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INTERACTIVE TECHNOLOGIES AS A COMPONENT OF AN INNOVATIVE EDUCATIONAL ENVIRONMENT IN AN EDUCATIONAL INSTITUTION

Abstract

The article presents a consistent and theoretically substantiated justification of interactive technologies as an organic and system-forming component of an innovative educational environment in a modern educational institution. The study is conducted within the framework of the competency-based approach and reflects the key priorities of the "New Ukrainian School" reform, which defines the modern educational environment as one of the nine essential elements of the new school formula.

The concept of "educational environment" is clarified as a complex, multi-level system encompassing spatial-objective, content-methodological, and socio-psychological components. The notion of an "innovative educational environment" is analyzed based on the works of O. Tsuniak, V. Khymynets, O. Dubaseniuk, and other scholars, and is defined as a pedagogically purposeful, dynamic educational space in which new ideas, approaches, technologies, forms, and methods of teaching are systematically implemented to foster the development of an innovative personality.

The essence of interactive technologies is examined on the basis of the fundamental definition proposed by O. Pometun and L. Pyrozhenko, according to which interactive learning is a form of collaborative and mutual learning where all

participants are constantly engaged in active interaction, and the teacher acts as a facilitator rather than a transmitter of knowledge. A classification of interactive technologies into four groups is presented and characterized: cooperative learning, collective-group learning, situational modeling, and discussion-based methods.

Five key arguments substantiating the organic unity of interactive technologies and an innovative educational environment are proposed: a shared value foundation oriented toward active learner engagement; functional interdependence between the environment as a system of conditions and technologies as means of their implementation; a common focus on competency-based outcomes; digital and technological synergy; and theoretical recognition within Ukrainian academic and regulatory discourse.

The article also identifies pedagogical conditions necessary for the effective implementation of interactive technologies, including teacher readiness, methodological coherence, reflective practice, a psychologically safe classroom climate, and the rational integration of digital and traditional tools.

Keywords: interactive technologies, innovative educational environment, educational institution, pedagogical innovations, New Ukrainian School, competency-based approach.

Problem statement. The modern education system of Ukraine is undergoing a profound transformation, due to both internal reform processes (primarily the reform of the New Ukrainian School, NUS) and global civilizational challenges – digitalization of society, growth in the volume of information, remote learning, quarantine restrictions (Covid-19), and martial law. The response of education to these challenges lies, in particular, in the formation of a qualitatively new educational environment in which subjects of study are active participants in the creation of knowledge.

In the Concept of the New Ukrainian School (2016), the "modern educational environment" is included in the list of nine key components of the formula of the new school and is outlined as "a set of conditions, means and technologies for teaching students, educators, parents not only in the premises of an educational institution" [8]. The implementation of this vision is impossible without the systematic introduction of pedagogical innovations, among which interactive learning technologies occupy a leading place.

Despite a significant array of scientific works devoted to certain aspects of interactive learning and the development of an innovative environment in an educational institution, the issue of systematic substantiation of interactive technologies as an organic and necessary component of an innovative educational environment remains insufficiently covered.

Analysis of recent research and publications. The analysis of scientific and pedagogical sources shows that modern researchers are increasingly focusing on the problem of introducing innovative technologies into the educational process. Theoretical foundations of innovative teaching technologies were developed in the works of N. Aristova, Y. Babansky, V. Bespalko, O. Dubaseniuk, N. Kuzmina, O. Malykhin, S. Safaryan, S. Sysoeva and other scientists. At the same time, the issues of introducing innovative technologies into the practice of teaching became the subject of research by I. Bekh, L. Danylenko, I. Dychkivska, I. Ziaziun, M. Klarin, L. Korinna, O. Pekhota, O. Popova, L. Podymova, A. Prigozhin, L. Rebukha, V. Khymynets, A. Khutorsky and others.

The theoretical foundations of interactive learning were developed in the works of O. Pometun, L. Pyrozhenko, O. Pekhota, I. Dychkivska, N. Volkova, S. Sysoeva and other scientists, who substantiated the essence of interactive interaction as a key factor in activating the cognitive activity of students. In their research, interactive technologies are considered as those that provide subject-

subject interaction, contribute to the development of communication skills, critical thinking and the ability to cooperate.

The issues of practical implementation of interactive educational technologies in education were covered in the works of O. Savchenko, V. Kremenya, L. Khomich, O. Dubaseniuk, O. Tsyunyak and other scientists, who focused on the need to update the content, forms and methods of teaching in accordance with the requirements of the competence approach and considered interactive technologies as an effective tool for modernizing the educational process, which makes it possible to increase the motivation of students, to ensure their active participation in education and create conditions for personal development.

