmosphere of acceptance and respect for every student in the classroom an atmosphere that «helps reduce anxiety levels, increase motivation for learning, and form positive self-esteem in students, which is particularly important for children with special educational needs» (Sulaieva, N., Pakhomova, N., 2026, p. 216).

Thus, aesthetic education in inclusive environments combines educational, developmental, and therapeutic (rehabilitative) vectors. It allows every child, regardless of their physical or intellectual capabilities, to feel like a successful creator and a full participant in the educational process. Aesthetic education, therefore, according to S. Vdovych, «must be a continuous process of improving professional mastery, creativity, aesthetic-sensory reaction to the surrounding world, and spiritual, intellectual, and physical improvement, meaning it should develop all sides of the personality» (Vdovych, S., 2021, p. 77).

However, this places new demands on the professional training of future primary school teachers, who must possess not only general pedagogical and didactical knowledge but also art-pedagogical competences to create an adaptive, culturally enriched educational environment when working with children with SEN. The implementation of the outlined tasks of aesthetic education in the context of inclusive primary school education places higher demands on the personality of the primary school teacher, necessitating a systemic update of their professional training (Demchenko, I., 2014). The teacher acts as the main organizer and coordinator of the educational process, and the creation of a barrier-free, creative, and psychologically safe inclusive environment directly depends on their mastery (Kolupaieva, A., 2009).

Consequently, under these circumstances, traditional didactic skills become insufficient. There is an urgent need to form a specific professional quality: the readiness of the future teacher to conduct the aesthetic education of children with special educational needs, combining empathy, methodological flexibility, and mastery of art-pedagogical technologies.

The professional readiness of a future educator for such activity is a complex, integrative personal construct, closely linked to their aesthetic-pedagogical culture (Tarasenko, G., 2008). Therefore, it involves not only the ability to organize students' artistic activities but also the skill to adapt aesthetic and artistic material in accordance with the diverse psychophysiological capabilities of children with SEN within the inclusive paradigm. This means that a modern primary school teacher must possess skills in task differentiation, understand the rehabilitative potential of various art forms, and be able to utilize elements of therapeutic interaction through creativity (Malchiodi, C., 2012). Consequently, the theoretical substantiation and practical design of a model for training such specialists in higher education institutions becomes one of the priority tasks of modernizing higher pedagogical education.

Within the paradigm of the competency-based approach, the requirements for the professional activity of a primary school teacher in inclusive settings are substantiated by I. Savchuk. Specifically, among these, the researcher highlights «pedagogical flexibility (the ability to adapt educational materials and teaching methods to the diverse needs of students, ensuring the accessibility of knowledge for all learners); knowledge of special methodologies (mastering

special pedagogical methods and technologies that facilitate effective learning for all students, including diverse needs); development of emotional intelligence (the capacity for empathy, patience, and understanding of the emotional and psychological characteristics of learners with various needs, including special educational needs); teamwork (the ability to cooperate with teacher assistants, specialists, parents, and other participants in the educational process to provide comprehensive support for learners); differentiation skills, etc.» (Savchuk, M., 2024, p. 111).

To successfully implement aesthetic education in an inclusive primary school, future teachers must look beyond traditional classroom instruction and actively build collaborative networks. The pedagogy of partnership provides the necessary framework for this, ensuring that creative and artistic activities are supported not only by the educator but also by parents and specialists. Building such cooperative relationships allows teachers to better understand and nurture each child's unique emotional and creative potential. Indeed, as researchers emphasize, «by its very nature, partnership pedagogy is the most appropriate in the context of inclusive education and upbringing, as it is based on a respectful attitude towards the individual, his opportunities and interests; aimed at creating trusting and sincere relationships» (Matveieva, N., Klepar, M., Nych, O., 2023, p. 121). Training future primary school teachers to apply these collaborative principles enables them to design more sensitive and accessible aesthetic experiences that respect the individuality of all learners.

Modern pedagogical research increasingly emphasizes the formation of professional readiness in pedagogical specialists, viewed as a multidimensional, dynamic system with a clear internal structure. The structural components of a teacher's readiness to work in an inclusive primary school environment were investigated by I. Demchenko (Demchenko, I., 2014). Drawing on general theoretical and methodological approaches to defining the structure of professional teacher training, as well as those developed in the work of I. Demchenko, we consider it appropriate to distinguish three interrelated and mutually determined components of future primary school teachers' readiness to conduct the aesthetic education of primary school students in inclusive settings: motivational-value, cognitive, and activity-practical. Each of these components performs specific functions and ensures the integrity of pedagogical influence in the inclusive classroom.

The motivational-value component serves as the foundation of the future teacher's professional readiness and determines their internal attitude toward educational activity through art. This component assumes the presence of a stable professional-aesthetic orientation of the teacher's personality, the formation of their humanistic values, and pedagogical empathy. As convincingly demonstrated in the works of I. Ziaziun and G. Tarasenko, it is the teacher's emotional culture and their personal value-oriented attitude toward the beauty that serve as the channel through which aesthetic experience is transmitted to children (Tarasenko, G., 2008; Ziaziun, I., 2010). In the context of inclusive education, this component manifests in the teacher's awareness of the unique role of art as a means of harmonizing the development and socialization of every child with SEN.

Furthermore, the motivational-value sphere of a primary school teacher must be based on the unconditional acceptance of the creative potential of each student, regardless of their psychophysiological differences. This directly correlates with the views of K. Robinson, who emphasized the need to recognize the diversity of children's talented manifestations and overcome stereotypes regarding children's abilities. A teacher with a developed motivational-value component perceives the artistic activity of a child with SEN not through the prism of a medical diagnosis, but as a unique creative self-expression that deserves support, approval, and the creation of a situation of success within the peer group (Robinson, K., 2016).

The cognitive component defines the theoretical basis of the teacher's readiness and encompasses a system of integrated knowledge in pedagogy, psychology, art pedagogy, and special didactics. The future primary school teacher must have a clear understanding of the psychophysiological characteristics of the development of children with various nosologies (speech, intellectual, and sensory impairments), which is detailed in the works of A. Kolupaieva (Kolupaieva, A., 2009; Inclusion in Art Education, 2019).

When preparing future primary school teachers for inclusive classrooms, it is vital to address the existing gaps in the educational process. One of the main challenges is the underutilization of creative, sensory, and artistic methods that can facilitate communication and emotional growth in children with special needs. In their study on organizing inclusive educational spaces, researchers point out that among the specific difficulties inhibiting the development of children with special educational needs is the «insufficient use of art tools and visual and artistic activities in lessons» (Bilavych H. et al., 2022). Consequently, pre-service primary school educators must be trained to actively integrate these aesthetic and artistic practices into their daily teaching to foster both creative self-expression and social inclusion

On this basis, students develop specific knowledge regarding the rehabilitative and developmental possibilities of art, as well as an understanding of the theoretical and methodological foundations of using art-pedagogical technologies when working with primary school students, as emphasized by C. Malchiodi (Malchiodi, C., 2012).

A high level of formation of the cognitive component also manifests in the future teacher's understanding of H. Gardner's theory of multiple intelligences (Gardner, H., 2004). Knowledge of this theory allows the future educator to realize that the aesthetic perception of a child with SEN can be realized through various channels visual-spatial, musical-rhythmic, or bodily-kinesthetic. Accordingly, the cognitive training of the student in higher education institutions must provide them with knowledge on how to correctly select types of artistic activity to compensate for certain individual developmental impairments of a child and stimulate their cognitive activity.

The activity-practical component is the procedural embodiment of the teacher's readiness and determines their direct ability to carry out inclusive-aesthetic education in practice. This component involves the mastery of constructive, projective, and organizational skills. Drawing on the research of I. Savchuk, we highlight the role and purpose of modern professional training for future primary school teachers who will work with children with special educational needs in general secondary education institutions. The researcher writes that it «consists in providing them with appropriate competences that will help build effective interaction between the teacher and students in an inclusive classroom» (Savchuk, M., 2024, p. 115).

The role of a teacher's practical preparedness is emphasized by O. Dubaseniuk, who interprets it as «the formation of their readiness to act in a specific pedagogical situation, applying means, methods, and techniques of educational activity appropriate to the circumstances (Dubaseniuk, O., 2009).

In order to detail the structure of pre-service teachers' professional readiness, systematize the methods of its development during university training, and substantiate its practical value for students with special educational needs, a corresponding structural matrix has been developed (Table 1).

Table 1.

Structural components of future teachers' readiness for aesthetic education of children with SEN in an inclusive classroom

Training component	Essence and key content	Pedagogical tools and methods for student development in HEIs	Target outcome for children with SEN
Motivational-Value Component of the Teacher	Professional-aesthetic orientation of pedagogical activity, pedagogical empathy, and unconditional acceptance of the child's creativity and their individual developmental characteristics.	Empathy and emotional culture development training sessions. Case method (analysis of real-life pedagogical situations). Method of empathetic modeling and sensory simulations (students experiencing the child's perceptual barriers). Method of professional self-reflection (keeping practice diaries). Discussion panels focusing on the humanistic ideas of prominent scientists and leading practitioners in inclusive education	Psychological safety of the child in the classroom, an atmosphere of empathy, mutual understanding, and respect for each individual
Cognitive Component of the Teacher	Theoretical knowledge of pedagogy, psychology, special education (defectology), art therapy, and special didactics	Integrated lecture courses ("Art Therapy in Inclusion", "Foundations of Special Didactics", "Rehabilitation Pedagogy", etc.). -based learning (researching the compensatory potential of art and its specific types). Development of individual methodological portfolios of nosologies by students. Seminars and meetings with practicing art therapists and rehabilitation educators	The primary school teacher's understanding of the rehabilitative potential of art and its specific types; knowledge of methodologies for adapting artistic materials to the visual or kinesthetic needs of children with SEN
Activity-Practical Component of the Teacher	Development of the teacher's readiness to work with children with SEN: acquisition of constructive, projective, and organizational skills regarding the aesthetic development of children with SEN	Pedagogical design (development of adapted lesson plans for integrated lessons using works of art by students). Conducting lesson fragments within the student group (microteaching). Practical workshops on the adaptation and modification of artistic materials for primary school students. Role-playing and business games modeling team collaboration ("teacher – assistant – parents")	Building an individual educational trajectory of the child's development, successful socialization within the classroom

Thus, we note that the activity-based readiness of a primary school teacher manifests in their ability to develop and conduct integrated art-oriented lessons where different types of creativity are harmoniously combined. An important skill within the structure of this component is the flexible adaptation and modification of creative tasks (for example, simplifying instructions, replacing materials for modeling or drawing with more convenient ones, etc.) in accordance with the motor or sensory capabilities of a child with SEN.

An indispensable element of the activity-practical component is also the future teacher's ability to work in a support team, particularly in close cooperation with the teacher's assistant. Practical readiness implies the ability to clearly distribute functions during the lesson, jointly plan aesthetic-oriented educational activities, and coordinate the educational influence on a child with SEN within the school's inclusive space. Only under the condition of a harmonious integration of all three outlined components – motivational, cognitive, and activity-based – within the personality structure of the future primary school teacher can we speak of their full professional readiness to conduct aesthetic education in inclusive settings. Thus, the professional training of future teachers to work in an inclusive educational space requires combining didactic skills with creative learning technologies, which ensures the formation of the teacher's methodological flexibility and their ability to create adaptive educational systems (Demchenko, I., 2014).

Therefore, preparing a primary school teacher capable of effectively combining aesthetic education with the principles of inclusion requires a systemic modernization of the educational process in higher education institutions. This process cannot be limited only to the passive assimilation of theoretical material; it requires the implementation of a comprehensive approach that encompasses updating the content of academic disciplines, applying active practical learning methods, and the targeted organization of pedagogical practice. Only through the combination of these three vectors, in our view, is it possible to ensure the formation of the future teacher's professional readiness to work in a modern inclusive primary school classroom.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The conducted theoretical and methodological study allows us to summarize the findings and formulate certain conclusions. Aesthetic education in the context of inclusive primary education is not merely a means of forming artistic skills, but rather serves as an effective tool for socialization, non-verbal communication, and the psycho-emotional rehabilitation of primary school students with special educational needs. The successful realization of this process directly depends on the development of the primary school teacher's professional readiness, which has a complex three-component structure encompassing motivational value, cognitive, and activity-practical components. The systematic training of such teachers in higher education institutions requires the comprehensive integration of updated theoretical content, active practical teaching methods, and the direct involvement of students in organizing artistic events during their pedagogical practice.

The main thesis of the article is that high-quality and targeted preparation of teachers for aesthetic work in an inclusive environment ensures genuine spiritual and cultural development of children with special educational needs. The use of aesthetic-therapeutic and artistic tools by a trained educator transforms the inclusive space into an environment of active sociocultural interaction, creative cooperation, and the successful adaptation of every learner.

The problem outlined in the article opens broad prospects for further scientific research. In this direction, a more detailed study and development of specific methodologies for integrating various types of art therapy into the content of the practical training of future primary school teachers within university education appears highly relevant and promising.

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THE POTENTIAL OF THE DIGITAL EDUCATIONAL ENVIRONMENT OF A HIGHER EDUCATION INSTITUTION IN PREPARING FUTURE MASTER'S STUDENTS IN SOFTWARE ENGINEERING FOR INNOVATIVE ACTIVITY

Abstract. The article highlights the issue of preparing future Master's students in Software Engineering for innovative activity in the context of the digital transformation of education. The significance of the digital educational environment of a higher education institution as a factor in the modernization of professional training is substantiated, as it ensures the integration of modern digital technologies, innovative pedagogical approaches, and practice-oriented learning.

The purpose of the article is to substantiate the potential of the digital educational environment of a higher education institution and to determine its functional capabilities in preparing future Master's students in Software Engineering for innovative activity.

Research methods: theoretical methods – analysis, synthesis, comparison, generalization, and systematization of scientific literature; structural-functional analysis – to determine the functions of the digital educational environment; modelling and generalization – to develop the author's matrix for implementing the potential of the digital educational environment of a higher education institution.

Scientific novelty of the study lies in clarifying the essence of the concept of the "potential of the digital educational environment of a higher education institution" as an integral characteristic of the digital ecosystem that reflects the set of technological, pedagogical, informational, communicative, and innovative capabilities for preparing future Master's students in Software Engineering for innovative activity. The main functions of the digital educational environment (educational, innovative, integrative, adaptive, and prognostic) have been identified, the peculiarities of their implementation under the conditions of the digital transformation of education have been characterized, and the author's matrix for implementing the potential of the digital educational environment has been developed. This matrix reflects the relationship between its functions, implementation tools, and the expected outcomes of professional training.

Practical significance of the obtained results lies in the possibility of using the proposed theoretical provisions and the author's matrix in the modernization of educational and professional programmes for training Master's students in Software Engineering, the design of the digital educational environment of higher education institutions, the development of educational and methodological support for educational components, and the implementation of innovative digital technologies, artificial intelligence technologies, cloud services, and project-based learning in the educational process.

Keywords: digital educational environment, digital transformation, innovative activity, future Master's students in Software Engineering, digital technologies, professional training, higher education institutions.

ПОТЕНЦІАЛ ЦИФРОВОГО ОСВІТНЬОГО СЕРЕДОВИЩА ЗВО У ПІДГОТОВЦІ МАЙБУТНІХ МАГІСТРІВ З ІНЖЕНЕРІЇ ПРОГРАМНОГО ЗАБЕЗПЕЧЕННЯ ДО ІННОВАЦІЙНОЇ ДІЯЛЬНОСТІ

Анотація. У статті актуалізовано проблему підготовки майбутніх магістрів з інженерії програмного забезпечення до інноваційної діяльності в умовах цифрової трансформації освіти. Обґрунтовано значення цифрового освітнього

середовища закладу вищої освіти як чинника модернізації професійної підготовки, що забезпечує інтеграцію сучасних цифрових технологій, інноваційних педагогічних підходів і практико орієнтованого навчання.

Мета статті полягає в обґрунтуванні потенціалу цифрового освітнього середовища закладу вищої освіти та визначенні його функціональних можливостей у підготовці майбутніх магістрів з інженерії програмного забезпечення до інноваційної діяльності.

Методи дослідження: теоретичні – аналіз, синтез, порівняння, узагальнення та систематизація наукової літератури; структурно-функціональний аналіз – для визначення функцій цифрового освітнього середовища; моделювання та узагальнення – для розроблення авторської матриці реалізації потенціалу цифрового освітнього середовища ЗВО.

Наукова новизна дослідження полягає в уточненні сутності поняття «потенціал цифрового освітнього середовища закладу вищої освіти» як інтегральної характеристики цифрової екосистеми, що відображає сукупність технологічних, педагогічних, інформаційних, комунікаційних та інноваційних можливостей щодо підготовки майбутніх магістрів з інженерії програмного забезпечення до інноваційної діяльності. Визначено основні функції цифрового освітнього середовища (освітню, інноваційну, інтеграційну, адаптивну та прогностичну), охарактеризовано особливості їх реалізації в умовах цифрової трансформації освіти, розроблено авторську матрицю реалізації потенціалу цифрового освітнього середовища, яка відображає взаємозв'язок між його функціями, засобами реалізації та очікуваними результатами професійної підготовки.

Практичне значення одержаних результатів полягає у можливості використання запропонованих теоретичних положень, авторської матриці під час модернізації освітньо-професійних програм підготовки магістрів з інженерії програмного забезпечення, проєктування цифрового освітнього середовища закладів вищої освіти, розроблення навчально-методичного забезпечення освітніх компонентів, упровадження інноваційних цифрових технологій, технологій штучного інтелекту, хмарних сервісів і проєктно-орієнтованого навчання в освітній процес.

Ключові слова: цифрове освітнє середовище, цифрова трансформація, інноваційна діяльність, майбутні магістри з інженерії програмного забезпечення, цифрові технології, професійна підготовка, заклади вищої освіти.

INTRODUCTION

The problem formulation. In the context of the digital transformation of society, the rapid development of information and communication technologies, the widespread adoption of artificial intelligence technologies, and the modernization of the higher education system, the issue of preparing future Master's students in Software Engineering who are capable of innovative activity, developing digital software products, and rapidly adapting to the dynamic changes of the digital economy has become increasingly relevant.

The Ministry of Education and Science of Ukraine defines the digital transformation of education as a systemic process of developing a modern digital ecosystem that encompasses the creation of a secure digital educational environment, digital infrastructure, the implementation of innovative digital services, the development of digital competence among participants in the educational process, and the automation of educational and managerial processes (Digital Transformation of Education and Science). As practice demonstrates, the modern labour market requires highly qualified specialists who possess not only professional knowledge and skills in software engineering but also the ability for critical and creative thinking, teamwork, project-based activity, continuous professional development, and the implementation of innovations. At the same time, the implementation of these requirements in the higher education system is accompanied by a number of challenges that give rise to contradictions between: the increasing demands of the IT labour market for specialists capable of innovative activity and the insufficient use of the potential of the digital educational environment of higher education institutions; the rapid development of digital technologies and their insufficient integration into the professional training of future Master's students in Software Engineering; the considerable potential of the digital educational environment and the insufficient theoretical substantiation of its implementation in the professional training of future Master's students in Software Engineering.

In our opinion, addressing these contradictions is directly related to the effective utilization of the potential of the digital educational environment of a higher education institution as a strategic resource for professional training, ensuring the integration of digital technologies, educational innovations, and practice-oriented learning, thereby creating conditions for developing the readiness of future Master's students in Software Engineering for innovative activity in the context of the digital transformation of society.

Analysis of recent research and publications. An analysis of scientific studies indicates that the issue of the digital transformation of higher education and the development of the digital educational environment of higher education institutions is one of the priority areas of pedagogical research. The issues of the formation and development of the digital educational environment of higher education institutions have been examined in the works of Ukrainian scholars V. Bykov and O. Burov (Bykov, V., Burov, O., 2021, pp. 11–22), L. Kartashova and T. Burlaienko (Kartashova, L. A., Burlaienko, T. I., 2026, pp. 212–221), A. Striuk (Striuk, A. M., 2023, pp. 168–186), O. Tsiuniak (Tsiuniak, O. P., 2021) and others.

The issues of the digital transformation of universities, the use of digital infrastructure to support innovative activity, and the implementation of modern educational technologies have also been investigated by foreign researchers, including S. Malcolm, D. Steen, and D. Battersby (Malcolm, S., Steen, D., Battersby, D., 2025), as well as M. Ferrari, S. Allan, C. Arnold, D. Eleftheriadis, M. Ɓlvarez-Jimйnez, A. I. Gumley, and J. F. Gleeson (Ferrari, M., et al., 2022). These researchers substantiate the theoretical and methodological foundations for creating a digital educational environment, identify its functional capabilities, structural components, and pedagogical potential, and demonstrate that the effective integration of digital technologies contributes to improving the quality of professional training,

developing digital competence, innovative thinking, and the readiness of higher education students for activity in the context of the digital transformation of society.

Despite the considerable number of scientific studies devoted to the use of digital technologies in professional training and the development of digital competencies, the potential of the digital educational environment of a higher education institution as a factor in preparing future Master's students in Software Engineering for innovative activity remains insufficiently investigated.

THE AIM AND RESEARCH TASKS

The aim of the study is to substantiate the potential of the digital educational environment and to determine its functional capabilities in preparing future Master's students in Software Engineering for innovative activity.

RESEARCH METHODS

Theoretical methods – analysis, synthesis, comparison, generalization, and systematization of scientific literature and regulatory documents; structural-functional analysis – to determine the functions of the digital educational environment; modelling and generalization – to develop the author's matrix for implementing the potential of the digital educational environment of a higher education institution.

RESULTS OF THE RESEARCH

Currently, the digital transformation of higher education has become one of the key priorities of the national educational policy and the institutional development of universities. Under these conditions, the priority task of higher education institutions is to create a digital educational environment that not only provides access to modern digital resources and technologies but also promotes the development of an innovative educational space in which educational, research, project-based, and practical activities are integrated.

In the international scientific literature, the digital educational environment is increasingly viewed as a strategic resource for preparing competitive professionals. In particular, S. Malcolm, D. Steen, and D. Battersby consider the university as a digital ecosystem that integrates digital infrastructure, educational platforms, information services, analytical tools, artificial intelligence technologies, and all participants in the educational process into a unified digital space. According to the researchers, such integration ensures the interaction of educational, research, and managerial activities, enhances the university's adaptability to technological changes, promotes the development of an innovation culture, and fosters the readiness of higher education students for professional activity in the context of digitalization. The researchers emphasize that the digital ecosystem is an important factor in the development of higher education institutions, provides personalized learning, supports interdisciplinary interaction and project-based activity, and creates favourable conditions for the development of professional and innovative competencies of future specialists (Malcolm, S., Steen, D., Battersby, D., 2025).

A group of authors (M. Ferrari, S. Allan, C. Arnold, D. Eleftheriadis, M. Ɓlvarez-Jimйnez, A. Gumley, and J. Gleeson) investigates the effectiveness of digital interventions used in the university environment to support students' psychological well-being. The scholars demonstrate that digital platforms, mobile applications, online programmes, and other digital services create conditions for a more personalized educational environment. The researchers emphasize that digital technologies should be regarded as an integral component of the university ecosystem, which provides student support, contributes to successful learning, and improves the quality of the educational process (Ferrari, M., et al., 2022).

The issues related to the development of the digital educational environment also occupy an important place in the research of Ukrainian scholars. In particular, O. Tsiuniak considers the digital educational environment as an integrated system of digital resources, services, technologies, and pedagogical conditions that ensures effective interaction among all participants in the educational process, promotes the development of digital competence, readiness for lifelong learning, creative problem-solving in professional activities, and innovative activity (Tsiuniak, O., 2021). L. Kartashova and T. Burlaienko argue that the digital educational environment of a higher education institution is a holistic, multi-component system that integrates digital infrastructure, information resources, software and technological tools, digital services, and pedagogical technologies to ensure effective interaction among all participants in the educational process. In particular, they include learning management systems (LMS): platforms for distance learning (Moodle, Google Classroom, Blackboard); digital learning resources: electronic textbooks, video lectures, interactive tasks, simulation models, and other educational materials available in digital format; communication and collaboration tools: means for synchronous and asynchronous interaction (BigBlueButton, Zoom, Microsoft Teams), chats, and forums that facilitate information exchange, question posing, and collaborative work among participants in the educational process; analytical tools: systems designed for collecting, processing, and analysing data on the dynamics of the educational process; mobile applications: tools that provide learners with remote access to educational materials and assignments via personal mobile devices. The scholars emphasize that such an environment should be based on the principles of openness, adaptability, security, and student-centredness, ensuring personalized learning, the development of digital competencies, support for innovative activity, and the improvement of the quality of higher education (Kartashova, L., Burlaienko, T., 2026, pp. 212–221). According to O. Semenoh and O. Tsiuniak, one of the priority directions of the digital transformation of universities is the systematic implementation of artificial intelligence technologies based on international standards and internal institutional policies. The authors argue that this approach contributes to the development of the digital educational environment, the improvement of the educational process, the formation of digital culture, and the readiness of higher education students for innovative professional activity (Semenoh, O., Tsiuniak, O., 2026, pp. 198–208).

The scientific works of O. Hudovsek and N. Kandyba substantiate that the effectiveness of the digital educational environment is ensured by a set of pedagogical conditions, among which the integration of digital services into the educational process, the development of media competence, and the use of innovative educational strategies are of particular importance (Hudovsek, O., Kandyba, N., 2025, pp. 84–88). Sharing the authors' position, we believe that the implementation of these conditions is an important prerequisite for preparing future Master's students in Software Engineering for innovative activity. According to V. Bykov and O. Burov, the digital learning environment creates the prerequisites for the transition to a new model of professional training, in which the learner acts as an active participant in the educational process, capable of effectively using digital technologies to solve professional tasks (Bykov, V., Burov, O., 2021, pp. 11–22).

Of particular scientific interest are the works of A. Striuk, who argues that the use of cloud-based learning tools in the training of Software Engineering specialists ensures the mobility of the educational process, supports project-based learning, promotes the development of professional competencies, and brings educational activities closer to the real conditions of the modern IT industry. The author emphasizes that the integration of cloud technologies influences not only the technological component of education but also the content of the professional training of future software engineers (Striuk, A., 2023, pp. 168–186).

The generalization of scientific approaches presented in the works of international and Ukrainian scholars provides grounds for asserting that the potential of the digital educational environment of a higher education institution is an integral characteristic of the digital ecosystem that reflects the totality of technological, pedagogical, informational, communicative, and innovative resources and capabilities aimed at ensuring high-quality professional training of future Master's students in Software Engineering. We consider such an environment as a holistic pedagogical ecosystem that integrates digital educational resources, learning management systems, cloud services, collaborative software development tools, virtual laboratories, artificial intelligence technologies, and digital communication tools into a unified educational space. Its potential is realized through creating conditions for personalized learning, the development of research, project-based, and entrepreneurial activities, the formation of professional, digital, and innovative competencies, digital culture, innovative thinking, professional mobility, and the readiness of future Master's students in Software Engineering to design, develop, implement, evaluate, and commercialize innovative digital products in accordance with the contemporary challenges of digital transformation.

It is advisable to distinguish the following components of the digital educational environment of a higher education institution: technological (digital infrastructure, LMS, cloud services, code repositories, DevOps platforms); educational (digital content, adaptive learning, personalized learning pathways); innovative (the use of artificial intelligence technologies, project-based learning, startup culture); communicative (digital interaction among higher education students, academic staff, and IT companies); analytical (Learning Analytics, monitoring of learning achievements, digital portfolios); and security (cybersecurity, academic integrity, and digital ethics).

We believe that the potential of the digital educational environment is realized through a set of interrelated functions: educational, innovative, integrative, adaptive, and prognostic, the synergy of which ensures the preparation of future Master's students in Software Engineering for innovative activity (Fig. 1).

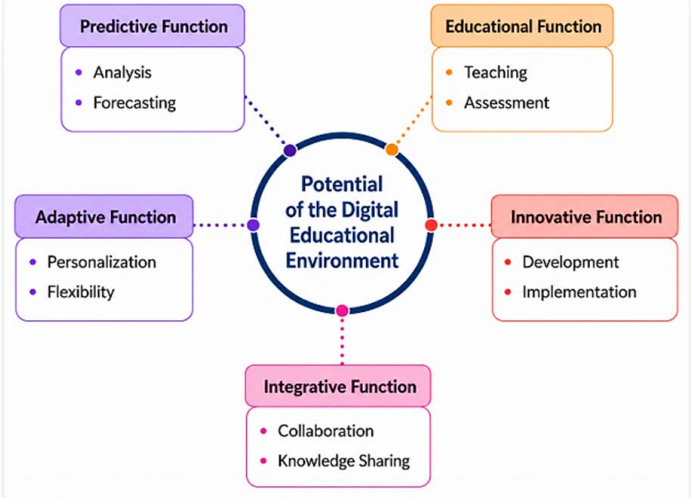


Fig. 1. The potential of the university digital educational environment in preparing future Master's students in Software Engineering for innovative activity

Let us consider these functions in greater detail.

The educational function consists in creating conditions for the development of the professional competencies of future Master's students in Software Engineering through the integration of digital educational resources, learning management systems, virtual laboratories, and specialized software. The digital educational environment provides

access to electronic courses, interactive learning materials, automated assessment, feedback tools, and collaborative software project development, making it possible to organize a continuous educational process, combine theoretical training with practical experience, and develop independent learning skills. For example, at Yuriy Fedkovych Chernivtsi National University (https://surl.li/ilirmq), a digital infrastructure operates that includes the Moodle platform, an electronic repository, and other university electronic services, providing access to learning materials, laboratory and project assignments, testing, and communication between academic staff and higher education students.

One example of the practical implementation of the potential of the digital educational environment is the Student Portal of Yuriy Fedkovych Chernivtsi National University (https://surl.li/obxafr). This digital service provides higher education students with centralized access to an electronic grade book, an individual study plan, class and examination schedules, an interactive map of the university buildings, reference information, and technical support services. In addition, the developers plan to expand its functionality by introducing a loyalty module with bonuses for active students, online course selection, a feedback system, and personalized analytical dashboards. A mobile application of the portal is also under development. For future Master's students in Software Engineering, such a digital ecosystem not only creates comfortable conditions for learning but also demonstrates practical approaches to the design, integration, and operation of modern information systems, thereby fostering readiness to develop innovative digital products.

The innovative function is aimed at developing the ability of future Master's students to create new digital products, use modern software engineering technologies, and participate in the development of innovative projects. The implementation of this function involves the integration of artificial intelligence technologies, DevOps approaches, software development automation tools, cloud technologies, and project-based learning.

The integrative function ensures interaction between the university and employers, IT companies, professional communities, and digital platforms. Its implementation creates opportunities for students to participate in joint projects, complete internships, work on real-world cases, and use professional digital services and academic licenses for modern software. Such interaction contributes to aligning the content of professional training with the needs of the IT industry and developing competencies demanded by employers. In particular, the development plan of the Department of Computer Systems Software at Yuriy Fedkovych Chernivtsi National University provides for the expansion of the use of Microsoft Azure for Education, GitHub Education, the modern educational platforms Moodle and Google Classroom, as well as strengthening cooperation with software developers (Development Plan of the Department of Computer Systems Software for 2025–2029).

The adaptive function ensures the personalization of the educational process, the development of individual learning pathways, the differentiation of learning tasks, and flexible access to digital resources regardless of the learners' location. Through digital platforms, students can independently plan the pace of their learning, receive prompt feedback, develop their own electronic portfolios, and carry out self-assessment of learning outcomes.

The prognostic function is aimed at preparing specialists in accordance with the development trends of the digital economy and the labour market. Its essence lies in the timely updating of the content of educational and professional programmes and the integration of modern software engineering technologies, artificial intelligence, data analytics, cybersecurity, and cloud computing into the professional training of future Master's students in Software Engineering.

