



Methodology of Using the Logistics of Pedagogical Innovations in the Educational Cluster Environment

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Abstract: In the article discusses about the logistics of pedagogical innovations in the environment of the educational cluster.

Keywords: Educational cluster, practice-oriented direction of professional education, social sphere of society, current competencies, intelligence, model of educational cluster in the social sphere, socio-active development of the individual.

Ta'lim Klasteri Muhitida Pedagogik Innovatsiyalar Logistikasidan Foydalanish Metodikasi

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Annotatsiya: maqolada ta'lim klasteri muhitida pedagogik innovatsiyalar logistikasi.

Kalit so'zlar: ta'lim klasteri, kasbiy ta'limning amaliyotga yo'naltirilgan yo'nalishi, jamiyatning ijtimoiy sohasi, dolzarb vakolatlar, aql, ijtimoiy sohadagi ta'lim klasterining modeli, shaxsning ijtimoiy-faol rivojlanishi.

Introduction

Objects belonging to different contexts are characterized by relationships of subordination: competencies act as part of the educational program, which is an element of the life of an educational organization, and it, in turn, can be a participant in the association of social institutions. This allows us to talk about differences not only in terms of the qualitative characteristics, scale and



influence of educational clusters, but also in terms of levels of clustering. The latter is a controlled process of creating and transforming a cluster through the integration of resources of its constituent objects in order to achieve a synergistic effect, manifested in the creation of innovations that are, at the same time, the result of activities and a condition for the development of the cluster. The substantive context of each of these levels will determine its own framework for understanding the essence of the cluster approach in education and differentiation of innovations.

The transition of Uzbek society to a post-industrial formation defines the requirements for the education system, which consist in training the younger generation of citizens as "knowledge workers" who create new information and services. This determines the axiological orientation of education towards innovation, since it is possible to prepare the cognitive faculty only in an educational environment based on innovations.

In domestic education, the creation of such an environment is quite active, but more and more obviously this process needs a methodology that, meeting the conditions of a post-industrial society, can cover the entire path of the formation of pedagogical innovations. Logistics can serve as the basis for such a methodology, which is a mechanism that ensures a full cycle of innovation development from the emergence of an idea to its design in a pedagogical innovation, which is brought to the interested parties.

The term "logistics" appeared in economics, in which it describes the science that explores the patterns of flow management characteristic of an organization, and at the same time the field of practical activity associated with solving relevant tasks. The flow is considered as a set of elements moving in a certain direction within a certain known period of time, measured in any units during this period. In any institution there are many flows – information, material, service, financial and others. Encompassing them, logistics is a methodology for optimizing any flows [4] in social systems and at the same time an effective way to manage these systems.

This provides grounds for attracting logistics from the field of economic knowledge to the field of education, applying it to the activities of educational systems, which may include individual educational organizations or their associations. The latter are represented by territorial educational clusters, which include educational holdings, which are a set of multi-level educational and other organizations united on the principle of horizontal integration under the



auspices of the regional Ministry of Education (or university) to create a common educational space in the region.

The development of such educational systems is based on innovation management, which allows us to introduce the concept of "logistics of pedagogical innovations", revealing the methodology and mechanism of this activity. We associate the purpose of our research with the definition of models (paradigms) for the development of logistics of pedagogical innovations.

The purpose of the research presented in this article is to identify paradigms for the development of logistics of pedagogical innovations as a methodology and mechanism for managing innovations in an educational holding.

The hypothesis of the study is the assumption that the identified paradigms will form the value, content, and instrumental framework of the logistics of pedagogical innovations, which will increase the effectiveness of its implementation and development.

Participants. The study was carried out on the basis of the educational holding of the Ulyanovsk region: educational organizations (preschool, general education, additional education for children, vocational education), which are innovative platforms. For 15 years (from 2003/2004 to 2017/2018 academic year), while the study lasted, their number varied annually (from 66 to 132 educational organizations), averaging 100 institutions per year.

Methods. Based on the results of innovative activities, the holding's participants provided each year a package (case) of reporting materials defined by the terms of reference of the innovation project being carried out (theoretical developments, methodological materials, educational programs, regulatory documents, analytical certificates, articles, manuals, monographs, etc.). In total, we collected and processed 1,492 cases. The results of innovative work contained in them have become the subject of ongoing analysis and generalization, the basis for determining paradigms for the development of logistics of pedagogical innovations in an educational holding.

