

Formation Of Pedagogical Clusters Of Scientific And Methodical Cooperation Educational Organizations Of Regions (In The Example Of The World Countries)

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Abstract

Today, in the theory and practice of organizing the domestic education system, the issue of developing and implementing innovative forms of interaction and functioning of integral educational structures is acute, which would improve the quality of vocational education at all levels, as well as create an effective model for the exchange of experience, interaction, advanced training, employment specialists. One of these models is the cluster system, which is already being actively introduced into the educational practice of many regions, so there is a need to analyze and generalize existing experience in order to develop recommendations for further optimization of the process. The cluster model is based on the idea of cooperation, cooperation, dialogue between various subjects: educational organizations, enterprises, employers, public bodies, government bodies. As a form of such cooperation, we consider a scientific and educational cluster. The purpose of the article is to analyze and summarize the practical experience of forming pedagogical clusters in the regions from the point of view of scientific and methodological interaction of educational organizations. When analyzing the cluster model of education, one can use competency-based, personality-oriented, axiological approaches, which are the leading approaches, as well as a description and analysis of the definitions of "educational cluster" and the existing practical experience in organizing regional educational clusters. Based on the above approaches, the article presents the possibilities of forming a regional pedagogical (educational) cluster. This article is of particular importance for the development of continuous pedagogical education, improving the quality of training of pedagogical personnel, the mutual use of resources of educational and scientific organizations in the region. Based on scientific publications of foreign and domestic authors, it was revealed that the pedagogical educational cluster is a mechanism for strengthening the integration of equal opportunities, technologies and human resources in close contact with each other to meet the needs of a competitive teacher in a particular region. As a result of the study, approaches to the creation of a regional cluster model of scientific and methodological interaction between pedagogical universities and the IRO in the implementation of the project "Modern School" in the regions based on the principles of systemic and process interaction are considered. An analysis of the experience of creating educational clusters in certain regions of Uzbekistan suggests that the implementation of a cluster in the region requires the creation of organizational and pedagogical conditions and testing in order to determine the effectiveness of the formation of the competencies of pedagogical specialists.

Keywords: Educational Cluster, Regional Experience, Innovative Technologies, Higher Education.

INTRODUCTION

At present, the cluster approach is one of the main and significant in the strategic socio-economic development of the constituent entities of Uzbekistan; in particular, this concerns the organization of territorial production and educational associations [1, 2]. The cluster approach is based on the idea of cooperation, cooperation, dialogue between various subjects: educational organizations, enterprises, employers, public bodies, government bodies. As a form of such cooperation, we consider a scientific and educational cluster.

This became possible due to the fact that reforming and modernizing the educational institutions themselves, as well as the creation of innovative forms of organization in the space of vocational education, which, in turn, should ensure the accumulation and effective use of educational resources, is of great importance for the domestic education system. One of such innovative organizational forms is educational (pedagogical) clusters. An educational cluster should be considered such a system of educational activities, in the center of which is usually a university, which is an informal leader of the system and takes on system-forming and unifying functions for all structures - managerial, scientific and methodological [3–5]. Educational clusters are more focused on higher education institutions, but may also include preschools, secondary schools, vocational colleges, as well as research and design institutes [6–8]. The main objectives of the pedagogical cluster include the following:

- The presence of "points of growth", which contributes to the involvement of other organizations in the scientific and educational cluster.
- Geographically concentrated educational and scientific organizations and innovative enterprises that are most closely interconnected with each other and implement scientific and educational projects of the region under consideration are considered as the core of the cluster.
- Ensuring effective continuity in the field of pedagogy and promoting the best students in the teaching profession.
- Creating an enabling environment for the future training of professionals based on innovative practices.
- Creation of educational, educational, methodological, scientific literature and didactic materials of a new generation in teacher education.
- Improvement of the scientific, scientific and pedagogical potential of education.
- Improvement of mechanisms that ensure the continuity of education and upbringing.
- Providing the possibility of quick contact in the context of the interaction of educational institutions at all levels of education in order to train qualified teaching staff; ensuring interdependence and cooperation between educational institutions [9].