To provide a comprehensive representation of the potential of the digital educational environment of a higher education institution, we consider it appropriate to present it in the form of a matrix (Table 1), which reflects the relationship between its main functions, the means of their implementation, and the expected outcomes of the professional training of future Master's students in Software Engineering for innovative activity.

Table 1

Matrix for Implementing the Potential of the Digital Educational Environment of a Higher Education Institution in Preparing Future Master's Students in Software Engineering for Innovative Activity

Function of the Digital Educational Environment	Implementation Tools and Means	Expected Outcome
Educational	Moodle LMS, digital courses, virtual laboratories	Intensification of the educational process, enhancement of independent learning, development of the professional competencies of future Master's students in Software Engineering
Innovative	GitHub, GitLab, GitHub Copilot, ChatGPT, hackathons, startup projects	Development of creativity, project-based thinking, and readiness for innovative activity
Integrative	Partnerships with IT companies, dual education, international projects	Integration of education, research, and practice; practical readiness for professional and innovative activity
Adaptive	Learning Analytics, adaptive platforms, personalized learning pathways	Individualization of learning and professional development in accordance with labour market needs
Prognostic	Analysis of IT market trends, foresight studies, digital analytics	Orientation toward future competencies and competitiveness

The proposed matrix confirms that the effectiveness of the digital educational environment is determined not by individual digital tools or technologies but by their comprehensive integration into the educational process, which ensures the preparation of future Master's students for solving complex professional tasks, carrying out innovative activities, and successfully adapting to the dynamic changes of the digital economy.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The conducted study has confirmed that the potential of the digital educational environment of a higher education institution is an important factor in preparing future Master's students in Software Engineering for innovative activity. Its effective utilization ensures the integration of the educational, research, and practical components of professional training, creates conditions for the development of professional, digital, and innovative competencies, fosters digital culture, critical and creative thinking, and develops the ability for teamwork, project-based activity, and the development of digital software products.

We believe that the digital educational environment of a higher education institution is an important pedagogical resource that ensures personalized learning, enhances the independent and research activities of higher education students, promotes their professional mobility, readiness for lifelong learning, and effective activity in the context of the digital transformation of society.

We see prospects for further research in determining the criteria, indicators, and levels of the readiness of future Master's students in Software Engineering for innovative activity in the context of the digital educational environment of a higher education institution.

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CONCEPTUAL FOUNDATIONS OF DEVELOPING THE INTERACTIVE-METHODOLOGICAL COMPETENCE OF FUTURE PRIMARY SCHOOL TEACHERS IN THE CONTEXT OF THE LANGUAGE AND LITERARY EDUCATION DOMAIN

Abstract. The article highlights the issue of developing the interactive-methodological competence of future primary school teachers in the context of the Language and Literary Education domain. The necessity of preparing future teachers to organize interactive, competency-based learning, capable of effectively designing an innovative educational environment and applying innovative pedagogical technologies, digital resources, and generative artificial intelligence tools, is substantiated.

The purpose of the article is to provide a theoretical substantiation of the conceptual foundations for developing the interactive-methodological competence of future primary school teachers, to determine its structure, and to reveal the content of its components in the context of implementing the objectives of the Language and Literary Education domain.

Research methods: theoretical methods – analysis, synthesis, comparison, generalization, and systematization of scientific literature and regulatory documents; terminological analysis – to clarify the essence of the basic concepts of the study; structural-functional analysis – to substantiate the structure of interactive-methodological competence and determine the relationships among its components.

Scientific novelty of the study lies in substantiating the author's approach to understanding the interactive-methodological competence of future primary school teachers as an integrative professional and personal construct that ensures readiness to design, organize, implement, and reflectively improve interactive learning within the Language and Literary Education domain. The conceptual foundations of its development have been identified (competency orientation, integration of theory and practice, interactive interaction, pedagogical partnership, digitalization, and reflectivity); the structure of interactive-methodological competence has been developed, encompassing the axiological-motivational, conceptual-methodological, design-projective, communicative-facilitative, digital-adaptive, and reflective-prognostic components; innovative forms, methods, and digital tools for their implementation in the professional training of future primary school teachers have also been substantiated.

Practical significance of the obtained results lies in the possibility of using the proposed theoretical provisions, conceptual foundations, the author's structure of interactive-methodological competence, and innovative methodological tools in the modernization of educational and professional programmes of Specialty A3 "Primary Education", improving the content of methodological educational components, organizing teaching practice, preparing future primary school teachers to implement the objectives of the Language and Literary Education domain, as well as developing educational and methodological support through the use of digital educational resources, interactive technologies, and generative artificial intelligence tools.

Keywords: interactive-methodological competence, future primary school teachers, Language and Literary Education domain, professional training, digital transformation of education, interactive technologies, interactive learning, competency-based approach, innovative activity, innovative educational environment.

КОНЦЕПТУАЛЬНІ ЗАСАДИ ФОРМУВАННЯ ІНТЕРАКТИВНО-МЕТОДИЧНОЇ КОМПЕТЕНТНОСТІ МАЙБУТНІХ УЧИТЕЛІВ ПОЧАТКОВИХ КЛАСІВ У КОНТЕКСТІ МОВНО-ЛІТЕРАТУРНОЇ ОСВІТНЬОЇ ГАЛУЗІ

Анотація. У статті актуалізовано проблему формування інтерактивно-методичної компетентності майбутніх учителів початкових класів у контексті мовно-літературної освітньої галузі. Обґрунтовано необхідність підготовки майбутніх педагогів до організації інтерактивного, компетентнісно орієнтованого навчання, здатних ефективно проєктувати інноваційне освітнє середовище, застосовувати інноваційні педагогічні технології, цифрові ресурси та засоби генеративного штучного інтелекту.

Мета статті полягає в теоретичному обґрунтуванні концептуальних засад формування інтерактивно-методичної компетентності майбутніх учителів початкових класів, визначити її структуру та розкрити зміст компонентів у контексті реалізації завдань мовно-літературної освітньої галузі.

Методи дослідження: теоретичні – аналіз, синтез, порівняння, узагальнення та систематизація наукової літератури, нормативно-правових документів; термінологічний аналіз – для уточнення сутності базових понять дослідження; структурно-функціональний аналіз – для обґрунтування структури інтерактивно-методичної компетентності, визначення взаємозв'язків між її компонентами.

Наукова новизна дослідження полягає в обґрунтуванні авторського підходу до розуміння інтерактивно-методичної компетентності майбутніх вчителів початкових класів як інтегративного професійно-особистісного утворення, що забезпечує готовність до проєктування, організації, реалізації та рефлексивного вдосконалення інтерактивного навчання в мовно-літературній освітній галузі. Визначено концептуальні засади її формування (компетентнісної спрямованості, інтеграції теорії і практики, інтерактивної взаємодії, педагогічного партнерства, цифровізації та рефлексивності), розроблено структуру інтерактивно-методичної компетентності, яка охоплює аксіологічно-мотиваційний, концептуально-методичний, проєктувально-дизайнерський, комунікативно-фасилітаційний, цифрово-адаптивний та рефлексивно-прогностичний компоненти, а також обґрунтовано інноваційні форми, методи й цифрові інструменти їх реалізації у професійній підготовці майбутніх учителів початкових класів.

Практичне значення одержаних результатів полягає в можливості використання запропонованих теоретичних положень, концептуальних засад, авторської структури інтерактивно-методичної компетентності та інноваційного методичного інструментарію під час модернізації освітньо-професійних програм спеціальності А3 «Початкова освіта», удосконалення змісту освітніх компонентів методичного спрямування, організації виробничої педагогічної практики, підготовки майбутніх учителів початкових класів до реалізації завдань мовно-літературної освітньої галузі, а також розроблення навчально-методичного забезпечення із застосуванням цифрових освітніх ресурсів, інтерактивних технологій та засобів генеративного штучного інтелекту.

Ключові слова: інтерактивно-методична компетентність, майбутні вчителі початкових класів, мовно-літературна освітня галузь, професійна підготовка, цифрова трансформація освіти; інтерактивні технології; інтерактивне навчання; компетентнісний підхід; інноваційна діяльність, інноваційне освітнє середовище.

INTRODUCTION

The problem formulation. The contemporary development of teacher education in Ukraine is taking place under the conditions of implementing state policy aimed at modernizing the education system in accordance with European standards, the digital transformation of the educational process, and the introduction of a competency-based model of professional teacher training, as reflected in the Laws of Ukraine “On Education” (2017) (Law of Ukraine “On Education”, 2017) and “On Higher Education” (2014) (Law of Ukraine “On Higher Education”, 2014).

Contemporary realities significantly transform the requirements for the professional activity of primary school teachers, who must be not only carriers of profound subject-specific and methodological knowledge but also organizers of a modern educational environment, capable of designing individual learning pathways for learners, effectively applying interactive and digital learning technologies, ensuring pedagogical partnership, developing students’ key and subject-specific competencies, and working under conditions of uncertainty.

This issue becomes particularly relevant in the context of implementing the objectives of the Language and Literary Education domain, since, under the conditions of the information society, digitalization, and the considerable information load, teachers must teach learners not only to perceive information but also to analyse it, critically evaluate it, express their own opinions in a reasoned manner, interact effectively in teams, and responsibly use digital technologies.

At the same time, an analysis of the current theory and practice of the professional training of future primary school teachers indicates the need to improve the process of developing interactive-methodological competence in accordance with new educational challenges. The relevance of the research problem is reinforced by a number of

contradictions between: the societal demand for teachers capable of implementing competency-based, activity-based, and interactive learning and the insufficient level of interactive-methodological competence among higher education students; the didactic potential of digital technologies for improving the quality of Language and Literary Education and the insufficient development of methodological foundations for their integration into the professional training of future primary school teachers; the need of educational institutions for a new generation of teachers capable of innovative professional activity and the insufficient scientific and methodological substantiation of the conceptual foundations for developing interactive-methodological competence in the process of professional training.

As can be seen, under these conditions, the development of the interactive-methodological competence of future primary school teachers emerges as a comprehensive scientific and pedagogical problem, the solution of which requires rethinking the conceptual foundations of professional training and updating its content, forms, methods, and learning technologies in accordance with contemporary trends in educational development, digitalization, and the requirements of the New Ukrainian School.

Analysis of recent research and publications. An analysis of scientific studies indicates that various aspects of the professional training of future primary school teachers have been investigated by Ukrainian scholars. In particular, I. Viktorenko (Viktorenko, I., 2021) substantiated the theoretical and methodological foundations for developing the professional competence of primary school teachers; L. Iliichuk (Iliichuk, L., 2025, pp. 140–154) investigated the structure of the professional competence of future teachers under the conditions of the standardization of higher pedagogical education; L. Kibenko (Kibenko, L., 2025, pp. 80–85) revealed the peculiarities of developing interactive competence, emphasizing the development of communication, collaboration, and the use of interactive teaching methods; O. Tsiuniak, N. Yaremchuk, O. Haliuka, and M. Prots (Tsiuniak, O. et al., 2024, pp. 143–163) focused on developing the innovative readiness of future teachers for professional activity; V. Sobko (Sobko, V., 2024, pp. 207–214) revealed the peculiarities of the methodological training of future teachers for implementing the competency-based approach in teaching the Ukrainian language in primary school; I. Humeniuk (Humeniuk, I., 2025, pp. 27–31) substantiated the methodological system for teaching the Ukrainian language for professional purposes, identified its structural components, and demonstrated the necessity of using scientifically grounded criteria and indicators for evaluating the effectiveness of the professional training of future teachers; O. Tsiuniak and L. Nakonechna (Tsiuniak, O. P., Nakonechna, L. B., 2025, pp. 96–100) highlighted the methodological aspects of the professional training of future primary school teachers for implementing the objectives of the Language and Literary Education domain, emphasizing the development of methodological readiness to use competency-based, interactive, and digital learning technologies.

The issue of the professional training of future teachers has also been actively investigated by foreign scholars. In particular, L. Darling-Hammond (Darling-Hammond, L., 2020, pp. 60–71) substantiates the necessity of integrating theoretical training, teaching practice, and professional reflection into the process of preparing future teachers, while F. Korthagen identifies professional reflection as one of the leading factors in the development of a competent teacher (Korthagen, F. A. J., 2017, pp. 387–405).

An analysis of scientific studies indicates that, despite the considerable number of investigations devoted to the professional training of future teachers and the development of their methodological, digital, and interactive competencies, the issue of developing the interactive-methodological competence of future primary school teachers in the context of the Language and Literary Education domain has not yet received comprehensive conceptual substantiation. Its essence, structure, content components, and methodological tools for its development under the conditions of the digital transformation of education require further investigation.

AIM AND TASKS RESEARCH

The aim of the study is to provide a theoretical substantiation of the conceptual foundations for developing the interactive-methodological competence of future primary school teachers, to determine its structure, and to reveal the content of its components in the context of implementing the objectives of the Language and Literary Education domain.

RESEARCH METHODS

Theoretical methods – analysis, synthesis, comparison, generalization, and systematization of scientific literature and regulatory documents; terminological analysis – to clarify the essence of the basic concepts of the study; structural-functional analysis – to substantiate the structure of interactive-methodological competence and determine the relationships among its components.

RESULTS OF THE RESEARCH

To provide a theoretical substantiation of the conceptual foundations for developing the interactive-methodological competence of future primary school teachers, it is advisable to analyse the content of the basic definitions that constitute the theoretical and methodological basis of the study, namely: “competence,” “professional competence,” “methodological competence,” and “interactive competence.”

First and foremost, the basic category is the concept of “competence”. The Law of Ukraine “On Education” defines competence as a dynamic combination of knowledge, skills, abilities, ways of thinking, views, values, and other personal qualities that determine an individual's ability to socialize successfully and to carry out professional and further educational activities (Law of Ukraine “On Education”, 2017). It is also appropriate to take into account the provisions of the Law of Ukraine “On Higher Education” (2014), according to which competence is regarded as an integral characteristic of an individual that ensures the ability to learn successfully, engage in professional activity, and achieve effective socialization, and is based on a dynamic combination of knowledge, skills, abilities, ways of thinking, value orientations, beliefs, and other individual personal characteristics (Law of Ukraine “On Higher Education”, 2014).

The legislative definition of competence outlines its general essence; however, for investigating the professional training of future primary school teachers, it is important to clarify the content of the concept of "professional competence". In particular, I. Viktorenko defines the professional competence of a primary school teacher as an integrative personal construct that combines subject-specific, psychological-pedagogical, subject-methodological, and interdisciplinary competencies, ensuring the teacher's readiness to perform professional activities effectively in the contemporary educational environment (Viktorenko, I., 2021). In turn, L. Iliichuk substantiates that the professional competence of a future primary school teacher is a multilevel integrative system encompassing interrelated personal, cognitive, activity-based, and reflective components and is developed in accordance with the standards of higher pedagogical education. The author emphasizes that the quality of professional training is ensured through the comprehensive implementation of competency-based, systemic, learner-centred, activity-based, and practice-oriented approaches (Iliichuk, L., 2025, pp. 140–154). Of particular value is the opinion of L. Darling-Hammond, who argues that contemporary teacher education should be based on the integration of theoretical preparation, teaching practice, reflection, and the use of innovative educational technologies. It is precisely the combination of these components that ensures teachers' readiness for professional activity under conditions of dynamic educational change (Darling-Hammond, L., 2020, pp. 60–71).

Scientific studies provide grounds for asserting that an important component of the professional competence of a future primary school teacher is methodological competence, which ensures the teacher's readiness to effectively design, organize, and implement the educational process in accordance with contemporary didactic requirements. According to V. Sobko, the methodological competence of a future primary school teacher is characterized by the ability to scientifically substantiate, select, design, and implement the content, methods, forms, and means of instruction in accordance with the objectives of the educational process, the age characteristics of learners, the requirements of the State Standard of Primary Education, and the concept of the New Ukrainian School. The author emphasizes that its development involves the integration of theoretical preparation, teaching practice, and innovative teaching methods aimed at developing learners' key competencies (Sobko, V., 2024, pp. 207–214). I. Humeniuk maintains that the methodological training of future teachers should be oriented toward the integration of innovative teaching technologies, professional reflection, and the competency-based approach, ensuring readiness to solve professional tasks in the contemporary educational environment (Humeniuk, I., 2025, pp. 27–31).

In the context of the stated research problem, the definition of "interactive competence" also requires scientific consideration. It is regarded as an integral component of the teacher's professional competence that ensures effective interaction among all participants in the educational process, the organization of collaboration, constructive communication, and the implementation of interactive learning technologies. According to L. Kibenko, interactive competence is an integrative characteristic of an individual manifested in the ability to engage in constructive interpersonal interaction, effective communication, the organization of collaboration, and the use of interactive teaching methods in the digital educational environment. The author emphasizes that its development is based on competency-based, communicative, and activity-based approaches and involves the development of communicative, digital, organizational, and reflective skills of future professionals (Kibenko, L., 2025, pp. 80–85).

Unlike the existing scientific approaches, in which methodological competence and interactive competence are predominantly considered as separate components of a teacher's professional training, in our study ***interactive-methodological competence*** is viewed as a complex integrative professional and personal construct whose structure encompasses six interrelated components: *axiological-motivational, conceptual-methodological, design-projective, communicative-facilitative, digital-adaptive, and reflective-prognostic* (Fig. 1). Their interaction ensures the readiness of future primary school teachers to design, organize, implement, and improve interactive learning in the context of the Language and Literary Education domain.

It should be noted that the axiological-motivational component constitutes the system-forming foundation of interactive-methodological competence, as it determines the professional position of the future teacher, their value orientations, and intrinsic motivation for innovative activity. According to the findings of O. Tsiuniak, N. Yaremchuk, O. Haliuka and M. Prots, the motivational sphere is a determining factor in the professional development of future teachers. In the authors' opinion, a high level of intrinsic professional motivation ensures an orientation toward self-improvement, openness to innovation, readiness for the creative solution of pedagogical tasks, active use of modern educational technologies, and a commitment to continuous professional development, which is a necessary condition for successful activity in the context of the digital transformation of education (Tsiuniak, O. et al., 2024, pp. 143–163). Indicators of the development of this component include: positive motivation toward the teaching profession, awareness of the value of interactive learning, readiness to use modern educational technologies, aspiration for professional self-development, openness to pedagogical innovation, and the ability to creatively seek effective methods for organizing the educational process. For example, in the process of professional training of future primary school teachers at the Faculty of Pedagogy of Vasyl Stefanyk Carpathian National University (https://pedagogical.cnu.edu.ua/), the development of this component is ensured through the creation of an innovative educational environment aimed at fostering the creative potential and innovative culture of higher education students.

We believe that an effective means of developing professional motivation is the implementation of training sessions aimed at fostering a value-based attitude toward the teaching profession, developing pedagogical interaction skills, and raising awareness of the teacher's role in a child's development. During these training sessions, students complete such exercises as "My Pedagogical Mission," "The Teacher of the Future," and "Values of the Contemporary Educational Environment," which contribute to the development of professional identity and awareness of their individual trajectory of pedagogical development.

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Fig. 1. Structure of the Interactive-Methodological Competence of Future Primary School Teachers

Of particular interest is the professional reflection method "Portrait of a Contemporary Primary School Teacher", which involves students identifying the professional values, personal qualities, and competencies of a teacher. While completing this task, higher education students analyse their own readiness for pedagogical activity, identify their strengths, determine directions for professional self-improvement, and develop an individual professional development trajectory.

Meetings with practicing teachers from general secondary education institutions are also of considerable importance, as they ensure the integration of academic preparation with the actual needs of the contemporary school. During such meetings, future teachers become acquainted with practical experience in using interactive technologies in primary school, the peculiarities of organizing partnership-based interaction with pupils and their parents, methods for developing reading competence, and approaches to developing learners' key competencies in accordance with the State Standard of Primary Education.

The *conceptual-methodological component* characterizes the system of fundamental and applied knowledge required for the effective professional activity of future primary school teachers. The content of this component is determined by a set of knowledge concerning contemporary educational paradigms, learning theories, psychological and pedagogical principles of the development of primary school pupils, the methodology of the competency-based approach, the linguodidactic foundations of teaching the Ukrainian language, and the methodology of literary reading within the framework of the New Ukrainian School. This component is of particular importance in the context of preparing future teachers to implement the objectives of the Language and Literary Education domain, as it involves not only mastery of methodological knowledge related to the development of pupils' language, speech, and reading competencies but also the ability to select effective pedagogical technologies for fostering communicative skills, critical thinking, creative self-expression, and a value-based attitude toward the Ukrainian language and culture. O. Tsiuniak and L. Nakonechna emphasize that the effective preparation of future primary school teachers for implementing the Language and Literary Education domain requires the integration of contemporary teaching methods, digital technologies, interactive forms of organizing the educational process, and the competency-based approach (Tsiuniak, O. P., Nakonechna, L. B., 2025, pp. 96–100).

It should be noted that the development of this component in the process of professional training of future primary school teachers at the Faculty of Pedagogy is implemented through the integration of the content of educational components. In particular, the educational component "Methodology of Teaching the Ukrainian Language" is aimed at developing future primary school teachers' methodological readiness to implement the Language and Literary Education domain. The content of the course ensures the mastery of contemporary methods of teaching the Ukrainian language, interactive technologies, digital tools, and methods of formative assessment. During practical training, higher education students design interactive lessons, model learning situations, create digital didactic resources, and develop competency-based tasks for fostering the speech activity of primary school pupils (Syllabus of Educational Component 24 "Methodology of Teaching the Ukrainian Language," 2025).

The educational component "Modern Ukrainian Language with Practicum" provides the fundamental linguistic training of future primary school teachers. Its content is aimed at developing a high level of language competence, mastery of the norms of the contemporary Ukrainian literary language, and the ability to apply linguistic knowledge in the educational process. The completion of practice-oriented tasks, the analysis of linguistic cases, text editing, the creation of original didactic materials, and the use of digital language resources contribute to the development of professional speech, critical

thinking, and methodological readiness to teach the Ukrainian language to primary school pupils (Syllabus of Educational Component 13 "Modern Ukrainian Language with Practicum," 2025).

The design-projective component reflects the ability of future primary school teachers to organize the educational process based on the principles of competency-based learning, instructional design, and educational innovation. A distinctive feature of this component is the transition from the reproductive use of ready-made methodological materials to the creative pedagogical design of an educational environment in which the future teacher acts as the designer of individualized, interactive, and learner-centred instruction. An important method for developing this component is project-based learning, which involves students creating their own methodological products. Digital tools, including LearningApps, Wordwall, Canva, Genially and Padlet, have particular potential for developing design skills, as they enable the creation of interactive exercises, the visualization of educational content, the organization of collaborative work among pupils, and the diversification of the educational process. A promising direction is the use of generative artificial intelligence technologies as a tool for instructional design. Future teachers may use AI capabilities to create differentiated tasks based on texts, adapt learning materials to learners' levels of preparedness, develop creative exercises, and design individualized learning pathways. At the same time, an important component of professional training is the development of a critical attitude toward AI-generated outputs, their pedagogical evaluation, and adherence to the principles of academic integrity.

The communicative-facilitative component determines the ability of future primary school teachers to organize productive subject-to-subject interaction among all participants in the educational process, ensure pedagogical partnership, support educational dialogue, and create conditions for pupils' active communicative engagement. As practice demonstrates, within the context of the New Ukrainian School, the primary school teacher performs the role of a facilitator of learning interaction who creates conditions for collaboration, supports the individual development of each child, and organizes the educational process on the principles of partnership pedagogy. Therefore, the development of the communicative-facilitative component involves fostering the future teacher's ability to act as a dialogue moderator, a coordinator of group work, and an organizer of collaborative knowledge construction.

Interactive teaching methods are effective means of enabling future teachers to acquire experience in organizing communicative interaction. In particular, during practical classes, it is advisable to use such methods as: "Circle of Ideas" – promotes the ability to organize collective discussion and take into account different viewpoints of participants in the educational process; "Microphone" – is used to develop the skills of concise, well-reasoned expression, which is important for fostering the culture of pedagogical dialogue; the "PRESS" Method – contributes to the development of the ability to justify one's own position and construct logical statements; debates – facilitate the development of critical thinking, the ability to listen to interlocutors, and the ability to conduct constructive discussion.

An important method for developing this component is the "Aquarium" technique, which involves observing and analysing a simulated pedagogical situation. For example, a group of students demonstrates a fragment of a literary reading lesson based on a particular literary work using the methods of "reading discussion," "open-ended questions" and "dialogue with the text". The other students analyse the teacher's pedagogical position, the level of pupil engagement, the nature of the questions posed, and the methods used to support learning motivation.

During their teaching practice at school, higher education students have the opportunity to apply the communicative-facilitative skills they have acquired by conducting interactive lesson fragments, organizing pupils' group work, applying collaborative learning technologies, analysing their own pedagogical interaction, and receiving feedback from mentor teachers.

The reflective-prognostic component ensures the professional self-improvement of future primary school teachers and promotes the development of their ability to critically reflect on their own pedagogical activity, predict learning outcomes, and pursue continuous professional development. This component integrates reflective, analytical, and prognostic skills that enable future teachers to objectively evaluate the effectiveness of their own methodological decisions, conduct self-analysis of their professional achievements, identify directions for improvement, and design an individual trajectory of professional growth. F. Korthagen regards professional reflection as a key mechanism of teachers' professional development, ensuring awareness of one's own experience, the improvement of pedagogical activity, and the development of professional competence (Korthagen, F. A. J., 2017, pp. 387–405).

Important forms of work include reflective workshops, pedagogical coaching, peer assessment, professional consultations, electronic portfolios, and individualized professional development pathways. One of the most effective methods is the reflective journal, in which students systematically analyse the results of the lessons they have conducted, identify their professional achievements, difficulties encountered, and ways to overcome them. For example, after conducting a fragment of a Ukrainian language lesson, a student performs a self-analysis according to the following criteria: the correspondence of learning objectives to expected outcomes, the effectiveness of the interactive methods used, the level of pupils' learning activity, the quality of pedagogical communication, the effectiveness of formative assessment, and possibilities for improving the developed methodological scenario.

It is also advisable to use the video reflection method, which involves recording and subsequently analysing fragments of conducted lessons. Reviewing the video recording enables students to objectively evaluate their own style of pedagogical interaction, speech culture, the effectiveness of facilitating educational dialogue, the organization of group work, and the extent to which the intended educational objectives have been achieved.

An important role is also played by the electronic professional portfolio, in which future teachers accumulate their original methodological developments, interactive lesson scenarios, digital didactic materials, the results of teaching practice, certificates of participation in training sessions, webinars, scientific conferences, and professional skills competitions.

Analysing the content of the portfolio makes it possible to monitor the dynamics of professional development, assess the level of development of interactive-methodological competence, and identify promising directions for its further improvement.

The application of SWOT analysis to professional activity is also appropriate, as it enables future teachers to comprehensively assess their readiness to implement interactive learning. For example, students identify the strengths of their methodological preparation (mastery of interactive technologies, digital tools, and facilitation skills), identify difficulties (insufficient experience in differentiating instruction or organizing educational dialogue), outline opportunities for professional development (participation in training sessions, research activities, and international educational projects), and forecast potential risks associated with the implementation of innovative methodologies.

Thus, the proposed structure of ***interactive-methodological competence*** reflects a holistic process of the professional development of future primary school teachers, in which value orientations, methodological knowledge, design skills, communicative interaction, digital readiness, and reflective activity are interconnected. The implementation of the outlined components in the process of professional training ensures the integration of the theoretical, practical, and innovative dimensions of teacher education, promotes the future teacher's ability to design a competency-based educational environment, effectively organize interactive learning, and respond flexibly to the challenges of the digital transformation of education.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The conducted study confirmed that the effectiveness of developing the interactive-methodological competence of future primary school teachers is determined not by the use of individual teaching methods or technologies but by their systematic integration into a holistic process of professional training. The proposed structure of this competence reflects contemporary requirements for the professional activity of primary school teachers and provides a methodological foundation for designing the educational process aimed at developing learners' linguistic and communicative, reading, and digital competencies in accordance with the requirements of the New Ukrainian School.

Prospects for further research are seen in substantiating the pedagogical conditions, developing a structural-functional model and methodology for forming the interactive-methodological competence of future primary school teachers in the process of studying the disciplines of the language and literary educational field, as well as experimentally verifying their effectiveness.

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Chapter IV. PROBLEMS OF EDUCATION AND UPBRINGING OF CHILDREN IN EDUCATIONAL INSTITUTIONS OF MOUNTAIN REGIONS

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ALGORITHMS WITH AN APPEALING OUTCOME AS A MEANS OF ENHANCING MOTIVATION AND QUALITY OF MATHEMATICAL KNOWLEDGE CONSOLIDATION IN GRADES 5-6

Abstract. The article examines the problem of maintaining the learning motivation of 5th–6th grade students while performing routine mathematics exercises. The relevance of the study is determined by the need to improve the effectiveness of consolidating mathematical knowledge within the framework of competency-based and activity-oriented approaches in modern education. Repeated completion of similar exercises, which is necessary for developing computational skills and mastering mathematical algorithms, often leads to a decline in students' interest in learning, thereby highlighting the need for new methodological solutions.

The purpose of the study is to provide a theoretical justification for the psychological, pedagogical, and methodological feasibility of using algorithms with appealing outcomes as a means of organizing the consolidation of mathematical knowledge among 5th–6th grade students and to identify the conditions for their effective implementation. To achieve this goal, a set of theoretical research methods was employed, including the analysis, synthesis, and systematization of psychological-pedagogical and methodological literature, comparative analysis of contemporary educational approaches, theoretical modeling of algorithm-based tasks, and instructional design.

The scientific novelty of the study lies in the substantiation and systematization of algorithms with appealing outcomes as a distinct methodological tool for consolidating mathematical knowledge. The proposed approach involves a sequence of mathematical actions that leads students to an aesthetically or intellectually meaningful result in the form of an ornament, drawing, cipher, palindrome, maze, or geometric composition.

The findings indicate that the use of such algorithms contributes to enhancing intrinsic motivation, developing self-monitoring skills, sustaining cognitive interest, and fostering a positive attitude toward mathematics. Examples of algorithms for various topics in the mathematics curriculum for grades 5–6 have been developed and systematized, and the key methodological conditions for their effective application have been identified. The practical significance of the study lies in the creation of a set of ready-to-use algorithm-based exercises that can be employed by mathematics teachers when organizing students' learning activities during the knowledge consolidation stage.

Keywords: mathematics teaching methodology, learning motivation, mathematical algorithms, knowledge consolidation, game-based learning, algorithmic learning, aesthetic component of learning.

АЛГОРИТМИ З ПРИВАБЛИВИМ РЕЗУЛЬТАТОМ ЯК ЗАСІБ ПІДВИЩЕННЯ МОТИВАЦІЇ ТА ЯКОСТІ ЗАКРІПЛЕННЯ МАТЕМАТИЧНИХ ЗНАНЬ УЧНІВ 5-6 КЛАСІВ

Анотація. У статті досліджено проблему підтримки навчальної мотивації учнів 5–6 класів під час виконання рутинних вправ з математики. Актуальність дослідження зумовлена необхідністю підвищення ефективності закріплення математичних знань в умовах компетентнісного та діяльнісного підходів сучасної освіти. Багаторазове виконання однотипних вправ, необхідне для формування обчислювальних навичок і засвоєння математичних алгоритмів, часто супроводжується зниженням інтересу до навчання, що актуалізує пошук нових методичних рішень.

Метою дослідження є теоретичне обґрунтування психолого-педагогічної та методичної доцільності використання алгоритмів із привабливим результатом як засобу організації закріплення математичних знань учнів 5–6 класів та визначення умов їх ефективного застосування. Для досягнення мети використано комплекс теоретичних методів дослідження: аналіз, узагальнення та систематизацію психолого-педагогічної і методичної літератури, порівняльний аналіз сучасних освітніх підходів, теоретичне моделювання алгоритмізованих завдань та педагогічне проєктування.