At the same time, despite significant achievements in this area, the problem of development and implementation of interactive educational technologies remains relevant in the domestic and foreign scientific and pedagogical discourse. This is due to the need for further theoretical understanding of their potential, clarification of didactic capabilities and identification of effective ways of integration into the modern educational environment.

In a broad sense, the educational environment of an educational institution is interpreted as a set of material, pedagogical and psychological conditions that ensure the effective implementation of the educational process and contribute to the comprehensive development of the student's personality and cover, first of all, the unity of actions of educational institutions, family, out-of-school state and public institutions, information and cultural environment; a set of material requirements in accordance with pedagogical, ergonomic, sanitary and hygienic requirements for the educational process; The diverse, multi-level world that surrounds a person forms his idea of this world, attitude to people, the environment, and the surrounding reality.

The purpose of the article is to substantiate interactive technologies as a component of the modern innovative educational environment in an educational institution.

Presentation of the main material of the study. In the monograph of the National Academy of Pedagogical Sciences of Ukraine "The Educational Environment as a Factor in the Formation of a Gifted Personality" (edited by R. Semenova), the educational environment is defined as a "complex multi-level system" in which the micro-level covers the environment of the educational institution, families and circles of direct communication, the macro-level is represented by social, cultural, ideological, economic, technological and legal factors [11]. This hierarchy is fundamentally important: changes in the innovation environment of a particular educational institution always occur in the context of a wider macrosocial environment.

The structure of the educational environment in general is described by researchers through three interrelated components: a) spatial and subject (material and technical equipment, architectural and design solutions, digital infrastructure); b) content and methodological (curricula, textbooks, teaching technologies, forms of organization of the educational process); c) socio-psychological (the nature of interaction between educational subjects, psychological climate, style of pedagogical communication) [10]. Interactive technologies are a key element of the content-methodological and socio-psychological components.

The concept of "innovative educational environment" is derived from the more general "educational environment", but significantly enriched due to the addition of the characteristic of innovativeness. The analysis of scientific literature makes it possible to identify several approaches to the interpretation of this concept.

Researcher O. Tsyunyak defines ***an innovative educational environment*** as "a pedagogically expediently organized educational space in which new ideas,

approaches, technologies, forms and methods of teaching are systematically introduced, contributing to the formation of an innovative personality" [15, p. 146], and emphasizes that such an environment is not static – it is constantly updated, responding to the needs of society and the needs of the individual. It is this dynamism that fundamentally distinguishes innovative educational environment from the traditional.

Researchers I. Bilous, A. Demyanyuk and O. Krychkivska believe that "innovative learning technologies can be interpreted as a purposeful provision of the final result, which achieves the main goals of modern education" [2, p. 137]. It follows that the innovative environment of an educational institution is both a condition and a means of achieving high-quality educational results.

Among the characteristics of an innovative educational environment, researchers distinguish: 1) openness – readiness for change, borrowing the best practices and constant updating; 2) creative nature – stimulation of search, research activities of all subjects; 3) personal orientation – centering on the needs and interests of the student; 4) manufacturability – systematic application of new pedagogical technologies; 5) reflexivity – the ability of subjects of the educational process to analyze and improve their own activities [15, p. 147–148]. These same characteristics are organic properties of interactive learning, which determines their fundamental unity.

Researcher O. Dubaseniuk emphasizes that an innovative environment in an educational institution arises when a teacher constantly expands the "innovative field of the educational environment", "the source of innovation is a purposeful search for an idea in order to resolve contradictions" [4, p. 7]. This indicates the subjective, personality-determined nature of the innovation environment, which is always the result of purposeful pedagogical activity.

In the context of the NUS reform, the term "innovative educational environment" acquires new semantic colors. Thus, T. Berezhna and N. Bessarab

in his article "Innovative Technologies in the Educational Environment of the New Ukrainian School" notes that "innovative educational technologies are a didactic, methodically recognized method of presenting new information and knowledge, which is convenient for the subjects of the educational process" [1], emphasizing their organic connection with the new requirements for the quality of education.

The term "interactive" in the pedagogical context means learning that takes place in conditions of constant, active interaction of all subjects of the educational process. The fundamental difference between interactive learning and traditional learning is that the student/student is not a passive recipient of ready-made knowledge, but an active subject of its construction in the process of interaction with the teacher, peers and the learning environment [9, p. 5].