The methods used were the analysis of literary primary sources and the results of innovative activities of educational organizations, logical generalization (induction and deduction) aimed at solving the problem of determining paradigms for the development of logistics of pedagogical innovations in an educational holding.

In Russian education in the current century, the category of "logistics" is used very actively. To date, two scientific positions have been formed that reveal the



issues of logistics in education through concepts such as educational logistics and pedagogical logistics.

The term "educational logistics" describes a science that combines methods of studying flows in education (material, financial, information, etc.), as well as the field of practical activity, which on this basis determines the sustainable functioning of the educational system. In any institution (school, university), educational logistics ensures the continuity of academic disciplines, educational programs and educational and methodological support and, through this, the achievement of a set of educational goals.

In this sense, educational logistics is an external tool in relation to the pedagogical goals and content of education, its focus on personality and its development [17]. Educational logistics can be described as management aimed at the infrastructure of an educational institution. Such an infrastructure creates conditions that will support the work of teachers or create obstacles for it, but it does not determine the quality of pedagogical activity. Ignoring this circumstance can lead to the fact that when considering the educational system, infrastructural components will "replace" and displace pedagogical ones.

It is on the pedagogical components that pedagogical logistics focuses, focusing not so much on infrastructure issues as on the pedagogical system implemented in an educational organization. Accordingly, the purpose of such logistics is to reproduce the effectiveness and quality of the educational process. The authors, working in line with this scientific position, understand pedagogical logistics as a science and field of activity, the subject of which is the management of pedagogical flows – knowledge, learning, information, health, psychological flow, managerial flows, the flow of students, educational and educational flow, etc. By combining, these streams harmonize the pedagogical system, defining the process and results of learning and education in an educational organization. At the same time, the management of pedagogical flows is aimed at ensuring the functioning, but not the development, of the system in which pedagogical logistics is carried out. The absence of such a priority and the focus on reproducing a certain level of achievements unites it with educational logistics and makes it obvious that they are limited in the management of a regional educational holding. This limitation can be overcome by combining two logistics based on the cluster approach into the logistics of pedagogical innovations. Its main idea is to focus on the development of both the pedagogical system implemented in an educational organization and the infrastructure supporting



it. By the term "logistics of pedagogical innovations" we mean "the field of theoretical research and practical activities aimed at coordinating processes and flows in the educational system in order to create conditions sufficient for the production, testing and implementation of pedagogical innovations, as well as the promotion of the results obtained in the educational environment." The purpose of such logistics is to harmonize the flows of the educational holding in order to form a stable flow of pedagogical innovations. The latter are both the result of activity and a factor in the development of a territorial educational cluster.

It is possible to characterize the flows that the logistics of pedagogical innovations operates on the basis of parameters describing its focus on the functioning or development of infrastructural or pedagogical components of the educational system. In the parameter space, we can identify five streams:

- pedagogical (streams of education and upbringing) – are formed by the totality of the pedagogical components of the educational system proper;
- infrastructural – determined by the material and economic resources of the educational system;
- integrative – combine information (information) and the means of their movement in an educational cluster, the conditions in which people communicate;
- the flow of interference is formed by the desire of people to maintain the existing status quo of the educational system, which creates conditions that restrain its development;
- the flow of pedagogical innovations is formed "by combining the simultaneous focus of logistics on the development of infrastructure and the pedagogical system." It is formed by the activities of subjects of educational relations aimed at the development and introduction of pedagogical innovations into the educational system, ensuring an increase in the efficiency of its functioning and development.

The directions of development of logistics of pedagogical innovations and educational holding are determined by the ideology of logistics, which is a set of views that reflects the system of relations of subjects to the world, people, events, activities, and ongoing changes. We propose to concretize it with five paradigms (models, models of solutions) – axiological, humanitarian, interaction paradigm, meaningful and technological. They form a value-based, meaningful,



as well as instrumental framework for the implementation and development of logistics of pedagogical innovations.

The essence of the first of them is determined by the orientation of logistics towards a value attitude towards resources and conditions conducive to the development of an educational holding: pedagogical innovations and innovative activities, subjects of innovation and logistics, cluster participants and their relationships, the holding as a whole. The development of ways to motivate and engage in innovative search, providing conditions for self-realization in innovative activities, versatile support for innovators and solving similar issues determine the axiological direction of the logistics of pedagogical innovations.

