



The Evaluation of the School Innovative Educational Environment

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Abstract

The article presents the empirical results of the research of the Ukrainian schools' educational environments in order to establish the level of their innovations. The research considers the innovative environment of educational institutions as an important condition for the success of modern educational reform in Ukraine. Education reform is an innovative change aimed at improving the quality of education. The effectiveness of the reform depends on the willingness of school leaders and teachers to innovate in order to improve the educational environment.

Researchers have developed, characterized and experimentally tested four levels of innovation in the educational environment of the school: adaptive, experimental, search and initiative level, productive level. Researchers have developed and applied assessment tools for establishing the level of innovation in the educational environment. Quantitative data were collected through questionnaires for schools' directors and teachers. Qualitative methods included interviews, observation of the educational process and extracurricular activities of the school. The use of a qualimetric model made it possible to determine the level of innovation for experimental and control schools. The generalization and analysis of the obtained data allowed to identify problems in the educational environment of schools and to prepare recommendations for increasing the level of their innovation and development in the framework of education reform in Ukraine.

Educational assessment of schools was conducted with the consent of administrations, teachers and parents of students. The study involved 137 teachers, including 76 in the experimental testing of assessment tools.

Keywords: evaluation of the school educational environment, innovative educational environment, levels of innovation, educational reforms.

Introduction

The need for qualitative changes in the education of Ukraine is due to the integration of Ukrainian education into the international educational space and the need to ensure equal access for the population to quality education. The Concept of the New Ukrainian School (2016) substantiates the need to create conditions based on innovative changes in the educational environment of the school to ensure quality education, personal and social development of students.

Ukraine provides funding for scientific research on the problems of educational development among schools at the state level. Since 2019, the state has been funding the applied research "Organizational and pedagogical foundations of designing the educational environment of the gymnasium" (state registration number: 0119U001259), which is carried out by the Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine.

One of the tasks of this study is to assess the educational environment of schools in order to determine the level of its innovation and readiness of all subjects of the educational process for innovative changes that involve reforming Ukrainian education. Assessing the innovativeness of the school's educational environment makes it possible to establish its compliance with state and social requirements in the context of modern educational reforms in Ukraine, as well as to identify internal school resources that contribute to qualitative changes in the educational environment and problems that complicate reforms. The results of the evaluation of the school's educational environment can be used to develop recommendations for principals and teachers to increase the level of innovation in the school's educational environment and the successful implementation of state reforms.

Educational reform in Ukraine is marked by the introduction of qualitative changes in the structure and content of education to ensure its compliance with social requirements for the formation of human (intellectual) capital of the state, to ensure sustainable development of the Ukrainian economy and civil society. The need for qualitative changes in the educational system of Ukraine is due to a number of external and internal factors, namely: European integration, accession of Ukrainian science and education to the international educational space (as external), the need to ensure lifelong access to quality educational services, economic reform and legislation (as domestic). At the state level, the reform of the educational system outlines new strategies and prospects for the development of Ukrainian education.

The process of innovative development of education is an open and dynamic system that requires the creation of an innovative educational environment in schools, which would realize the main goal of learning defined in the new Law of Ukraine "On Education" (2017): "The purpose of education is the comprehensive development of man as a person and the highest value of society, its talents, intellectual, creative and physical abilities, the formation of values and competencies necessary for successful self-realization, education of responsible citizens who are able to make conscious social choices and society, enriching on this basis the intellectual, economic, creative, cultural potential of the Ukrainian people, raising the educational level of citizens to ensure the sustainable development of Ukraine and its European choice".

As this research focuses on identifying and assessing the components of the school's educational environment, it is necessary to consider current educational reforms and changes in the secondary education system, which are proclaimed in the Concept of the New Ukrainian School (NUS) (2016) and are among the key factors influencing the development of any educational environment.

The Concept defines and describes the main directions of the general secondary education reform, namely:

1) updating the content of education to ensure the development of competencies necessary for a 21st-century person (fluency in native and foreign languages, mathematical, cultural and environmental competence, entrepreneurship and innovation, economic competence);

2) development of a new generation of school teachers (training and retraining of teachers aims at developing their key 21st-century competencies, innovative thinking, as well as the ability to apply innovative educational methods and technologies and develop innovative ideas for creating an educational environment based on the principles of human-centred education, partnership pedagogy and democratic values);

3) introduction of a new system of school management and administration (expanding the authority to organize and operate educational institutions, competitive selection for the position of the school principal and a limited period of her tenure);

4) creation of a democratic quality control system of education (providing scientific and methodological support by the State Service of Education Quality of Ukraine).