The classic definition is offered by O. Pometun and L. Pyrozhenko, who characterize interactive learning as "a kind of active learning that has specific features and patterns", emphasizing: "the essence of interactive learning is that the educational process takes place under conditions of constant, active interaction of all students. This is co-learning, mutual learning (collective, group, cooperative learning), where the student and the teacher are equal, equivalent subjects of learning. The teacher acts as an organizer of the learning process, the leader of the group" [12, p. 7].

Therefore, the category that defines the essence of interactive methods is "interaction" as direct interpersonal communication, in which the activity of one participant determines the activity of another.

By interactive learning technologies, researchers understand, in particular, the organization of the educational learning process, which provides for the mandatory participation of each student in a collective, complementary, based on the interaction of all its participants in the process of educational cognition. The key feature of such an organization is that "learning technology means such an organization of the learning process that requires a certain system of actions and

interactions of all" participants [12, p. 9]. The leading features of interactive technologies are: 1) active participation of each student in educational activities; 2) horizontality of interaction – subjects of training are equal partners; 3) dialogical and polylogical nature of communication; 4) joint construction of knowledge and meanings; 5) orientation to the development of critical and creative thinking; 6) a mandatory reflective component.

The most common in Ukrainian pedagogy is the classification of O. Pometun, which covers four groups of interactive technologies according to the criterion of the purpose of the lesson and the organization of educational activities:

- cooperative learning technologies (work in pairs, rotational triplets, carousel, aquarium);

- technologies of collective-group learning (microphone, unfinished sentences, brainstorming, teaching – learning);

- Situational modeling technologies (simulation games, role-playing games, simulations);

- technologies for working out discussion issues (take a position, change position, discussion, debate) [13, p. 18–35]. Each group is a tool for achieving specific didactic goals and can be organically integrated into the educational process of an educational institution.

Along with the traditional classification of O. Pometun, we observe other approaches in the research of scientists, in the context of the digitalization of education, an additional group appears - digital interactive technologies, which includes online platforms (LearningApps, Padlet, Mentimeter, Wordwall, Google Jamboard), which allow organizing full-fledged interactive interaction both in face-to-face, distance and mixed formats.

The substantiation of interactive technologies as a component of an innovative educational environment is based on a systematic analysis of

definitions, functions and pedagogical consequences that prove the organic connection of these concepts.

First of all, it should be noted that the innovative educational environment, as well as interactive technologies, is focused on the active, subjective position of the student and on the pedagogy of partnership and is declared by the NUS Concept, where the educational environment is based on partnership between students, teachers and parents [8], interaction, communication and cooperation in various conditions, in view of which interactive methods are its direct methodological embodiment. Innovative educational environment is a system of conditions and interactive technologies are the means of implementing these conditions. As A. Yermolenko rightly notes in the electronic training course "Interactive Learning Technologies" (BINPO, 2022), developed in the system of the National Academy of Pedagogical Sciences of Ukraine, "in the interactive form of education, there is a polylogue: not only interaction between the teacher and students, but also active conversation and cooperation between the applicants themselves" [5, p. 14], which is a practical manifestation of the innovative pedagogical environment in action.

The creation of an innovative educational environment and the use of interactive technologies in it are focused on the formation of key and subject competencies defined by the Law of Ukraine "On Education" (2017) [6] and the State Standard of Primary Education (2018, 2025). Researchers I. Bilous, A. Demyanyuk, O. Krychkivska note that "the practical significance of using interactive methods lies in the fact that they allow to increase the efficiency of the educational process, to ensure the mastery of the skills of self-development of the individual, critical thinking... <… >.. to intensify the educational process, increase the speed of perception, understanding and depth of knowledge assimilation" [2, p. 84], which is one of the expected results of the functioning of the modern innovative educational environment.

It is worth emphasizing technological and digital synergy, since the innovative environment in an educational institution contains a digital dimension as one of the important components of functioning: interactive whiteboards, educational platforms, digital feedback tools. As T. Bakumenko and E. Khryapin note, "the use of modern technologies (interactive, information and communication, distance, STEM, VR/AR) creates prerequisites for the development of life-giving competence of students − the ability to reflect, independent choice, creativity and social activity" [18]. Therefore, digital and interactive technologies create a mutually reinforcing basis for an innovative environment.