The most important task is to qualitatively improve the level of training of specialists, while the integration of universities and educational institutions of all types is one of the main prerequisites for sustainable economic development, factors are being formed to transform educational institutions into an innovative system that will solve new problems and acquire additional functionality [10]. The purpose of organizing a cluster approach in the regional educational sphere is to create an effective model of education in the context of a general modernization of the economy, which will meet all the requirements of educational standards. The creation of a cluster implies a restructuring and unification of institutions of secondary vocational education (SVE), higher education (HE), educational development institutions (EDI); this measure is designed to ensure the continuity of training of professional personnel who could effectively carry out their activities in the new paradigm of education. The cluster is also one of the mechanisms for attracting investment in the educational system, which means that the education sector can become attractive for interaction with business structures and production that are interested in the flow of qualified personnel. The development of a cluster approach implies reliance on such methodological and axiological principles as continuity, mutual participation, cooperation, and mutual benefit.

The purpose of the article is to analyze and generalize the regional experience in the organization and functioning of regional educational clusters for the purpose of further understanding and optimization. The study is based on the idea that the educational cluster should contribute to the formation of a subject position in innovation activities among teachers and managers, while innovation should become a professional norm.

LITERATURE REVIEW

For the first time, cluster theory began to be considered in the West in the middle of the 20th century, and this concept was originally applied to the production and industrial sphere to determine the concentration of production centers, which greatly simplified logistics and reduced costs. The term "cluster" in translation from English means a bunch or a bunch. As a scientific term "cluster" was first proposed by M. Porter in 2010. M. Porter proposed to understand a cluster as a geographic concentration of related companies, organizations and institutions in a particular industry that may be present in a region or country. The emergence of clusters leads to an increase in the productivity of the company, which is influenced by local assets, and its surrounding similar firms, institutions, infrastructure, etc. [11] At the same time, M. Porter, using the example of economic and production clusters, showed that there is a direct correlation between the competitiveness of the company itself and the competitive features of its partners and the environment, and they depend on the common resource and the

characteristics of competition within the cluster itself. Porter also considered cluster elements that are located locally, without taking into account the possibility of network interaction. In modern conditions, one should also not exclude the opportunities provided by the World Wide Web, therefore, today there is also such a term as "remote cluster", that is, a system that is united by means of remote interaction, its components can be removed geographically [12].

Another foreign researcher A. Marshall proposed to consider a cluster from the standpoint of a systematic approach as a certain set of subjects of activity that are united in a common structure, all its elements are interconnected and aimed at solving a common goal [13]. In his understanding, an educational cluster consists of integrating the activities of educational institutions that are close to each other in terms of network characteristics into a single space with industrial enterprises in this area. At the same time, the implementation of educational clusters will help overcome difficulties in financing educational institutions, solving the problems of ensuring the professional and practical competence of future specialists, as well as the effective integration of science, education and industry. An analysis of foreign sources showed that despite the fact that educational clusters are widespread in the practice of the EU countries and the USA, there are relatively few theoretical studies on this topic, the main part of publications concerns the description of already existing models. Western researcher M. Porter examined the activities of the Massachusetts educational cluster, the centers of which are the Universities of Massachusetts and Harvard. The researcher analyzed in detail its role in the development of the American education system as a whole, as well as the role of the cluster in the development of the region in comparison with another state - California, where the cluster system is less developed, the concept and model of the educational cluster are also described. The author showed that the cluster approach not only ensures the modernization of the education system, but also gives impetus to the development of the region's economy as a whole [14]. In the UK, the cluster approach in education also began to be widely used in the 1990s after the publication of a monograph by M. Porter and his popularization of the idea of economic clusters. Now the cluster approach is most actively used in medical education, there are about 10 innovative medical educational centers based on universities. This approach ensures the modernization and improvement of the health care system by relying on scientific and theoretical research that penetrates into medical practice and teaching practice. Also, the cluster system, in addition to educational institutions, clinics and medical centers, includes local authorities, charitable and commercial organizations that closely cooperate with each other [15].