The following results of the reforms in Ukrainian secondary education in 2018-2021 are available on the official website of the Ministry of Education and Science of Ukraine (2021):

- introduction of the new State Standard of Primary Education, which is based on the competence approach and new State Standard of Basic Secondary Education on the website of the Ministry of Education and Science of Ukraine (2021);

- improvement of conditions for comfortable training by purchasing computers and equipment;

- start of the operation of 277 general secondary education hubs and their 302 branches, including 165 hubs and their 213 branches in local communities;

- implementation of a New Ukrainian School teaching staff professional development program, resulting in training of thousand trainers of teachers; thousand primary school teachers; thousand teachers of foreign languages;

- creation of 516 inclusive resource centres and 24 resources centres for support of inclusive education;

- launch of the State Service of Education Quality and its territorial bodies.

The purpose of the researching was to assess the real state of educational environments of schools to determine the level of their innovation, problems and prospects for effective functioning in terms of reforming Ukrainian education. The tasks of the researching were: 1) to develop the characteristics of the levels of innovation of the educational environment of the school: adaptive, experimental, search and initiative level, productive level; 2) development and experimental verification of assessment tools (questionnaires for school directors and teachers, interview questions, forms for monitoring the educational process and extracurricular activities of schools, qualimetric model; 3) generalization and analysis of data and identification of resources and problems that inhibit the implementation of reforms; 4) development of recommendations for increasing the level of innovation of educational environments for schools that participated in the experiment.

The development of characteristics of the levels of innovation in the educational environment was carried out taking into account the results of international OECD research, namely, ideas and recommendations for creating an innovative learning environment (OECD, 2014). In particular, innovative educational environment: contains a dynamic "innovation core" and is characterized by constant development of its components, provides the school with the status of "formative organization", open to partnership, leading to growth of social and professional capital, provides renewal and dynamics of school development. The effectiveness of the educational environment is monitored and evaluated through the application of ILE principles, which contribute to the management of the development of the educational environment (OECD, 2014).

The research used the types and components of an effective educational environment described by AW (Tony Bates), as well as factors that influence its development. Among the factors, it is important to take into account assessment strategies, individual characteristics of students, goals of training and education; activities that support learning; available resources, such as textbooks, technologies and teaching methods; features of the culture that fills the educational environment of the school (Bates, 2019). In the research of the educational environment of a school, it is important to take into account its heterogeneity and the need for condition monitoring to diagnose and classify student learning opportunities (Vock & Gronostaj, 2017) and their positive motivation. The need to use a system of motivating students at three levels: motivation to calm down, motivation to innovate, motivation to independence which was substantiated by Daniel Favre (2017).

The study uses interesting ideas from Australian researchers to prepare teachers for the effective use of the innovation environment through school collaboration with universities. In particular, scientific support of teachers' research activities in the implementation of innovations (Blannin et al., 2020) under the Program the Plans to Pedagogy research programme.

Based on these studies, we have developed levels of innovation in the school's educational environment:

1) Adaptive level. The school administration and teachers are formally adapt to government reforms. Innovation activities are carried out at a low level. The teachers of such schools are characterized by low motivation to change the educational environment.

2) The experimental level is inherent in schools that take part in the experimental verification of innovative developments of scientific institutions. Basically, most of the teachers are not sufficiently motivated and do not initiate innovative ideas to ensure the effectiveness of reforms.

3) The level of search and initiative. Schools have innovative potential and experience in the successful application of educational innovations. A characteristic feature of the educational environment at this level is the positively motivated innovative activity of the majority of school teachers, aimed at improving the school educational environment through the development and implementation of innovations.

4) The productive level. It is characterized by the presence of an "innovative core" among school teachers, highly motivated and ready for innovative activities to improve the educational environment of the school. Such schools have the status of a "forming organization" and are able to create a strategy for innovative school development.

