

MSC 2020**International Scientific and Practical Conference «MAN. SOCIETY.
COMMUNICATION»****INNOVATIVE DEVELOPMENT OF SCHOOL EDUCATION IN
CROSS - MULTIDIMENSIONAL ENVIRONMENT**

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Abstract

The article presents the concept of innovative development of school education in cross-multidimensional environment as a new reality of modern education. It was revealed that the results of educational activities are increased through constructing effective innovative dialogue models of interaction with digital, technological, ethno-cultural, axiological, semantic, and event-driven environments. Special attention in the article is paid to the features of the innovative pedagogical activities of a teacher who is a subject of cross-multidimensional relations. It determines the possibility of posing and solving a serious scientific problem of innovative improvement of educational activities in regards to the factors and potential of the cross-multidimensional environment. In this case, the key idea could be an assessment of the innovative pedagogical reality arising from the interaction and intersection of the educational environment with other environments. The implementation of the innovation process implies the creation of an effective organizational structure, the development of an appropriate innovation policy, the determination of priority directions, and routes for advancing to the required parameters of the innovation environment. A number of recent federal documents on conceptual and strategic planning state the need for innovative transformations aimed at giving the national education system the properties of competitiveness and compliance with global challenges and trends in the economy, social, scientific and technological spheres. Understanding the mechanisms of designing an innovative educational process in a cross-multidimensional educational environment determines the place and role of the teacher in this process.

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Keywords: Cross-multidimensional environment, educational activities, educational environment, environment and surroundings, innovative educational environment, multi-environment lesson



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1. Introduction

Qualitative changes taking place in the economic, social, technological, and cultural spheres of the world community life leave an imprint on the innovative development of educational practices (Donina & Vezetiu, 2019; Kivarina, 2018; Sazhneva et al., 2019).

Most of the innovations declared by the national project “Education”, in one way or another, can be united by a common conceptual idea related to the cross-multidimensional organization of the educational process in a modern school. It is assumed that the educational process, being a complex phenomenon, uses the possibilities and potentials of a number of environments (digital, social, economic, technological, informational, innovative, cultural-historical, ethno-cultural, subject-spatial, axiological, production and professional) and surroundings (geographical, humanitarian, library-media, network, conceptual-paradigmatic, semantic, noospheric, and event-driven).

The cross-multidimensional organization of the educational process leads to the emergence of a number of new integrative properties and effects. Among them, first of all, the following would be singled out:

- technologization of the educational process on a new, mostly digital basis;
- personalization, taking into account the individual characteristics, inclinations, preferences, and values of students;
- egress of the educational process beyond the boundaries of the classroom and the school building;
- expanding the space for choosing educational content, sources of information, design solutions, educational and social practices;
- intensification of educational activity, communication among subjects of educational and professional activities, including the use of electronic services;
- multicriteria description of the quality of the educational process.

First of all, the educators should not only acquire new competencies, but also adopt a new ideology of cross-multidimensional organization and measuring the educational process.

2. Problem Statement

Sustainable development and qualitative renewal of social systems, including the educational system, is not possible without certain innovative changes. Nowadays, innovation is one of the key characteristics of education. Innovative tasks are distinguished by the absence of reference signs and characteristics, a lack of experience, which could serve as a starting point in relation to new situations. The educational qualification of the population, the perfection and saturation of the scientific and educational infrastructure are the leading factors in the progress of the economy and the sociocultural sphere; their driving forces and accelerators are innovative knowledge, practices, and breakthrough production technologies. Forming the ability to manage innovation processes at various levels (institutional, municipal, regional levels of organization and management) is a relevant task.

Taking into account the factors of constant changes in the structure of the innovation process and the emersion of new situations, managers are required to have competencies in reformatting existing

management systems, periodical management strategies reviewing, adjusting the implemented management functions, modeling and transforming the organizational structure of the management system, and mastering new management technologies (including technologies for the development, adoption and implementation of managerial decisions).

It is evident that the efficiency of managing innovative processes at various levels does not meet the requirements of their sustainable development and ensuring the required results. Thus, it is necessary to activate the processes of generating nonstandard ideas, introducing innovative models and creating favorable conditions, and effectively controlled implementation of changes, especially at lower levels, including the level of educational organizations. It is necessary to form strategic teams in a number of innovative areas of educational activity, to optimize the parameters of the innovative changes in amount and intensity considering the need to ensure stable and high-quality educational results and planned renewal of key subsystems of the educational system with a focus on the future requirements and challenges. Indeed, the above-mentioned essentially changes educational systems, gives them fundamentally new functional properties, sets new requirements for the parameters of the professional activity of managerial and teaching staff.