The cluster system is also actively developing in France, with clusters concentrated mainly in the field of conservation and development of ecosystems. To date, there are more than seventy such clusters. They include manufacturing and industrial companies and enterprises, educational institutions, research laboratories and centers. These clusters are present in all technological niches, which allows them to position themselves in international markets, however, the participation of foreign companies as partners is still excluded [16]. In the United States of America, at the present stage, the main attention of educational policy is focused on the introduction of an interdisciplinary approach to create specially integrated ecological systems. This allows you to remove barriers in the organization and implementation of innovative technologies in education. At the same time, an educational cluster is a complex created by a partnership of manufacturing enterprises and educational institutions in accordance with the characteristics of the industry, based on an innovative product. The activity and organization of the innovative educational cluster is based on the interaction and cooperation between the research, educational and commercial components, which are equal partners. The main features of innovation are access to public structures and cooperation with them, practical testing of projects in real conditions, and the presence of experimental educational programs and projects [17]. S. Ya. Batishev can be considered the founder of the domestic cluster theory in education, who in the 1990s theoretically substantiated the need to use a cluster in the system of engineering education, developed and described a broad model of continuous education from secondary specialized to higher education with the involvement of manufacturing firms and associations with an orientation to the real labor market [18]. Modern foreign researchers G.I. Mukhamedov, U. Khodzhamkulov, A.M. Shokirov, K. Makhmudov argue that the process of globalization taking place all over the world has led to a sharp increase in competition in the market of educational services. In this competitive environment, the cluster is a means of countering the forces of globalization. The integration of education, science and industry around a common goal increases their potential. Such cooperation is provided by the cluster of teacher education [19]. The cluster of teacher education in the understanding of researchers [20] is a conceptual approach that involves the introduction of a regional model that would lead to positive dynamics in the education system. In the understanding of the authors, the cluster of pedagogical competencies is based on the key competencies of teacher training, which are primarily related to the issues of teaching and educating students. The training of teaching staff as one of the areas of activity that contributes to the purposeful development of students, their mastery of the basics of culture and the comprehensive development of their abilities, is based on the key competencies of a teacher and includes personal qualities, the ability to set goals, the ability to motivate and organize learning, as well as information competence. Researchers of the problem of formation of regional educational clusters A.A. Shumeiko and A. A. Bazilevsky showed that clustering as a mechanism is a condition for the development of professional mobility of vocational education teachers. Clusters can be formed geographically, depending on which industrial organizations and educational institutions operate, this will help to harmonize the content of training and the needs of employers [21]. E.V. Tereshchenkova, L.A. Nakonechnikova considered a cluster model of organization of education and scientific and

methodological activities at the university level, when regional branches of a higher educational institution are considered as a cluster [22]. A cluster model of scientific and methodological activity, criteria for evaluating its effectiveness, and development tasks are presented. In publications devoted to the cluster approach as the basis for network interaction of educational organizations in the "university-school" system, much attention is paid by the authors to the consideration of network interaction, that is, various remote technologies, due to which network cooperation today is becoming a modern highly effective innovative technology, not only educational institutions of different levels to function, but also accelerating their development. The authors reviewed the experience of interaction between schools and universities, as well as substantiated the key principles for building interaction and cooperation between schools and universities, and described specific examples of the implementation of the pedagogical cluster as a tool for interaction between schools and universities [23]. K.M. Shchepakina, N.V. Zhukova analyze the regional cluster model of education on the example of the Tula region, using the possibilities of SWOT analysis. The authors come to the conclusion that the cluster model is promising for sustainable development, as it carries minimal risks and provides benefits to all participants in the partnership [24]. N.N. Davydova, B.M. Igoshev, S.L. Fomenko consider the stages of organizing a regional educational cluster, the role of partners, describe the main possible mechanisms of interaction between the pedagogical cluster and enterprises of the industry, as important conditions are considered the improvement of professional the competence of teachers, the introduction of innovative educational technologies, the improvement of specialized services and taking into account the specifics of specific enterprises [25]. Professor L.A. Amirova, exploring the development of personal mobility of a professional school teacher in an educational cluster on the example of the Republic of Bashkortostan, considers the essence of taking into account the principles of integration, conjugation and continuity of educational programs. Such a form of cooperation as "visit-professorship" is analyzed, that is, a form of mobility of a teacher, which can realize itself within the framework of various functions, and also in practice realize itself in the role of a university teacher, secondary vocational education, as well as a professional - a specialist in production, which gives the ability to visually correlate their own competencies, the level of competence of students, the requirements of educational standards, the content of educational programs and the requirements of industrial practice [26].

Based on the analysis of cluster concepts in the scientific literature, the concept of a pedagogical cluster in education can be defined as follows: a pedagogical educational cluster is a mechanism for strengthening the integration of equal opportunities, technologies and human resources in close contact with each other to meet the needs of a competitive teacher in a certain region. Thus, the analysis of foreign and domestic publications on the problem of organizing and implementing the cluster approach in education showed that there are quite a few theoretical materials in English, the cluster system has been introduced abroad for a long time and actively, and the bulk of the materials relate to the support of existing clusters. In domestic practice, the cluster model is only just beginning to be introduced, and therefore among the publications there are a large number of theoretical materials, but few studies devoted to the review and analysis of already working pedagogical clusters.