To achieve the main goal of the study, the hypothesis was formulated:

The use of tools for assessing the level of innovation of the educational environment makes it possible to establish the level of innovation and the readiness of the school for innovative changes, which will contribute to ensuring the effectiveness of innovative work in the framework of educational reforms.

Method

The main purpose of the study was achieved by performing the following tasks:

1) Conduct scientific and methodological seminars in order to familiarize school administrations and teachers with the methodology for assessing the level of innovation of the educational environment and their motivation to use the assessment tools.

2) Establish the level of innovation of the educational environment in experimental and control schools.

3) Summarize the research results and develop recommendations for schools aimed at optimizing innovative changes in the educational environment and eliminating the problems of organizing innovative activities.

The study was conducted in the 2019-2020 academic year.

Participants

The research was attended on a voluntary basis by school directors, teachers, employees of the methodological service. The survey was conducted at scientific and methodological seminars for directors and teachers on the basis of:

Educational association "Specialized general educational institution of the 1st degree "Harmony": Gymnasium named after T. Shevchenko, Center for out-of-school education "Contact" of the city Kropyvnytskyi (18 teachers, 4 representatives of the administration, 2 employees of the methodological service);

Kyiv gymnasium No. 290 (16 teachers, 3 representatives of the administration);

Kuznetsovskaya gymnasium, Varash, Rivne region (22 teachers, 9 representatives of the administration, 2 employees of the methodical service);

Chernihiv regional pedagogical lyceum for gifted rural youth, Chernihiv (21 teachers, 4 administration representatives);

the scientific and methodological center of the department of education and science of the Kamianets-Podilskyi city council of Khmelnytskyi region (16 teachers, 15 representatives of administration, 5 employees of methodical service).

A total of 137 respondents took part in the survey: 35 representatives of school administrations, 93 teachers and 9 Methodists. During the seminars, experimental and control schools were selected to test the tools for assessing the levels of innovation in the educational environment. The experiment was attended by 76 teachers.

Experimental schools: Educational Association "Specialized comprehensive school of the first degree" Harmony": Gymnasium named after T. Shevchenko, Center. for out-of-school education "Contact" of the city of Kropyvnytskyi (E1 - 24 participants) and Kyiv gymnasium No. 290 (E2 - 19 participants).

It should be noted that the representatives of the control schools wished to ensure the anonymity of these institutions, so in the study they were marked as K1 (15 participants in the experiment), K2 (8 participants in the experiment), K3 (12 participants in the experiment). The participants in the experiment were identified according to the following criteria: the interest of school administrations in innovative changes in the educational environment and an increase in the level of innovation.

Instruments for gathering data

Qualitative research methods were aimed both at establishing the level of innovation in the educational environment and at forming a positive motivation for teachers to innovate in the implementation of educational reforms. Qualitative methods included observing and interviewing administrations, teachers, and students.

Qualitative methods included monitoring and interviewing administrations, teachers, students, and questionnaires. Interviews were conducted to identify problems in the organization of innovative work in the school, aimed at changing the educational environment in order to improve the quality of education and ensure the effectiveness of educational reforms.

As well as quantitative methods, qualitative - helped to establish the level of innovation of the educational environment on the basis of expert opinions compiled by researchers. Qualitative methods contributed to the formation of teachers' understanding of the relationship

between the level of innovation in the educational environment and the success of reforms, as well as the formation of their positive motivation for innovation.

All participants in the experiment filled out a questionnaire to provide information on the attitude of teachers and representatives of school administrations to innovative changes, their willingness to participate in the assessment of the educational environment and the state of innovation in schools.

The survey results are presented in Table 1.

Table 1

Innovative activities in schools and opinions of educational directors and teachers of gymnasiums on their innovative educational environments

