



**IMPROVING PEDAGOGICAL AND PSYCHOLOGICAL
COOPERATION IN THE SYSTEM OF SCHOOL AND
PRESCHOOL EDUCATION ON THE BASIS OF INNOVATIVE
LOGISTICS IN THE CONTEXT OF LIFELONG LEARNING**

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ABSTRACT

In this article, innovations in the field of education, educational technologies that develop in education, innovations in the field of education, educational conditions, the requirements of society and the state, traditional pedagogical technologies that implement the ideology of reproductive education, and innovative factors issues of coordination, coordination and development of school and MTT activities are analyzed scientifically and pedagogically.

Innovations in the field of education, although extremely popular and competitive, are not economically attractive; moreover, the ultimate criterion in their content partially contradicts the essence of such innovations. Attempts to introduce entrepreneurship courses in schools are also popular and competitive, but they may be associated with financial disadvantages. Innovations in the field of developmental educational technologies are highly competitive, occasionally in demand, but economically unattractive.

High demand combined with low economically attractive competitiveness is characteristic of preparatory and specialized education for school students. This type of education is considerably more cost-effective and justified but is irrelevant to the current educational environment, societal and state requirements, and traditional pedagogical technologies that implement the ideology of reproductive education.

Creating popular, competitive, and economically attractive educational products requires systemic innovations, a high-level utilization of existing knowledge, and the simultaneous integration of the strengths and resources of multiple disciplines. [3] This combination of conditions is a distinctive feature of regional educational holdings and, due to optimal



integration and internal competition, facilitates the emergence of necessary, competitive, and cost-effective innovations.

The productivity of this process depends on the management mechanisms of the educational holding that determine the directions and outcomes of processes within the cluster.

For schools and preschools (MTT), it is important to develop coordination among cluster members while ensuring decentralized management of their innovative activities. Decentralization is viewed as the distribution of authority and responsibilities among cluster entities regarding activities and their results. Each entity conducts innovative work under its own specific conditions, which requires sufficient flexibility, autonomy, and independence. At the same time, to make a full contribution to the creation of a unified innovative educational product, it must have stable communication channels with the entire school and preschool system and engage in interaction within the cluster.

The mechanism that addresses decentralization and coordination issues in schools and preschools is joint cluster management, involving representatives of all entities. The culture of joint management suggests that cluster leadership sees its role not in controlling its entities, but in expanding their rights and opportunities and fostering integration. Participation in management practices enables the formation of shared values, exchange of diverse ideas and skills, thereby contributing to more informed decision-making and the creation of innovations.[1]

Collaborative management can be implemented at various levels and in different forms. An example at the regional level is the organizers of school cluster activities in various locations, particularly the school cluster committees widespread in countries of North and South America, Asia, and the Pacific region. Such committees are established at different educational levels and serve as decision-making bodies responsible for resource allocation and planning and implementing cluster-wide activities. Organizers are often non-profit organizations or groups of stakeholders.

As A. Pellini and K. Bredenberg emphasize, the most effective are local committees composed of all school principals participating in the cluster, experienced teachers, administrators, representatives of local communities, and others. They develop and implement cluster plans, coordinate with local government bodies, engage the public in school activities, and liaise with the district education department. Thus, the local cluster school committee acts as a network coordinator facilitating cooperation between cluster members and the district education department.[9]

At the teacher level, the general forms of collaborative management, according to O.A. Ajani & S. Govender, include: active participation in jointly solving cluster problems; "content-oriented collaboration of teachers" related to consensus knowledge, ideas, and seeking ways to solve common or specific problems; mentoring involving sharing lessons among colleagues in the cluster, joint learning, and observation; and professional meetings that encourage professional activity and development, among others.[2]

The successful development of schools and preschool education centers (MTT) involves the expansion and improvement of cluster infrastructure. Both the quantitative growth and qualitative changes help address issues related to decentralization and coordination of cooperation among holding participants.