Наукова новизна дослідження полягає в обґрунтуванні та систематизації алгоритмів із привабливим результатом як окремого методичного засобу закріплення математичних знань. Запропоновано підхід, за якого виконання послідовності математичних дій приводить учня до отримання естетично або інтелектуально значущого результату у вигляді орнаменту, малюнка, шифру, паліндрому, лабіринту чи геометричної композиції.

У результаті дослідження встановлено, що використання таких алгоритмів сприяє підвищенню внутрішньої мотивації, розвитку навичок самоконтролю, підтримці пізнавального інтересу та позитивного ставлення до математики. Розроблено та систематизовано приклади алгоритмів для різних тем курсу математики 5–6 класів і визначено основні методичні умови їх ефективного застосування. Практична значущість роботи полягає у створенні комплексу готових алгоритмізованих вправ, придатних для використання вчителями математики під час організації навчальної діяльності учнів на етапі закріплення знань.

Ключові слова: методика навчання математики, навчальна мотивація, математичні алгоритми, закріплення знань, ігрове навчання, алгоритмізація навчання, естетичний компонент навчання.

INTRODUCTION

The problem formulation. Modern mathematics education is aimed not only at developing subject knowledge and skills but also at fostering students' intrinsic motivation to learn, their ability for independent thinking, reflection, and application of knowledge in various life situations (Ministerstvo osvity i nauky Ukrainy, 2016). This issue becomes particularly relevant for students in grades 5–6, who are transitioning from primary to lower secondary education. At this stage, a significant portion of mathematical content requires systematic consolidation through numerous practice exercises aimed at developing stable computational skills and mastering problem-solving algorithms (Sliepkan, 2006; Burda et al., 2015).

At the same time, educational practice shows that performing a series of similar exercises is often accompanied by a decline in students' cognitive interest, attention, and learning motivation. The routine nature of such activities frequently leads to the mechanical execution of actions without understanding their meaning and significance, which negatively affects both the quality of learning outcomes and students' attitudes toward mathematics in general. Therefore, there is a growing need for methodological solutions that combine the necessity of practicing mathematical skills with maintaining interest, emotional engagement, and a positive learning experience.

One promising way to address this issue is the use of algorithms with appealing outcomes, where the execution of a sequence of mathematical actions leads students to an aesthetically or intellectually meaningful result in the form of a drawing, ornament, cipher, symmetrical figure, palindrome, or numerical pattern. In such cases, practice activities acquire additional meaning for students, while the final result performs not only a motivational but also a control function, enabling learners to identify mistakes independently and evaluate the correctness of their work.

The scientific novelty of the study lies in the theoretical substantiation of an approach to organizing the consolidation of mathematical knowledge through algorithm-based exercises with appealing outcomes and in the systematization of examples of their application for various topics in the mathematics curriculum for grades 5–6. The practical significance of the study lies in the development of methodological recommendations and a set of algorithms that can be directly used by mathematics teachers when organizing students' learning activities during the knowledge consolidation stage.

Analysis of recent research and publications. The problem of developing learning motivation and improving the effectiveness of mathematics education remains the focus of attention of both Ukrainian and international researchers. The methodological foundations of mathematics teaching, the organization of students' mathematical activities, and the implementation of the competency-based approach have been discussed in the works of Z. I. Sliepkan (Sliepkan, 2006), as well as in the collective work of Ukrainian scholars on competency-based mathematics teaching methodology (Burda et al., 2015).

An important contribution to understanding the mechanisms of learning motivation is provided by Self-Determination Theory, according to which effective learning is ensured through satisfying learners' needs for autonomy, competence, and social relatedness (Tadieieva, 2012). The role of self-regulation and intrinsic motivation in education is also emphasized by Kolchyhina A., and Zaitseva O. (2021), who consider motivation to be one of the key factors determining successful learning.

Contemporary international educational research pays considerable attention to the concept of productive struggle, which involves engaging students in solving manageable intellectual challenges and viewing mistakes as an important resource for cognitive development (Hiebert & Grouws, 2007). These ideas were further developed by Russo J. et al. (Russo et al., 2022), who demonstrated that overcoming challenges consciously contributes to a deeper understanding of mathematical content and enhances learning motivation.

Particular interest in recent years has been directed toward game-based approaches in mathematics education. The meta-analysis conducted by Tokac U. et al. (Tokac et al., 2019) demonstrated a positive impact of game-based learning on students' mathematics achievement. Similar conclusions were reached by Vankъlъ P. (Vankъlъ, 2021), whose systematic review showed positive effects of educational games on students' motivation, engagement, and emotional attitudes toward learning. Recent review studies confirm these findings. Pan Y. et al. (Pan et al., 2022) highlighted the considerable potential of educational games for increasing students' interest in mathematics, while Hui H. et al. (Hui et al., 2023) demonstrated the positive influence of game-based learning on both cognitive and affective learning outcomes. Similarly, Troussas C. et al. (Troussas et al., 2023) showed the effectiveness of combining gamification elements with adaptive learning, whereas Sбnchez-Cruzado C. et al. (Sбnchez-Cruzado et al., 2024) emphasized the role of digital game-based environments in supporting students' motivation and persistence in learning mathematics.

An important aspect of this study is the aesthetic dimension of mathematical activity. According to Sinclair N. (Sinclair, 2004), aesthetic experiences can serve not only as a consequence of mathematical understanding but also as an independent factor stimulating cognitive activity. This perspective makes it possible to consider an appealing outcome as a means of maintaining students' interest in learning and encouraging perseverance in completing educational tasks.

In recent years, the Ukrainian educational context has also witnessed growing interest in innovative technologies and activity-based approaches to teaching. Nedilskyi S. (Nedilskyi, 2025) emphasizes the significant potential of digital technologies as a means of modernizing the educational process, while Hainiuk I. (Hainiuk, 2025) highlights the importance of integrating creative, research-oriented, and practice-based forms of activity within STEM education.

Slyvka L. (Slyvka, 2025) additionally confirms the effectiveness of content-rich and motivationally attractive educational constructs for enhancing learners' educational activity.

The analysis of scientific sources indicates that issues of learning motivation, productive mathematical activity, and the use of game-based technologies are widely represented in contemporary research. However, the use of algorithms with appealing outcomes as a specific methodological tool for organizing the consolidation of mathematical knowledge among students in grades 5–6 remains insufficiently explored. This circumstance determines both the relevance and the necessity of the present study.

AIM AND TASKS OF THE RESEARCH

The purpose of the study is to provide a theoretical justification for the psychological, pedagogical, and methodological feasibility of using algorithms with appealing outcomes as a means of organizing the consolidation of mathematical knowledge among students in grades 5–6, to develop and systematize corresponding algorithm-based exercises, and to determine the conditions for their effective implementation in mathematics lessons.

In accordance with this purpose, the following research objectives were formulated:

1. To analyze the problem of student motivation during the performance of routine mathematics practice exercises in grades 5–6.
2. To reveal the psychological and pedagogical foundations of organizing knowledge consolidation through algorithms with appealing outcomes, drawing on Self-Determination Theory, the concept of the New Ukrainian School, and game-based learning.
3. To determine the role of the aesthetic component in mathematical practice activities and its influence on learning motivation and persistence.
4. To develop and systematize examples of algorithms with appealing outcomes for various topics in the mathematics curriculum for grades 5–6.
5. To formulate methodological conditions for the effective use of algorithm-based exercises with appealing outcomes in mathematics lessons in grades 5–6.
6. To identify possible risks associated with the proposed approach and outline ways of overcoming them through methodological support.

RESEARCH METHODS

To achieve the stated purpose, a set of theoretical research methods was employed, including the analysis and synthesis of psychological-pedagogical and methodological literature on motivation in mathematics learning; comparative analysis of scientific approaches to knowledge consolidation; theoretical modeling of algorithms with appealing outcomes for various topics in the mathematics curriculum for grades 5–6; instructional design of educational tasks; and the systematization and generalization of research findings.

RESULTS OF THE RESEARCH

As a result of the theoretical study, the feasibility of using algorithms with appealing outcomes as a means of organizing the consolidation of mathematical knowledge among students in grades 5–6 was substantiated. It was established that combining routine mathematical actions with the achievement of an aesthetically or intellectually meaningful result creates additional motivational incentives for completing educational tasks and contributes to sustaining students' interest in mathematics.

It was shown that the psychological and pedagogical foundation of the proposed approach is based on the principles of Self-Determination Theory concerning the importance of intrinsic motivation in learning, the concept of productive struggle, which involves overcoming manageable intellectual challenges, and contemporary approaches to game-based and activity-based learning. The appealing outcome of an algorithm serves as both an intermediate and final goal of activity, increasing students' engagement in mathematical exercises and fostering a positive emotional attitude toward learning.

Theoretical analysis made it possible to determine that the use of algorithm-based exercises with appealing outcomes potentially provides:

- increased intrinsic motivation to perform mathematics practice tasks;
- enhanced attention and responsibility during the execution of individual algorithmic steps;
- development of self-monitoring and self-assessment skills through an embedded feedback mechanism;
- improved emotional perception of mathematics through the combination of logical and aesthetic components of learning activities;
- preservation of the full mathematical content of exercises without replacing educational goals with entertainment.

The proposed approach is consistent with the key principles of the New Ukrainian School Concept (Ministerstvo osvity i nauky Ukrainy, 2016), particularly competency-based, activity-based, and learner-centered approaches. In this framework, students act not as passive performers of isolated exercises but as active participants who, through the sequential execution of mathematical actions, create an intellectual or visual product that serves both as the outcome of a mathematical algorithm and as a means of self-checking the correctness of completed actions.

Within the study, examples of algorithms were developed and systematized for various topics in the mathematics curriculum for grades 5–6, including "Addition of Multi-Digit Numbers," "Factors and Multiples," "Coordinate Plane," "Fraction Reduction," "Operations with Decimal Fractions," "Percentages," "Linear Equations with One Variable," "Line Segment and Midpoint of a Segment," and "Angle Measurement and Construction." For each topic, algorithms were

proposed that combine the practice of specific mathematical skills with obtaining an appealing outcome in the form of a palindrome, maze, cipher, ornament, geometric composition, or visual image.

The analysis of the developed algorithms made it possible to identify several types of appealing outcomes:

- ***numerical*** (palindrome);
- ***quest-based*** (maze);
- ***graphic*** (drawing);
- ***ornamental*** (pattern or ornament);
- ***linguistic*** (word decoding or encryption);
- ***exploratory*** (research-oriented result).

The proposed classification is not exhaustive and may be expanded depending on the content of the educational material and the age characteristics of students.

The developed algorithms demonstrate that routine mathematical exercises can be transformed into meaningful and engaging activities without reducing the educational value of the mathematical content. In this way, the attractive outcome becomes not an end in itself but a pedagogical tool for increasing students' motivation, engagement, and persistence in learning mathematics.

Examples of algorithms for various mathematics topics in grades 5–6

I. Topic: "***Addition of multi-digit numbers***" (grade 5).

Algorithm: ***"The palindrome hunter"***

1. Select a natural number (a two-digit or three-digit number).
2. Write down the number formed by reversing the order of its digits.
3. Add both numbers together.
4. If the resulting sum is a palindrome, terminate the algorithm.
5. If not, repeat the procedure with the newly obtained number.

Example: 48+84=132, 132+231=363.

Routine operations: writing a number in reverse order; column addition (written addition); palindrome verification.

Aesthetic outcome: A visually appealing, symmetrical number.

II. Topic: ***"Divisors and multiples"*** (Grade 5).

Algorithm: ***"The Divisor Labyrinth"***

1. There are several numbers on the sheet that need to be connected with arrows (Fig. 1).
2. The task begins from a given starting number.
3. Transitions can only be made to a number that is a divisor of the current number.
4. Subsequently, move to a divisor of the new number.
5. The objective is to reach the number 1 via the shortest path.

Legend: a black arrow indicates a possible transition; a green arrow denotes the correct path.

Routine operations: divisibility checks; finding divisors; attentiveness.

Aesthetic outcome: Navigating the numerical labyrinth successfully.

III. Topic: ***"The Coordinate Plane"*** (Grade 6).

Algorithm: ***"The secret drawing by two traits"***

On a worksheet with a printed coordinate plane template:

1. Plot the given points (Fig. 2).

2. If the sum of the coordinates is even, connect the point to the previous one with a solid line; if odd, use a dashed line.

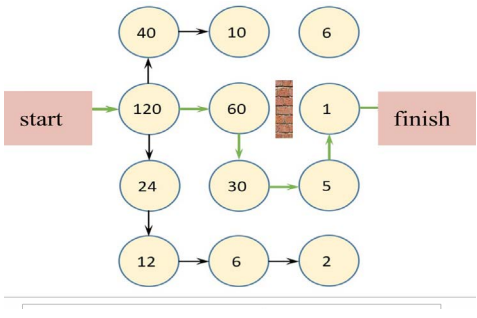


Fig. 1.

(x; y)	
(0; -2)	(-4,5; -4,5)
(-6; -4)	(-5; -6)
(-6; -8)	(-3; -6)
(-1; -7)	(0; -1)
(0; -2)	(-8; -1)
(-8; -2)	(-8; 5)
(-10; 0)	(-4; 5)
(-10; 8)	(0; -1)
(-9; 7)	(-7; 2)
(-5; 7)	(-5; 4)
(-2; 6)	(0; -1)
(0; 2)	(0; -4)
(0; -2)	(0; 4)
	(-1; 8)
	(-2; 9)

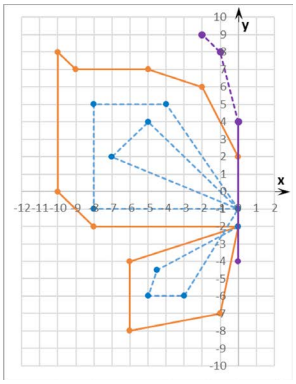


Fig. 2.

Skills developed: plotting points on a plane; calculating the sum of numbers; attentiveness.

Aesthetic outcome: The exact same set of points can yield not only the outline of a shape but also an intricate internal pattern.

IV. Topic: ***"Reduction of fractions"*** (Grade 5).

Algorithm: "***The Fractional Pattern"***
Students are presented with a set of fractions arranged in a circle (Fig. 3).
1. Reduce each fraction to its simplest form and determine its value.
2. Record the resulting fractions in the table cells in ascending order of their values (from smallest to largest).
3. Color each fraction according to its specific fractional value:

- from 0 to 0.24– red;
- from 0,25 to 0,49 – yellow;
- 0,5 – green;
- from 0,51 to 0,75 – orange;
- from 0,76 to 1 – black.

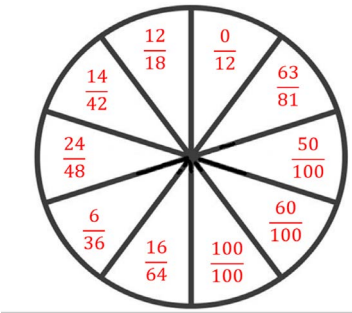


Fig. 3.

4. Compare the resulting sequence of colors with the pattern of a traditional Hutsul carpet. If all calculations have been performed correctly, you will obtain a characteristic color stripe:



Skills developed: reducing fractions, comparing and ordering fractions, converting fractions into decimals, mapping numerical intervals to specific colors.
Aesthetic outcome: A vibrant mathematical ornament that reflects the ethnic motifs of traditional Hutsul carpets (Fig. 4)



Fig. 4.

V. Topic: ***"Arithmetic operations with decimals"*** (Grade 5).
Algorithm: ***"Decode the word"***
Each letter of the alphabet corresponds to a specific number.
The worksheets present sample tasks involving operations with decimals (Fig. 5).

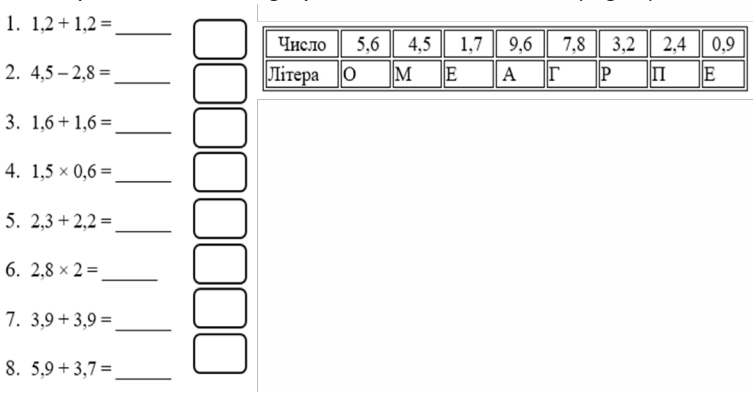


Fig. 5.

Upon performing the operations, each correct result is mapped to a specific letter according to a pre-defined conversion table.
The letters are then assembled to form a word or a phrase.
Skills developed: addition, subtraction, and multiplication of decimals; computational attentiveness.
Aesthetic outcome: The process culminates in the disclosure of a word, a motto, or a proverb.
VI. Topic: ***"Percentages"*** (Grade 5).
Algorithm: ***"The financial detective"***
1. The student is given an initial monetary amount.
2. Subsequently, the student sequentially performs the following operations:

an increase of 10%,
a decrease of 20%,
an increase of 25%,
a decrease of 10%.

3. Consecutively, the following questions must be answered:
Has the amount increased or decreased?
By how much (both in monetary terms and as a percentage)?
Could this outcome have been predicted?
Skills developed: percentages; working with multipliers such as (1,1), (0,8), (1,25), (0,9).
Aesthetic outcome: Students discover that a 20% increase ("+20%") and a 20% decrease ("-20%") do not mutually cancel each other out.

VII. Topic: ***"Linear equations in one variable"*** (Grade 6).
Algorithm: ***"The equation labyrinth"***

1. The root of a correctly solved equation indicates the number of the subsequent equation.
2. If the solutions are correct, the student navigates through the labyrinth and reaches the "exit" (Fig. 6).

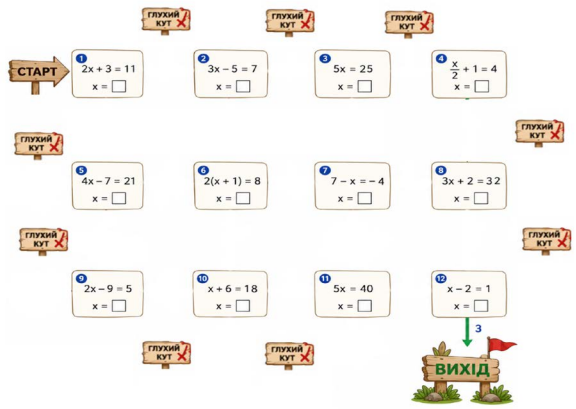


Fig. 6.

3. If an error is made at any stage, the path leads to a dead end.
Correct path: 1 → 4 → 6 → 3 → 5 → 7 → 11 → 8 → 10 → 12.
Skills developed: solving equations; verification (checking solutions); attentiveness.
Aesthetic outcome: The exercise is transformed into an immersive educational quest.

VIII. Topic: ***"The line segment and its midpoint"*** (Grade 5).
Algorithm: ***"Geometric ornament from midpoints"***

1. Construct a square.
2. Mark the midpoints of all its sides.
3. Connect these midpoints (Fig. 7).

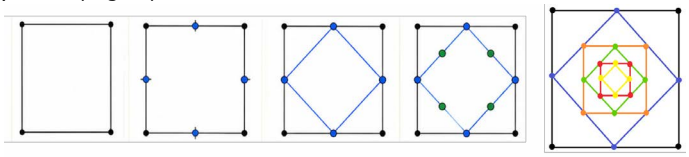


Fig. 7.

4. Within the newly formed square, find the midpoints of the sides again.
5. Repeat steps 3 and 4 three to four times.
6. Color the resulting figure as desired.
Routine operations: drafting (drawing); finding the midpoint; drawing line segments.
Aesthetic outcome: A regular geometric ornament.

IX. Topic: ***"Angle measure. Measuring and constructing angles"*** (Grade 5).
Algorithm: ***"The angle mosaic"***

1. The student is provided with two grids: one containing drawings and another blank grid of the same dimensions (Fig. 8).
2. In each cell of the diagram, the student measures the unknown angle using a protractor.
3. Based on the measurements:
if the angle is less than 60°, the corresponding cell of the blank grid is colored yellow;

if it is from 60° to 90°, the cell is colored green;
if it is greater than 90°, the cell is colored blue.

4. Once all cells are colored, a distinct ornament emerges.

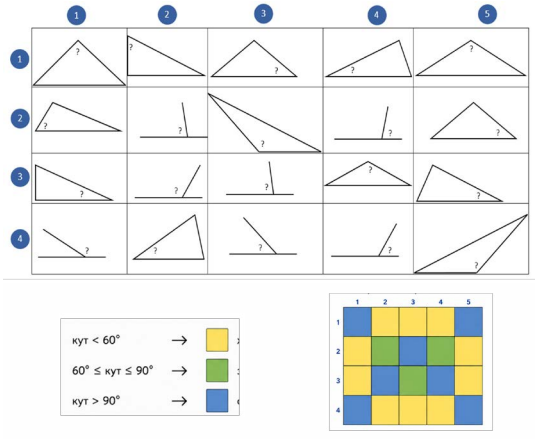


Fig. 8.

Routine operations: measuring angles.

Aesthetic outcome: A vibrant, multicolored geometric mosaic.

Methodological Conditions for Effectiveness

For algorithm-based knowledge consolidation with an appealing outcome to fulfill its didactic function, several methodological conditions must be met.

The first condition is the ***transparency of the mathematical objective***. Students should clearly understand which skill they are practicing, which rule they are applying, and why the algorithm is mathematically valid. Otherwise, the activity risks becoming a game for the sake of the game itself.

The second condition is the ***step-by-step nature and clarity of instructions***. Algorithms designed for students in grades 5–6 should be transparent, consistent, and free from excessive conditions or cognitive overload.

The third condition is the ***attainability of the outcome within a lesson***. If the final result is too distant, the motivational effect weakens. Students should perceive a realistic opportunity to achieve the expected outcome within a relatively short period of time.

The fourth condition is the inclusion of a ***reflective conclusion***. After completing the algorithm, it is advisable to conduct a brief discussion addressing which mathematical rule was applied, where mistakes could have occurred, and why a particular result was obtained. This prevents the activity from being reduced to merely “reaching” an attractive final product.

The fifth condition is ***differentiation***. The same algorithm can be easily adapted to different levels of difficulty by varying the number of steps, the size of numbers, the complexity of constructions, or the inclusion of intermediate verification tasks.

An objective analysis of the proposed approach requires acknowledging potential risks. First, there is a danger of excessive emphasis on entertainment: if the attractive outcome completely overshadows the mathematical work, students may remember the picture but not the underlying mathematical rule. This risk can be mitigated through reflective discussion and follow-up questions after completing the task. Second, overly complex ciphers or overloaded instructions may distract students from the educational objective. This can be addressed by strictly adhering to the principle of cognitive accessibility. Third, not all students feel equally comfortable working with visual or multi-step algorithms, which necessitates differentiated versions of the same activity. This challenge can be overcome by developing several levels of complexity for each algorithm.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The study theoretically substantiated the feasibility of using algorithms with appealing outcomes as a means of enhancing motivation and improving the effectiveness of consolidating mathematical knowledge among students in grades 5–6. The analysis of psychological-pedagogical and methodological literature demonstrated that combining routine mathematical exercises with aesthetically or intellectually meaningful outcomes is consistent with the principles of Self-Determination Theory, the concept of productive struggle, activity-based learning, and contemporary game-based learning approaches.

It was established that algorithms with appealing outcomes perform not only a motivational but also a didactic function, as they contribute to increasing students’ attention, developing self-monitoring skills, encouraging the conscious execution of mathematical actions, and fostering a positive emotional attitude toward mathematics learning. At the same time, the appealing outcome serves as an additional incentive to complete the task and as a mechanism for verifying the correctness of completed actions.

Within the study, examples of algorithm-based exercises were developed and systematized for various topics in the mathematics curriculum for grades 5–6. These examples demonstrate the practical applicability of the proposed approach in teaching arithmetic, algebraic, and geometric content. The findings show that such algorithms make it possible to preserve the full mathematical content of learning activities without replacing educational objectives with entertainment elements.

The methodological conditions for the effective implementation of algorithms with appealing outcomes were formulated, and potential risks associated with the approach were identified together with strategies for minimizing them.

Prospects for further research include conducting pedagogical experiments to evaluate the impact of algorithms with appealing outcomes on students' learning motivation, cognitive engagement, and academic achievement in lower secondary school; developing digital and interactive versions of such algorithms using modern educational technologies; creating systems of algorithm-based exercises for other sections of the school mathematics curriculum; and investigating possibilities for integrating this approach into STEM education and interdisciplinary learning.

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HUTSUL BELL-RINGING AS AN IRREPLACEABLE MEANS OF FORMING A WELL-ROUNDED PERSONALITY

Abstract. Using as an example the distinctive bell-ringing tradition of Hutsulshchyna (where numerous rare bells have been preserved and unique structures have been built to house them), this study examines the pedagogical aspects of how teachers organize artistic and educational activities for students as one of the key prerequisites for their comprehensive development. The methodological foundation of the article is strengthened by scientific approaches to the study of material and spiritual life, including systemic, synergetic, phenomenological, and hermeneutic approaches, as well as by the application of relevant principles of scientific research and a comprehensive set of research methods. We consider it beneficial to draw students' attention to the results of contemporary campanological studies as a reliable foundation for their local history literacy. Among the sets of bells found in the churches of Hutsulshchyna are bells that differ in period, artistic value, place of manufacture, sound quality, and methods of suspension and ringing. The study establishes that bells and their music occupy a significant place in the spiritual culture of the Hutsul people and possess rich symbolic and metaphorical imagery within their worldview. The music of bells and handbells not only pleases the ears of Christians and provides aesthetic enjoyment but also functions as a kind of protective charm and possesses healing potential. The outlined information on the bell-ringing tradition of this region of Ukraine helps popularize the richness of its culture, strengthens national identity, and reinforces our spirit. This is particularly relevant in the context of the Russian-Ukrainian war. At the same time, pedagogues in educational institutions must be culturally competent and possess a high level of professional mastery in order to effectively employ the educational potential of bell-ringing traditions in their work with today's children and adolescents. The pedagogical foundations for engaging them in the study of the use and practice of bells and bell ringing in Hutsulshchyna as an indispensable means of education and health promotion include skillful motivation of children and adolescents, the thoughtful enrichment of the educational process with relevant content, and the application of appropriate methods, including creative tasks, and suitable educational formats.

Keywords: Hutsulshchyna, bell ringing, students, education, comprehensive development, teachers, educational and developmental work, health promotion.

ДЗВОНАРСТВО ГУЦУЛЬЩИНИ ЯК НЕЗАМІННИЙ ЗАСІБ ФОРМУВАННЯ ВСЕБІЧНО РОЗВИНЕНОЇ ОСОБИСТОСТІ

Анотація. На прикладі вивчення своєрідного дзвонарства Гуцульщини, де, зокрема, збереглося чимало раритетних дзвонів і збудовано унікальні споруди для них, зроблено спробу розглянути педагогічні аспекти організації педагогами мистецько-виховної діяльності школярів як однієї із запорук їх усебічного розвитку. Методологічне підложжя статті укріплюють наукові підходи до вивчення матеріяльного й духовного життя, зокрема системний, синергетичний, феноменологічний, герменевтичний; належні принципи наукового дослідження та реалізація комплексу його методів. Корисним бачимо привернення уваги школярів до результатів сучасних кампанологічних студій як надійного підґрунтя краєзнавчої освіченості. Серед комплектів дзвонів у храмах Гуцульщина зустрічаємо кампани різного часу й мистецької вартості, місць виготовлення, якості звучання, способу підвішування та гри тощо. Встановлено, що дзвони та їхня музика займають вагоме місце в духовній культурі гуцулів, володіють багатою символічно-метафоричною образністю в їхніх світах. Музика дзвонів і дзвінків не тільки милує слух християн, приносить естетичне задоволення,

а й є своєрідним оберегом, має лікувальний потенціял. Окреслені відомості про дзвонарство цього регіону України популяризує багатство її культури, зміцнює національну ідентичність, укріплюють наш дух. Це особливо актуально в час російсько-української війни. Заразом педагогам навчальних закладів треба бути культурологічно компетентними, мати неабияку професійну майстерність, аби вміло користуватися освітнім потенціялом дзвонарства в роботі з нинішніми дітьми й підлітками. Педагогічними основами їхнього залучення до вивчення побутування дзвонів і дзвонінь на Гуцульщині, як незамінного засобу виховання та оздоровлення, є вміле мотивування дітей і підлітків, оптимальне доповнення змісту освітнього процесу в потрібному ракурсі, використання належних методів, зокрема творчих завдань, відповідних форм едукації.

Ключові слова: Гуцульщина, дзвонарство, школярі, едукація, усебічний розвиток, педагоги, організаційно-виховна робота, оздоровлення.

INTRODUCTION

The problem formulation. The divine nature of the joyful church bells has long captivated the Hutsuls, bringing joy; the Easter ringing of the bells, in particular, brought about a cathartic purification of the soul. Meanwhile, their funeral chimes, accompanied by the trembita, intensified the Christians' feelings of sorrow. This rich musical diversity of sounds produced by these magnificent instruments has been duly recognised in folk culture and reflected in songs and literature. Bells, bell towers and bell-ringers feature in Last Judgement iconography, whilst their motifs appear on Hutsul tiles. The unique bell towers of Hutsulshchyna, as open-air musical structures, are a marvel for the richness of their architectural forms.



The bell tower in the village of Utoropy. Photo by the author. 6 December 2009

Bells are not only musical instruments from the idiophone family that have been prized throughout the ages, but also artefacts of bell-casting and writing, as well as unique mechanical devices. By the phenomenon of bell-ringing culture or bell-ringing, we mean a holistic and self-organising system; it encompasses various activities relating to the manufacture of clappers, the casting of bells, and the construction of bell towers; the training of bell-ringers as master performers of canonical bell-ringing or specially composed forms of ecclesiastical and secular musical compositions; the efforts of the Church and parishioners to preserve bells and assemble bell sets; the dissemination of the art of bell-ringing in the social and domestic, ecclesiastical and sacred, and folk ritual spheres; the reflection of elements of bell-ringing in folk culture, prose and poetry, the visual arts and music; and relevant campanological studies

Analysis of recent research and publications. At present, a number of scholars rightly highlight the urgent need for national and patriotic education among children and young people (Losyuk, 2018a), in particular highlighting the significance of the regional ethnographic component in this process as an indispensable means of shaping the identity of Ukrainians, citizens and patriots of Ukraine (Losyuk, 2018b). The key to this lies in the study of Hutsul culture within the national education and upbringing system (Paska, 2024). Information on the churches and bell towers of Hutsulshchyna, regarded as gems of sacred architecture, has already been compiled (Syrokhman, 2000; Smytsniuk, 2024; Taras, 2007). At the same time, musicologists have identified the place of bells, chimes and small bells within the system of Hutsul folk musical instruments (Kushlyk, 2000; Khai, 2007; Matsievskyi, 2012; Tymofiiiv, 2012). The distinctive features of bell-ringing traditions in the Kosiv region have been explored (Kindratyuk, 2014). Certain possibilities for the education of adolescents through bell-ringing have already been examined (Ilchuk, 2018). The educational and health-promoting potential of church and secular bell-ringing during the Russo-Ukrainian war has been highlighted (Kindratyuk, 2024). However, the potential of bell-ringing culture as a means of fostering the development of a well-rounded individual has not yet been explored in detail.

THE AIM AND RESEARCH TASKS is to examine the educational potential of the bell-ringing culture of the Hutsul region as one of the cornerstones of all-round personal development. Objectives: to highlight bell-ringing in this region of Ukraine as an important component of Hutsul studies; to outline the current state of research into the rich traditions of bells and bell-ringing in the Hutsul region, and in particular to systematise the findings of fieldwork and

expeditions; to examine the pedagogical aspects of organising artistic and educational activities for schoolchildren with regard to the study of bell-ringing in the Hutsul region.