The scientific and methodological position of scientists of the National Academy of Pedagogical Sciences of Ukraine indicates that the problem of the relationship between interactive technologies and the innovative environment of an educational institution is scientifically recognized and normatively fixed, in particular, the analysis of the content of the course "Interactive Learning Technologies" (NAES, 2022) allows us to assert that its components are the problems of developing an ecosystem of an innovative educational environment of an institution and interactive technologies as a means of forming a personality [5, p. 4].

The potential of interactive technologies as a component of an innovative educational environment is realized taking into account certain factors, which should be based on the readiness of the teacher, who must know the methods of interactive learning, be able to apply them, be ready to change his own role from a "knowledge translator" to a "learning facilitator". I. Bilous, A. Demyanyuk and O. Krychkivska emphasize that "innovative learning is, first of all, a new type of teacher's thinking", focused on supporting the research activity of the applicant [2, p. 49]. Professional development of teachers, their involvement in the mastering and application of innovative practices, participation in reflective communities is

an indispensable condition for the creation and development of an innovative environment.

Undoubtedly, interactive technologies are effective only when their choice is pedagogically justified and corresponds to the educational goal, content of the subject, age and psychological characteristics of applicants. The use of interactive methods "for the sake of methods" contradicts the very idea of an innovative environment. T. Berezhna and N. Bessarab emphasize: "the essence and specifics of the introduction of innovative technologies to support the implementation of innovative educational projects, the conduct of experimental work in educational institutions in the context of reforming the NUS" [1], which indicates the systematic nature of innovative implementations.

It should be noted that effective interactive learning requires clear planning: setting tasks, clear instruction of participants, rational allocation of time, and a mandatory reflective component. The electronic training course "Interactive Learning Technologies" (NAES, 2022) describes "pedagogical conditions for the implementation of interactive learning" and "leading features and tools of interactive learning", emphasizes the importance of a systematic approach [5, p. 8–9].

The educational course "Interactive and methodological competence of the future primary school teacher in the context of the linguistic and literary educational field" introduced into the educational process of training future primary school teachers of Hlukhiv National Pedagogical University, provided, among other things, for the acquaintance of students with the pedagogical conditions for the formation of interactive and methodological competence of future primary school teachers, namely:

1. Formation of stable motivation of future primary school teachers to develop interactive and methodological competence and professional and value attitude to language as an effective tool for pedagogical interaction.

2. Expansion and improvement of the content of normative educational components of professional direction by introducing additional topics and modules, introduction of selective educational components of professional training of the relevant direction, interactive activities during pedagogical practices.

3. Creation of an interactive dialogized educational environment based on the use of interactive technologies and digital platforms, various forms of pedagogical interaction, dialogization of the educational process and constructive communication in the context of the linguistic and literary educational field.

4. Organization of reflective and interpretive activities of future primary school teachers in the process of professional training.

5. Involvement of students in independent activities aimed at professional self-improvement and personal self-development [7, p. 2191–2213].

It is worth emphasizing that interactive learning implies openness, trust, and readiness to express and defend one's own position. The formation of a psychologically safe and comfortable educational environment is both a condition and a result of the systematic use of interactive technologies: gradually students gain experience of constructive interaction and self-confidence [18].

However, future teachers should apply a smart integration of digital innovative and traditional technologies. The modern innovative educational environment is "hybrid": it combines digital and traditional means, face-to-face and distance interaction formats, uses digital interactive platforms to expand the possibilities of interactive learning, ensure the maximum involvement of students in interaction and the flexibility of the teacher in responding to circumstances (in particular, under martial law and distance learning) [17].

Conclusions. The analysis allows us to assert that interactive technologies are an organic, system-forming component of the innovative educational environment in an educational institution, taking into account the commonality of their value basis (orientation to the active subject), functional interconnection

(innovative environment as a system of conditions, interactive technologies as means of their implementation), focus on competence results, technological and digital interaction and scientific and methodological regulation in the field of documents of the New Ukrainian School and the National Academy of Pedagogical Sciences of Ukraine.

A modern innovative educational environment without interactive technologies remains a formal declaration, while interactive technologies without a properly organized environment are a set of isolated methods without a systemic effect. Therefore, their unity is the pedagogical synergy that ensures qualitative changes in education.

Prospects for further research are the development of criteria and indicators for evaluating the effectiveness of interactive technologies as a component of an innovative educational environment in various types of educational institutions (general education, vocational, higher), the study of the preparation of future teachers for the creation of innovative educational environments with the harmonious and expedient use of interactive interaction and communication.

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