QUESTIONNAIRE	Gymnasiums participating in the experimental study		Other institutions	General data
	gymnasium 1	gymnasium 2		
	Quantity 24	Quantity 19	Quantity 94	Quantity 137
Your job position (tick the corresponding cell):				
<input type="checkbox"/> directors and deputy directors	4	3	28	35
<input type="checkbox"/> teachers	18	16	59	93
Other (name your job position)	2	0	7	9
Do you consider the introduction of educational innovations an important component of the educational environment of the gymnasium?				
<input type="checkbox"/> YES	80%	92%	61%	72%
<input type="checkbox"/> NO	20%	8%	49%	28%
Do you consider the educational environment of your educational institution to be innovative?				
<input type="checkbox"/> YES	82%	79%	62%	83%
<input type="checkbox"/> NO	18%	21%	38%	17%
How do you assess your experience of participating in innovative projects?				
<input type="checkbox"/> high	12%	3%	9%	14%
<input type="checkbox"/> sufficient	42%	56%	52%	58%
<input type="checkbox"/> insufficient	44%	35%	26%	20%
<input type="checkbox"/> n/a	2%	6%	13	8%
Are you ready to take part in the evaluation of the innovative educational environment of the gymnasium according to the technology suggested at the workshop?				
<input type="checkbox"/> YES (ready to participate)	87%	84%	32%	40%
<input type="checkbox"/> YES (ready to use some elements of the technology)	13%	16%	45%	52%
<input type="checkbox"/> NO	0	0	33%	8%
What is the level of the innovative educational environment of your educational institution?				
adaptive	6%	0%	18%	17%
experimental	43%	18%	33%	39%
search and initiative	51%	82%	48%	43%
productive	0	0	1%	1%

A survey of seminar participants showed that 72% of respondents believe that the introduction of educational innovations is an integral part of education reform. 61% of

respondents do not consider the educational environment in their institutions to be innovative. The willingness to use the proposed tools for assessing educational innovation among schools was confirmed by 40%. 52% of respondents agreed to use separate assessment tools. 8% showed no desire to participate in the experiment.

Quantitative methods

Quantitative data were collected using a qualimetric model developed based on the research results of Galina Elnikova et al. (2012). In the research of scientists, the use of a qualimetric approach is justified to measure the quality of educational phenomena and processes, in particular, managerial and innovative.

We agree with the ideas of the study of the educational space of Dutch schools, described by Deborah Nouche et al. (2014), in particular, Methods for assessing the competence of a Dutch teacher (seven areas of competency requirements), Indicators of the Dutch inspectorate for monitoring the educational process (structure, the content of the lessons and the atmosphere of communication between the teacher and students), the assessment of the policy of the head of the school in the field of educational quality, Key elements of the Dutch Action Plan Teaching 2020: A Strong Profession (continued), Enhanced personnel policies and teacher career development (Dutch Government, 2011), were used by researchers to development of factors and indicators of the qualimetric model in Table 2.

Table 2

Qualimetric model of evaluating the levels of innovation in educational environments

Factors	Weight of the factor (Fi)	Criteria (C)	Weight of the criterion (n)	Points for the criterion
Educational process management (F1)	15	managerial initiative to change the educational environment	0-2	
		changes are initiated by the higher management bodies	0-1	
		democratic management style	0-3	
		authoritarian management style	0-1	
		liberal management style	0-2	
		cooperation with scientific and educational institutions	0-3	
		Cooperation with the general public	0-3	
Real factor points (weight)– Fr1				(0-15)
Teacher development conditions (F2)	25	professional team (staffing)	0-5	
		readiness to implement innovations	0-5	
		readiness to adapt to changes	0-2	
		the motivation for professional development	0-4	
		experience in innovations implementation	0-4	
		experience in innovative ideas development	0-5	
		Real factor points (weight)– Fr2		(0-25)
	30	student-oriented learning and intellectual development	0-5	

Student development conditions (F3)		key competencies development	0-5	
		educational measures for universal values development	0-5	
		patriotic education	0-4	
		environmental education	0-4	
		the motivation for search and research activities	0-5	
		Extracurricular activities for the development of creative abilities	0-2	
		Real factor points (weight)– Fr3	(0-30)	
Scientific and methodological support (F4)	15	scientific and methodological support (carried out by research institutions)	0-4	
		participation in experimental work (organization and conduct of pedagogical experiments)	0-3	
		Participation in the development of state standards (submission of proposals)	0-4	
		Curricula, textbooks, educational and didactic materials development	0-4	
		Real factor points (weight)– Fr4	(0-15)	
Resource provision (F5)	15	financial and administrative support (textbooks, technical training tools, furniture)	0-3	
		technological support (software and means of communication)	0-3	
		computer equipment	0-3	
		physical development areas	0-2	
		creativity areas	0-2	
		recreation areas	0-2	
		Real factor points (weight)– Fr5	(0-15)	
(Fi)	100	Total points (total factor weight) – N	(0-100)	

The total number of points (N) is calculated as follows: Each factor has a set ideal weight (the highest score) - F_i , each criterion respectively weights 0 to n , which is determined by an expert. The sum of the points defined for each indicator is the real weight (Fr) for each factor.