The mechanics of this direction can manifest in various ways. We focus on two aspects, one of which is quantitative. This involves expanding the material-technical and economic resources of schools and MTTs, which includes new campuses, specialized units (laboratories, departments, centers, institutes), bases for practical training, projects, startups, attracting new companies, establishing and renewing cluster entities' partnerships, and accelerating innovations.

The second aspect refers to qualitative infrastructural changes, specifically the implementation of intellectual (smart) education systems. According to L. Batagan, C. Boja, and I. Cristian, the foundation of such systems consists of three components described as follows: "Interconnectedness" (sharing educational resources), "Tool" (collecting necessary data), and "Intellect" (making decisions that improve the learning process). These systems serve as a data base of value to the cluster. For example, they enable different cluster entities to monitor the state of the cluster, exchange data, make evidence-based decisions, and manage activities and innovations through data processing and application.

With their help, education becomes flexible and accessible, oriented toward collaboration, incorporating new engaging experiences, motivation through mastering educational tools, mobility, and reducing study time, enabling successful teaching and participation in real business projects. An effectively distributed learning system can be used both for educational goals and innovative project management. Open data stored in formats such as "Education Data Set," personal education profiles, and "Open Badge Infrastructure" (a method of storing information about the learner's competencies) can be accessed from resources within the industry and cluster. This provides information on incentives to create the best educational resources, new practical tools, and services.[4]

Undoubtedly, mechanisms such as collaborative management, network interaction, and infrastructure development in the management of schools and preschool education centers (MTT) are implemented to create favorable conditions for the emergence of educational innovations aimed at significantly improving learners' preparedness. Their operation is not directly related to innovations but is indirect, being considered a factor in maintaining competitiveness amid economic globalization and a condition that enhances an organization's ability to adapt to changing circumstances. Such innovations rely on mechanisms that ensure the effectiveness of educational projects, organize and conduct relevant scientific research, develop new curricula, and implement them in practice. The content of these innovations is aimed at solving pedagogical problems within the cluster or making their educational services more attractive to consumers.

To date, the most comprehensive understanding of such a mechanism has been developed in economics and is described by the concept of "logistics." There is increasing reference to this area of economic activity, which involves coordinating and moving resources within an organization and managing the life cycle of an innovative product. This is because the team developing an educational innovation typically does not have the necessary authority to create and implement the innovation with minimal costs and maximum efficiency.

The outcomes of referring to the field of logistics in the management of schools and preschool education centers (MTT) can take various forms.



In some cases, a specialized unit (sub-cluster) may be created within the school and MTT infrastructure to carry out logistics functions aimed at serving the interests of the entire structure. For example, a logistics cluster is a structure formed within the framework of the global humanitarian cluster. The logistics cluster coordinates the actions of its participants (such as the global clusters for education, nutrition, health, food security, etc.) and also manages the data needed to support rapid decision-making, improving the predictability, timeliness, and effectiveness of responses. If necessary, this cluster also facilitates the use of shared logistics services.

Despite all the advantages of this form of work, logistics within the cluster is implemented in a centralized manner, which contradicts the idea of decentralization. All divisions of the holding, except for the specialized one, are in fact excluded from having a legitimate influence on innovative activities, as they cannot actively participate as subjects. Furthermore, logistics (as the primary function of a specific sub-structure of the cluster) can be alienated from the activities of other participants.

A. Munkácsi and A. Kazai-Onodi have presented experiences using various methods of studying cooperation in education logistics. By organizing the educational process on this basis, they reveal the potential of these methods and successfully develop key competencies in students from the perspective of logistics and "soft" skills: the ability to overcome difficult social situations, systems and critical thinking, communication skills, adaptability, and others.[8]

Despite all the tangible advantages of supply chain management in education and the study of the life cycle characteristics of innovative educational products, educational logistics is not limited to developing solutions that ensure the creation and implementation of flexible logistics management. It also includes reducing the costs associated with this activity.

In our view, addressing this issue requires understanding logistics as a science and, at the same time, as a process and practical tool for managing the full set of flows (material, informational, financial, service-related, etc.).