RESEARCH METHODS

To achieve the objectives of this research, a combination of complementary methods was employed: theoretical analysis and synthesis of academic sources helped to elucidate the nature of bell-ringing in Hutsulshchyna as a phenomenon of its traditional culture and to determine its educational potential; historical-cultural and ethnographic methods facilitated the study of the characteristics of the formation, functioning and transmission of Hutsul bell-ringing traditions; art-historical and musicological methods served to analyse the artistic and expressive means of bell-ringing and its emotional and aesthetic impact on the individual; systemic and comparative methods facilitated a comprehensive examination of bell-ringing as a factor in the spiritual, moral, aesthetic, intellectual, physical and creative development of the individual; the generalisation and interpretation of the results proved useful in determining the pedagogical potential of the Hutsul bell-ringing tradition in the context of modern education and the preservation of the national cultural heritage.

RESULTS OF THE RESEARCH

The music of bells is one of the most distinctive features of Eastern European cultural history; it has influenced morals and customs, left a deep mark on folklore, and contributed to the development of church chant. It not only laid the foundations for the development of polyphony but also helped shape the so-called 'national schools of sound' in Ukraine. At the same time, bell-ringing is regarded as one of the most expressive manifestations of the musical foundation, and the bell itself as a powerful and mysterious herald of this foundation [Arro, 1977].

At different times of the day, the Hutsuls would hear church and secular bell ringing, each with its own distinctive timbre and rhythm; they would distinguish between their purposes and react accordingly. This led to the development of local bell-ringing terminology and the enrichment of the people's musical culture. The phenomenon of the bell as a sacred object lies in the fact that, throughout the centuries of Ukrainian history, it accompanied everyone's daily life, thereby playing a part in shaping the mentality, the national character, a distinctive cultural space and a worldview. It was from the time of medieval Ukraine that bell-ringing, as a distinctive phenomenon, laid the foundations for the fusion of craft, art, faith and the Hutsul way of life. Scholars' use of references to written and material campanological artefacts demonstrates the considerable attention paid to bells and bell-ringing.

Thanks to the work of researchers who have studied the origins of bell-ringing in the Hutsul region, its solid foundations are becoming clear. A significant body of campanological material has been systematised, and the historiography and iconography have been enriched. They have helped to shed more light on many questions regarding the history of the phenomenon of bells and bell-ringing in this region of Ukraine, broadened our understanding of its scope and extent, and highlighted its place in the lives of the Hutsuls, its role in shaping their way of life, its influence on morality, and its contribution to the strengthening of traditions and customs (Kindratyuk, 2014). However, scholars periodically return to bell-ringing as a significant material and spiritual heritage, reinterpreting it in new ways, seeking out new sources regarding the widespread presence of bells in our region, and describing those that were rediscovered after having been hidden from requisition during the world wars and and during atheistic campaigns, and better reveal the potential of the components of bell-ringing culture in the education of today's schoolchildren, and so on. Of course, the Ukrainian heritage of campanology is in dire need of further study, including in educational institutions.

This is also the message conveyed by the practical and academic legacy of Petro Losyuk, the People's Teacher of Ukraine. His body of work serves as a unique guide to the direction of current pedagogical research. It is closely linked to the use of Hutsul traditions and art as a foundation for the all-round development of schoolchildren's personalities. The experience of this master of education and scholar, along with that of many other like-minded teacher-researchers notably Igor Pelypeyko from Kosiv, and Roman Skulsky, Myroslav Stelmakhovych and Bohdan Stuparyk from the V. Stefanyk Carpathian National University has been systematised and put into practice. P. Losyuk's scholarly legacy is well systematised in Taras Paska's monograph Hutsul Studies in the System of National Education and Upbringing (Paska, 2024).

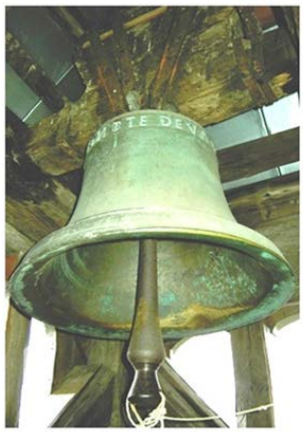
Among P. Losyuk's characteristic pedagogical ideas, his commitment to developing folk art (woodcarving, pysanka-making, weaving, music, singing and dance) as the foundation for the all-round development of the individual stands out. The renowned educator called for schoolchildren to be engaged with traditional culture, which facilitates the acquisition not only of the techniques for crafting various items, but also of the Hutsul worldview. As an experienced practising teacher and academic, he viewed their school as a centre for the active preservation of culture, a solid foundation for strengthening their traditions, and a place for absorbing the spiritual experience of their elders through the study of customs, participation in folk festivals and rituals, and so on. The educational process, as P. Losyuk rightly asserted, must combine national standards with the regional characteristics of the Hutsul region. Thanks to innovative measures, elements of folk culture, particularly the arts, are being integrated into all school subjects (literature (folklore), history (local history), practical skills (traditional crafts), and music (Hutsul songs and instruments)). Such measures create the conditions necessary for fostering well-rounded, nationally conscious individuals. After all, an understanding of the cultural riches of one's native region helps to foster a love for Ukraine, respect for its traditions, a sense of one's own identity, and a desire to preserve and develop the heritage of one's forebears. This system of educational work ensures the holistic development of the pupil's personality – intellectually, emotionally and physically (Losyuk, 2018).

However, the problem lies in the fact that the integration of the components of bell-ringing culture into everyone's daily life, and the presence of its elements all around us, does not yet mean that they are properly understood,

appreciated and skilfully applied in the educational process. Therefore, a pressing issue is to define Hutsul bell-ringing and to integrate its heritage, as an important component of Hutsul studies, into the educational sphere. Accordingly, the aim and objectives of this article are to draw attention to the richness of this region's distinctive bell-ringing art and, consequently, to explore the educational foundations of its educational potential.

An analysis of research and publications on the subject under study suggests that some progress has been made in this area of academic inquiry. First and foremost, the authors of these publications demonstrate the solid academic foundation laid by earlier ethnographers, notably Antin Onyshchuk, Volodymyr Shukhevych, Volodymyr Hnatiuk, Ilarion Sventsitsky and many others.

Bills, clappers, tambourines, bells, chimes and bells have long been classified by ethnomusicologists such as Lyubomyr Kushlyk (Kushlyk L., 2000), Ihor Matsievskyi (Matsievskyi, 2012), Mykhailo Tymofiiv (Tymofiiv, 1999, 2012) and Mykhailo Khai (Khai, 2007) to the system of traditional folk musical instruments within the group of self-sounding instruments (idiophones) of the Hutsul region.



A rare example of bell-casting from the Church of St Michael in Utorop. A bell (59 cm high with a base diameter of 67 cm) dating from the late 16th century. Photo by B. Kindratyuk. 2009.

This article describes a rare bell from the late 16th century (59 cm high and with a lower diameter of 67 cm) from the Church of St Michael in the village of Utoropy (Kosiv district) and the vicissitudes of its preservation. The inscription beneath the crown of the bell, translated from Latin, reads: 'We praise You, O God; we glorify You, O Lord', which confirms the customary purpose of bells. The bell's ancient casting is evidenced not only by its shape and the uneven placement of the letters, but also by the absence of several characters in the final word. In Tadeusz Szydłowski's catalogue of bells, idiophones with similar inscriptions are dated to the late 16th century, but the exact date of the bell's casting (it is used alongside four smaller bells, presumably made in the 1930s) and how it came to be in this village in the Kosiv region (one of the ancient salt-making sites) still requires further research.

Among campanological studies, as evidence of their continuity, of particular interest is Mykhailo Horodenko's publication on a bell cast in 1735, donated to the church in the village of Tekucha by a Hutsul named Fedyuk, and a bell from 1773, presented to the church by the local parish priest, Father Roman Andrukhovych (Horodenko, 2004).

Thanks to such research, the distinctive features of bell-ringing traditions in the Kosiv region have already been outlined (Kindratyuk, B., 2014), in particular highlighting its characteristics in the villages of Nyzhniy Bereziv and Seredniy Bereziv. Such reports have attracted the interest of campanologists, for example, at international scientific, practical, historical and local history conferences held at Lubart's medieval castle in Lutsk (Kindratyuk, 2014).



A bell (95 cm high and with a base diameter of 120.3 cm), cast in 1902 by the Felchynskys in Kalush for the Church of the Assumption of the Blessed Virgin Mary in the village of Seredniy Bereziv. Photo by B. Kindratyuk. 2013.

An examination of the musical motifs depicted on the 'Last Judgement' icon from the second half of the 17th century provides evidence of the long-standing development of customs associated with bells. This work of art, housed in the Lviv Museum of the History of Religion, was painted in the northern part of the historic Maramorosh County (now in the former Mezhigirskyi District of Zakarpattia). The surviving fragment depicts one of the reasons why sinners end up in hell (it shows a man sleeping whilst the bell-ringer is ringing the bell to announce the Divine Liturgy).

The wealth of distinctive and varied designs of bell towers in the Hutsul region is well described by Mykhailo Syrokhman in an encyclopaedic publication (Syrokhman, 2000). The cultural and traditional aspects of the sacred wooden architecture of the Ukrainians of the Carpathians are examined in a distinguished monograph by Yaroslav Taras (Taras, 2007). Interestingly, a single-storey bell tower with a large bell was depicted on the seal of one of the ancient monasteries in Kosiv.

Research into the campanological rarities of Hutsulshchyna has led to the publication of a comprehensive study on its bell-ringing tradition. It is noteworthy that this study appeared in the proceedings of the International Scientific and Practical Conference 'Hutsulshchyna – Slavic Atlantis: History, Ethnoculture, Personalities, Tourism, marking the 70th birthday of another renowned expert on the Hutsul region, Dr Petro Siredzhuk, Doctor of Historical Sciences and Professor at the V. Stefanyk Carpathian National University.

The recreational and tourist potential of bells and bell towers in the Carpathian and Pre-Carpathian regions was highlighted during the All-Ukrainian scientific and practical online conference. It was organised by the Hryhorii Skovoroda Kharkiv National Pedagogical University.

The rich and unique culture of the Hutsul region, particularly its bell-ringing tradition, is the subject of ongoing study. A detailed description of bell towers in the context of other aspects of ecclesiastical art is provided by Father Orest Smytsniuk in a lavishly illustrated two-volume work devoted to the gems of Hutsul sacred architecture (Smytsniuk, 2018, 2024). However, when describing the bell towers of Greek Catholic churches, at best, only the number of bells is mentioned, whilst a comprehensive characterisation of them as artistic monuments is, unfortunately, lacking.

The basis for new campanological research has been provided by recently published fundamental studies documenting the lexical composition of Hutsul dialects from the 19th to the 21st centuries. The sources for these scholarly studies include not only the ethnographic materials and expeditionary field notes collected by Nataliia Khobzey, Oksana Simovych, Tetiana Yastremska and Hanna Didyk-Meush, but also the 'Card Index of the Hutsul Dialects'. These are summarised in the *Lexicon: Hutsul Worlds*. Fixed phrases have also been lexicographically analysed in the innovative two-volume work (a trilogy) by Valentina and Vasyl Hreshchuk, *Hutsul Dialectal Lexicon and Phraseology in the Ukrainian Literary Language*. Thanks to these works, we are once again convinced of the deep-rooted nature of the components of bell-ringing culture in the lives of the Hutsuls, in their worlds—both real and imaginary—which are intertwined, particularly through well-defined campanological concepts, and the study of their deep penetration into Hutsul lexicon (Kindratyuk B., 2024). It reflects both the ancient world, which has defended traditions since time immemorial, and the modern world.

As we can see, this sort of interesting local history information is well worth incorporating into every lesson or extra-curricular activity. Teachers, provided they are sufficiently knowledgeable, can weave various facts about bell-ringing culture, the history of bells and their music in Ukraine, and the educational and health benefits into the curriculum. A system of tasks for teenagers, developed by Lina Ilchuk under our guidance, is particularly useful for teachers of subjects such as music. It helps to develop their knowledge through the medium of bell-ringing (Ilchuk, 2018).

An examination, for example, during a form tutor's lesson, of the role of church and secular bells helps to shed light on the interconnection between their educational and healing potential. This topic is particularly relevant at a time when we are overcoming the consequences of yet another Russian-Ukrainian war. Above all, it is important to strive to stay healthy, to exercise self-control and to be able to cope easily with all manner of life's adversities; to be able to build up one's resilience to stress and to employ various means of safeguarding all aspects of health (spiritual, moral, social, mental, psychological and physical). It is difficult to overestimate the potential of art – particularly sacred art – and the music of bells. Among the methods that enhance the body's latent spiritual and physiological potential, art therapy is recognised as a health-preserving technique. It is precisely the music of church and secular bell-ringing that combines healing properties (its effect on body and soul) with educational ones (its influence on morality, adherence to customs, and so on). Thanks to Christian rites, canonical principles for the use of bells were established, and folk customs surrounding the use of such music took shape. This dominant sound in the environment imparted a certain order and etiquette to it, bringing structure and creating a festive or sombre mood. The beauty of the chimes, the architecture of bell towers, and the reflection of this in the visual arts, literature and music – these key elements of bell-ringing culture constitute the spiritual heritage of our people. In understanding this culture, it is of great importance to foster the ethnocultural competence of educators regarding the appropriate use of suitable pedagogical methods for health-promoting work, and to motivate schoolchildren towards continuous self-education, particularly in terms of acquiring knowledge in the field of bell-ringing (accurate information on the history of Ukraine, the richness of its cultural heritage, the scientific foundations of musical perception, particularly that of bells, and so on.

In Biology and Human Health lessons, for example, whilst helping Year 10 pupils to master the section on Metabolism and Energy Conversion, they can learn about the healing effects of bell music on the human body. After all, as medical professionals assert, the human body is an energy-information structure with its own biofields – that is, distinctive vibrations. This fact is supported by quantum physics. The theory generally echoes the Church's assertion that a person consists of three levels: body, soul and spirit. And it is precisely these biofields emitted even

by the atoms of the human body—that form the foundation of our lives. According to medical experts, such biofields facilitate the exchange of matter and energy. It is believed that illnesses arise as a result of a dissonance between these fields. Their ultra-light particles effectively stimulate the sound waves produced by the chimes. Biofields, in turn, block harmful elements, including free radicals (which are precisely what lead to cancer, cause genetic mutations, and so on). At the same time, the music of the chimes plays a significant role in energy-information exchange. After all, a person consists of seven energy centres, which can become blocked as a result of hurt, distress, fears, anger and other negative emotions that the individual has been unable to 'let go of'. The blockage of a particular centre is caused by adverse life circumstances, leading to illness. We know that each energy centre resonates with a specific mantra or sound that harmonises it. It is precisely the sound of the bells before the start of the service that helps the faithful to attune themselves to sincere prayer and to open up spiritually (Kindratiuk, 2024), and when the bells are rung at the most significant moments of the Divine Liturgy, it can even lead to catharsis.



The gate with bells leading into the courtyard and the old wooden three-tiered bell tower (in the background) of the Church of Saints Peter and Paul in Banya-Berezivka. Photo by B. Kindratyuk. 2014.

In educational practice, creative tasks are set for schoolchildren. Useful activities for organising their local history work include asking them to find out about the history of the bells at the local church, describe their ornamentation, and note down proverbs relating to bell-ringing from fellow villagers; local customs associated with bell-ringing, well-known songs and kolomyikas that mention bells, chimes, bells, clappers, jingle bells, rattles, rustles, and the like.



The bell (approximately 85 cm high and with a base diameter of 74.7 cm) was cast in 1911 by Antoni Serafin in Kalush for the Church of the Assumption of the Blessed Virgin Mary in Seredni Berezy. Photo by the author. 2014.

With the aim of drawing attention to the sounds of bells, chimes and bells, guidance has been developed for students on appreciating the beauty of the sounds produced by idiophones. Here are some examples: If you have the chance to hold a bell in your hands, ring it, listen carefully, appreciate the phenomenon of its sound and its mystique, and admire the overtones, the decay and the layering of one overtone upon another; Assess the sound of church bells as they ring in unison from the belfry; Identify the difference between the sound of clock chimes and church bells; learn to shift your attention from your own inner feelings to the sound of various church bells and their call; Try to find joy in the skilful portrayal by Ukrainian prose writers and poets of the place of church bells in the life of the people, and in the imitation of their sounds in musical works; During the Easter period, when anyone who wishes to do so is permitted to ring church bells for three days, try doing so yourself; create the rhythms you like, and enjoy them, etc.

Thus, the study of archaeological sites, bells and their ornamentation, as well as the examination of chronicles and other campanological sources, suggests that, from the time of the princes, the Church was under patronage – one of the factors ensuring the development of bell-ringing. It is closely linked to the spiritual life of the Hutsuls, as well as

to their ritual traditions. Substantial records attest to the significant role of various bells in ecclesiastical and secular life, their functions, and so on. Systematised information on the use of bells, together with the large number of bells discovered, enriches our understanding of the scope and extent of this phenomenon, and demonstrates the high level of bell-ringing in Rus-Ukraine. The significance of Princely Kyiv and its legacy in the history of bells and bell-ringing—as an integral part of church services—lies in the fact that, upon adopting Christianity, the Old Kyiv state adopted the custom of summoning the faithful to worship by means of bells, the regulated commemoration of its most solemn occasions, and so on. Having adopted bells from the West, medieval Rus' adapted them to ecclesiastical and civic life and established local production, which contributed to the development of bell-ringing culture within its borders. By the 11th–12th centuries, bells had become firmly established in liturgical and secular life, and their functions had expanded; there were increasingly frequent occasions on which bells of various sizes were used. Gradually, in both ecclesiastical and secular life—including that of the Hutsuls a distinct practice of using clappers and bells emerged, born of and established through centuries of experience. The Principality of Galicia-Volhynia and the Kingdom of Rus' under the Romanovich dynasty played a significant role in this ongoing process. Their state bordered the Latin world, which facilitated the spread of bell-ringing culture to other Rus' lands. Monasteries played a unique role in the spread of bells and bell-ringing, the construction of bell towers, and the subsequent canonisation of such music. Their daily routine required the regulated use of clappers and bells around the clock. At the same time, sets of idiophones were also played in parish churches. The impetus for increasing their number and weight was a competitive desire to possess larger, louder bells. This was facilitated by the long-standing salt mining in the Hutsul region, which provided the means to acquire bells that have always been expensive. Presumably, this led to an increase in the number of people entrusted with ringing the bells, the refinement of techniques and performance styles, and the development of musical compositions. This was aided by the Easter custom of allowing anyone wishing to be healed by the music of the bells to ring them.



The bell found (41 cm high and with a base diameter of 45 cm), probably dating from the late 18th century, bears the inscription 'DEVS DEVS MEVS AD TE DE LVCE VI GILO' (translated from Latin: God, God, my God, to you from the light, O Gilo)

An interesting research project for schoolchildren could be organised around writing the history of the bells of the Church of Saints Peter and Paul, belonging to the Orthodox community in the village of Kosmach in the Kosiv Deanery. Four medium-sized bells, cast, it seems, immediately after the First World War, hang in the three-tiered square wooden belfry of the aforementioned church, built in 1905. Its first tier, constructed of log timber, is surrounded by a wide parapet supported by brackets. The upper tiers are built using a timber-frame method. On each side, beneath the hipped roof, there are rows of loudspeakers.



The bells of the Church of Saints Peter and Paul of the Orthodox community in the village of Kosmach

It is interesting to note that the bells are rung – as is customary in the Orthodox tradition – using ropes tied to the clappers. This method of ringing the bells makes it possible to create a wider variety of musical compositions. I wonder what kinds of bells there were in the parish, and how many, before they were requisitioned during the First World War? How, and by whom, were these monuments to bell-founding preserved during the Second World War or at the height of the atheist campaign? Who knows how to ring the bells, and how is it done nowadays?

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

It stands to reason that Ukraine's citizens should be aware of such and similar information regarding the country's rich bell-ringing culture, and that educators must make use of it when organising the educational process in schools. Appropriate motivation for children and teenagers, a sensible enrichment of the curriculum, and the optimal selection of suitable methods and organisational forms will contribute to the all-round development of each individual. This will be aided by the search for bells that were buried and have not yet been found, the collection of relevant ethnographic materials, and so on. Ultimately, such work will ensure a detailed description of all the bells in the parish, the recording of their histories, and the utilisation of the healing power of such music.

Let us highlight those aspects of personality that are developed through involvement in bell-ringing. First and foremost, the spiritual and moral aspects (an appreciation of spiritual values, respect for the traditions of Hutsulshchyna and the cultural heritage of the Hutsuls); aesthetic (the development of musical abilities, in particular aural perception, a sense of harmony, rhythm and timbre, the ability to perceive and interpret sound patterns, and an appreciation of bell-ringing compositions); intellectual (the development of attention, auditory memory, coordination and the ability to recognise patterns in sound); emotional (the development of sensitivity, and observation of one's own reactions to church and secular bell-ringing); social (an awareness of belonging to the community, respect for older generations and a sense of responsibility for preserving traditions); creative (the development of rhythmic thinking, performance skills and individual interpretation of bell-ringing patterns). Of course, we regard these opportunities as pedagogical potential rather than automatically guaranteed outcomes: their actual impact depends on the level of pedagogical skill of the teachers in engaging pupils in bell-ringing, taking into account the participants' individual characteristics, the educational context and so on.

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FORMATION OF ENVIRONMENTALLY RESPONSIBLE BEHAVIOR IN PRESCHOOL CHILDREN AND PROFESSIONAL TRAINING OF EDUCATORS: A SYSTEMIC APPROACH

Abstract. The article substantiates the conceptual foundations of forming ecologically appropriate behavior in preschool children as an integrated result of the interaction of cognitive, emotional-value, and behavioral-activity components within a systemic approach to the professional training of preschool educators. The content is defined, the structural components of specialist readiness are characterized, and the pedagogical conditions for implementing the relevant process in the educational environment of a preschool institution are substantiated. The relevance of the study is driven by the need to find new approaches to nurturing a personality capable of harmoniously coexisting with nature amid global environmental challenges, resource depletion, and deteriorating environmental conditions. Early childhood is recognized as a sensitive period for laying the foundations of environmental consciousness, value orientations, and responsible behavioral patterns. The aim of the article is to substantiate the structure of professional training for educators and to determine the stages of forming ecologically appropriate behavior in preschool children in their systemic interrelation. Research methods include theoretical analysis of regulatory frameworks and scientific literature; systematization for the development of a component-structural model; a констатувальний (baseline) stage of pedagogical experiment involving 120 future educators; diagnostic methods (observation, interviews, questionnaires for educators and parents). Assessment was conducted across three levels: high (creative), intermediate (reproductive), and low (passive). Scientific novelty: the concept of 'ecologically appropriate behavior of preschool children' is refined as a dynamic personal characteristic integrating environmental literacy and readiness for active environmental action; the content of its components is specified; sequential stages of formation are substantiated; the effectiveness of a set of pedagogical conditions is demonstrated. Practical significance: methodological recommendations for organizing an eco-educational environment are developed; a toolkit of effective forms and methods (ecological quests, integrated classes, project activities, Empowerment pedagogy) suitable for direct implementation in preschool settings is formed. The diagnostic findings indicate that the majority of student educators are at the intermediate readiness level, experiencing difficulties in practical application of acquired knowledge.

Keywords: ecologically appropriate behavior, preschool education, professional training of educators, sustainable development, systemic approach, pedagogical conditions, competence-based approach, environmental education.

ФОРМУВАННЯ ЕКОЛОГІЧНО ДОЦІЛЬНОЇ ПОВЕДІНКИ ДОШКІЛЬНИКІВ ТА ПРОФЕСІЙНА ПІДГОТОВКА ВИХОВАТЕЛІВ: СИСТЕМНИЙ ПІДХІД

Анотація. У статті обґрунтовано концептуальні засади формування екологічно доцільної поведінки дітей дошкільного віку як інтегрованого результату взаємодії когнітивного, емоційно-ціннісного та поведінково-діяльнісного компонентів у контексті системного підходу до професійної підготовки вихователів. Визначено зміст, охарактеризовано структурні компоненти готовності фахівця та обґрунтовано педагогічні умови реалізації відповідного процесу в освітньому середовищі закладу дошкільної освіти. Актуальність дослідження зумовлена необхідністю пошуку нових підходів до виховання особистості, здатної гармонійно співіснувати з природою в умовах глобальних екологічних викликів, виснаження природних ресурсів та погіршення стану довкілля. Особливу роль відіграє дошкільне дитинство як сенситивний період для закладення основ екологічної свідомості, ціннісних орієнтацій та відповідальних моделей поведінки.

Мета статті – обґрунтувати структуру професійної підготовки вихователів та визначити етапи формування екологічно доцільної поведінки дошкільників у їх системному взаємозв'язку.

Методи дослідження: теоретичний аналіз нормативно-правової бази та наукових праць; систематизація для розробки компонентно-структурної моделі; констатувальний етап педагогічного експерименту за участю 120 майбутніх вихователів; діагностичні методи (педагогічне спостереження, бесіди, анкетування педагогів і батьків). Оцінювання проводилось за трьома рівнями: високий (творчий), середній (репродуктивний) та низький (пасивний).

Наукова новизна: уточнено сутність поняття «екологічно доцільна поведінка дітей дошкільного віку» як динамічної характеристики особистості, що інтегрує екологічну грамотність та готовність до активної природоохоронної дії; конкретизовано змістове наповнення компонентів; обґрунтовано послідовні етапи формування; доведено ефективність сукупності педагогічних умов. Практична значущість: розроблено методичні рекомендації щодо організації еколого-розвивального середовища; сформовано кейс ефективних форм і методів (екологічні квести, інтегровані заняття, проєктна діяльність, педагогіка «Empowerment»), придатних для безпосереднього впровадження у практику ЗДО. Результати констатувального дослідження засвідчили, що більшість студентів перебуває на середньому рівні готовності, відчуваючи труднощі у практичній реалізації знань.

Ключові слова: екологічно доцільна поведінка, дошкільна освіта, професійна підготовка вихователів, сталий розвиток, системний підхід, педагогічні умови, компетентнісний підхід, екологічне виховання.

INTRODUCTION

The problem formulation. Contemporary environmental challenges related to the depletion of natural resources, environmental degradation, climate change, growing volumes of waste, and the need to establish the principles of sustainable development bring to the fore the problem of raising a personality capable of responsible interaction with the natural environment from an early age. In this context, preschool education acquires particular significance as the first level of education, at which the foundations of a child's worldview, value orientations, behavioural patterns, and attitude toward oneself, other people, and the environment are laid.

It is precisely in preschool age that primary conceptions of nature as an integral system are formed, emotional sensitivity, the capacity for empathy, imitation and moral choice develop, and the first experience of practical interaction with the natural environment is gained. Therefore, the formation of environmentally appropriate behaviour in preschool-age children should be regarded not as a narrow task of natural-science education, but as an important direction of the child's holistic personal development, one that combines cognitive, emotional-value and behavioural components. This view is consistent with contemporary scientific approaches, according to which environmentally appropriate behaviour is interpreted as an integrated process by which a child acquires experience of active, responsible and value-motivated interaction with nature (Kollmuss & Agyeman, 2002; Kopnina, 2020).

At the same time, an analysis of scholarly-pedagogical discourse and educational practice shows that, despite the undeniable importance of the problem, it requires further theoretical elaboration and methodological clarification. This concerns, above all, defining the substantive content of this process, substantiating its stage-by-stage structure, and justifying the pedagogical conditions that ensure a genuine transition from environmental knowledge to considered actions and habits in the child's daily life. In the practice of preschool education institutions, the informational component is frequently observed to prevail over the activity-based and value components, whereas effective formation of environmentally appropriate behaviour is possible only when these are united as a whole.

Analysis of recent research and publications. The problem of forming environmentally appropriate behaviour in preschool-age children is within the field of attention of Ukrainian and foreign scholars and is examined in the context of environmental education, education for sustainable development, the formation of a value-based attitude toward nature, and personality development. Scholarly discourse presents various approaches: “ecological behaviour,” “nature-appropriate behaviour,” “ecologically motivated behaviour,” and so on.

A substantial contribution to the elaboration of theoretical foundations was made by H. Bielenka (2011), Z. Plokii (2010), S. Ivanchuk (2022), and N. Lysenko et al. (2019). Their works substantiate the content, principles, forms and methods of environmental education and upbringing, and outline the age-related characteristics of the formation of children's ecological consciousness and behaviour. Among foreign studies, Kollmuss and Agyeman (2002) identified a system of psychological and social factors that determine the gap between environmental knowledge and an individual's actual behaviour. Kopnina (2020) substantiated the role of a value-oriented approach in education for sustainable development. In recent years, this line of research has continued to develop in studies indexed in leading scientometric databases, including with the participation of the present author: an international collaborative study (Shuppe et al., 2026), published in the journal Multidisciplinary Reviews (Scopus), substantiated the potential of artificial-intelligence technologies in managing environmental educational projects; the issue of professional training of preschool-education specialists for fostering the activity of preschool-age children was addressed in a study by Lazarovych (2023). Pruneau et al. (2010) examined the challenges of climate education and the significance of children's practical involvement. The application of the project method has been discussed in the works of Vereksa (2009), Levchenko (2018) and Manoilo (2017). The preparation of teachers to teach issues of sustainable development is covered in a study by Pometun (2015). The author of this article has previously investigated related aspects of educators' professional training, in particular the readiness of the future specialist to work with gifted children in the context of the updated edition of the Basic Component of Preschool Education of Ukraine (Lazarovych, Matsuk, & Zakharasevych, 2021), which testifies to the continuity of scholarly inquiry aimed at improving educators' professional readiness to carry out the diverse tasks of child development.

At the same time, despite the considerable body of research available, the problem of forming environmentally appropriate behaviour in preschool-age children requires further systemic elaboration with regard to the holistic structuring

of this process, the definition of the logic of its stage-by-stage implementation, and the substantiation of the set of pedagogical conditions that ensure an effective transition from environmental knowledge to the child's actual behaviour.

THE AIM AND RESEARCH TASKS

The aim of the article is to substantiate the structure of educators' professional training and to define the stages of forming environmentally appropriate behaviour in preschoolers in their systemic interrelation.

In accordance with the aim, five main objectives of the study were defined: to clarify the essence of the concept of "environmentally appropriate behaviour of preschool-age children" in the context of contemporary scientific approaches; to characterise the structural components of a future educator's readiness (motivational, cognitive, activity-based); to define and substantiate the stages of forming environmentally appropriate behaviour in preschoolers; to substantiate the pedagogical conditions and methodological approaches to educators' training; and to generalise effective forms, methods and technologies for implementing the process under study in the educational practice of preschool education institutions.

RESEARCH METHODS

Data sources and research base. The study is based on theoretical analysis and practical testing of results in preschool education institutions of various regions of Ukraine: the city of Ivano-Frankivsk (preschool institutions of the Kosiv and Kolomyia districts, which made it possible to investigate the influence of the natural landscape and ethno-pedagogical traditions of the Precarpathian region), the city of Ternopil, and the city of Kyiv. Vasyl Stefanyk Precarpathian National University served as the base for conducting the ascertaining experiment.

Theoretical methods: analysis of the regulatory and legal framework (the Basic Component of Preschool Education of Ukraine, the Law of Ukraine "On Preschool Education") and of the scholarly works of Ukrainian and foreign authors; systematisation and generalisation for the development of a component-structural model; comparative analysis of approaches to interpreting the concept of "environmentally appropriate behaviour."