The new cross-multidimensional reality is characterized not only by more complex technical, technological, and managerial decisions, but also by more complex, often unique, technologies and solutions of pedagogical action. Using new opportunities, going beyond the school surroundings, using the potential and capabilities of a number of environments and surroundings, a teacher simultaneously acts as a designer, facilitator, manager, expert, navigator, tutor; a teacher is actively involved in joint activities with students, in event-driven practices (Donina & Vodneva, 2019; Ilyashenko et al., 2019; Konovalova et al., 2019; Ivanova et al., 2017; Panasyuk & Elistratova, 2019).

The phenomenon of cross-multidimensionality, on the one hand, has a powerful innovative effect on all components of the educational system and stimulates changes in it; on the other hand, there is a problem of ensuring the quality and sustainability of educational systems.

3. Research Questions

Giving credit to management and education theory and practice achievements in research and development of innovative educational processes and their impact on the quality of education, still there are unresolved questions about the place and role of different environments and surroundings in the educational process, factors of their interaction and intersection in the initiation and continuation of innovation. We also see the lack of the terminological apparatus and the modeling of the cross-multidimensional environment of the innovative educational process.

The following questions arise when studying the innovative development of school education in a cross-multidimensional environment:

3.1. What is the real contribution of the cross-multidimensionality factor as an innovative phenomenon to improve the quality of education?

3.2. What are the boundaries of the controllability of educational system designed in regards to cross-multidimensionality?

3.3. How can the balance of the processes of functioning and development of the educational system be ensured?

4. Purpose of the Study

The ideas, provisions, and developments presented in the article are aimed at achieving the purpose: the use of a cross-multidimensional concept of organizing the educational process in an innovative environment allows expanding the field of innovative pedagogical and methodological search, getting an idea of present trends in education, the nature and direction of key processes that determine the achievement of educational results of a new type. Consideration of the multidimensionality and variability of interactions of the educational environment with other environments and surroundings in practice makes it possible to expand the arsenal of teaching, developmental and educational tools, methods, and technologies used in the real educational process, as well as innovative practices and forms of activities organization.

5. Research Methods

To achieve the research purpose, we required certain methods to study the influence of cross-multidimensional environments and surroundings on the processes of innovative renewal of educational activities. The methods of theoretical analysis and generalization, classification, as well as empirical methods (survey, observation) were chosen. In addition, considerable attention in the article is given to the system-forming, integrating parameters that are manifested in the organization of the educational process in the conditions of cross-multidimensionality. The following sources for the theoretical analysis were used: a number of pedagogical, psychological, philosophical, and sociological articles and monographs, legal regulatory acts. The data of empirical innovative pedagogical experience, including those related to the problems considered in the article, are generalized.

6. Findings

We have studied the organization of educational activities in cross-multidimensional environments and surroundings and, taking the works by Shamova et al. (2002) as a basis, identified the following operations in the structure of innovative educational activity environments:

- Operations that help to understand if the changes are necessary and required in the activity of a teacher.
- Operations that help to design innovations (comprehension of a scientific idea; understanding the innovation essence; formation and awareness of indicators for assessing a qualitatively new result; forecasting negative consequences and determining ways to overcome them).
- Operations aimed at mastering innovations; approbation of innovations by all participants in the pedagogical process; monitoring of experimental work indicators.
- Operations aimed at disseminating and using innovations: understanding one's own problems and opportunities; the ability to find ways for solving these problems; correlation of the proposed innovations with one's own capabilities; determination of conditions for the

implementation of innovations; modeling innovation for a specific pedagogical event; implementation of innovations in the teachers' practice; comparing results of using innovations in teachers' activities with those obtained in the experiment; reflection; inclusion and subsequent approbation of innovation in a holistic educational process.

The proposed list of operations is not exhaustive for use in the cycle of managing innovations of various types and forms in relation to a cross-multidimensional educational environment. The research works by Slastenin and Podymova (1997) and others allow us to identify the following components of innovation management in a cross-multidimensional environment: a) value-motivational part (values, interests, motives); b) the content-operational part (the system of knowledge and methods of innovation); c) the reflective part.

Thus, making an intermediate conclusion based on the above-mentioned, we should say that nowadays, a teacher is a teacher, a mentor, a facilitator of children's activities, an active participant in communication with colleagues, students, and their parents, a researcher of the pedagogical process, a consultant, an educator and a social activist. A teacher continuously improves the level of professional and pedagogical skills, conducts a creative and professional search for something new.

Among the general pedagogical principles that can form the basis of an innovative model of cross-multidimensional environments and surroundings, the following can be singled out: cultural conformity, conformity to nature, consistency, integrity, scientific character, personification of an individual, and activity-based approach to the educational process; in addition, the following principles of innovation management can be distinguished: optimality, verifiability, differentiation, and tech.