The actual score (weight) of each factor is calculated using the formula:

$$K_1 + K_2 + K_n = Fr;$$

The total number of points – N is **an indicator of the level of innovation in the educational environment, which is determined by the sum** of the real points of each factor: $F_1 + F_2 + F_3 + F_4 + F_5 = N$.

A school with an innovative educational environment at an adaptive level can score from 0 to 30 points; on the experimental - from 31 to 60 points; at the search and initiative level - from 61 to 90 points, at the productive level from 91 to 100 points. This distribution of points is not accidental.

The productive level of the innovative environment of the gymnasium presupposes not only the purposeful development and application of innovations, but also their introduction into the practice of other schools. It is important to note that schools with a high level of innovation of the educational environment create an "innovative climate" in the system of general

secondary education and influence the tendencies of its development and the definition of directions for reforming education.

The information obtained as a result of using the qualimetric model will be valuable for predicting the innovative development of the school's educational environment. The information obtained as a result of using the qualimetric model will be valuable for predicting the innovative development of the school's educational environment.

Procedures

Three months before the introduction of tools for assessing the innovation of the educational environment of schools, a team of five researchers conducted scientific and methodological seminars at schools and education departments in five cities of Ukraine. The seminars were attended by representatives of school administrations, teachers and representatives of education authorities. The main goal of the seminars is to test the developed toolkit for assessing the level of innovation of the educational environment of the school, motivation to use the toolkit in self-assessment of the school in order to improve the quality of education, as well as the selection of experimental and control schools for the implementation of the developed toolkit. As a result, two experimental schools and three control schools were selected. In these schools, the researchers carried out the following activities: a survey, in which 137 teachers took part (representatives of administrations, teachers, methodological staff), interviews with teachers, students, parents of students, observation and examination of conditions for comfortable learning of students and professional development of teachers.

Since September 2019, researchers have been introducing a qualimetric model in experimental schools. Based on observation of teachers' work in the classroom and after school hours, communication between teachers and students, communication between students in class and in game activities, the researchers assessed generalized indicators for five factors of the qualimetric model: F1, F2, F3, F4, F5.

In control schools, working groups of four teachers and one representative of the school administration were created, for whom instructions were developed and round tables and consultations were held for the independent use of tools for assessing the educational environment of schools. The working groups presented the researchers with generalized materials for analysis, on the basis of which expert conclusions were developed regarding the level of innovation of schools and methodological recommendations were developed.

Important conditions in the organization of the experiment were the voluntary participation and the anonymity of the participants. To ensure anonymity, conditionally experimental schools were designated as E1 (24 participants in the experiment) and E2 (19 participants in the experiment), and control schools K1 (15 participants in the experiment), K2 (8 participants in the experiment), K3 (12 participants in the experiment).

Results

The results of observations and interviews show that 94% understand the importance of introducing innovations for the educational environment and support the need to reform education, but are not satisfied with their workload in the workplace, lack of time for personal and professional development and self-education. A survey of directors and teachers showed that in the E1 – 72% and in E2 – 64% of teachers defined the educational environment as innovative and are ready to use assessment tools in the process of school self-assessment. The expert assessment established a search and initiative level of innovation of the educational environment for E1 and E2.

A survey in control schools showed that 36% of teachers identified the educational environment of schools as innovative and are ready to participate in the self-assessment of the

school, but recognized the need to prepare them for an innovative robot. The expert opinion in the K2 and K3 established an adaptive level of innovation of the educational environment, and in the K1 – an experimental one.

The results of using the qualimetric model confirmed the established levels of innovation of schools, which are described in the expert conclusions. The search and initiative level of innovation is established for E1 and E2. The numerical value of the priority of the factors for E1 is 82 points, of which: F1 – 15, F2 – 22, F3 – 25, F4 – 11, F5 – 9.