Empirical methods: the ascertaining stage of the pedagogical study involving 120 students of the specialty A2 Preschool Education; pedagogical observation of children's activity in the natural environment; conversations with and surveys of teachers and parents; qualitative analysis of children's products of activity (drawings, observation diaries, results of labour activity in nature). The levels of formation of the readiness components were assessed on a three-point scale: high (creative) — the student independently designs and implements original eco-activities; medium (reproductive) — applies known methods with minor variation; low (passive) — requires constant guidance.

Study limitations. The work focuses on children of middle and older preschool age, since it is precisely this period that is sensitive for the transition from reproductive actions to conscious self-regulation of behaviour.

RESULTS OF THE RESEARCH

The essence of environmentally appropriate behaviour. Theoretical analysis made it possible to clarify the essence of the concept of "environmentally appropriate behaviour of preschool-age children" as a dynamic characteristic of the personality manifested in the child's ability to consciously choose ways of interacting with the environment on the basis of the integration of environmental knowledge, empathy and nature-conservation skills. Unlike related concepts ("ecological behaviour," "nature-appropriate behaviour"), which focus predominantly on the external aspect of actions, the concept of "environmentally appropriate behaviour" also encompasses the child's inner value motivation, capacity for reflection, and conscious moral choice in interacting with the living and non-living environment.

The structure of the educator's readiness. For the effective formation of environmentally appropriate behaviour in preschoolers, the educator must possess an appropriate level of readiness. We have defined the structure of a future educator's professional readiness, which includes three interrelated components (Table 1).

Table 1.

Structure of a Future Educator's Professional Readiness

Component	Indicators of Formation
Motivational	Environmental values, interest in nature-conservation activity, awareness of personal responsibility, an ethical attitude toward living beings, a striving for self-improvement in eco-education.
Cognitive	Knowledge of ecological systems and the laws of nature, methods of environmental upbringing for preschoolers, an understanding of the concept of sustainable development, orientation in contemporary eco-education technologies.
Activity-based	The ability to organise eco-projects, quests and research activity; the capacity to create an ecologically developmental environment; skills in involving parents in environmental upbringing.

Methodological approaches. The effectiveness of future educators' professional training is ensured by the implementation of a set of interrelated methodological approaches. The systemic approach ensures a holistic interconnection of all components of instruction — from aim and content to the forms and methods of assessment — and makes it possible to regard a student's readiness not as a mechanical sum of knowledge but as an integrated personal quality. The axiological approach is directed at forming environmental values, whereby nature is regarded not

as a resource but as an intrinsic value, which fundamentally changes the future teacher's inner position. The activity-based approach proceeds from the understanding that an ecological culture is formed only through the student's own activity: participation in eco-campaigns, volunteering, and the development of original projects. The competency-based approach is oriented toward the final result — the educator's ability to independently and creatively solve professional tasks under the conditions of a real educational process in a preschool education institution.

Pedagogical conditions. The pedagogical conditions that ensure the effectiveness of forming students' readiness are systematised in Table 2.

Table 2.

Pedagogical Conditions for Forming Students' Readiness

Condition	Essence and Mechanism of Implementation
Integration of content	Incorporating environmental aspects into the courses "Preschool Pedagogy," "Psychology of Early and Preschool Age Children," "Fundamentals of Natural Science with Methodology," and "Project-Research Activity of Preschool-Age Children."
Eco-educational environment	Creating a space at the university that stimulates environmentally responsible behaviour (waste sorting, digitalisation of documents, "green" initiatives of the department).
Interrelation of theory and practice	Conducting practical classes on the basis of preschool education institutions with advanced environmental experience; involvement in volunteer eco-campaigns.
Scholarly-methodological support	Using the resources of the university's Centre for the Education and Care of Early- and Preschool-Age Children as a platform for testing innovative models.

The content of future educators' training. The content of training is a multilevel structure that integrates natural-science, psycho-pedagogical and methodological knowledge and is implemented through four interrelated blocks.

1. Theoretical-informational block. Students study the interconnections within ecosystems, the laws of the biosphere, and anthropogenic impact on the environment. An important component is the study of the Concept of Sustainable Development as the ideological foundation of contemporary education. A future educator must not only know the names of plants or animals but also understand the principles of an ethical attitude toward all living things as an intrinsic value (Pometun, 2015).

2. Methodological-technological block. This stage involves mastering specific forms and methods of working with preschool-age children: the methodology of organising observations; environmental design technologies (students develop their own projects — "The Eco-Path of the Educational Institution," "A Garden on the Windowsill"); and game technologies (environmental quests, didactic and simulation games).

3. Practice-oriented activity. Teaching practice involves: creating an ecologically developmental environment (nature corners, "green classrooms"); conducting integrated classes with elements of the pedagogy of empathy; organising research-and-experimental activity (experiments with water, sand, air). This correlates with contemporary European "outdoor education" trends (Kopnina, 2020).

4. Educational and volunteer component. Students are involved in environmental volunteering: the "Greening the Planet" and "Day Without Plastic" campaigns, and waste sorting. This makes it possible to form the future teacher's own environmentally appropriate behaviour, which will subsequently serve as a living model for children.

Innovative technologies for forming behaviour in preschoolers. Among the technologies that stimulate a child's active position in interaction with nature, four complementary approaches deserve particular attention.

Project activity (Vereksa, 2009; Levchenko, 2018) allows children to immerse themselves in solving a real environmental problem — for example, the "Let's Save Water Together" project. The child sees the result of their own work, which gradually forms a sense of personal responsibility for the state of the environment. The "empowerment" technology (the pedagogy of granting agency) fundamentally shifts the emphasis of educational influence: instead of prohibitive instructions ("don't cause harm"), the child receives a positive call to action ("I can help nature"), which builds confidence in one's own abilities and gradually turns environmentally responsible behaviour into an inner need. Case-based technologies involve the analysis of problem situations ("What will happen to the forest if a campfire is left unextinguished?"), developing critical thinking and environmental empathy. Finally, research-and-inquiry activity (Manoilo, 2017) — conducting experiments with water, soil and plants — helps the child become personally convinced, through their own experience, of the fragility of natural connections and the need to treat them with care.

Effective forms and methods of forming students' environmental competence are systematised in Table 3.

Results of the ascertaining study. To identify the levels of formation of the components of readiness to form environmentally appropriate behaviour in preschoolers, an ascertaining stage of the study was conducted among 120 students of the specialty A2 Preschool Education. The results are presented in Figure 1.

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Table 3.

Forms and Methods of Forming Students' Environmental Competence

Forms of Work	Content of Activity	Result (Competence)
Problem-based lectures	Analysis of global environmental crises and ways of overcoming them in education.	Environmental awareness and critical thinking.
Empathy trainings	Exercises to develop the capacity to empathise with natural objects.	An emotional-value attitude.
Case studies	Resolving conflict situations in human–nature interaction.	Making ethical decisions.
Master classes	Making didactic materials from recycled materials (upcycling).	Technological readiness.
Eco-volunteering	Participation in the "Greening the Planet" and "Day Without Plastic" campaigns.	Personal environmental culture.

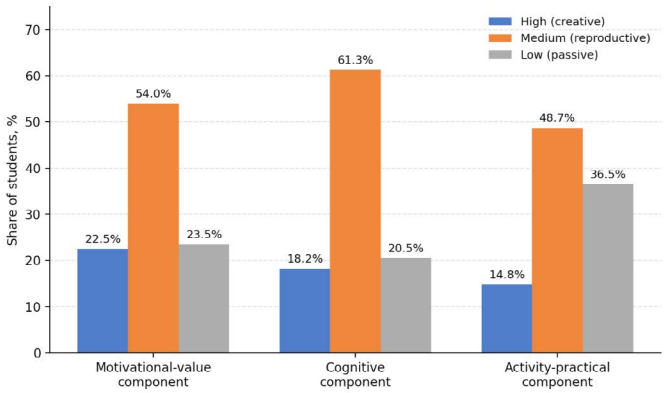


Figure 1. Levels of Formation of Students' Readiness (in %) (n = 120)

As Figure 1 shows, with regard to the motivational-value component, 22.5% of students reached a high (creative) level, 54.0% a medium (reproductive) level, and 23.5% a low (passive) level. The distribution for the cognitive component is similar: 18.2% high, 61.3% medium, and 20.5% low. The lowest indicators were recorded for the activity-practical component: only 14.8% of students showed creative initiative in independently designing eco-activities, while almost half (48.7%) remained at the reproductive level, and every third student (36.5%) required constant guidance. The chart clearly demonstrates that the greatest gap between components appears precisely in the practical dimension: whereas motivational and cognitive readiness are at approximately the same level, operational competence lags noticeably behind. This indicates the need to substantially strengthen the practical component in the training of future educators.

The data analysis shows that most students are at the medium level. They possess the necessary theoretical knowledge (the cognitive component) but experience considerable difficulties in its practical implementation. The lowest indicators were recorded in the operational sphere: students find it difficult to independently develop original eco-projects or apply complex case-based technologies. This confirms the general tendency identified in the study by Pruneau et al. (2010): even when environmental knowledge is present, an individual is not always able to transform it into a stable behavioural pattern.

A detailed analysis by criteria revealed the following: by the value criterion, students demonstrate a positive attitude toward nature, yet environmental activity is often perceived as the formal completion of academic tasks rather than as a personal need; by the informational criterion, future educators navigate classical methods well but have only superficial knowledge of the concept of sustainable development; by the methodological criterion, a need was identified to strengthen practical training, in particular the ability to create an ecologically developmental environment.

Regional specificity of the results. In the preschool education institutions of the Kosiv and Kolomyia districts, the method of using the folk traditions of nature use of the Precarpathian region proved effective, whereas in Ternopil and Kyiv priority was given to sustainable-development technologies and to solving environmental situations of the urban environment. This indicates the need for a differentiated approach to environmental upbringing depending on the regional context — a conclusion that corresponds with the ideas of Melmann and Pometun (2012).

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The study conducted makes it possible to formulate the following conclusions. Environmentally appropriate behaviour in preschool-age children is a dynamic characteristic of the personality that integrates environmental knowledge, empathy and

nature-conservation skills. It is laid down precisely in preschool childhood and constitutes the foundation of the individual's subsequent ecological culture. Therefore, ignoring this stage, or approaching its upbringing in a situational, non-systemic manner, is an unjustifiable pedagogical miscalculation.

The professional training of future educators to form environmentally appropriate behaviour in children is a complex, multicomponent process that requires an organic combination of systemic, axiological, activity-based and competency-based approaches. None of these, taken separately, ensures the fullness of the result: only their integration creates the conditions for forming a genuine — not declarative, but effective — readiness on the part of the teacher.

The effectiveness of the educational process in preschool education institutions is ensured by combining the child's cognitive development with their emotional involvement and practical activity. Only through the systematic engagement of preschoolers in real nature-conservation practices is it possible to achieve the transformation of knowledge into stable behavioural habits. The key figure in this process remains the teacher, whose personal environmental culture serves children as a living model for imitation.

The results of the ascertaining study confirm the acute need to restructure educators' training: only 14.8% of students reached a high level of the activity-practical component of readiness, while the overwhelming majority stopped at the medium level. This indicates that the traditional, information-oriented model of instruction no longer meets contemporary educational challenges and requires a substantial strengthening of its practical and reflective components. The regional specificity identified – the difference in effective methods for preschool education institutions of the Carpathian region and of large cities – underscores the need for a differentiated approach to educators' training depending on the natural and cultural context.

Prospects for further research are associated with several priority directions. First, it is relevant to develop and validate diagnostic tools for assessing the levels of formation of student-teachers' environmental conduct. Second, it is worth investigating the potential of digital tools to support preschoolers' environmental education – VR excursions into natural environments, mobile applications for identifying plants and insects; the existing experience of implementing innovative digital technologies in the educational process of Ukrainian higher education institutions under conditions of war (Kupchyshyna et al., 2024) attests to the promise of such an approach for training pedagogical personnel in the preschool sector as well. Third, in-depth study is needed of the role of parents as equal subjects of environmental upbringing within the family environment, and of the mechanisms of their effective interaction with preschool education institutions.

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THE EMOTIONAL-INTELLECTUAL ASPECT OF THE PEDAGOGICAL DISCOURSE OF PRE-SERVICE PRIMARY SCHOOL TEACHERS

Abstract. In contemporary educational contexts, there is a growing need to advance the theoretical and methodological foundations for developing pre-service teachers' competencies in effectively managing students' active knowledge and skill acquisition. Particular attention should be paid to the emotional and cognitive dimensions of pedagogical interaction, which significantly influence the learning process. Within this context, pedagogical discourse can be defined as a system of interconnected pedagogical statements and communicative practices associated with teaching and learning processes, examined in relation to specific educational issues and to their coherence and interrelationships. Pedagogical discourse is a specific form of linguistic behaviour within the educational process, characterised by the purposeful and conscious use of language for communication, instruction, and personal development. Its effectiveness depends on the logical coherence and pedagogical appropriateness of communicative interactions, as well as on the teacher's ability to stimulate and maintain students' engagement in intellectual and verbal exchanges. In primary education, particular importance is attached to the teacher's use of emotionally expressive linguistic means, which can positively influence pupils' cognitive development, emotional responsiveness, imagination, and creative potential. The strategic integration of such language resources contributes to a supportive learning environment and enhances the effectiveness of educational communication.

The linguistic expression of emotions is realised through a variety of verbal and paraverbal means, including phonetic features, speech intonation, word-formation patterns, emotive vocabulary and phraseological units, syntactic structures, and other communicative characteristics of speech. The integration of these expressive resources enhances both the cognitive and affective perception of information, thereby optimizing the learning process and increasing its effectiveness. In primary education, the use of emotionally rich language should align with the developmental characteristics of young learners' emotional development. These characteristics include the progressive development of emotional intelligence, the increasing depth and stability of emotional experiences, greater awareness of one's own emotions and those of others, the emergence of intellectual emotions, the development of voluntary emotional regulation, and the formation of stable emotional-personality traits. Consideration of these developmental factors enables teachers to create emotionally supportive learning environments that foster both academic achievement and socio-emotional growth. Emotional intelligence is a fundamental component of pre-service teachers' professional competence, as it significantly enhances the effectiveness of educational communication and pedagogical interaction. The ability to recognize, understand, regulate, and appropriately express emotions enables teachers to establish positive relationships with learners, create supportive classroom environments, and respond effectively to students' individual needs. In the context of primary education, emotional intelligence contributes not only to successful teaching and learning processes but also to the holistic development of pupils, fostering their personal growth, language acquisition, and socio-emotional competencies.

Ключові слова: pre-service primary school teacher; primary school student; pedagogical communication; pedagogical discourse; emotionality; intellectual emotions; emotional intelligence; emotional-intellectual dimension of pedagogical discourse; linguistic means of emotional expression.

ЕМОЦІЙНО-ІНТЕЛЕКТУАЛЬНИЙ АСПЕКТ ПЕДАГОГІЧНОГО ДИСКУРСУ МАЙБУТНІХ УЧИТЕЛІВ ПОЧАТКОВИХ КЛАСІВ

Анотація. За сучасних умов важливого значення набуває розроблення теоретичних засад та методики розвитку у майбутніх учителів здатностей, що забезпечують успішність управління процесом активного засвоєння школярами знань та вмінь з урахуванням емоційно-інтелектуального чинника в педагогічному дискурсі педагога. Педагогічний дискурс являє собою сукупність висловлювань, що стосуються проблематики навчання, розглядаються у взаємних зв'язках із цією проблематикою, а також між собою. Це зразок мовленнєвої поведінки у сфері навчання й виховання — свідоме використання мови як інструменту спілкування. Дієвість педагогічного дискурсу забезпечується його аргументованістю, здатністю педагога викликати й підтримувати інтерес учнів до інтелектуально-мовленнєвого спілкування. Важливою є здатність учителя початкових класів доречно використовувати у своїй мовній поведінці емоційні мовні засоби, які впливають на розум, почуття, уяву та творчість молодших школярів. До лінгвістичних засобів вираження емотивності належать вимова звуків, інтонація мовлення, словотворчі засоби, емотивна лексика, зокрема фразеологізми, особливості побудови фраз, технічні характеристики мовлення тощо. Сприйняття дітьми інформації на інтелектуально-чуттєвому рівні оптимізує навчання, підвищує його результативність і ефективність. При цьому необхідно враховувати особливості емоційної сфери молодших школярів: розвиток емоційного інтелекту, набуття емоціями більшої глибини та стійкості, усвідомлення дітьми своїх почуттів та почуттів інших людей, формування інтелектуальних почуттів, довільності поведінки (стриманості почуттів), розвиток стійких емоційних особливостей особистості. У професійному становленні майбутніх педагогів велику роль відіграє емоційний інтелект, який допомагає зробити навчальне спілкування ефективним, сприяє освітньому, особистісному та мовленнєвому розвитку молодших школярів.

Keywords: майбутній учитель початкових класів, молодший школяр, педагогічне спілкування, педагогічний дискурс, емоційність, інтелектуальні емоції, емоційний інтелект, емоційно-інтелектуальний аспект педагогічного дискурсу, засоби вираження емоційності.

INTRODUCTION

The problem formulation. Contemporary psychological and educational research places considerable emphasis on the professional preparation of pre-service primary school teachers who can continuously develop their creative potential within the context of professional communication. This challenge is further intensified by the growing need to integrate the emotional dimension into intellectual interactions among participants in pedagogical discourse. Within this framework, a teacher's professional and pedagogical competence is reflected in a system of communicative skills and practices that facilitate effective educational interaction and support students' holistic development. The implementation of these competencies is directed toward fostering learners' key competencies in accordance with the requirements of the State Standard for Elementary Education (2025). Moreover, the effectiveness of pedagogical discourse depends on the teacher's ability to balance cognitive and emotional components of communication, thereby creating conditions that promote meaningful learning, personal growth, and active student engagement. Accordingly, there is a need to advance the theoretical and methodological foundations for preparing pre-service teachers by developing the competencies required to facilitate students' effective acquisition of knowledge and skills. Particular attention should be given to integrating emotional and intellectual dimensions into pedagogical communication, as these factors significantly influence the quality of teaching and learning. The development of such competencies will enable pre-service teachers to manage educational interactions more effectively, foster student engagement, and create learning environments that support both cognitive achievement and socio-emotional development.

Analysis of recent research and publications. Psychological and educational research has accumulated substantial theoretical and empirical evidence concerning the influence of pedagogical interaction on the intellectual and emotional development of school students. The foundations of the theory of speech behaviour and communicative interaction in

educational contexts were established by scholars such as J. Austin (1962) and J. Searle (1990), who examined language use and communication as forms of social action across diverse contexts. The concept of emotional intelligence and its significance for professional development have been extensively explored by V. Zaritska, E. Nosenko, N. Kovryga, T. Bradberry, and J. Greaves (2009), as well as by P. Salovey and J. Mayer (1990). Particular attention has been devoted to developing emotional intelligence among pre-service elementary school teachers. This issue has been investigated by V. Bader, N. Basyuk, D. Verbivsky, T. Kotyk, A. Minenok, M. Oliiar, Y. Samardak, T. Skoryk, T. Chernous, N. Yaremchuk, and other researchers, whose studies emphasize the role of emotional competence in enhancing pedagogical communication, professional effectiveness, and the holistic development of young learners. The concept of emotivity as a linguistic category and its representation through various linguistic units has been widely examined in linguistic and psycholinguistic research. Scholars such as T. Bitsenko, A. Glushchenko, G. Kuzenko, V. Putienko, L. Tyutyunnik, I. Shakhnovska, M. Motley, S. Camden, and others.

Research into the characteristics and psychological-pedagogical conditions of younger primary school students' development was conducted by scholars such as N. Bibik, I. Zharkova, Ya. Kodlyuk, V. Kotyrlo, Z. Onyshkiv, O.Savchenko, O. Yankovych, and others. The following researchers have devoted their works to the characteristics of the emotional sphere of younger elementary school students: I. Bekh, O. Zaporozhets, O. Zavgorodnia, N. Kotsur, O. Slobodian, O. Kiz, S. Maksymenko, O. Slobodian, M. Shpak, and others. At the same time, it should be noted that the development of emotional intelligence among pre-service primary school teachers to implement pedagogical discourse effectively remains a relevant issue, particularly in the context of the spiritual and moral crisis affecting contemporary society amid the ongoing large-scale war in Ukraine.

AIM AND TASKS RESEARCH

This study aims to identify theoretical approaches underpinning the development of a scientifically grounded methodology for preparing pre-service teachers to effectively use verbal means of emotional and intellectual influence in pedagogical discourse.

RESEARCH METHODS

To achieve the research objective, the following methods were employed: theoretical analysis of psychological, pedagogical, philosophical, and linguistic literature, as well as observation of students' communicative activities during their teaching practicum to identify challenges and determine ways of overcoming them in the implementation of the emotional and intellectual dimensions of pedagogical discourse.

RESULTS OF THE RESEARCH

Effective pedagogical communication between teachers and students during the educational process creates favourable conditions for students' development and the cultivation of a creative approach to learning. It contributes to the formation of students' personalities, supports a positive emotional climate within the educational environment, and promotes the effective management of socio-psychological processes in the student group. One of the key issues in preparing pre-service primary school teachers for professional pedagogical communication is developing their ability to appropriately select and apply linguistic and rhetorical means, including those that facilitate the emotional regulation of educational communication. T. Bitsenko argues that «speech acts of emotionality contain information about feelings, emotions, moods, affects, and emotionally evaluative linguistic information, that is, an intellectual evaluation of someone or something, filtered through the emotional prism of the human psyche, which simultaneously serves as an emotional evaluation» (Bitsenko, 2012, p. 85).

The development of communicative competence in pre-service primary school teachers, particularly its intellectual and emotional dimensions, is of special significance, as their professional activity entails a high level of linguistic responsibility. Appropriate, effective, and influential speech serves as a key instrument in the education of primary school students. The effectiveness of pedagogical speech depends both on its logical and well-founded character and on the teacher's ability to initiate and maintain students' interest in intellectual and verbal interaction. In this context, particular importance is attached to the teacher's ability to effectively employ emotional linguistic means in pedagogical speech, as these influence not only the cognitive sphere of younger elementary school students but also their emotions, imagination, and creative capacities. Perception of information at both intellectual and emotional levels contributes to optimising the learning process and enhancing its overall effectiveness.

A teacher's personal characteristics are manifested through the deliberate use of verbal means that reflect linguistic competence and highlight the informational-communicative (exchange and acquisition of information), regulatory-communicative (organization of collaborative activities and modification of interaction strategies), and educational functions of pedagogical communication.

G. Kuzenko identifies sound articulation, speech intonation, word-formation devices, and emotive vocabulary, including phraseological expressions, as linguistic means of conveying emotionality (Kuzenko, 2020). The acquisition of the ability to consciously select and employ such means constitutes an important objective in the professional preparation of pre-service teachers. The linguistic, methodological, emotional-personal, and pedagogical components constitute the principal characteristics of pedagogical discourse, which determine the effectiveness of communicative interaction with students at the intellectual and affective levels and help achieve the instructional, developmental, and educational objectives of the lesson. Scholars define pedagogical discourse «as a set of utterances concerning

issues of learning, considered in relation to these issues as well as in relation to one another. It is a model of linguistic behavior in the sphere of teaching and education» (Nikitina, 2013, 41), representing the conscious use of language as a means of communication.

In examining the communicative activity of primary school teachers within pedagogical discourse, it is assumed that a central task of the teacher is to establish rapport with learners, which presupposes creating a positive emotional classroom climate. A high level of teacher competence as a communicative leader in educational interaction is particularly evidenced by the effective use of verbal strategies to activate students' emotional and cognitive potential. It is essential that elementary school teachers, in their communicative activities, recognise that their speech is not only the primary instrument of pedagogical practice but also a model that students consciously or unconsciously perceive, internalise, and subsequently reproduce and disseminate within pedagogical discourse. Accordingly, a key objective of professional training for students is to develop their ability to freely employ a range of linguistic means in various communicative and speech situations, particularly during teaching practice, thereby cultivating a culture of pedagogical communication. This involves fostering in pre-service teachers clear, correct, and terminologically precise, as well as emotionally expressive, speech that ensures the effective transmission of educational information and supports the development of their emotional intelligence—a concept introduced into scientific discourse in the late twentieth century by American scholars R. Salovey and J. Mayer (1990).

V. Zarytska emphasizes the significant role of emotional intelligence in students' professional development. According to the author, effective professional performance requires the ability to recognise and understand one's own emotions as well as those of others, while maintaining an objective assessment of oneself and one's colleagues. Furthermore, a well-developed level of emotional intelligence constitutes an important prerequisite for constructive conflict resolution in professional contexts (Zarytska, 2014). E. Nosenko and N. Kovryga conceptualize emotional intelligence in relation to a range of personality characteristics, including conscientiousness, openness to experience, emotional stability, agreeableness, and extraversion (Nosenko & Kovryga, 2003). Emotionality is generally regarded as an essential component of a teacher's communicative style and is expressed through diverse verbal and nonverbal means. The effective integration of these communicative resources enhances the quality of instructional interaction, thereby facilitating students' academic achievement, personal growth, and language development. In this context, particular attention should be paid to the emotional sphere of early primary school learners, as it is characterized by specific developmental features that significantly influence the educational process.

«Early school age represents not only a critical period for intensive intellectual development but also a stage during which the emotional sphere undergoes significant formation. The development of emotional processes and competencies during this period plays a crucial role in shaping various aspects of a child's functioning, including cognitive activity, social interaction, self-regulation, and overall personality development» (Slobodyan & Kiz, 2023, 58). A distinguishing characteristic of early primary school learners is their heightened emotional sensitivity and receptiveness to novel and vivid experiences. The transition to school initiates a profound transformation in the child's system of social relationships, as the student–teacher relationship begins to exert a significant influence on the child's interactions with both parents and peers. Consequently, this relationship assumes a central role in the child's life and development. At the same time, a reorientation of emotional priorities takes place, preparing the child for subsequent stages of emotional growth. During this period, children develop new emotional experiences associated with academic activity, including emotions related to success and failure in learning, reactions to assessments and achievement, enjoyment derived from acquiring new knowledge, and feelings of anxiety arising from academic challenges, responsibility, and task performance. At primary school age, children's emotional sphere is increasingly shaped by the processes and outcomes of educational activities rather than by play and communication within play. Their feelings and emotions become closely associated with the needs that learning fulfils. At the same time, particular significance is attributed to the teacher's assessment of academic success and failure, as well as to the attitudes of peers and other significant individuals that accompany such evaluations.

An early elementary school student's emotional attitude toward the teacher plays a significant role in shaping the child's emotional world. This attitude is generally characterized by trust, respect, and a high degree of receptivity to the teacher's influence. The teacher's evaluative function is particularly important, as the teacher's judgments serve as key reference points for students' perceptions of their academic achievement and influence their peers' attitudes toward them. During the early years of elementary education, the teacher's evaluation assumes considerable significance for students, often leading to a strong orientation toward external assessment. As a result, students' activity and emotional responses may become focused on evaluative outcomes rather than on the cognitive process itself and the intrinsic satisfaction derived from learning. Early elementary school students tend to experience academic successes and failures with considerable emotional intensity, as their status within the peer group and their position in the system of interpersonal relationships are largely determined by their academic performance and the teacher's evaluation of their achievements. In turn, their position within the group substantially influences their emotional well-being and the nature of their emotional experiences.

Early elementary school students are characterized by a high degree of emotional responsiveness. Their perception of speech is rarely neutral, which can be explained by their limited life experience, relatively short attention span,

predominance of concrete thinking, insufficiently developed analytical and critical understanding of real-life situations, heightened excitability, reliance on visual imagery memory, and incomplete formation of learning motivation. When emotions exert a strong influence on a child, they affect not only the child's emotional state by generating new thoughts and aspirations but also serve as a motivational force integrated into behaviour, thereby contributing to the formation of feelings. The significance of emotions increases when they not only accompany an activity but also precede it, preparing the student for active engagement in the learning process. At the same time, observations from students' teaching practicum in elementary schools indicate that the role of emotions in children's learning is often underestimated. Educational environments often provide insufficient opportunities for the emergence of positive emotions and, in some cases, create conditions that foster negative emotional experiences, such as boredom, anxiety, or fear.

In characterizing the emotional development of early elementary school students, particular attention should be given to emotional restraint and its individual manifestations. Participation in educational activities and interaction with teachers, classmates, and other individuals require children to regulate their emotional responses; however, the development of such self-restraint presents a considerable challenge during the early years of schooling. During the initial year of schooling, children frequently display impulsive emotional reactions; however, by the third and fourth grades, they generally demonstrate greater emotional restraint. Through engagement in educational activities, children gradually acquire the ability to regulate their emotional states, manage strong feelings, control immediate impulses, and adhere to established requirements. Consequently, the development of self-regulation progressively extends to the emotional sphere. The system of voluntary regulation occupies a significant place in the personal development of younger elementary school students. This system encompasses self-assessment, self-control, reflection on one's actions and decision-making processes, and, most importantly, goal setting. The development of each of these components and the acquisition of the ability to apply them effectively constitute important tasks in the educational process. In particular, when establishing learning goals, it is necessary to ensure they are emotionally meaningful and personally accepted by students, as this principle applies to all components of the system of voluntary regulation.

As children progress through the learning process, their emotional experiences become increasingly deep and stable. At the same time, early primary school students have only a limited ability to recognise and interpret their own emotions and those of others. Such limitations in emotional perception and understanding often lead to the superficial imitation of adult behaviour and emotional expressions. Practising teachers frequently observe, for example, that children readily adopt and reproduce both friendly and unfriendly communication patterns. These characteristics underscore the importance of fostering emotional intelligence in elementary school students. Accordingly, pre-service teachers should consider the psychological characteristics of primary schoolchildren to enhance the effectiveness of educational communication, which is primarily manifested in the emotional and intellectual dimensions of the teacher's linguistic behaviour within pedagogical discourse. The linguistic foundation of the issue examined in this study lies within contemporary functional stylistics. It is associated with current research on speech style as an expression of the communicative personality. The methodological dimension of this issue concerns the application of general rhetorical principles, including step-by-step progression, conceptuality, reflexivity, audience modelling, strategic, tactical, and linguistic organisation, as well as effective communication (Academic Rhetoric, 2022, pp. 45–57). One approach to implementing these principles in the educational process involves stimulating intellectual emotions through methodological and rhetorical techniques, as well as lexical, syntactic, rhetorical, and intonational means that convey participants' emotional states during learning.

The requirement for communicatively appropriate speech in primary school teaching necessitates consideration of students' age-related characteristics, their level of preparedness to learn the subject matter, and the teacher's ability to adapt pedagogical speech to ensure accessibility and comprehensibility for primary school students. In this context, particular attention should be given to teachers' linguistic etiquette, which encompasses the use of polite forms of address, greetings and farewells, expressions of apology and gratitude, words of praise, and other etiquette-based communicative forms. To prevent disrespectful behavior toward students, a system of prohibitions is implemented to help participants in the educational process avoid confrontation and conflict while fostering a supportive psychological environment in the classroom.

The comprehensive implementation of all communication functions in educational and speech-related activities highlights the particular importance of the educational function, as reflected in the requirements to develop students' personal qualities, including communicative abilities, shape their emotional sphere, and foster aesthetic sensitivity. The teacher's speech behavior determines the educational impact of communication. Regardless of the context, the teacher remains an educator and a communicative leader for students, and the more naturally this asymmetry of social roles is established—and the less perceptible it becomes—the more effectively the pedagogy of cooperation is realized. Verbal and emotional interactions between teachers and students facilitate mutual understanding during knowledge transmission. In organising educational communication with elementary school students, teachers should recognise that learning at this stage is largely based on imitation. Consequently, while maintaining the importance of informativeness, logical coherence, and clarity of speech, the perception and assimilation of educational information, as well as the development of students' own speech, depend substantially on the vividness, emotional expressiveness, and overall effectiveness of the teacher's speech.