The innovative component of the teacher's activity in the cross-multidimensional environment of the educational process mostly involves the pedagogical innovation design. This aspect of the teacher's activity consists of a number of research, analytical and practical actions aimed at defining a pedagogical problem, the aim, the formation of a scientific idea of choosing a specific innovation, its content development, and use in the professional activities (Langacker, 1992). The implementation of pedagogical innovation involves the introduction of a new technology, technique, tool, and approach to the educational process and requires the teacher's constant reflection on the effects obtained.

At present, the signs of innovative character of school education are:

- large-scale use of digital technologies and ICT (online educational platforms; digital twins and augmented reality technologies; electronic educational resources; automated information management and automated information systems; digital subject laboratories; sensor systems, simulators);
- widespread use of rationing and standardization (Federal state educational standards; professional standards for various categories of management and teaching staff; a unified list of textbooks; Cultural standard of a student; exemplary basic educational programs; etc.);
- implementation at all levels of the principles and technologies of project management (for example, the national project "Education", its constituent federal projects: Modern School; Success of Every Child; Support for Families with Children; Digital Educational Environment;

Teacher of the Future; Young Professionals; New Opportunities for Everyone; Social Activity; Export of Education; Social Lifts for Everyone), strategic planning models, engineering technologies, and analytical models;

- adoption of approaches used in foreign educational systems, production management systems, quality management (Singapore structures; quality management systems; benchmarking; transfer of innovations; etc.);
- use of previously successful practices, organizational models, technologies, and approaches (the so-called retro-innovations) (All-Russian Movement of Schoolchildren; Youth Army; volunteering and camp leaders movement).

In practice, innovative activity is very often characterized by lack of system and consistency. Some innovations are spontaneous, inconsistent, and sometimes they do not correlate with general approaches to the educational system design. It could lead to negative consequences and inhibiting of its development (Romanova et al., 2019; Sazonov, 2008).

The guidelines towards innovative development of education put forward the thesis about the need for a serial character of systemic changes. It is determined due to the following reasons:

- changes in priorities of the educational services market, in particular, increasing competition in this area, students' requirements for the quality of the educational product;
- a change in the balance of powers and responsibilities of management entities at various levels, the need to achieve its optimal value, especially in terms of the powers of lower levels (municipalities, educational organizations);
- large-scale innovations initiated by federal structures, new conceptual approaches at the level of educational policy (continuous development of professional skills of teachers; digital school; constructing a unified system for assessing the quality of education; standardization; use of international instruments for assessing the quality of education; improving the mechanism for independent assessment of the quality of education; increasing the role of education in the cross-sector context, the development of the competitiveness and investment attractiveness of Russian education; strengthening the responsibility of educational organizations for the quality and results of their activities; etc.) (Potashnik, 2018).

At the same time, without belittling all that was presented above in terms of innovation, we should mention one more factor of the rapid renewal and obvious complication of educational systems. It is the factor of interaction and intersection of the educational environment with a number of other environments and surroundings. For example, practitioners of preschool school and school education more and more often, using the potential of interaction and intersection of various environments and surroundings, create new types of integrated pedagogical and didactic systems, which have new capabilities in terms of solving problems of teaching, upbringing, developing the student's personality, preserving students' health, and vocational guidance. Such systems are reflected in innovative models, principles and approaches, and technologies of museum pedagogy, art therapy, flipped class, anti-cafe, architectural didactics development, etc.

The innovative educational activities associated with a cross-multidimensional environment dictate the need to apply such principles and methods of management in general and quality management in

particular that are different from traditional ones. Taking into account the stochasticity and indeterminacy of such activities, it is not possible to apply control methods based on negative feedback, flow charts, programmed control methods, or single-loop control. The use of more advanced and adequate management tools is required; among these tools are simulation, risk-based management, reflexive technologies, project management, and matrix structures (Serikov, 1999).

Thus, the phenomenon of cross-multidimensionality has a powerful innovative effect on all components of the educational system, stimulating changes in it. However, one should note that at times such changes are based on unverified conceptual approaches and principles; sometimes these changes defy logic. The legal basis of educational activities and various organizational schemes are especially slow to change; at the same time, patterns and stereotypes of managers' way of thinking are breaking down.

7. Conclusion

The main results of this article on the innovative development of education in a cross-multidimensional environment are as follows:

- The problem of enhancing innovative activities related to the cross-multidimensional organization and conditions of the educational process with consideration to the priorities of modernizing Russian education is defined.
- The essence, structure and content of the teacher's innovative activity aimed at using the opportunities and potential of cross-multidimensional environments and surroundings are substantiated. The development of the teacher's innovative activity at school is presented as a set of interrelated and coordinated objective and subjective conditions of the educational process; as the result of a thoughtful and systematic selection, design and creative use of innovations in content, organizational forms and teaching methods.
- The model of the teacher's innovative activity in cross-multidimensional environments and surroundings has been substantiated and tested, taking into account the conceptual provisions, which include the basic concepts, leading ideas, trends, features of innovative processes, organizational structures, as well as substantive and scientific methodological support.

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