METHODS AND RESULTS OF RESEARCH

Our study is based on the concept of "innovative cluster of the education system", which must be considered in the aggregate of theoretical approaches to innovation management and management, as well as from the approaches of pedagogical innovation [29]. The cluster model is based on the idea of cooperation, cooperation, dialogue between various subjects: educational organizations, enterprises, employers, public bodies, government bodies. As a form of such cooperation, we consider a scientific and educational cluster. When analyzing the cluster model of education, one can use competence-based, personality-oriented, axiological approaches. The competency-based approach implies that the cluster model can be considered in terms of its effectiveness for training a modern specialist who must master all key competencies. A student-centered approach implies that the content of education should take into account, firstly, the laws by which the personality itself is formed, meet its needs, and secondly, contribute to the disclosure of the personal potential, abilities, and creativity of the student's personality. The axiological approach implies that the nature of education must be humane, comply with the principles of humane pedagogy, in its center is a person as the highest value.

As part of the educational reform, a new educational system is being formed, which is distinguished by openness, flexibility, orientation towards new standards and competitiveness. The competitiveness of educational activity is the most significant factor in the competitiveness of a pedagogical university, college, since educational activity is the main one in these educational organizations [30]. The scientific and educational cluster is a set of scientific and educational organizations united in a system connected by the relationship of the provision of educational services and the functioning of the scientific and pedagogical community. The purpose of the activity of the regional scientific and educational cluster is the integration of educational institutions into a single system that ensures the innovative development of the education system of the region of the Uzbekistan. The materials for writing the study were scientific articles on the problems of creating and implementing a pedagogical cluster in the context of the region, its historical and evolutionary development, the mechanisms of interaction

between HPE and SPE in the region. The source base is also the websites of educational institutions of higher education, ministries of education and science of individual subjects of the Uzbekistan, institutions for the development of education in the regions that have information about the activities of educational clusters in them.

Thus, the implementation of an educational cluster in the region requires the creation of organizational and pedagogical conditions and experimental verification of the effectiveness of training qualified specialists, and the role of higher education in the cluster is manifested in the creation of innovative products. The created scientific and educational cluster should strengthen the processes of innovative development of the regional economy, synchronize its activities with other regional clusters. The analysis carried out allowed the authors to identify a number of problems related to the interaction of pedagogical universities and institutions for the development of education in the regions in the context of the implementation of the cluster model:

1. In each region, the educational cluster has its own characteristics, however, despite this, an important requirement in the implementation of the cluster model for the development of education is the implementation of a single concept in terms of subject, methodological and psychological-pedagogical training of future teachers for students to achieve universal, general professional and professional competencies defined by the current educational standard of the State Educational Standard.
2. The absence of a National bank of vacancies for the needs of teaching staff on a national scale, as well as target quotas for the mandatory distribution of graduates to educational organizations of the constituent entities of Uzbekistan makes this system closed and establishes the distribution of future teachers exclusively to “their region” and mainly to urban districts. A pedagogical university belonging to the Ministry of Education of Uzbekistan and located in a constituent entity of Uzbekistan provides training of pedagogical personnel exclusively for the corresponding region.
3. The activities of the IRO of the region are aimed at carrying out research and expert-analytical activities in the field of education in the region, developing a human resource for innovative changes in the education system of the region, focused on training teachers and managers of educational institutions in accordance with the national project “Education”, the project “Modern School”, which, unfortunately, is a big problem for regional pedagogical universities.

CONCLUSION

The educational cluster is a relatively new phenomenon that has taken a fairly strong position and has great potential. There is no doubt that in the modern world, educational clusters have a high degree of risk and uncertainty in some of the results of their activities. Nevertheless, overcoming these barriers, new integration structures will help improve the quality of education and competitiveness in the market of educational services through the development of fundamental and applied science, economic and social growth. Thus, we have considered the practical experience of implementing the cluster approach in education on the example of regions. Understanding the theoretical essence of the model and the practical implementation of the cluster approach contribute to the formation of the necessary conditions for finding new opportunities for the development and modernization of the education system, improving the quality of education at all levels and the competitiveness of professional specialists. Such an organized partnership of the subjects of the educational process makes it possible to create a practice-oriented pedagogical environment that helps to increase the competitiveness of all subjects of the cluster within it and in the external field; ensures the training of highly qualified personnel in optimal terms; provides an opportunity to determine individual educational trajectories of professional self-realization of specialists. The analysis of the functioning of regional educational clusters can become the basis for developing programs to improve their activities, as well as for developing other models of regional clusters.

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