As noted above, various emotional states are reflected in intonation, voice intensity, articulation rate, and pausing, as well as in the linguistic characteristics of phrase construction, including syntactic structure, lexical choice, errors, self-corrections, and semantically irrelevant repetitions. Thus, «intonation can impart different emotional and modal orientations and varying degrees of intensity to the same sentence or utterance, while also altering its communicative function. Intonation serves as an indicator of the communicants' psychological state, age, gender, social status, and the stylistic tone of communication, while also facilitating the distinction between primary and secondary aspects of communicative content» (Kuzhenko, 2020, p. 77). The ability to interpret the intonational and semantic diversity of speech is of particular importance for pedagogical theory and practice, as a substantial proportion of a teacher's professional activity involves verbally influencing students' emotional and intellectual development. Accordingly, the intonational characteristics of the teacher's speech affect students' learning activities, behavior, and emotional state.

Students' perception of a teacher's speech shapes their appreciation of the richness and beauty of their native language. The teacher's mastery of effective, expressive language contributes to an atmosphere of emotional engagement that permeates the lesson and positively influences students' emotional sphere. As A. Glushchenko observes, «the choice of emotive vocabulary is determined and regulated, first, by the speaker's general state of emotional arousal as a powerful extralinguistic factor, second, by the speaker's individual characteristics in the use of emotive vocabulary, and third, by the speaker's individual style, which is characteristic of their conscious and/or unconscious use of linguistic units» (Glushchenko, 2019, p. 141). Researchers emphasise the importance of subordinating emotions to intellectual activity, in which emotions serve as triggers for cognitive processes, since the primary purpose of school education is cognitive and intellectual development. From the moment individuals enter the educational environment in early childhood, they continue to explore it throughout their lives while simultaneously developing their emotional intelligence. In this context, students' intellectual emotions assume a particularly important role in the learning process. Accordingly, the primary stage of school education may be regarded as a period characterized by the predominance of cognitive emotions. As one emerges through encounters with new aspects of reality, these emotions, in turn, stimulate cognitive activity and other mental processes. They contribute to the formation of an individual's attitude toward the surrounding world of objects and phenomena and support the development of children's creativity.

Intellectual emotions (or intellectual feelings) are defined as specific emotional experiences that arise during cognitive activity. These emotions include interest, confidence, doubt, and surprise. K. Ushinsky also identified anticipation, surprise, disappointment, contrast, mental effort, and intellectual success or failure as forms of intellectual feelings (Ushynsky, 1955). Intellectual curiosity is frequently associated with solving practical problems. A higher level of intellectual engagement is reflected in students' interest in identifying cause-and-effect relationships, discovering patterns, and establishing general principles that underlie phenomena across different conditions. This level is characterised by creative inquiry, the acquisition of new learning strategies, and the refinement of previously developed ones.

Thus, emotionality functions as a factor that stimulates cognitive activity and contributes to the development of a communicatively mature personality in schoolchildren. Verbal interaction between the teacher and students facilitates the integration of their emotional spheres, promotes mutual understanding during knowledge transmission, and supports students' speech development. It should also be noted that the early years of elementary education represent a crucial period for the development of the so-called "sense of language," which begins to form intensively during the preschool years and continues to develop throughout elementary school. Teachers should take this characteristic of children's psychological development into account in language instruction, as both the native and foreign languages are acquired more readily and effectively at an early age. It is also during this period that children's ability to perceive the nuances of words and their meanings develops significantly.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

In summary, it is important to emphasize the need to stimulate the emotional and intellectual potential of elementary school students throughout the learning process. Emotions constitute a key factor in activating students' cognitive processes. The principal characteristics of the emotional development of primary school students include the development of emotional intelligence, the increasing depth and stability of emotional experiences, greater awareness of their own emotions and those of others, the formation of intellectual emotions, the development of voluntary emotional regulation, and the establishment of stable emotional personality traits. By fostering and developing these qualities, elementary school teachers should create a positive emotional environment for learning. Accordingly, the preparation of pre-service teachers should include the development of a model of linguistic behaviour that enables them not only to realise their own intellectual and emotional potential but also to promote its development in their students' cognitive activities.

Further research should focus on developing a methodology for preparing pre-service elementary school teachers that integrates communicative and rhetorical tasks to foster students' awareness of their linguistic individuality and enhance their emotional and intellectual qualities, thereby equipping them to promote younger elementary school students' emotional intelligence effectively.

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HUTSUL MUSICAL FOLKLORE IN THE SYSTEM OF AESTHETIC EDUCATION OF PRIMARY SCHOOL CHILDREN

Abstract. The article examines the influence of Hutsul musical folklore on the aesthetic education of primary school children and identifies effective ways of integrating it into the educational process of primary education. The relevance of developing aesthetic competence in younger schoolchildren within the context of contemporary Ukrainian society is substantiated. It is emphasized that musical

folklore serves as an important means of fostering emotional sensitivity, artistic taste, creativity, and national consciousness among pupils. Particular attention is paid to Hutsul musical folklore as a unique cultural phenomenon that combines deep emotional content, vivid imagery, and the synthesis of word, music, and dance.

The study analyzes the historical aspects of Carpathian musical folklore research in the works of Ukrainian and foreign scholars, including Filaret Kolessa, Klyment Kvitka, Stanislav Liudkevych, Oskar Kolberg, Вйla Bartyk, and others. The specific features of Hutsul kolomyikas as one of the brightest genres of Ukrainian folk art are characterized. Their rhythmic and melodic structure, improvisational nature, and close connection with nature, everyday life, and traditions of the Hutsul people are highlighted. The role of traditional folk musical instruments in creating an authentic artistic environment is also emphasized.

The article proves that involving primary school children in Hutsul musical folklore contributes to the development of aesthetic perception, emotional culture, musical hearing, and creative activity. Effective educational forms include listening to folk music, performing kolomyikas, staging folk rituals, participating in folklore festivals, musical and movement activities, and interdisciplinary integration. It is concluded that the musical folklore of Hutsulshchyna is an important means of forming aesthetic values and national identity in younger schoolchildren and should be more widely implemented in the modern educational process.

Keywords: musical folklore, Hutsul region, aesthetic education, primary school children, national culture, primary education.

ГУЦУЛЬСЬКИЙ МУЗИЧНИЙ ФОЛЬКЛОР У СИСТЕМІ ЕСТЕТИЧНОГО ВИХОВАННЯ МОЛОДШИХ ШКОЛЯРІВ

Анотація. У статті досліджено особливості впливу музичного фольклору Гуцульщини на естетичне виховання молодших школярів та визначено ефективні шляхи його використання в освітньому процесі початкової школи. Обґрунтовано актуальність проблеми формування естетичної компетентності дітей молодшого шкільного віку в умовах сучасного розвитку українського суспільства. Наголошено, що музичний фольклор є важливим засобом розвитку емоційної чутливості, художнього смаку, творчих здібностей і національної свідомості учнів. Особливу увагу приділено гуцульському музичному фольклору як самобутньому культурному явищу, що поєднує глибокий емоційний зміст, образність, синкретизм слова, музики й танцю. Проаналізовано історичні аспекти дослідження карпатського музичного фольклору у працях українських і зарубіжних науковців, зокрема Філарета Колесси, Климента Квітки, Станіслава Людкевича, Оскара Кольберга, Бели Бартока та інших. Розкрито специфіку гуцульських коломийок як одного з найяскравіших жанрів народної творчості. Охарактеризовано їхню ритмомелодичну структуру, імпровізаційний характер, тісний зв'язок із природою, побутом і традиціями гуцульського народу. Визначено роль народних музичних інструментів у створенні автентичного художнього середовища. У статті доведено, що залучення молодших школярів до гуцульського музичного фольклору сприяє розвитку естетичного сприйняття, емоційної культури, музичного слуху

та творчої активності. Ефективними формами роботи визначено слухання народної музики, виконання коломийок, інсценізацію обрядів, участь у фольклорних святах, музично-рухову діяльність та міжпредметну інтеграцію. Зроблено висновок, що музичний фольклор Гуцульщини є важливим засобом формування естетичних цінностей і національної ідентичності молодших школярів та потребує ширшого впровадження у сучасний освітній процес.

Ключові слова: музичний фольклор, Гуцульщина, естетичне виховання, молодші школярі, національна культура, початкова освіта.

INTRODUCTION

The problem formulation. In the context of the contemporary development of Ukrainian society, the aesthetic education of the younger generation has acquired particular relevance. The development of aesthetic competence in primary school students represents a key task of modern elementary education, as it aims to foster students' capacity for the emotional perception, evaluation, and creative reproduction of artistic phenomena and the surrounding world. In this context, the integration of musical folklore emerges as a highly effective pedagogical tool that unifies the cognitive, emotional, and activity-based aspects of personality development.

Engagement with national cultural heritage, particularly musical folklore, plays a vital role in this process. Hutsulshchyna, as one of Ukraine's most prominent ethnocultural regions, possesses a rich musical tradition that can be effectively utilized in the education and upbringing of primary school children.

Analysis of recent research and publications. The issues of aesthetic education and the integration of folk arts into the educational process have been extensively examined in the works of Ukrainian pedagogues and art historians. Researchers emphasize the importance of folklore as a catalyst for developing a child's spiritual world, creative abilities, and emotional sensitivity.

In the late 19th and early 20th centuries, scholarly interest in Carpathian musical folklore intensified significantly, driven by active efforts in collecting and systematizing folk song material. Substantial contributions to this field were made by scholars such as Frantishek Sushil, Oskar Kolberg, Bela Bartok, Filaret Kolessa, Klyment Kvitka, and Stanyslav Liudkevych. Through their activities, a vast source base was established, laying the foundation for subsequent research focused not only on textual analysis but also on the structural and melodic properties of these songs.

The theoretical and methodological foundations of music and aesthetic education of primary school pupils through the means of Ukrainian song folklore were developed by such prominent ukrainian scholars as L. Masol, H. Pavlenko, O. Taranenko, L. Khlibina, O. Lobova, N. Havrysh, and others (Kovaliova & Bilozerska, 2025).

The educational potential of Hutsul musical folklore is determined by its profound connection with historical memory, spiritual values, traditions, and worldviews of the Ukrainian Carpathian population. Folk songs, kolomyikas, ritual melodies, and traditional instrumental music-making serve as distinctive carriers of ethno-cultural experience passed down from generation to generation. As noted by I. Chervinska and A. Chervinskiy, «it is cultural and historical heritage that reflects the entire life experience of a people, preserved in traditions and customs» (Chervinska & Chervinskiy, 2021, p. 141). In this context, Hutsul musical folklore emerges as an important means of aesthetic education of primary school children, introducing them to national cultural values and fostering emotional sensitivity, musical perception, and artistic taste.

AIM AND TASKS RESEARCH

The aim of the research is to provide a theoretical justification for the educational potential of Hutsul musical folklore and to identify the pedagogical possibilities of its use in the educational process of primary school to foster aesthetic competence, emotional sensitivity, artistic taste, creative abilities, and national self-awareness among primary school pupils.

To achieve this aim, the following research objectives have been defined:

To analyse scholarly approaches to the study of Hutsul musical folklore and determine its place in the system of national music and aesthetic education of primary school pupils.

To explore the cultural and historical characteristics of Hutsul musical folklore, its genre diversity, and its artistic and figurative features.

To characterise the educational potential of Hutsul folk songs, particularly kolomyikas, in fostering pupils' emotional and value-based attitudes towards musical art, folk traditions, and the cultural heritage of Ukrainians.

To identify the pedagogical possibilities of incorporating Hutsul musical folklore into the educational process of primary school.

RESEARCH METHODS

To achieve the research aim and address the defined objectives, a set of theoretical research methods was employed, including analysis, synthesis, systematisation, and generalisation of scholarly sources on music, folklore studies, ethnopedagogy, and the aesthetic education of primary school pupils; the historical and cultural method was used to examine the formation and development of Hutsul musical folklore; the comparative method was applied to compare scholarly approaches to understanding its cultural, artistic, and educational potential; and pedagogical generalisation was used to identify opportunities for integrating the musical and folkloric heritage of the Hutsul region into the educational process of primary school.

RESULTS OF THE RESEARCH

The primary aim of this study is to determine the specific characteristics of Hutsulshchyna musical folklore's impact on the aesthetic education of primary school students and to outline effective pathways for its implementation within the educational process.

The moral potential of folk traditions naturally resonates with the worldview of young learners. Children at this developmental stage can sense and reflect upon concepts that are not yet fully accessible to them in everyday life. Music gradually guides students toward a higher system of values that are internalized through emotional experience rather than logical comprehension or memorization.

Traditional ethno-musical educational practices possess a powerful framework for broadening an individual's aesthetic and artistic horizons, as well as stimulating their creative potential through various forms of musical performance. The pursuit of optimal methodology to intensify children's musical development underscores the relevance of turning to the foundational principles of folk pedagogy. Specifically, musical folklore serves as a proven vehicle for engaging children with the realm of aesthetic beauty, accumulating the holistic moral, ethical, worldview, and artistic experience of previous generations.

In analyzing the impact of music on the personal development of primary school students, we align with the perspective of Sofia Hrytsa, who noted that «the more carefully we treat the development of authentic folklore's natural environments–preventing its contamination by academic professionalism and excessive tutelage from non-specialists – the longer we will preserve these pure sources for the future» (Poyasyk, 2018).

Ukrainian musical folklore serves as a powerful factor in the aesthetic education of primary school students, as it fosters the development of their artistic tastes, enhances their emotional sphere, and engages them with national culture. Integrating folkloric material into the educational process ensures not only the acquisition of musical knowledge but also the formation of a value-based attitude toward the nation's cultural heritage. However, the specific impact of Hutsul musical folklore on primary school students warrants further investigation.

The musical folklore of Hutsulshchyna is characterized by its distinct authenticity, vivid imagery, and profound emotional resonance. It encompasses folk songs, instrumental melodies, kolomyiky (short folk songs/dances), and ritual chants that accompany various facets of Hutsul life.

The song tradition of the Carpathian region, distinguished by its depth of meaning and striking originality, has long drawn the attention of folk culture researchers. Its evocative imagery, emotional intensity, and close connection with traditional daily life have sparked the interest of both ethnographers and musicologists.

A defining characteristic of Hutsul music is its intimate connection with nature, everyday life, and folk traditions. It is distinguished by rhythmic diversity, melodic expressiveness, and the utilization of traditional musical instruments, such as the alpine horn (trembita), fipple flute (sopilka), and dulcimer (tsymbaly). These elements create favorable conditions for the emotional perception of music among primary school children.

Within the diverse musical heritage of the Ukrainian people, both unique national characteristics and traits shaped by a shared origin and historical conditions are clearly observable. These phenomena are most fully reflected in folk song creation – specifically in kolomyiky and calendar-ritual songs such as Easter dance-songs (haiivky) – which not only represent ethnocultural traditions but also demonstrate sensitivity to external cultural influences.

They ostensibly derived their name either from the town of Kolomyia (Ivano-Frankivsk Oblast) or from the ethnographic group of Kolomyitsi – a tribe that inhabited the banks of the Kolomyia River.

Some scholars derive this concept from the word round dance (kolo), as dancers move in a circle during the performance, giving the dance the name kolomyika. One traditional kolomyika verse highlights this connection:

To sing kolomyiky, to play kolomyiky, Ah, but kolomyiky are best for dancing (History of the creation of kolomyiky, n.d).

The specificity of Hutsul kolomyiky lies primarily in their rhythmic and melodic structure. The traditional two-line stanza with a characteristic fourteen-syllable verse creates a dynamic, impulsive rhythm resembling the swift flow of a mountain river. Their melodic organization is frequently built upon short intonational formulas that are easily varied by the performer, allowing each kolomyika to exist in dozens of local variants. This improvisational nature is one of the key defining attributes of the genre: a Hutsul does not merely perform a kolomyika – they create it in the moment, weaving personal experience, observations, and hardships into the song.

A theoretical understanding of song folklore necessitates considering a crucial distinction: despite the intimate synthesis of text and melody forming a cohesive artistic imagery, each component functions according to its own specifics. The verbal element acts as a carrier of concrete semantic content, capable of detailed reflection on life's realities, social phenomena, and emotional states. Concurrently, the musical component conveys generalized moods and emotional nuances, shaping the overall figurative perception of the work. The text, while retaining its role as a semantic code, is characterized by clear functional determinacy and is therefore often decisive in establishing the genre classification of a song.

In terms of artistic imagery, kolomyiky are intimately connected with the natural landscape of the Carpathians. They conjure images of spruce forests, mountain pastures (polonyny), the roaring Cheremosh River, and the resounding echoes of the alpine horn over mountain valleys. Nature in Hutsul kolomyiky is far more than a mere backdrop – it acts as an active, living participant in human emotional experience. Mountain rivers «speak,» the wind «scatters sorrow» and the mountain pasture becomes a symbol of freedom and inner resilience. Through these motifs, a distinctive poetic vision of the Carpathian world emerges – emotional, expressive, and richly metaphorical.

A vital dimension of the kolomyika tradition is its profound integration into daily Hutsul life. The texts reflect the everyday existence of the highlanders: cattle grazing on high pastures, evening social gatherings (vechornytsi), weddings, folk customs, and the labor of loggers and shepherds. The kolomyika accompanied individuals across virtually all life spheres – from festive rituals to routine work. «Whatever caught the eye, whatever happened in the world – whether a sheep was lost, a young man fell in love, a girl betrayed him, a cow fell ill, or a spruce rustled – everything

found its way into a song, light and simple, like those mountains in their ancient, primordial life» (Consequently, it fulfilled not only an aesthetic function but also a communicative one, effectively serving as a living folk chronicle.

A unique flavor is imparted to Hutsul kolomyiky by their instrumental environment. The timbre of the dulcimer, violin, end-blown flute (floiara), jew's harp (drymba), and alpine horn shapes the authentic acoustic space of the Carpathians. These instruments do not merely accompany the singing – they seem to recreate the voice of nature itself: the rustle of spruce trees, the calls of shepherds, and the echoing of mountain streams.

Ivan Franko eloquently characterized kolomyiky, describing them as a «scattered necklace of pearls» and emphasizing that «...they assemble into a sweeping portrait of our contemporary folk life, immensely rich in detail and color, wherein we see the tears and joys, periods of rest, worries, and amusements, serious thoughts and jokes of our people across its various strata, its neighbors, its social standing, its public and individual life from the cradle to the grave, its traditions and beliefs, as well as its social and ethical ideals» (Kolomyiky, n.d).

Hutsul kolomyiky represent a distinct musical and poetic code of the Carpathians, preserving the worldview, emotional culture, and spiritual memory of the Hutsul ethnos. They rank among the most vibrant genres of Ukrainian musical folklore, synthesizing word, melody, rhythm, and dance.

For a Hutsul, the kolomyika is not merely a song, but a way of life – a medium for expressing joy and sorrow, love and longing, humor, and ancestral wisdom.

The kolomyika dances are traditional dances of Hutsulshchyna that possess ancient origins and are passed down through generations. The main step of the kolomyika integrates three fundamental elements of Hutsul dance vocabulary: stamping/rapid footwork (tropit), leg crossing (pereplitukha), and a sharp forward or sideways leg thrust (haiduk). The accompanying music for kolomyiky typically features a clear duple meter (2/4 time), conferring rhythmicity and dynamic energy upon the dance (Folk dance «Kolomyika», 2018).

A defining characteristic of the kolomyika is the intricate synthesis of three core elements: text, music, and movement. This interweaving creates a cohesive internal structure for the dance, which is genetically linked to an earlier archetype–the round dance During performance, participants not only execute dance steps but also sing kolomyiky, imparting a more restrained and balanced quality to the movement itself. Dancers frequently join in, rhythmically chanting short kolomyika stanzas. The thematic content of these stanzas sometimes directly mirrors or complements the dance movements, giving rise to a unified artistic expression.

Thus, the Hutsul kolomyika serves not only as a genre of musical folklore but also as an artistic symbol of the Carpathian region. The energy of the mountains pulses through its rhythms, the voice of the highland pastures resonates within its melodies, and the centuries-old memory of the Hutsul people lives on through its words. Broadly categorized, kolomyiky encompass archaic forms with deep folkloric roots alongside more recent compositions that continue to evolve this living tradition.

Engaging primary school students with Hutsul musical folklore fosters:

the development of aesthetic taste and musical ear;

the capacity to perceive and appreciate aesthetic beauty;

the enrichment of emotional experience;

the stimulation of creative abilities;

the cultivation of love for one's native region and national culture.

Effective pedagogical practices include listening to folk music, learning traditional songs, performing kolomyiky, dramatizing rituals, and participating in folklore festivals. Integrating interdisciplinary connections – synthesizing music with visual arts, literature, and ethnology – plays an equally crucial role. Active student participation, such as singing, movement to music, improvisation, and playing simple musical instruments, is particularly vital. This hands-on engagement facilitates a deeper internalization of the material and fosters a sustained interest in folk arts.

The conducted study provides grounds to assert that the musical folklore of the Hutsul region has significant pedagogical, cultural, artistic, and aesthetic potential and can be effectively used as a means of aesthetic education of primary school children. Its value lies not only in its artistic uniqueness and melodic richness but also in the fact that it serves as a carrier of historical memory, traditions, moral and ethical norms, and worldview representations of the Ukrainian people.

It has been established that Hutsul musical folklore, particularly kolomyiky, combines words, music, rhythm, and dance movement, creating broad opportunities for the comprehensive development of children. Involving pupils in listening to and performing folk compositions, musical-rhythmic activities, dramatization of rituals, folklore celebrations, improvisation, and familiarization with traditional musical instruments contributes to the development of musical hearing, a sense of rhythm, emotional sensitivity, creative imagination, and artistic taste.

Hutsul kolomyiky are of particular importance as one of the most distinctive genres of Ukrainian musical folklore. Their rhythmic expressiveness, melodic mobility, improvisational character, and connection with nature, everyday life, and the traditions of the Hutsul people provide broad opportunities for children to explore the cultural heritage of their native region. Through the content and artistic imagery of kolomyiky, pupils can not only develop aesthetic perception but also form a value-based attitude toward national culture.

The use of regional folklore contributes to the formation of national identity among primary school children, fostering respect for traditions and awareness of cultural belonging. This is particularly relevant in the contemporary context, when the preservation and transmission of cultural heritage to younger generations constitute an important task of education.

The effectiveness of using Hutsul musical folklore is largely ensured by its integration with other educational areas. Folklore materials can be appropriately combined with the Ukrainian language and literature, visual arts, ethnology, history, choreography, and the integrated course "I Explore the World". Such an approach contributes to the formation of pupils' holistic understanding of the culture and traditions of their native region.

Preserving the authenticity of folklore materials during their pedagogical adaptation is of particular importance. The use of Hutsul musical heritage should not be limited to the formal reproduction of individual songs or dance elements. It is important to preserve its cultural context and local specificity and to reveal to children the significance of folklore as a living phenomenon of folk culture.

Prospects for further research are primarily related to studying the influence of Hutsul kolomyiky on the development of children's musical abilities, including musical hearing, sense of rhythm, musical memory, vocal skills, and the ability to improvise. It is also important to investigate the moral-value and national-patriotic potential of folklore, as well as its role in shaping national identity and a value-based attitude toward cultural heritage.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Further research is also needed into a comparative analysis of the folklore of different ethnographic regions of Ukraine and the possibilities of its use in primary education. Other promising areas include studying the preparation of future teachers for working with regional folklore, the use of digital technologies for its preservation and promotion, the creation of digital folklore archives, and the involvement of families, tradition bearers, folk groups, and representatives of local cultural institutions in the educational process.

Therefore, Hutsul musical folklore should be regarded as an important resource of contemporary primary education that ensures not only the aesthetic development of children but also contributes to the formation of their creativity, emotional culture, national identity, and value-based attitude toward cultural heritage. Comprehensive further research into this phenomenon from pedagogical, psychological, cultural, and arts-education perspectives will contribute to the scientific substantiation of effective ways to preserve and transmit the cultural traditions of the Hutsul region to younger generations.

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BASIC CONCEPTS IN THE STUDY OF FACTORS INFLUENCING QUALITY EDUCATION FOR ROMA CHILDREN IN SCHOOLS OF TRANSCARPATHIA

Abstract. The article provides a systematic theoretical and pedagogical analysis and systematization of the conceptual and categorical apparatus for researching the factors ensuring quality education for Roma children in general secondary education institutions of Transcarpathia during the period of 1991–2020. The relevance of the problem is determined by the need to overcome the marginalization of the Roma national community and the absence until now of an integral methodological framework capable of connecting universal standards of learning quality with the regional multicultural context. A logical three-level structure of the terminological system is proposed: from fundamental pedagogical concepts through specialized mechanisms to specific local realities of the region. The first level - general pedagogical - reveals the standards of quality of education (through the prism of approaches by UNESCO, Cedefop, and Ukrainian legislation). Right here, the accessibility of quality education for socially vulnerable groups and the phenomenon of an adaptive educational environment sensitive to ethnic diversity are conceptualized. The second level - specialized pedagogical - focuses on the implementation of inclusive education and overcoming the risks of isolation. The requirements for the multicultural space of the school (from anti-discriminatory design to a culture of intercultural dialogue) are characterized, the meanings of the concepts of "socio-psychological neglect" and "pedagogical neglect" as key factors of students' school maladaptation are distinguished, and the role of socio-pedagogical support is outlined. The third level - contextual - reflects the ethnosocial and linguistic characteristics of the Transcarpathian society. The establishment of the official ethnonym "Roma", the complex ethno-dialectal structure (Lovari, Servitika, Kelderari groups, etc.), and the significant gap between the official census and field estimates of the Roma population size are analyzed. The specifics of linguistic assimilation (the dominance of Hungarian-speaking Roma), three existing institutional models of schools (segregated, integrated, adaptive), the essence of educational segregation, the prerequisites for early school dropout, and the potential of the institution of educational mediation are investigated. The proposed structure of concepts serves as a theoretical foundation for overcoming barriers to the integration of Roma youth into a unified educational space.

Keywords: quality of education, educational environment, inclusive education, Roma children, Transcarpathia, bilingual education, educational segregation, educational mediation.

БАЗОВІ ПОНЯТТЯ ДОСЛІДЖЕННЯ ЧИННИКІВ ЯКІСНОЇ ОСВІТИ РОМСЬКИХ ДІТЕЙ У ШКОЛАХ ЗАКАРПАТТЯ

Анотація. У статті здійснено системний теоретико-педагогічний аналіз та впорядкування понятійно-категоріального апарату дослідження чинників забезпечення якісної освіти ромських дітей у закладах загальної середньої освіти Закарпаття періоду 1991-2020 років. Актуальність проблеми зумовлена необхідністю подолання маргіналізації ромської національної спільноти та відсутністю дотепер цілісної методологічної рамки, здатної пов'язати універсальні стандарти якості навчання з регіональним полікультурним контекстом. Запропоновано логічну трирівневу структуру терміносистеми: від фундаментальних педагогічних понять через спеціальні механізми до конкретних локальних реалій регіону. Перший рівень - загальнопедагогічний - розкриває стандарти якості освіти (крізь призму підходів ЮНЕСКО, Cedefop та українського законодавства). Тут же концептуалізовано доступність якісної освіти для соціально незахищених груп та феномен адаптивного освітнього середовища, чутливого до етнічного різноманіття. Другий

рівень - спеціально-педагогічний - фокусується на реалізації інклюзивного навчання та подоланні ризиків ізоляції. Охарактеризовано вимоги до полікультурного простору школи (від антидискримінаційного оформлення до культури міжкультурного діалогу), розмежовано зміст понять “соціально-психологічна занедбаність” і "педагогічна занедбаність" як ключових чинників шкільної дезадаптації учнів, а також окреслено роль соціально-педагогічного супроводу. Третій рівень - контекстуальний - відображає етносоціальні та лінгвістичні характеристики закарпатського соціуму. Проаналізовано утвердження офіційного етноніма "роми", складну етнодіалектну структуру (групи ловарі, сервітіка, келдерари тощо) та суттєвий розрив між офіційним переписом і польовими оцінками чисельності ромів. Досліджено специфіку мовної асиміляції (домінування угорськомовних ромів), три наявні інституційні моделі шкіл (сегреговані, інтегровані, адаптаційні), сутність освітньої сегрегації, передумови раннього шкільного відсіву та потенціал інституту освітньої медіації. Запропонована структура понять слугує теоретичним підґрунтям для подолання бар'єрів інтеграції ромської молоді в єдиний освітній простір.

Ключові слова: якість освіти, освітнє середовище, інклюзивне навчання, ромські діти, Закарпаття, білінгвальна освіта, освітня сегрегація, освітня медіація.

INTRODUCTION

The problem formulation. A significant number of Ukrainian and foreign dissertation studies and scientific research papers are devoted to the problems of Roma integration into society. The factor of education is identified by researchers as one of the leading drivers enabling full participation of representatives of this community in sociocultural life and opening avenues for overcoming marginalization. At the same time, examining the learning conditions of Roma children in a multi-ethnic region such as Transcarpathia requires a clear conceptualization of the scientific apparatus: the normative content of learning quality, typology of institutions, the essence of inclusive practices, and indicators of educational isolation.

The relevance of the research stems from the necessity to overcome systemic barriers to the integration of the Romani national community into the Ukrainian socio-cultural space, where education serves as a fundamental factor in preventing marginalization and ensuring equal life chances for youth. Existing difficulties are driven by linguistic, institutional, and socio-economic barriers, including high levels of educational segregation, a lack of bilingual programs, and a significant rate of early school dropout. In this regard, an urgent need arises for theoretical reflection and the practical reform of pedagogical approaches to educating Romani children in the region. At the same time, the academic relevance lies in the absence of a comprehensive, multi-level conceptual and categorical framework that systematically integrates general pedagogical standards of educational quality with specific regional realities.

Analysis of recent research and publications. Issues regarding the sociocultural status of the Roma and their integration into society have been studied by Ukrainian scholars M. Zan, M. Horvat, M. Lendel, T. Martseniuk, R. Ofitsynskyi, S. Csernicsky, and others. Historical and pedagogical dimensions of the functioning of primary education and schooling for Roma youth are highlighted in publications by O. Fizeshi, T. Atroshchenko, T. Molnar, K. Labosh, A. Papp, and M. Cherepani. The issues of building a comfortable educational environment, inclusive principles, and support for children with special educational needs are revealed in the works and reference books of I. Kozubovska, M. Kopchuk-Kashetska, O. Tsiuniak, S. Dovbenko and others.

THE PURPOSE OF THE RESEARCH

Consist in structuring the conceptual and categorical apparatus of the research on factors influencing quality education for Roma children in schools of Transcarpathia (1991–2020) according to a logical structure: from fundamental pedagogical concepts through narrower categories to specific regional realities.

RESEARCH METHODS

Within the framework of the study, theoretical methods were employed, including content analysis, secondary content analysis, systematization, and comparison of multidimensional approaches to the topic. Specialized sources and methodological guidelines were processed and synthesized. The chosen methodology makes it possible to gain a deeper insight into the subject of analysis and build a clear conceptual framework for final conclusions.

RESULTS OF THE RESEARCH

The first level is formed by general scientific and basic pedagogical concepts. Fundamental here is the concept of the quality of education. The global glossary of the UNESCO Institute defines quality through the prism of two main principles: the first considers learners' cognitive development as the leading goal of all educational systems, success in achieving which is the primary indicator of performance. The second emphasizes the mandatory role of education in affirming the values of a responsible citizen and developing a child's creative and emotional abilities (UNESCO, 2004, p. 5).

From the perspective of the European Centre for the Development of Vocational Training (Cedefop), quality comes down to the rational optimization of teaching and learning processes in order for learners to acquire sustainable competencies corresponding to educational standards and societal needs (Cedefop, 1998, p. 15). In Ukrainian legislation, this category is delineated as the compliance of learning outcomes with requirements established by legislation, the relevant educational standard, or an agreement on the provision of educational services (Law of Ukraine On Education, 2017).