The term "educational logistics" became widely used after the publication of the work by V.A. Denisenko. Theoretically, it is defined as "a set of principles for optimizing processes within educational systems and structures." [5] Empirically, it is "the synthesis of science and the art of scientific-technical and learning methods... of mass educational flows... through their organization and management to achieve the effective growth of the spatial and temporal vectors of the social environment by shaping flow-oriented subjects of educational activity." [6]

A narrower view of educational logistics is presented by Yu.V. Krupnov, who defines it as "the science and technology of organizing and coordinating educational functions (positions) and processes with the aim of improving the overall efficiency of educational activity." In schools, it ensures continuity, enabling "the harmonious combination of subjects within the same parallel framework, or the alignment of programs and textbooks of the same subject across different grades."

Regardless of the educational level, N.Yu. Sklyarova defines educational logistics as a science "concerning the functioning of numerous material and information flows that support educational conditions and the educational process itself." [84] O.A. Trofimova expands upon this definition, describing educational logistics as "a science of efficiently managing flow processes in an educational institution based on a set of logistical principles of the education



system to make timely and effective management decisions, ensuring delivery to the right place, in the right quantity, with high quality and minimal cost.”

Summarizing the above viewpoints, all of them treat logistics as an external tool that is not fully "multiplied into" the educational (pedagogical) process itself. The pedagogical process is understood as “the specially organized interaction (pedagogical interaction) between teachers and students based on the content of education using educational and instructional tools (pedagogical means), aimed at solving educational problems in accordance with the developmental needs of both society and the individual.” However, this aspect remains peripheral in the context of educational logistics. Further evidence of this lies in the naming of the flows it seeks to harmonize—human, informational, material, financial, etc.

Undoubtedly, today educational logistics functions as an economic tool adapted to the general management tasks of educational marketing, financial management, and the governance of educational institutions and their infrastructure. It plays a mediating role but does not determine the effectiveness or quality of pedagogical activity.

Therefore, several authors emphasize that “it is impossible to naturalize educational processes and turn them into naturally occurring and flowing 'business processes' (as done in the analysis of typical business processes in industrial logistics). To achieve this, it is necessary to engage with the theory of educational activity and to gain a clear understanding of the types of educational-instructional tasks, scenarios, generalizations, and all the transformations that should occur in the course of the educational process.”[6]

In conclusion, the goals and objectives of educational logistics are related to ensuring the effectiveness of an educational institution’s infrastructure by coordinating the flows on which its stable and successful functioning depends. This coordination creates the necessary conditions for solving urgent educational challenges—informational, material, financial, human resources, and more.

Undeniably, this alone is insufficient to achieve pedagogical outcomes, which consist of cognitive, personal, and behavioral transformations in students that result from pedagogical efforts. At best, educational logistics can contribute to creating a supportive environment in which these problems can be addressed.

Pedagogical logistics directly contributes to the development of children’s competencies and abilities. In our view, it constitutes an activity aimed at ensuring the effectiveness of the educational process—namely, the stable and successful functioning of the pedagogical system. To this end, it harmonizes various flows that create the necessary conditions for achieving urgent pedagogical goals related to the education and upbringing of the younger generation.

Nevertheless, the development of a system in which flows are harmonized is not a primary focus of pedagogical logistics. This situation is typical for both educational and pedagogical logistics, despite the fact that scholars have acknowledged the interconnection between logistics and system development. Within the context of education and pedagogical logistics, the development of an educational institution and its pedagogical system is more often the result of incidental and implied influences rather than a targeted and deliberate logistical outcome.

This situation can be addressed by integrating education and pedagogical logistics through the use of the **methodological foundations of the cluster approach**. Such integration



would allow for the expansion of the influence of logistics to encompass the full range of educational clusters and adopt the facilitation of pedagogical innovation flows as a core mission. These innovations are both a product of cluster activities and, at the same time, a factor that ensures the further development of the cluster itself.

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