For E2, the numerical value of the priority of factors is 69 points, of which: F1 – 15, F2 – 22, F3 – 25, F4 – 11, F5 – 9. For K1, an experimental level of innovation has been established, the numerical value of the priority of factors is 56 points, of which: F1 – 8, F2 – 16, F3 – 21, F4 – 7, F5 – 4. The adaptive level of innovation is established for K2 and K3. The numerical value of the priority of factors for K2 is 29 points, of which: F1 – 6, F2 – 5, F3 – 15, F4 – 2, F5 – 1. For K3, the numerical value of the priority of factors is 26 points, of which: F1 – 3, F2 – 6, F3 – 14, F4 – 1, F5 – 2.

The use of tools for assessing the innovation made it possible to identify problems that impede changes in the educational environment and reduce the effectiveness of reforms. In particular, these are not high enough indicators of resource and scientific-methodological support. For a school with an experimental level and for schools with an adaptive level of innovation, the problem is a low indicator of educational process management and conditions for professional development of teachers.

Based on the assessment results, high indicators of conditions for the development of students in schools with a search and initiative level of innovation and average indicators for schools with experimental and adaptive levels are provided due to the professionalism of the majority of teachers and their conscious desire to improve the educational environment of the school. This made it possible for the researchers, together with teachers, to develop recommendations for increasing the level of innovation for the schools that participated in the study, and to develop plans for scientific and methodological support for the implementation of state education reforms.

Discussion

The research, together with the positive results obtained as a result of experimental testing of tools for assessing the innovation of the educational environment, identified problems and debatable issues of innovation and assessment in Ukrainian schools.

Modern educational reforms in Ukrainian education provide for changes in the rules of attestation of educational institutions and reorganization of those schools that will not meet the new requirements based on the results of attestation. The conditions of attestation and parameters of compliance with the standards prescribed in the state documents on education of Ukraine need to be explained and public authorities to take measures to provide resources and motivate administrations and teaching staff to change the educational environment. Fear of school closures and job losses by teachers is the main reason why educational institutions refuse to participate in pilot studies to evaluate school performance. Also, the uncertainty of educational policy in Ukraine and the dependence of educational reforms on political changes and influences do not help motivate teachers to innovate. Therefore, before conducting an experimental test of tools for assessing the innovations of the educational environment, we conducted seminars and other activities to form a positive attitude of school leaders and teachers to the assessment and common opinion about the need for innovative changes in the school for its competitiveness.

In the article covering the results of the study of the innovativeness of the school educational environment, we analyzed the readiness of heads and teachers of general secondary education to assess and reform the educational environment in the context of modern reform of the Ukrainian school. At the beginning of the study, the results of scientific research on the problems of designing and evaluating educational environments of schools were studied.

The term "educational environment" in the Concept of the New Ukrainian School (2016) is defined as a set of specially created conditions that based on qualitative changes in the educational environment (application of innovations) provide education for school graduates who are capable of personal development and lifelong learning to change and change the world around.

In a study by Joanne Blannin et al. (2020) the definition of "innovative learning environments" (ILEs) is used to describe school design. In particular, researchers focus on characteristics such as flexible space containing technology, equipment and furniture for the comfort of learning. The educational environment is seen as an opportunity to support the educational process by teachers, who should carry out research activities in order to improve pedagogical methods and student-centered learning. Australian researchers also refer to the analysis of government documents and reports that promote the modernization of education according to the requirements of "learning in the XXI century". Researchers are right to prepare teachers for the effective use of educational space in teaching.

In the study of educational environments of Ukrainian schools, we conducted scientific and methodological seminars and prepared instructions for teachers on the use of assessment tools, and constantly provided communication with experimental and control schools for counseling and scientific and methodological support of educational environment assessment.

In our opinion, a modern teacher cannot be effective if he does not carry out innovative and research activities in the learning process. The introduction of scientific developments (research programs, experimental testing of assessment tools, etc.) in general secondary education institutions promote the professional development of teachers and affect the quality of student learning. The teacher is the organizer of the educational environment, designer and developer of the learning model.

Our study developed and characterized the levels of innovation in the educational environment: adaptive, experimental, level of exploratory, productive level based on the results of international research of the innovation environment and recommendations for its design (OECD, 2014). In particular, we tried to form an "innovative core" in experimental and control schools, to group creative and enterprising teachers for collective influence on the development of the school's educational environment.