Consequently, another concept crucial for our study is the accessibility of quality education. In the "Dictionary of Terms and Concepts of Modern Education," this term is viewed as the state-guaranteed ability of every citizen to fully satisfy personal educational demands and obtain training that ensures competitiveness in the labor market. In this context, ensuring the accessibility of quality education is a strategic requirement defined also as differentiated support

for specific categories of the population (in particular, socially vulnerable groups and residents of territories distant from major cultural and educational centers) (Dictionary of terms and concepts of modern education, 2020, p. 55).

In the context of our study, accessibility of quality education means providing equal opportunities for socially vulnerable groups, particularly residents of compact ethnic settlements and children experiencing difficulties in mastering the curriculum. K. Labosh cites data from 2021 indicating that more than 60% of Roma are unemployed, about 40% lack identification documents, and only 1% of Roma children obtain a certificate of complete general secondary education (Labosh, 2024, p. 161).

Inextricably linked with the quality of education is the concept of the educational environment. This refers to the immediate context of the learning process and the interpersonal interaction among participants in this process. According to the definition by T. Molnar, an educational environment is an aggregate of social, material, informational, spatial, and psychological conditions that ensure the development of personality, the formation of its value orientations, life competencies, scientific worldview, and social activity. The researcher emphasizes that modern pedagogical science considers the educational environment an important factor involved in personality formation. T. Molnar clarifies that in such multicultural regions as Transcarpathia, the educational environment must be sensitive to linguistic and cultural diversity (Molnar, 2025, p. 161).

Therefore, the second level encompasses specialized pedagogical concepts, among which inclusive education takes on a primary significance for our research. According to the Declaration of the World Conference on Education, inclusion is a continuous process of addressing and responding to the diverse individual needs of schoolchildren through increasing their participation in learning, cultural environments, and community practices, since it is the mainstream general education school that must educate all children, paying special attention to groups with a high risk of marginalization and segregation (Kopchuk-Kashetska, Tsiuniak, Dovbenko, 2023, p. 91). Implementing this principle in practice is impossible without deploying inclusive education and building a corresponding inclusive educational environment that, through flexibility in teaching methods and adaptation of conditions, guarantees equal access to education for children with special educational needs (Dictionary of terms and concepts of modern education, 2020, p. 113), including Roma children.

Accordingly, inclusive education appears as a comprehensive system for ensuring equal access to quality educational services for children with special educational needs through differentiation and the application of student-centered technologies. An inclusive educational environment combines appropriate resources, methodological tools, and didactic techniques that create conditions for equitable collaborative learning work (Ziubin, 2025, p. 193).

The organization of the educational process in the studied region must rely on the principles of multiculturalism. A multi-ethnic region is a territorial space of long-term co-residence of representatives of different ethnic groups, whereas a multicultural environment defines a system of ongoing social communication among representatives of different ethnic cultures in the spheres of daily life, production, and leisure (Kozubovska & Povidaichyk, 2021, p. 30). This principle of a sensitive attitude toward the educational needs of representatives of ethnic communities is transferred to the school level, where the multicultural environment of an educational institution must be shaped. It takes into account both the content dimension of space in the form of institutional decoration free from discriminatory markers, the content-methodological component in the form of curricula reflecting multiculturalism, and the communicative-organizational component, which provides for a culture of partnership and intercultural dialogue (Kozubovska & Povidaichyk, 2021, p. 30).

According to the "Dictionary of Terms and Concepts of Modern Education," one of the key causes of educational maladaptation is socio-psychological neglect, interpreted as the result of a child being deprived of targeted educational influence and appropriate social conditions for full-fledged mental and intellectual development over an extended period (Dictionary of terms and concepts of modern education, 2020, p. 65). The consequence of this is the phenomenon of pedagogical neglect. The compilers of the dictionary emphasize that pedagogically neglected children are predominantly somatically and mentally healthy individuals whose developmental lag is caused by a destructive educational environment or the prolonged absence of corrective-pedagogical intervention, which, in the absence of timely support, leads to behavioral deviations and persistent alienation from the educational process. To overcome socio-psychological and pedagogical neglect, socio-pedagogical activity is deployed and social support is organized (Dictionary of terms and concepts of modern education, 2020, p. 175).

The third level includes narrow-specialized and contextual concepts in the study of Roma education in Transcarpathia during the period of 1991–2020. According to the Descriptive Glossary of the Council of Europe, the designation "Roma" is an umbrella term encompassing groups of Roma, Sinti, Kale, Travellers, and related communities, whereas the outdated term "Gypsies" has been removed from official documentation due to its persistent negative connotation (Council of Europe, 2012, p. 8).

In Ukraine, the ethnonym "Roma" began to be used in the 1990s alongside the development of Roma activism and the emergence of the first public non-governmental organizations (prior to that, the term "Gypsies" was more widespread in public and scholarly discourses). The transition from the use of the ethnonym "Gypsies" to "Roma" occurred particularly actively in the 2010s, when the term "Roma" was widely used in official documents (Panchenko, Kyuchuk, Homanyuk, 2025, p. 31). In our study, the ethnonym "Roma" recommended by the Council of Europe is used.

A diverse ethnic structure is represented in the territory of the Transcarpathian region, divided into five ethno-dialectal groups: Hungarian Roma (Ungrika Roma or Lovari Roma), Slovak Roma (Servitika Roma), Kelderari (Kotlyary), Maramureș Roma (Gadjikane Roma), and Romanian-speaking Vlachs (White Gypsies). The Carpathian area is primarily represented by Hungarian and Slovak Roma, as well as Vlachs (Horvat, 2026, p. 81). An analysis of demographic data demonstrates substantial discrepancies between statistics and field research. According to data from the 2001 All-Ukrainian Population Census, the Roma population in Transcarpathia was recorded at 14 thousand individuals, or 1.1% of the region's residents (State Statistics Committee of Ukraine, 2001). However, researchers note that the actual size of the Roma population reached at least 32 thousand citizens. Such a discrepancy is caused by the practice of forced masking of ethnicity, as a result of which more than 60% of Transcarpathian Roma identified Hungarian as their native language, nearly 20% indicated Ukrainian, and only a fifth named Romani (Fizeshi, 2023, p. 72).

Data from the Roma Women's Fund "Chirikli" allow identifying three institutional models in the Transcarpathian region: segregated schools affiliated with compact settlements with a 100% Roma student body; integrated schools providing joint instruction alongside students of other ethnicities; and adaptive primary classes serving as transitional links to overcome language gaps and subsequently transition children to mainstream classes (Roma Fund Chirikli, 2018). According to the definition of the Council of Europe, educational segregation is physical, institutional, or spatial separation of Roma children on ethnic or socio-economic grounds, manifested in their concentration in separate schools, special remedial institutions, or isolated Roma classes (Council of Europe, 2020).

To bridge learning gaps and establish a connection between the community and institutions, school/educational mediation is applied as an institutional mechanism for fostering trust and communication with the participation of school mediators who facilitate regular class attendance and resolve interethnic misunderstandings (Council of Europe & European Commission, 2011). It is also aimed at preventing the phenomenon of early school leaving / dropout, the structural causes of which encompass child labor in households, early marriages, economic hardship, language barriers, and feelings of alienation within the peer group (European Commission, 2020).

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

In this article, the structure of the most frequently used concepts has been substantiated and arranged, allowing for an integral investigation of the problem of accessibility and quality of education for Roma children in the multi-ethnic space of Transcarpathia: from general scientific standards (quality and a safe environment) through specialized pedagogical mechanisms (inclusion, multiculturalism, social support) to specific regional realities (language barriers, ethno-dialectal diversity, segregated educational models).

It has also been proven that quality education for vulnerable communities is inextricably linked to creating an inclusive, non-discriminatory environment, preventing pedagogical neglect, and taking into account the sociocultural context of compact settlements.

In addition, key factors hindering the realization of the educational potential of Roma students in Transcarpathia in 1991–2020 were outlined, namely: language gaps due to the lack of systemic bilingual training, institutional preservation of isolation in segregated schools, and high rates of early dropout. The operation of adaptive transitional classes and the deployment of the institution of educational mediation to establish a partnership between the school and the community were identified as effective tools for overcoming these barriers.

A number of concepts related to the study of factors influencing quality education for Roma children in schools of Transcarpathia require further exploration. Future scholarly inquiries lie in the practical development and verification of models of socio-pedagogical mediation and bilingual support for Roma pupils with the aim of their unhindered integration into general secondary education institutions.

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(IN)DELICATE ISSUE: PREVENTION OF CHILD SEXUAL VIOLENCE AND SEX EDUCATION

Abstract. The urgency of the need to increase the educational community's attention to the problem of sexual violence against children is due to its hidden nature – it is extremely difficult to establish the exact number of victims. The purpose of the study is to analyze the theoretical aspects of the problem of sexual violence against children; to characterize the potential opportunities of sex education in terms of preventing sexual violence against children. Research methods: literature analysis, systematization, synthesis, consistent methodological approach to presentation. The key aspects of the novelty of the study are the interpretation of sex education as a tool for preventing sexual violence against children and the emphasis on its role in shaping children's ideas about personal boundaries and consent. The practical significance of the study lies in the fact that what is presented in it can be useful for teachers of secondary education institutions and lecturers of higher education institutions.

It has been found that the problem of sexual violence against children is very difficult to describe, since only a small percentage of the total number of incidents is registered and recorded, and additional complexity is caused by the high dynamics of the spread of the problem and the rapid scaling of its consequences. A number of factors are described that influence the interpretation of the concept of «child sexual abuse» and the ability to identify behavior that is considered sexual abuse. The conceptual principles of the Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse are highlighted. The approaches to defining the concept of «sexual violence against children» declared in international and domestic legislative documents are analyzed. One of the classifications of forms of sexual violence against a child is presented.

Characteristic symptoms (somatic, psychosomatic, psychological, behavioral) that may indicate that a child has been sexually abused are described. The role of parents in ensuring the protection of children from sexual violence is emphasized. It is noted that the purpose of sex education is to form in children ideas about their own boundaries, safe and dangerous touches, and to form a culture of consent and mutual respect, the preventive function of sex education is characterized. The content of the manual «Teach your child to defend themselves» is briefly described. It is concluded that the result of comprehensively implemented sex education is the child's personalized knowledge about recognizing dangers, establishing personal boundaries, and the concept of consent.

Keywords: safety, personal boundaries, danger, prevention, sexual violence against a child, sex education.

(НЕ)ДЕЛІКАТНА ПРОБЛЕМА: ПРОФІЛАКТИКА СЕКСУАЛЬНОГО НАСИЛЬСТВА ЩОДО ДИТИНИ І СТАТЕВЕ ВИХОВАННЯ

Анотація. Актуальність потреби посилення уваги освітянської спільноти до проблеми сексуального насильства над дітьми зумовлюється її прихованим характером – точну кількість потерпілих установити надзвичайно складно. Мета дослідження – проаналізувати теоретичні аспекти проблеми сексуального насильства над дитиною; схарактеризувати потенційні можливості статевого виховання у вимірі профілактики сексуального насильства над дитиною. Методи дослідження: аналіз літератури, систематизація, синтез, послідовний методичний прийом викладу. Ключовими аспектами новизни дослідження є трактування статевого виховання як інструмента профілактики сексуального насильства щодо дитини і увиразнення його ролі у формуванні у дитини уявлень про особисті кордони і згоду. Практичне значення дослідження полягає у тому, що викладене у ньому може стати у нагоді вчителям закладів загальної середньої освіти і викладачам закладів вищої освіти.

З'ясовано, що проблему сексуального насильства над дітьми дуже складно описати, оскільки реєструється і фіксується лише незначний відсоток від загальної кількості інцидентів, а додаткова складність зумовлена високою динамікою поширення проблеми і стрімким масштабуванням її наслідків. Схарактеризовано низку чинників, які впливають на трактування поняття «сексуальне насильство над дітьми» і на здатність ідентифікувати поведінку, яка вважається сексуальним насильством. Висвітлено концептуальні засади Конвенції Ради Європи про захист дітей від сексуальної експлуатації та сексуального насильства. Проаналізовано підходи до визначення поняття «сексуальне насильство над дитиною», задекларовані у міжнародних і вітчизняних законодавчих документах. Представлено одну з класифікацій форм сексуального насильства щодо дитини.

Схарактеризовано характерні симптоми (соматичні, психосоматичні, психологічні, поведінкові), які можуть засвідчити про те, що дитина зазнала сексуального використання. Увиразнено функцію батьків у забезпеченні захисту дітей від сексуального насильства. Зазначено, що метою статевого виховання є формування у дітей уявлень про власні кордони, безпечні і небезпечні дотики, формування культури згоди і взаємної поваги, схарактеризовано превентивну функцію статевого виховання. Стисло описано зміст посібника «Навчіть дитину захищатися». Зроблено висновок, що результатом комплексно реалізованого статевого виховання є персоналізовані знання дитини про розпізнавання небезпек, встановлення особистих кордонів і концепцію згоди.

Ключові слова: безпека, власні кордони, небезпека, профілактика, сексуальне насильство щодо дитини, статеве виховання.

INTRODUCTION

The problem formulation. Child sexual abuse is a serious global problem that has profound negative social and psychological consequences. Their duration and intensity depend on many factors, such as: the child's developmental stage at the time of the abuse; the child's relationship with the abuser; the duration of the abuse; whether or not information about the abuse was disclosed; support provided or not (Beisert & Izdebska, 2012). Among other things, people who were sexually abused in childhood often have difficulty creating a healthy family institution and fulfilling parental responsibilities (Vasylevich & Levchenko, 2023, p. 150).

The urgency of the need to increase the educational community's attention to the problem of sexual violence against children is primarily due to its hidden nature: the fact is that it is extremely difficult to establish the exact number of victims. According to estimates from the Council of Europe, one in five children suffers from various forms of sexual violence at least once in their lives (Teach your child to protect themselves, 2022, p. 4). Media outlets that cover stories of children who have been abused, kidnapped, or even murdered very often describe the perpetrators as strangers. However, according to The National Society for the Prevention of Cruelty to Children (The National Society, 2026), in eight out of ten cases of sexual abuse of children, people well known to the child are committed: family members, friends, neighbors. When the abuser is a loved one, children often hide their experiences for months or years out of fear, shame, or emotional dependency. Often the truth only comes out in adulthood, and in some cases the secret remains forever.

The basic prerequisite for effective prevention of sexual violence against children is a multifaceted educational process called «sex education». Its formalized dimension (in schools) is characterized by general societal support. For example, parents find this format extremely convenient: it relieves stress and helps if you yourself don't fully understand the topic of human sexuality. In addition, parents are not always ready to discuss such issues with their children. Almost 84% of parents and teachers believe that sex education should be included in the school curriculum. Most often, respondents suggest starting in the first or fifth grade. Certain activities that can be considered as components of sex education are already being implemented in schools – these are educational hours and optional classes, lectures by invited external specialists (for example, health workers), film screenings, preparation of posters, etc. (Awareness and attitude of the teaching community, 2020, p. 5).

The relevance of the topic raised in the article is evidenced by the multifaceted and diverse publications available in the domestic scientific space. Chronologically, one of the first in this context is the manual by N. Leshchuk, Zh. Savych and O. Lototska «Sexual Education and Reproductive Health of Adolescents and Youth» (Leshchuk, Savych & Lototska, 2014). The psychological and pedagogical aspects of sexual education of the younger generation were characterized by N. Slyusarenko and Ya. Ospanova (Slyusarenko & Ospanova, 2017). The legal determinants of the problem studied in our article are expressed in the publication «Sexual Violence Against Children: Coordination of Actions» edited by T. Bugayets, O. Kovaleva and N. Pashko (Sexual Violence Against Children: Coordination of Actions, 2020). The theoretical foundations of the problem of sexual education of schoolchildren are discussed in the research of O. Rogozhina (Rogozhina, 2021). The issues of sexual socialization of Ukrainian schoolchildren in the light of «Standards of sexual education in Europe» became the subject of analysis by V. Kravets and S. Kravets (Kravets & Kravets, 2021). O. Kyslova and A. Nikolaevska represented the problems of adolescent sexuality and sexual education in Ukraine (Kyslova & Nikolaevska, 2023). The psychological dimension of the problem of sexual violence against children as a social destruction was highlighted in the publication of L. Procyk (Procyk, 2023). The current state and prospects for the development of this pedagogical process were highlighted by A. Molotokas and A. Proskurnia (Molotokas & Proskurnia, 2024). N. Saiko and O. Batsman raised the issue of sexual education as a conscious and planned system of actions to prevent sexual violence (Saiko & Batsman, 2025). In turn, O. Karpenko, Zh. Petrochko and A. Dulya analyzed the content and technology of organizing this pedagogical process in the context of developing a health preserving environment in a general secondary education institution (Karpenko, Petrochko & Dulya, 2025). Therefore, we can say that a certain basis has been formed for solving the problem of sexual education.

However, researchers identify several key reasons that hinder the implementation of sex education courses in Ukrainian schools. The main barriers include: the lack of clearly structured program concepts; systematic underestimation of this direction within the general educational process; a shortage of qualified teachers who have undergone special training and possess the methodology for teaching such sensitive topics; lack of unified curricula and teaching aids for all grades approved by the Ministry of Education and Science of Ukraine; lack of proper methodological recommendations; lack of literature for teachers on sexual education of children, etc. (Karpenko, Petrochko & Dulya, 2025; Kravets & Kravets, 2021).

Research has shown that teachers who would like to engage in sexuality education for students have questions about their own training and supporting materials. Many teachers consider it useful to take a course on sexual education, receive training on approaches and methods for conducting appropriate classes with students, learn about the experience of implementing sexual education from other colleagues who already have it, etc. (Awareness and attitude of the teacher community, 2020, p. 7-8).

An analysis of the scientific and pedagogical literature demonstrates a critical lack of research that directly reveals the specifics of teacher training for the implementation of relevant programs at school. We found only one publication of the specified content – R. Chubuk analyzed the training of social workers in the formation of sexual culture of youth as a means of preventing sexual demoralization (Chubuk, 2020).

Therefore, dynamic changes in the educational environment and new challenges are outpacing the pace of modernization of pedagogical education in the context of sexual education of children and youth, creating a significant gap between theory and practice.

THE AIM AND RESEARCH TASKS

The aim – to analyze the theoretical aspects of the problem of sexual violence against children; to characterize the potential possibilities of sex education in the dimension of preventing sexual violence against children.

RESEARCH METHODS

The following research methods were used: literature analysis – a systematic process of collecting, evaluating, and synthesizing previous scientific works; systematization – the division of knowledge into certain categories for an orderly picture; synthesis – combining facts identified during analysis into a new, holistic system for forming one's own conclusions; a consistent methodical presentation technique that contributes to the competent structuring of the text.

RESULTS OF THE RESEARCH

In general, the phenomenon of sexual violence against children directly contradicts the basic principles of world order, legal systems, moral values, and cultural traditions of the vast majority of states and societies. Systematic documentation and research into the scale and mechanisms of this phenomenon began in the 1980s. Every year, new large-scale global studies on the sexual exploitation of children appear (Fry & all, 2025). It turned out that it is very difficult to describe the problem of sexual violence against children, since only a small percentage of the total number of incidents is registered and documented. Additional complexity is caused by the high dynamics of the spread of the problem and the rapid scaling of its consequences.

These transformations are due to a number of factors that influence the interpretation of the concept of «child sexual abuse» and the ability to identify behavior that is considered sexual abuse. For example, the digital age has made children vulnerable to online violence (Slyvka, 2025): the development of technologies, such as social networks, artificial intelligence, and instant messengers, makes it easier for perpetrators to access minors and recruit them to participate in online sexual contacts, as well as to distribute pornographic images (photos, videos) involving children. Modern methods of sexual abuse against children are constantly expanding. In parallel, the spectrum of traumatic sexual experiences of children is expanding. Large-scale investigations have exposed «epidemics» of sexual and physical abuse of children by clergy and staff of various childcare institutions in various countries. In these cases, victims often report experiencing violence in adulthood (historical violence), which is associated with a later awareness of the consequences or a period of post traumatic recovery.

The first international agreement to criminalize all forms of sexual violence against children, including domestic violence, forced prostitution and pornography, is the Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse, known as the Lanzarote Convention (Council of Europe Convention, 2012). The ratification of this document and the implementation of the convention provisions by a certain state poses a number of institutional and legal challenges to the state authorities. They are related, in particular, to the creation of prevention programs, appropriate education, the organization of systemic therapeutic support for victims of sexual violence, the introduction of legal representation for children, the modification of the justice system focused on children, the establishment of international cooperation, etc. Among other things, states that have ratified the Convention are obliged to collect various statistical data on the problem of sexual exploitation of children (Włodarczyk, 2022, p. 325).

The World Health Organization offers the following definition of «child sexual abuse»: involving a child in sexual activity that the child is not capable of fully understanding and giving informed consent to, and/or for which the child is not yet developmentally mature and cannot give legal consent, and/or which is contrary to the legal or social norms of a particular society. and/or which is contrary to the legal or social norms of a particular society. Sexual abuse of a child includes both situations in which there is physical contact between the child and the abuser (contact sexual abuse) and situations of a sexual nature in which there is no sexual contact (non-contact sexual abuse). A child is forced into contact with the specified content through violence or the abuser uses his power (status, age, financial independence or position) in order to subjugate the victim, make them feel helpless and afraid to express their

own opinions. Such power (hierarchy) objectively exists both within the child-parent relationship and in the child's interaction with representatives of various institutions that exercise administrative or educational control. The key forms of psychological and covert violence against children are coercion (psychological pressure), manipulation, and seduction (destructive involvement). Before a child reaches the legally established age of sexual consent, any sexual contact with a minor is illegal (it is considered sexual abuse), regardless of the child's wishes and regardless of whether or not the perpetrator used any coercive measures. Commercial sexual contact with a child is also distinguished: this phenomenon has been called «sexual exploitation of children». A child is sexually exploited when they engage in sexual acts in exchange for something (such as a benefit or even the promise of a benefit) received from a third party, the perpetrator, or the child themselves (ECPAT, 2016).

There is no separate document in domestic legislation dedicated to the problem and definition of sexual violence against children. However, the above mentioned Convention is part of the national legislation of Ukraine (On the ratification of the Council of Europe Convention, 2013). The answer to the question of what behavior is considered sexual abuse of children under Ukrainian law is contained in the relevant articles of the Law of Ukraine «On Prevention and Counteraction to Domestic Violence» (On Prevention and Counteraction to Domestic Violence, 2018). For example, Article 1, Part 1, Clause 15 states that sexual violence against a child as a form of domestic violence includes: any acts of a sexual nature committed against a child regardless of their consent or in the presence of the child; forcing a child to engage in a sexual act with a third person; other offenses against sexual freedom or sexual integrity of a person, including those committed against or in the presence of a child.

Sexual abuse occurs when such activities occur between a child and an older or adult person, or between a child and another child, if these individuals are dependent on each other due to age or stage of maturity, with one person having power or caring for the other. The purpose of child sexual abuse is to abuse a child for sexual gratification, to stimulate them, or to use them for sexual stimulation (Sajkowska, 2002, p. 7).

There are a large number of classifications of sexual abuse against children. Researchers most often distinguish the following types:

- lack of physical contact: sexual conversations (the perpetrator directly expresses his sexual desires towards the child («Look at my penis», «Show me what's under your panties»), expresses opinions about the child's or his/her own sexual attractiveness («You have nice buttocks, I want to see them better», «You have nice breasts, I want to kiss them»), does he tell the child about his own sexual relationships with other people); exhibitionism (the perpetrator shows his intimate body parts to the child without her consent, may also masturbate in her presence); voyeurism (a social deviation in which a person derives sexual pleasure by secretly watching another person bathing and performing bodily functions); online recruitment for sexual purposes (the perpetrator establishes online friendships during which the perpetrator attempts to induce the child to engage in sexual behavior);
- sexual contact involving stimulation of intimate body parts: touching a child's body against their will, forcing a child to touch another person; kissing intimate body parts; manual stimulation of a child's genitals;
- oral-genital contact;
- femoral intercourse;
- sexual penetration (oral-genital);
- sexual exploitation of children: sexual contact in exchange for money or other gifts; child pornography; prostitution;
- sexual violence against children associated with other forms of violence: deviant forms of sexual violence (Izdebska i Pilarczyk, 2019).

The scale of the problem of sexual violence against children is much greater than that expressed by statistical studies. According to researchers, despite the fact that court reporting demonstrates the overall dynamics of responding to offenses and the effectiveness of justice institutions, it is not a representative indicator for assessing the real state, volume, and qualitative characteristics of crime in the context of child sexual abuse (Izdebska & Pilarczyk, 2019). This is primarily explained by the fact that the data provided in them relate exclusively to cases that have criminal status. In addition, these studies only take into account those incidents that have been successfully investigated and confirmed in court. Therefore, the real «picture» of sexual violence against children can be reflected in official data only when society is ready to openly discuss and reveal the problem (Włodarczyk, 2014).

Other studies that show the scale of sexual violence much more fully are the results of social surveys of current children to study their current experiences (Krechetova, 2025) and so-called retrospective studies of adults that analyze children's experiences through the prism of time (Sexual Violence in Ukraine, 2021; 43% of Ukrainians, 2021).

Scientists identify a number of factors that increase the likelihood of long term consequences of sexual violence. These include: microsystemic, family level factors (early negative family experiences (including conflicts between parents); experiencing other forms of violence that justify aggressive behavior and alcohol abuse in the family; proximity to the abuser (family ties or acquaintances; physical proximity – living together); factors of the exosystem level, i.e. the immediate social environment (low socio-economic status; lack of alternatives due to lack of family and social support); macrosystemic level factors (social blaming of the victim of violence; patriarchy) (Włodarczyk, 2016).

Persons working with children (parents, caregivers, teachers, etc.) must be very attentive to their conditions and behavior in order to be able to recognize characteristic symptoms that indicate that a child has been sexually

abused (Dwyer & Wilkinson, 2026). Somatic symptoms that may indicate that a child has been sexually abused include pregnancy, sexually transmitted diseases, HIV, urogenital infections, injuries to the external genitalia and/or anus, pain in the vaginal or anorectal area, rupture of the hymen, bleeding from the genitals, pain during urination or defecation, bloody stools, oral infections, difficulty walking or sitting, the child has a regression to behavior typical of a younger age (for example, enuresis – secondary nocturnal incontinence, return to sucking a thumb or pacifier).

Psychological and behavioral symptoms that may be warning signs that a child has been sexually abused include: the child complains of physical symptoms without a clear medical basis; the child exhibits personality changes, such as insecurity, depression, etc.; the child shows detachment or, conversely, excessive annoyance; the child behaves aggressively, has outbursts of anger; the child avoids social contacts, does not trust people (such symptoms are very often mistakenly interpreted as the child's desire to be independent); the child avoids being alone with a family member, the child shows unexpected fear of an adult or does not want to communicate with him; the child shows fear of adults of a certain type (gender, age, appearance); the child has an inexplicable fear of certain places; the child is afraid of sleeping alone; the child is chronically depressed, withdrawn; the child loses toilet skills (typical for young children); the child tries to talk about his/her use through hints (for example, he/she may say that someone asked him/her to keep a secret) or anxiously asks questions related to the breakdown of the family («Dad might take him/her away from home»); the child describes the behavior of an adult who is allegedly trying to seduce the child for the purpose of sexual exploitation; the child does not want to go to school or has a sudden loss of ability to concentrate; the child exhibits atypical, provocative and seductive sexual behavior (creates erotic drawings or games; masturbates intensely – inadequate to the phase of psychosocial development; demonstrates age inappropriate knowledge about sexuality that was not present before, uses words in the context of sexuality that are inappropriate for the child's level of development, uses new definitions for sexual acts or intimate body parts in communication); the child suddenly refuses to change clothes for physical education class or after activities involving physical activity; the child plays with toys or objects in an inappropriately sexual way; the child expresses his attachment to family and friends in a sexualized way; there is evidence that there is a secret connection between the child and the adult; a very disturbing fact is the appearance of gifts and money in the child; the child talks about sexual abuse from a third person («I know a girl...»); the child shows indifference to his or her own appearance, neglects personal hygiene, or, conversely, washes pathologically, as if he or she wants to «wash» or cleanse himself or herself (typical for older children); the child uses protective measures that make it difficult to remove clothing (many belts, several pants at the same time, etc.); the child has attention deficit hyperactivity disorder, as well as eating disorders (anorexia, bulimia); the child's behavior becomes self destructive (alcohol, drug use, prostitution, suicide attempts, running away from home, excessively frequent accidents) (Teach the child to defend himself, 2022, p. 14-15).

Most of these behaviors and psychosomatic complaints (abdominal pain; headache; nausea; vomiting) may be related to other problems. However, they require close attention and careful analysis to prevent child sexual abuse.

Sexual violence causes profound psycho emotional and physical harm. The main insidiousness of such trauma lies in its «delayed» consequences – devastating symptoms can manifest or worsen months or years later. The nature of the consequences that a child will experience later in life depends on a number of factors, such as: age, personality, form and course of sexual abuse, and relationship with parents. The «delayed» consequences will be much more serious if: the perpetrator displayed extreme aggression and inhuman cruelty (violent acts included coercion to engage in sexual intercourse in perverted, deviant forms, including anal and oral sex); the child was «used» many times; the perpetrator belonged to the child's immediate environment, i.e. was a member of their family (father, uncle, cousin, etc.); the child was deprived of help and support from the immediate family; the child was psychologically traumatized during multiple procedural actions, in the presence of strangers; the child did not receive professional therapeutic care after the incident.

The key role in ensuring the protection of children from sexual violence lies with parents. However, as studies show, many parents deliberately avoid talking to their children about the risk of sexual violence, justifying their position by the absence of threats, and considering their child too young for such topics (Włodarczyk, 2022, p. 335-337). The modern concept of the protective role of parents goes far beyond simple warnings in the context of dangerous situations that could lead to sexual violence. Researchers agree that reliable child protection requires an integrated educational approach. Effective and efficient teaching of protective behavior to children by parents cannot be limited to random advice: to form sustainable and life saving skills, family conversations must be based on proven, scientifically based approaches and formal evidence based programs for developing parenting competencies (Rudolph & all, 2020).

Logically, the most effective tool for primary prevention of sexual violence is sex education: its goal is to form in children ideas about their own boundaries, safe and dangerous touches, and to form a culture of consent and mutual respect (Izdebska & Ruchel, 2011). Scientists emphasize the urgent need to reorient educational programs to study the individual, environmental, and situational determinants that provoke deviant behavior, as well as to identify protective and risk factors associated with the consequences of violence for child development (Sajkowska & Skierkowska, 2020, p. 39). Verified information on action algorithms, danger signs and support, as well as detailed recommendations for parents and teachers on child protection can be found, for example, on the UNICEF Ukraine platform (Youth from different regions of Ukraine, 2024; Sexual education of children, 2019).

The preventive function of sex education is that children and adolescents learn to be aware of their bodies, call their genitals by their correct anatomical names, and understand that no one has the right to touch them without permission. Education with appropriate content teaches to respect one's own «no» and the «no» of others, explaining that any physical or sexual contact is possible only with mutual and informed consent. Awareness reduces the risks of becoming a victim of grooming (psychological manipulation by adults or peers) or sexual violence, particularly on the Internet.

It is quite logical that the teacher who will implement the specified educational case must possess barrier free competence, which is defined as an integrated set of knowledge, skills, values, and attitudes that allow the specialist to identify and overcome barriers in interaction with students and create an inclusive environment (Komar, 2025).

Scientific research has shown that in Ukraine today there is no holistic, high quality system of sex education that would cover secondary education institutions. Some private schools have introduced similar courses, but there is no unified certification or defined indicators of education quality (Markova, 2024, p. 10). Despite public demands (for example, a successful petition to the President of Ukraine (Introduction of Compulsory Sex Education, 2023)), there is still no single standard in the education system, and information materials are often episodic.