The humanitarian paradigm can be revealed by the idea of logistics as a resource for self-actualization of personality. In an educational holding, people are the fundamental link in the flow of pedagogical innovations – its source, regulators of innovations and their consumers, subjects of logistics. By creating conditions for the development of the holding, logistics contributes to the disclosure of the innovative potential of each person involved in it – a teacher, manager, expert, consultant. This happens through training (advanced training and retraining), involvement in professional communities (associations, clubs, schools), consulting and other forms of activity aimed at preparing subjects for success in the field of innovation.

All these forms of activity are based on the interaction of the subjects of the educational holding, which reveals the importance of logistics through their coordinated joint activities aimed at creating and promoting such a product as pedagogical innovations. The interaction paradigm allows us to identify two independent vectors, according to which logistics prospects will be built. One of them is set by improving the mechanism of intra- and inter-cluster interaction, which determines the variety of relationships between the holding's participants with each other and with partners located in an environment external to the cluster. It is obvious that the effectiveness of this interaction is determined by various factors, among which are found: the quality of synchronization of the actions of the heads of educational organizations that are part of the holding, the availability of appropriate goals, the choice of approaches and principles, forms, methods and means, criteria for evaluating such interaction [26]. The second vector is related to the movement (diffusion, transfer, dissemination) of pedagogical innovations within the holding and beyond its borders. The use of traditional and adapted to the specifics of the tasks being solved, as well as new



forms of interaction, allows for a sufficient number, variety and quality of the flow of pedagogical innovations.

In line with the movement of the elements that form various streams in the educational holding, the fourth, meaningful paradigm begins. Her key thesis, reflecting one of the tasks of the logistics of pedagogical innovations, is a comprehensive study of the subject side of flows and their features (typical and specific content), the mutual influence of flows, phenomena and properties resulting from such influence. Independent tasks of logistics in line with the content paradigm are the study of the dynamic characteristics of the flow of pedagogical innovations, as well as the establishment of ways to influence and manage flows.

The search for solutions to these problems is directly related to the implementation of the technological paradigm, which focuses us on the need for instrumental improvement of the logistics of pedagogical innovations. This process can take place in several directions, and one of them is the search for means and ways to create a large number of high-quality and diverse pedagogical innovations in an educational holding. Technologies of digitalization, gamification, expert assessments and others will allow updating and/or adapting traditional logistic methods (systems theory, compromise theory, planning methods, the concept of "just in time", etc. [2, 3]) to solve educational problems proper. It is quite clear that these changes will be accompanied by an active search for new approaches to assessing the logistics of pedagogical innovations and appropriate practical solutions – defining criteria and indicators, algorithms for data processing and performance monitoring.

Conclusions

In conclusion, it is possible to summarize the results of the consideration of the logistics of pedagogical innovations and the paradigms of its development in the regional educational holding.

Having appeared in economics, the concept of "logistics" describes both science and practical activities related to the management of various flows existing in social systems. On this basis, logistics is applicable to the activities of educational holdings, which are a cluster of horizontally integrated educational institutions. The application of logistics in education has led to the emergence of the categories "educational logistics" and "pedagogical logistics". With their help, theoretical concepts and empirical solutions aimed at ensuring the stable functioning of the infrastructural and pedagogical components of the



educational system are described. From the perspective of the tasks of an educational holding, the key idea of which is development based on innovation, the possibilities of educational and pedagogical logistics are very limited. This limitation can be overcome with the help of the logistics of pedagogical innovations, which focuses on the development of both the pedagogical system and the infrastructure of the educational holding. Being the methodological basis and applied resource of management in education, the logistics of pedagogical innovations is focused on the harmonization of a number of flows in the educational holding, including pedagogical (flows of education and upbringing), infrastructural (material and financial), integrative (information and people), the flow of interference, the flow of pedagogical innovations.

As a theory and practice of educational holding management, the logistics of pedagogical innovations is developing in directions that are determined by five paradigms. The axiological paradigm emphasizes the value attitude of the holding entities to educational innovations, while the humanitarian one emphasizes the priority of a person as a logistics subject in the holding. The interaction paradigm is associated with the development of contacts and relationships both inside and outside the holding. The content paradigm assumes the organization of research flows in the holding, the technological one – the instrumental improvement of the logistics of pedagogical innovations.

The logistics of pedagogical innovations and the paradigms that define the framework for its implementation and development directions represent a field of promising scientific research and activities related to the management of educational holdings.

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