To develop tools for assessing the school's innovation environment: questionnaires, interview plans, forms of observation, etc., we used the researchers' monitoring procedures and diagnostic methods for student learning research (Favre, 2017; Vock & Gronostaj, 2017), which allowed us to find out conditions of the educational environment for the development of students in different environments. In particular, the need to take into account the heterogeneity of learning conditions and the creation of positive motivation that should provide a teacher as an organizer of the educational environment. Involving teachers in the use of assessment tools has helped to improve assessment procedures.

Important in the development of assessment parameters are the characteristics of the types of educational environments and factors influencing changes in the educational environment, as well as approaches to creating an educational environment in different cultural schools (Bates, 2019). At the stage of developing a qualimetric model we have identified key factors that determine the level of innovation of the educational environment: management of the educational process, conditions for teacher development, conditions for student development,

scientific and methodological support, resource provision. These factors are assessed according to criteria developed for each factor by the example of Dutch teacher competence assessment (seven areas of competence) requirements, learning process monitoring (teacher-student communication atmosphere), assessment of school leader management and teacher development (Nouche et al., 2014).

The school's innovative educational environment is key to the development of students and teachers. Effective use of educational space to interact and improve the educational process and create a positive climate in schools will contribute to the goal of education declared in the Law of Ukraine "On Education" (2017) and the effective implementation of educational reforms in Ukraine.

In our study we presented the author's developments to assess the educational environment of the school, in particular to determine the level of innovation. Based on the results of the study, a textbook was prepared for teachers and students of pedagogical universities.

Conclusion

The main goal of the study is to present the theoretical and empirical results of the study of the innovation of the educational environment of schools as an important condition for the success of educational reforms and improving the quality of education. The main goal of the study was achieved by developing characteristics for the levels of innovation of the educational environment of schools (adaptive, experimental, search and initiative, productive) and assessment tools, conducting scientific and methodological seminars on the basis of schools.

The results of using the tools for assessing the level of innovation of the educational environment in experimental and control schools confirmed that the assessment tools developed by the researchers: questionnaires, observation forms, qualimetric model and procedures made it possible to establish the level of innovation of the educational environment and identify problems that hinder innovative changes in the framework of educational reforms. For schools, the developed guidelines for the development of the educational environment and scientific and methodological support for innovative work aimed at introducing educational reforms were important.

The results of the study of the innovation of the educational environment and assessment tools can be used for self-assessment of schools and the successful implementation of government reforms in order to improve the quality of education. Self-assessment of the educational environment in order to solve educational problems by finding, developing and implementing innovative ideas, in our opinion, is especially important in the face of unpredictable global challenges (for example, the pandemic that has spread around the world - Covid19). It is important that leaders and teachers consciously change the educational environment to ensure the quality of education and the comfort of student learning.

In the process of creating an innovative educational environment of the school, the problem of compliance of the modern teacher's personality with the requirements of a democratic open innovative environment of the school is relevant. This is largely due to the fact that to educate a creative, proactive, extraordinary personality, responsible specialist, citizen, patriot, which today needs the Ukrainian state and society, can only be a creative, extraordinary teacher with innovative thinking, prepared for continuous improvement of personal and professional qualities and to the implementation of pedagogical activities in an innovative environment. It was determined that for the successful course of innovation processes it is important that teachers understand the essence of innovation; were able to predict and evaluate the results of innovation; were able to analyze the preconditions for the emergence of an

innovative idea, the nature of the pedagogical problem, the solution of which is aimed at innovation, the stages of its implementation and effectiveness. In this regard, in general secondary education institutions it is necessary to improve the conditions for professional development of teachers and their preparation for effective work in an innovative educational environment.

We consider promising further research on the problems of quality assurance of innovative changes in the educational environment of general secondary education institutions. Our next research will be aimed at improving the tools for assessing the innovative development of the educational environment and the study of such an important component of an effective educational environment as assessment strategies. Research on these issues, in our assumption, will ensure the measurement of the quality of innovative educational environment and help ensure the comfort and effectiveness of student learning in order to prepare them for life in the XXI century.

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