To create an effective system of sex education that covers all stages and aspects of personality formation, combining socialization, upbringing, and education, it is necessary to use the full variety of its forms. We recognize the manual «Teach your child to protect themselves» as an effective scientific and methodological tool in the field of sex education, which we interpret as the basis for the prevention of sexual violence against children (Teach your child to protect themselves, 2022). This publication was prepared within the framework of the project «Prevention of Sexual Abuse and Sexual Exploitation of Children in Central and Eastern Europe – a Comprehensive Approach», implemented by the Ukrainian Children's Welfare Foundation in partnership with the Empowering Children Foundation (Republic of Poland) with financial support from the OAK Foundation (Switzerland). The materials contained in the manual are designed to solve the following tasks: determine safety rules while at home, at school, and in public places; teach the difference between safe and unsafe touches; explain the need to set personal boundaries to maintain privacy, safety, and expression of emotions; explain that everyone has the right to tell another person not to touch their body; explain the concept of personal boundaries; help learners identify the names of people who may be in the circles of personal space; learn the safety rule «It doesn't matter who touches»; develop active refusal skills in the event of a dangerous situation; identify the qualities of an adult whom the child can trust; identify situations when it is necessary to call for help from adults or call the police, etc.

Among others, the following forms, methods and means of work are offered: watching the cartoons «My Safety Rules», «Scream. Run. Tell», «Safe Touch, Dangerous Touch» and «My Neighbor», the characters of which voice the rules of behavior in dangerous situations; conversations during which students answer the following questions: «What types of body touches can be considered safe?»; «What parts of a person's body are considered intimate?»; «Describe the people who can enter the intimate, personal, social, and public circles of personal space»; «How do you understand the expression my body belongs only to me?»; «What might a dangerous stranger look like?»; discussing situations such as: «What would you do if a relative or friend touched you in a way that made you uncomfortable?»; «What should you do when another person asks you to touch their private parts?»; «Why is it important to respect other people's personal space?»; «What should you do when someone is very close to you in a public place?»; associative bush «An adult you can trust».

Educational publications similar to the above are no exception, but their total collection consists of only a few copies, they are, so to speak, a bibliographical rarity.

We believe that adapting the best foreign methods (Ferragut & all, 2023; Vikander & all, 2026) can improve the situation and ensure the effectiveness of domestic educational programs on the prevention of sexual violence against children.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Therefore, the high degree of social danger of criminal offenses against the sexual freedom and sexual integrity of minors is due to the fact that such acts grossly violate the basic rights of the child. They have a destructive effect on the formation of personality, harm its moral and physical development, lead to corruption and premature involvement in sexual relations, which is contrary to the interests of childhood protection, enshrined in international standards. Comprehensive sex education plays a key preventive role in relation to child sexual abuse: it results in the child's personalized knowledge about recognizing dangers, setting personal boundaries, and the concept of consent.

It is promising to study the possibilities of updating educational programs of higher pedagogical education institutions with a focus on sex education as a basis for the prevention of sexual violence against children.

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ETHNOPEDAGOGICAL DISCOURSE IN THE CONTEXT OF UKRAINIAN EDUCATION ABROAD: THE CONCEPTUAL FOUNDATIONS OF M. STELMAKHOVYCH AND P. LOSIUK

Abstract. This article provides a systematic, theoretical, and methodological analysis of the scholarly legacy of prominent representatives of the Carpathian pedagogical school—Academician Myroslav Stelmakhovych and People's Teacher Petro Losiuk. The relevance of the study is determined by contemporary socio-political challenges, particularly ongoing armed aggression and the large-scale migration of Ukrainians, often described as the fifth wave of emigration. Under these conditions, preserving children's national identity abroad becomes increasingly significant, serving as an essential factor in safeguarding national security and ensuring the continuity of Ukrainian cultural and educational traditions.

The interrelationship between M. Stelmakhovych's concept of "Family Pedagogy" and P. Losiuk's practice-oriented model of the "School of Joy" is theoretically substantiated. Particular emphasis is placed on the family as the primary locus of patriotic education and the formation of children's value orientations. The study also outlines the key pedagogical conditions ensuring the effectiveness of family upbringing in accordance with Stelmakhovych's framework, highlighting the significant role of high-ideal rituals and traditions as essential components of the educational process.

Particular attention is devoted to the practical implementation of ethnopedagogical principles in the activities of the Yavoriv School in the Hutsul region. The study analyses the key components of P. Losiuk's model, including the aestheticisation of the educational environment through engagement with traditional folk crafts (such as pysanka painting and woodcarving), the principle of harmony with nature manifested in the pedagogical use of the Carpathian landscape, and the emphasis on labour education. It is argued that integrating M. Stelmakhovych's theoretical framework with P. Losiuk's practice-oriented ethnographic model forms a holistic system for educating a patriotic and culturally conscious citizen.

The scientific novelty of the study lies in its exploration of ethnopedagogical methods as instruments for fostering psychological resilience and creating " supportive value-based environments " for children both in Ukraine and abroad. The practical significance of the article is the applicability of the proposed models to the activities of Ukrainian studies schools in the diaspora, aimed at strengthening young people's connection to their national heritage and cultural roots.

Keywords: ethnopedagogy, family pedagogy, Hutsul studies, School of Joy, national identity, M. Stelmakhovych, P. Losiuk, education in wartime.

ЕТНОПЕДАГОГІЧНИЙ ДИСКУРС В УКРАЇНСЬКОМУ ОСВІТНЬОМУ ПРОСТОРІ ЗА КОРДОНОМ: КОНЦЕПТУАЛЬНІ ЗАСАДИ М. СТЕЛЬМАХОВИЧА І П. ЛОСЮКА

Анотація. У статті здійснено системний теоретико-методологічний аналіз наукової спадщини визначних представників карпатської педагогічної школи — академіка Мирослава Стельмаховича та народного вчителя Петра Лосюка. Актуальність дослідження зумовлена сучасними суспільно-політичними викликами, зокрема триваючою збройною агресією та масштабною міграцією українців, яку нерідко визначають як п'яту хвилю еміграції. За таких умов збереження національної ідентичності дітей за кордоном набуває особливого значення, виступаючи важливим чинником забезпечення національної безпеки та наступності українських культурних і освітніх традицій.

Теоретично обґрунтовано взаємозв'язок між концепцією «Родинної педагогіки» М. Стельмаховича та практико-орієнтованою моделлю «Школи радості» П. Лосюка. Особливу увагу приділено родині як первинному осередку патріотичного виховання та формування ціннісних орієнтацій дітей. Окреслено також основні педагогічні умови, що забезпечують ефективність родинного виховання відповідно до концептуальних положень М. Стельмаховича, з акцентом на значущості високодуховних обрядів і традицій як невід'ємних складників виховного процесу.

Особливу увагу зосереджено на практичній реалізації етнопедагогічних принципів у діяльності Яворівської школи на Гуцульщині. Проаналізовано ключові складники моделі П. Лосюка, зокрема естетизацію освітнього середовища через залучення до традиційних народних ремесел (таких як писанкарство та різьблення по дереву), принцип гармонії з природою, що реалізується через педагогічне використання карпатського ландшафту, а також пріоритет трудового виховання. Обґрунтовано, що інтеграція теоретичних засад М. Стельмаховича з практико-орієнтованою етнографічною моделлю П. Лосюка формує цілісну систему виховання патріотично налаштованого громадянина з високим рівнем культурної свідомості.

Наукова новизна дослідження полягає у вивченні етнопедагогічних методів як інструментів формування психологічної стійкості та створення «підтримувального ціннісного середовища» для дітей як в Україні, так і за її межами. Практичне значення статті полягає в можливості застосування запропонованих моделей у діяльності українознавчих шкіл української діаспори, спрямованій на зміцнення зв'язку молодого покоління з національною спадщиною та культурним корінням.

Ключові слова: етнопедагогіка, родинна педагогіка, гуцулознавство, Школа радості, національна ідентичність, М. Стельмахович, П. Лосюк, освіта в умовах війни.

INTRODUCTION

The problem formulation. In the context of globalisation and ongoing armed aggression, contemporary Ukrainian education necessitates a strong value-based foundation. Engagement with the intellectual heritage of the Carpathian Pedagogical School, particularly the works of Myroslav Stelmakhovych and the People's Teacher Petro Losiuk, provides a basis for constructing an educational model in which national cultural roots function as a source of personal resilience and the formation of patriotic consciousness. Today, with millions of Ukrainian children scattered across the globe, the necessity of preserving their national identity is no longer merely an academic one. It has become a matter of national security and the future vitality of our country. According to Teofil Renduk, «the defining feature of the fifth wave of mass emigration from Ukraine—based on the existing periodisation—is its unprecedented character compared with the four previous waves, which together spanned approximately 130 years. This recent wave is distinguished by its extraordinary scale, the broad geographic spread of emigrants' settlements, and its compressed timeframe. Whereas each of the earlier waves lasted between 20 and 40 years, the most recent wave unfolded within the span of a single year, constituting an unprecedented phenomenon» [8, p. 224].

In this context, Ukrainian studies programs in North America, Europe, and Australia serve as supportive cultural and educational spaces that nurture Ukraine's future. Academician Stelmakhovych's view that the native language is a powerful tool for raising children within the family is particularly relevant for students and educators in the diaspora. In particular, he wrote: "Parents must know and tell their children that the Ukrainian language is the national language of a great European people and stands as one of the oldest, highly developed languages of the world, of which every Ukrainian should be proud and use with pleasure" [9, p. 119], for language is one of the hallmarks of a nation. When the language dies, the nation dies.

Analysis of Recent Research and Publications. The works of contemporary researchers O. Budnyk, L. Demchuk, L. Kaluska, V. Kayukov, B. Stuparyk, T. Zavgorodnia, V. Fediaieva, O. Tsuniak, and others are devoted to the study of certain aspects of Myroslav Stelmakhovych's pedagogical legacy. In particular, O. Budnyk investigated the issue of the formation of personal values through labor in the educator's creative work; O. Tsunyak, based on a study of the works of M. Stelmakhovych, analyzed in detail the essence and content of folk pedagogy, and described the characteristics of applying the achievements of ethnopedagogy in the organization of the educational process in modern institutions of higher education; V. Fedyaeva – the characteristics of family upbringing among Ukrainians; B. Stuparyk characterized Myroslav Stelmakhovych as a scholar and organizer of science.

THE AIM AND RESEARCH TASKS

The foundation for such work is provided by the valuable legacy of the Carpathian Pedagogical School, particularly the theoretical contributions of Myroslav Stelmakhovych and the practice-oriented model developed by Petro Losiuk.

RESEARCH METHODS

The study employs a range of research methods. Theoretical methods, including analysis, synthesis, generalisation, and classification, play a central role, alongside empirical methods such as observation and the examination of teaching and methodological materials.

RESULTS OF THE RESEARCH

Myroslav Hnatovych Stelmakhovych represents the classical pedagogical tradition. His humanistic theory of education remains relevant and serves as a primary theoretical and methodological foundation for the formation of value orientations. An examination of Academician Stelmakhovych's scholarly legacy reveals his distinctive pedagogical insight, emotional sensitivity, and profound commitment to the ideal of nurturing a harmonious and happy Ukrainian family. Myroslav Stelmakhovych, the foundational theorist of modern Ukrainian ethnopedagogy, posited that the family serves as the primary origin of the homeland and the fundamental source of patriotic character. Within this framework, children represent the continuation of both biological lineage and the broader social order,

embodying the achievements and ethical intentions of their predecessors. Stelmakhovych argued that society's future trajectory is contingent on the spiritual values inherited by youth. His pedagogical legacy is centred on the definitive thesis: «The Ukrainian family is the first school of patriotic love. The family serves as the primary social and emotional microenvironment in which a person develops and is raised from the moment of birth. The family's role in raising children, just like the family itself, cannot be replaced by anything else» [9, p. 277].

Stelmakhovych established seven fundamental pedagogical conditions essential for optimising the efficacy of family-based upbringing. He placed particular emphasis on «highly ideological rituals and traditions» that serve to integrate the child into the nation's spiritual and cultural landscape. The scholar posited that the stability of a family's educational influence is secured only when personal development occurs through the continuous internalisation of a people's spiritual heritage. Petro Losiuk, a preeminent educational figure of the Hutsul region and a corresponding member of the National Academy of Educational Sciences of Ukraine, directed the «Hutsul Ethnopedagogy and Hutsul Studies» research laboratory. In collaboration with fellow scholars, he developed a comprehensive conceptual framework for the Hutsul school, envisioned as a regional model of the Ukrainian national educational system. The fundamental premise of this concept is the integration of ethnographic components into contemporary pedagogy. This framework has garnered extensive recognition within the Ukrainian educational landscape. Its implementation facilitates the development of a student's worldview by prioritising concrete localised content over abstract theoretical constructs. Specifically, this approach utilises specialised curricular materials on the history, geography, environment, economy, culture, and arts of the native region, alongside its traditional customs, rituals, and Christian heritage. In contrast, Myroslav Stelmakhovych established the theoretical framework for this field, and Petro Losiuk developed a unique, functional model - «the School of Joy» - based on the Yavoriv School [6, p. 17]. His conceptual approach is grounded in Hutsul Studies as a comprehensive instrument for holistic upbringing and pedagogical development.

Key structural components of P. Losiuk's pedagogical model include:

- Aestheticisation of the educational environment: facilitating learning through the medium of traditional folk arts, specifically woodcarving, pysankarstvo (Easter egg decoration), and lizhnyk weaving.
- Nature-Conformity: utilising the Carpathian landscape as a metaphorical «open-air textbook» to align educational practices with the natural environment.
- Labour Education: cultivating a sense of fulfilment and "joy" derived from the manual creation of material values [6, p. 18].

It is noteworthy that the conceptual foundations of these ethnopedagogues align closely with the philosophical tenets of Vasyl Sukhomlynsky. However, these ideas have been strategically adapted to reflect the regional specifics of Prykarpattia and Hutsul, while also addressing broader national educational imperatives.

1. Focus of Pedagogical Intervention- for Stelmakhovych, the primary object of education is the child within the family circle; for Losiuk, it is the child within the broader ethnocultural environment of the village and school.

2. The Objective: the overarching goal is the nurturing of a "patriotic citizen" who integrates the "emotional sensitivity" advocated by Sukhomlynsky with the "national dignity" central to Stelmakhovych's framework.

Specifically, we intend to emphasise the thesis that implementing M. Stelmakhovych's conceptual foundations of "family pedagogy" constitutes a strategic form of resistance to the assimilation of Ukrainian children in foreign-language environments.

As is widely recognised, Myroslav Stelmakhovych introduced a conceptual axiom that remains pivotal for the diaspora: "The Ukrainian family is the first school of patriotic love." Within the context of the United States—where the "melting pot" paradigm mandates rapid societal integration—the family unit emerges as the singular, critical space where ethnopedagogical methods can be applied continuously to ensure cultural preservation.

A common fundamental principle of national education in the scholars' concepts is a focus on working with parents. In the book "Family Pedagogy," Myroslav Stelmakhovych states: "The cultural and educational sector in Ukraine has deep roots and rich traditions, the revival and further development of which play a significant role in ensuring the implementation of a national system of universal pedagogical education for parents. It has at its disposal such effective forms of work, developed and tested in practice, as pedagogical universities, small art academies, pedagogical lecture halls and readings for parents, schools for mothers, schools for young parents, where lectures, talks, discussions, seminars, parent conferences and evenings, educational consultations, excursions, and exchanges of experience in family upbringing" [9, p. 272]

Professor Stelmakhovych established seven fundamental pedagogical conditions for upbringing; the following are identified as most critical within the context of the Ukrainian diaspora:

- The first condition (Genealogical): Awareness of one's ancestry establishes a strong vertical dimension of identity and resilience. When a child in New York knows the story of their great-grandfather, a Cossack, they no longer view themselves as a "refugee" but rather as a member of a historically significant nation. Moreover, an analysis of students' written works in Ukrainian studies schools reveals the significant role of communication with parents. The cultivation of patriotism and love for one's homeland begins within the family.
- The second condition (Ukrainian Studies–based): This involves exploring mentality and culture through reading and studying Ukrainian literary classics as well as the achievements of applied and decorative arts. Students in Ukrainian studies schools create pysanky, make didukhs, weave gerdans, and engage in similar activities. This conceptual condition is closely connected with P. Losiuk's "School of Joy," which spans from Hutsul crafts to

art therapy practices in the diaspora. While Stelmakhovych provided the theoretical foundation, the folk teacher Petro Losiuk proposed an effective practical toolkit - the "School of Joy".

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

For Saturday schools in the United States, Losiuk's model is particularly relevant due to its art-therapeutic effect. Petro Vasyliovych demonstrated that learning through folk art - such as woodcarving, pysanka-making, and embroidery-cultivates not merely craftsmanship, but the development of a well-balanced and harmonious personality.

- In the context of stress caused by war and adaptation to a new country, Losiuk's "Hutsul ethnopedagogy" becomes a means of alleviating psychological tension.
- The creation of Christmas attributes (the Bethlehem Star, costumes for the Verteps) or pysanky in Ukrainian studies classes represents an act of materialising the connection with Ukraine. This is what P. Losiuk referred to as the "aestheticisation of the educational environment."

Thus, when discussing the ethnopedagogical discourse within the educational space of Ukrainian studies schools, one refers to the synergy of conceptual approaches in contemporary schooling abroad. In particular:

1. The family, as emphasised by Stelmakhovych, establishes the core value framework through the preservation of language and religious traditions.

2. The Ukrainian studies school, following Losiuk's approach, operationalises this foundation through active engagement, including celebrations, traditional crafts, and integrated lessons that combine Hutsul studies with history.

The Ukrainian studies school, drawing on Losiuk's approach, puts this foundation into practice through experiential activities such as celebrations, traditional crafts, and integrated lessons that connect Hutsul studies with history.

The ethnopedagogical discourse abroad is currently transforming. We are no longer merely "preserving the past"; rather, we are constructing a competitive Ukrainian identity. The legacy of Stelmakhovych and Losiuk teaches us that patriotism is not cultivated through slogans; instead, it is nurtured through:

- the warmth of a parental conversation;
- the joy of creating something with one's own hands;
- an appreciation of the beauty of the native word.

The objective of modern Ukrainian studies schools is to function as a "School of Joy," fostering in children a strong sense of pride in their Ukrainian identity. In this respect, we find the most meaningful success of our educational front.

The concepts of Stelmakhovych and Losiuk are not mutually exclusive; rather, they form a dialectical unity of "family – school – community." Stelmakhovych's family pedagogy provides the child with a spiritual impulse, while Losiuk's "School of Joy" offers practical tools for realising this potential through work and art. Taken together, these models constitute a solid foundation for the modern Ukrainian school, fostering a generation capable of preserving its identity in a globalised world.

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Запрошуємо до співпраці!

Вельмишановні вчителі і вихователі, організатори і керівники освіти, вчені-педагоги і дослідники з України та інших країн, що вивчають людину, її життя і розвиток.

Гори, в якій країні вони б не були, справляють приблизно однаковий вплив на їх мешканців. Гірські ландшафти і особливі кліматичні умови визначають специфіку життєдіяльності і життєзабезпечення, традиції і звичаї, спосіб господарювання і виховання дітей.

Впливи природного середовища (гір, лісу, степу, клімату того чи іншого регіону тощо) майже не враховуються в організації навчально-виховного процесу. Дуже часто ті, хто цей процес здійснює, і самі не знають особливостей формуючого впливу сил природи на становлення і розвиток людської особистості.

Групою вчених Карпатського національного університету імені Василя Стефаника (Україна) розробляється регіональний проєкт «Гірська школа. Стан. Проблеми. Перспективи розвитку».

Метою проєкту є:

- вивчення впливу гірського середовища на розвиток, навчання і виховання учнів;
- дослідження змісту, форм і методів використання вчителями і вихователями особливостей гірського довкілля з метою підвищення ефективності навчально-виховного процесу;
- узагальнення результатів вивчення впливу гірського середовища на розвиток учнів, отримання наукових знань, встановлення закономірностей формування особистості в специфічних умовах гір;
- підготовка пропозицій та рекомендацій щодо врахування особливостей гірського середовища для вчителів, вихователів, організаторів і управлінців освітою різних рівнів.

Просимо ознайомитися з нашим «Проєктом», «Орієнтовною тематикою наукових досліджень», які вміщені в попередніх виданнях, врахувати соціально-економічні та культурно-історичні умови і особливості своєї країни і спільно досліджувати цю маловивчену проблему.

Порівняльний аналіз різних напрямів наукового вивчення означених питань дасть змогу не лише поділитись досвідом урахування впливів сил природи на виховання і розвиток дітей, але й встановити певні закономірності навчально-виховної роботи в умовах гірського регіону.

Результатами напрацювань учених України та інших країн можна буде обмінятись не лише шляхом наукових публікацій, але й у процесі їх обговорення на міжнародних семінарах, симпозіумах, конференціях.

Природознавці гірських країн Європи вже об'єдналися в дослідженнях проблеми збереження і сталого розвитку гір (Альпійська, Карпатська конвенції тощо). В 78 країнах світу створено Національні Комітети Гір.

Учені – педагоги, психологи, медики, соціологи, народознавці – мають також об'єднатись у вивченні проблем взаємодії природи і людини, впливу природи на розвиток особистості як найвищої цінності держави і суспільства.

Запрошуємо до наукової співпраці.

Розробники проєкту

Welcome to cooperation!

Dear teachers and tutors, organizers and heads of educational institutions, scientists-teachers and researchers in Ukraine and other countries, studying the person, her life and development. Mountains, no matter in what country they are, make approximately identical influence on their inhabitants. Mountain landscapes and special climatic conditions determine specificity of ability to live and life-support, traditions and customs, ways of managing and children's education.

Influence of the environment (mountains, woods, steppes of a region) almost is not taken into consideration at the organization of educational process. Very often those who carries out this process, do not know themselves all features of forming influence of the natural conditions on the making and development of the human person.

The regional project «Mountain school. Condition. Problems. Prospects of development» is developed by the group of scientists of the Carpathian National University named alter Vasyl Stefanyk (Ukraine).

The purposes of the project are as follows:

- Studying influence of the mountain environment on development, training and education of pupils;
- Research of the contents, forms and methods of use by teachers and tutors of features of tile mountain environment aimed at increasing of the efficiency of educational process;
- Summarizing of the results of studying influence of the mountain environment on development of pupils, acquiring scientific knowledge, determining the laws of the person's formation in specific conditions of the mountains;
- Preparation of offers and recommendations about taking into account features of the mountain environment for teachers, tutors, organizers and heads of educational institutions of different levels.

Will you acquaint yourself with our «Project», «Approximate subjects of scientific researches», which contains this edition, consider social – economic and cultural-historical conditions and features of your country and make common exploration of this insufficiently studied problem?

The comparative analysis of different directions of scientific studying of the defined problems will enable not only to share experience of taking into account influences of the natural conditions on education and development of children, but also will define certain laws of teaching and educational work in conditions of the mountain region.

It will be possible to exchange the results of the researches of scientists in Ukraine and other countries not only by means of scientific publications, but also during their discussion at the international seminars, symposiums and conferences.

Naturalists of the European highland countries have already united in researches of the problem of preservation and constant development of mountains (the Alpine and Carpathian conventions, etc.). The National Committees of Mountains are founded in 78 countries of the world.

Scientists – teachers, psychologists, physicians, sociologists, and ethnologists should also unite for studying problems of interaction of the nature and the person, influence of the nature on development of the person as the most value of the state and society.

We invite you to scientific cooperation.

ПОЛІТИКА ВІДКРИТОГО ДОСТУПУ

Наукове фахове видання з педагогічних наук «Гірська школа Українських Карпат» практикує політику відкритого доступу до опублікованого змісту, підтримуючи принципи вільного поширення наукової інформації та глобального обміну знаннями задля загального суспільного прогресу. Часопис видається Карпатським національним університетом імені Василя Стефаника з 2006 року.

Періодичність видання – виходить 2 рази у рік.

Наукове фахове видання з педагогічних наук «Гірська школа Українських Карпат» містить статті теоретичного й експериментально-прикладного спрямування з актуальних проблем теорії та історії педагогіки, філософії освіти, освітнього менеджменту, методик і технологій організації навчання, виховання та профорієнтації учнів у закладах освіти і позашкільних установах, освітніх інновацій, психолого-педагогічних проблем розвитку особистості школярів, фахової підготовки та професійного становлення майбутніх педагогів, неперервної педагогічної освіти, педагогічної практики, порівняльної педагогіки, соціальної педагогіки тощо. Велику увагу часопис приділяє проблематиці гірських шкіл.

Видання з педагогічних наук «Гірська школа Українських Карпат» адресоване науковцям, педагогам, докторантам, аспірантам, педагогічним працівникам гірських шкіл України та зарубіжжя, батьківській громадськості, усім тим, хто цікавиться сучасним станом розвитку педагогічної науки.

За достовірність фактів, назв, дат, покликань та літературних джерел, політики антиплагіату тощо відповідальність несуть автори. Редакційна колегія не завжди поділяє їхні погляди. Статті рецензують члени редакційної колегії.

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Publication frequency – twice a year.

The journal contains theoretical and experimental articles highlighting current problems of the theory and history of education, philosophy of education, educational management methods and technologies of training, education and vocational guidance of students in educational institutions and extracurricular institutions, educational innovations, psycho-pedagogical problems of student personality development , professional training and professional development of future teachers, continuous pedagogical education, pedagogical practice, comparative pedagogy, social pedagogy and more. Much attention is paid to the problems of mountain schools. Scientific specialized edition of pedagogical sciences is intended at researchers, teachers, doctoral students, graduate students, academic staff, the parent community, and all those interested in the current status of pedagogical education development.

Authors are responsible for the reliability of facts, names, dates, references and literature, plagiarism etc. The editorial board does not always share their views.

The International Standard Serial Number has been assigned to the scientific specialized edition of pedagogical sciences «Mountain School of Ukrainian Carpaty» - ISSN 1994-4845 (Print), ISSN 2415-7147 (Online)

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ВИМОГИ

ДО СТАТЕЙ У НАУКОВОМУ ФАХОВОМУ ВИДАННІ «ГІРСЬКА ШКОЛА УКРАЇНСЬКИХ КАРПАТ» КАТЕГОРІЯ «Б»

Статті, подані до збірника, повинні мати необхідні елементи:

1. Ім'я, прізвище, інформація про автора (вчене звання, науковий ступінь, назва організації, в якій працює автор українською та англійською мовами.

2.Корпоративна електронна пошта автора (авторів) статті.

3. Номер **ORCID** (http://orcid.org/) і/ або номер r**esearcherID ID** (http://www.researcherid.com/)

4. Номер **УДК**.

5. Назва статті, текст напівжирним шрифтом, усі великі літери.

6. Резюме і ключові слова (курсив) мовою статті з такими обов'язковими елементами: актуальність проблеми, мета, методи та результати дослідження (від 1800 знаків та 10 ключових слів).

7. Назва статті українською та англійською мовами, вирівнювання по середині, текст напівжирним шрифтом, усі великі літери.

8. Авторське резюме українською та англійською мовою.

9. Текст статті, де містяться такі **необхідні елементи**:

1. Вступ / **INTRODUCTION**. Постановка проблеми. **Analysis of recent research and publications**.

2. Мета дослідження / **THE PURPOSE OF THE RESEARCH**

Визначаються, виходячи з невирішених чи проблемних аспектів порушеної теми. Завдання мають бути спрямовані на узагальнення даних, формулювання концепції, певної моделі, методики, розробку та виділення методів, умов проведення дослідження тощо.

3. Методи дослідження / **RESEARCH METHODS**. Методи дослідження передбачають опис їх основного змісту, характеристик і показників, які вони фіксують, та одиниць вимірювання.

4. Результати дослідження / **RESEARCH RESULTS**. Виклад основного матеріалу дослідження з повним обґрунтуванням отриманих наукових результатів повинен містити стисле узагальнення отриманих автором даних із виділенням напрямів, тенденцій, підходів до розв'язання проблеми. Опис емпіричних результатів має містити конкретні дані, що підтверджують статистичну достовірність отриманих результатів, у вигляді таблиць, графіків, діаграм з подальшою інтерпретацією. Теоретичний аналіз не повинен обмежуватися посиланнями на авторів, які вивчали порушене питання. У статті бажано також подавати посилання на іншомовні джерела та джерела з бази **Scopus** і **Web of Science**.

5. Висновки та перспективи подальших досліджень / **CONCUSSION AND PROSPECTS FOR FURTHER RESEARCH**.

Висновки з дослідження, які стисло висвітлюють сутність отриманих результатів згідно з поставленими в роботі завданнями.

6. Список використаних джерел подається в міжнародному стилі оформлення наукових публікацій **APA**.

REFERENCES

Подається англомовний переклад списку використаних джерел. Переклад засобами онлайн-сервісів інтернет не допускається. Окремими файлами подається:

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Лист -підтвердження оригінальності дослідження.

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Статті надсилати на електронну пошту наукового фахового видання з педагогічних наук «Гірська школа Українських Карпат»:

E-mail: ifosuhcvas@gmail.com АБО inna.chervinska@cnu.edu.ua

Сторінки журналу відкриті для дискусійних матеріалів, а тому їх зміст не завжди відображає погляди редакційної ради.

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FOR ARTICLES IN THE SCIENTIFIC PROFESSIONAL PUBLICATION «MOUNTAIN SCHOOL OF THE UKRAINIAN CARPATHIANS» CATEGORY «B»

Articles submitted to the collection must have the required elements:

1. First name, surname, information about the author (academic title, scientific degree, name of the organization where the author works in Ukrainian and English.
2. Corporate e-mail of the author (authors) of the article.
3. **ORCID number** (http://orcid.org/) and / or **researcherID ID number** (http://www.researcherid.com/)
4. **UDC** number.
5. Title of the article, text in bold, all capital letters.
6. Summary and keywords (italics) in the language of the article with the following mandatory elements: relevance of the problem, purpose, methods and results of the study (from 1800 characters and 10 keywords).
7. The title of the article in Ukrainian and English, centered, text in bold, all capital letters.
8. Author's resume in Ukrainian and English.
9. The text of the article, which contains the following required elements:

1. **INTRODUCTION**. Problem statement. Analysis of recent research and publications.
2. **PURPOSE OF THE RESEARCH**

Determined on the basis of unresolved or problematic aspects of the topic. The objectives should be aimed at generalizing data, formulating a concept, a specific model, methodology, developing and highlighting methods, research conditions, etc.

3. **RESEARCH METHODS**. Research methods provide for a description of their main content, characteristics and indicators that they record, and units of measurement.
4. **RESEARCH RESULTS**. The presentation of the main research material with a full justification of the scientific results obtained should contain a brief summary of the data obtained by the author with the selection of directions, trends, approaches to solving the problem. The description of the empirical results should contain specific data confirming the statistical reliability of the obtained results, in the form of tables, graphs, diagrams with further interpretation. Theoretical analysis should not be limited to references to authors who have studied the issue raised The article should also provide references to foreign-language sources and sources from the Scopus and Web of Science databases.
5. **CONCUSSION AND PROSPECTS FOR FURTHER RESEARCH**.

Conclusions from the study, which briefly highlight the essence of the results obtained in accordance with the tasks set in the work.

6. The list of sources is presented in the international style of scientific publications **APA**.

REFERENCES

The English translation of the list of sources is provided. Translation by means of online services is not allowed. It should be submitted in separate files:

Reference about the author (co-authors).

Letter confirming the originality of the study.

The editorial board reserves the right to reject reports and articles that do not meet the above requirements and the subject of the publication.

Articles should be sent to the e-mail address of the scientific professional publication on pedagogical sciences «Mountain School of the Ukrainian Carpathians»:

E-mail: ifosuhcvas@gmail.com
inna.cervinska@cnu.edu.ua

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Гірська школа Українських Карпат

Наукове фахове видання з педагогічних наук

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