

Cluster as the basis for creating an innovative educational product

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Abstract. The article reveals the basics of the strategy of modernization of the education system. At the present stage of its reform, they are aimed at increasing the competitiveness of educational institutions in the educational services market, at creating maximum accessibility and openness of education for the population and business. They should be carried out within the framework of innovations, taking into account the main directions of the socio-economic development of the republic, the implementation of priority areas of state policy in the field of education.

1 Introduction

The ongoing trends in the development of vocational education require the development of more advanced methods of regulating the educational services market. The modern education system has developed precisely under the decisive influence of higher educational institutions, which are guided by the needs of society in qualified specialists.

An important role in the development of education is played by institutional reforms and a well-thought-out educational policy aimed at creating new forms of spatial organization of vocational education that ensure the accumulation and efficient use of educational resources. These forms are clusters. Clustering is a concept that reflects the reflection of science on a certain socio-economic situation. The incentive for such reflection is the desire of social systems to improve their properties and qualities.

A cluster is an association of several homogeneous elements, which can be considered as an independent unit with certain properties. Initially used in research on competitiveness problems, the cluster approach has over time been used to solve an ever wider range of problems, in particular, as a basis for stimulating innovation.

Clusters act as mechanisms for the competitiveness of territories, the transition to educational processes with greater added value, and contribute to the establishment of constructive relationships between educational institutions, enterprises, research institutions and authorities.

The creation of clusters is accelerating, which is explained by the positive experience of clustering the economy. The cluster approach in Uzbekistan is recognized as one of the effective means of increasing competitiveness, technological development of the national economy and the investment attractiveness of the country.

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2 Methods

The strategy and tactics of modernizing the system of higher education in Uzbekistan at the present stage of its reform are aimed at improving the quality of the provision of educational services, at creating maximum accessibility and openness of education for the population and business.

This is confirmed by the fact that from January 1, 2022, 35 state universities in Uzbekistan will have the right to independently determine the cost of education on a contract basis, establish and renew contracts, and allocate scholarships and grants to students from their own funds.

Also, educational institutions will be able to attract teachers and specialists (including from abroad), purchase educational and scientific materials from foreign manufacturers. In addition, these universities will receive all the powers and rights provided for self-financing universities. In the conditions of competition in the market of educational services, the winner will be the one who, in the interests of employers, will be the first to enter this market with a total innovative educational product.

Cluster training is a relatively new direction in professional pedagogy, its introduction into the training process requires the definition of pedagogical conditions and experimental verification of the effectiveness of the formation of a competent specialist [1-3].

The work of many foreign and domestic scientists is devoted to the study of clusters. For the first time, the problems of spatial integration of production were investigated by M. Porter.[7] Theoretical issues of identifying and methods for determining the boundaries of production clusters in relation to developed economies are set out in the works of E. Bergman,[8] M. Lager and others.

The phenomenon of cluster development is considered in the works of R. Coase (R. Coase) "Theory of the firm", J. Schumpeter (J. Schumpeter) "Dynamics of competition". In addition to these theories, there are many others that underlie the theory of clustering.

The American theory of clusters and cluster policy is most practice oriented. The British approach to the question of consequences places great emphasis on the development of value chains and the concentration of clusters between developed and developing countries.

Domestic researchers paid considerable attention to the issues of the theory of activity and pedagogical design of educational clusters. In particular, the cluster of pedagogical education as an innovative form of cooperation is analyzed in the work of U. Khodjamkulov [2], the cluster of preschool education as a systemic association of various educational organizations is considered in the work of Sh. Mirziyoyeva, [4] the development of innovative activities of scientific institutions is considered in the work of A. Umarov.

A. V. Smirnov defines an "educational cluster" as: 1) a set of interrelated institutions of professional education united by industry sign and partnerships with industry enterprises; 2) training system, mutual learning and self-learning tools in the innovation chain "science - technologies - business", based mainly on horizontal connections within chains [5].

Studies show that a distinctive feature of the strategy for the long-term development of clusters as mechanisms for the competitiveness of territories is their innovative orientation.

This direction is especially relevant in the practical training of personnel for the tourism sector, where regional tourism clusters play an important role, which is a system that includes multi-level professional educational institutions and enterprises located in geographical proximity. In the absence of any of the levels of professional tourism education, it is necessary to create it as a system element, without which the full-fledged training of professional personnel cannot be provided.

3 Results and discussion

In December 2021, the Ministry for the Development of Information Technologies and Communications of the Republic of Uzbekistan held a series of meetings with educational, scientific and IT organizations of the Republic of Korea and discussed issues of cooperation in the field of BPO (Business Process Outsourcing), as well as issues on the opening and development of the first Korean IT cluster in Uzbekistan (implementation by Inha University in Tashkent and IT Park). This cluster will cover the following areas: a Korean language training center, an IT educational center for training specialists in the field of Information Technology, an incubation center and an advanced training center (acceleration center) for the development and implementation of business start-up projects, as well as staff development in the IT direction [3].

In the educational cluster, all subjects of participation regulate a multi-level system of training specialists with the necessary qualifications. The employer determines what to teach, educational institutions determine how to teach, and vocational education is seen as a process based on its integration with production.

The potential benefits of clusters in recognizing the need and creating opportunities for innovation are very large. Also important is the flexibility they provide and the ability to respond quickly to this need. The study of foreign achievements, especially in the field of theoretical and methodological clustering, is a productive technique that helps save time and effort.

The construction of an educational cluster is associated with the need to combine within one (territorial, functional) zone business projects in a specific educational area, fundamental developments and modern systems for designing new technologies, methods, intellectual products and preparing for the production of these. The need to turn to the cluster approach is explained by the advantages of the cluster as an organizational form of combining the efforts of interested parties in order to increase the efficiency of the regional system of vocational education.

There are various definitions of the term "cluster". A cluster is a set of subjects acting in concert on the basis of a common goal, which are united by certain contractual relations that determine the roles of subjects and regulate their activities.

An educational cluster is, on the one hand, a set of interconnected institutions of vocational education united by industry and partnerships with industry enterprises, on the other hand, a system of training, mutual learning and self-learning tools in the innovation science-technology-business chain, based mainly on horizontal links inside the chain.

The theoretical basis for the formation educational cluster is the concept of continuous education, inherent in the definition of the structure, holding, forms of activity of each of included in the cluster, unity and interconnection from all levels of education. The most important property in this regard is its whole density [6-13].

Educational clusters that unite vocational education institutions of various levels, sectoral ministries and departments, and enterprises make it possible to effectively solve a whole range of tasks: optimization of the personnel training structure; improving the quality of education; a new generation of vocational education at various levels within a single complex; the opportunity to provide scientific support for the innovative development of the leading sectors of the economy and the social sphere of the republic.

In addition, educational institutions within the cluster are developing the following areas:

- 1) adequate response to the growing objective need for the training of highly qualified specialists;
- 2) increasing the total value effect of innovative educational products by combining material, human, information, financial resources;

3) ensuring that the acquired body of knowledge and skills meets the standard qualification requirements for the workplace (business or professional competence of the employee);

4) effective use of educational potential for additional advanced training of in-demand personnel;

5) development of university science aimed at innovative developments;

6) use of the latest scientific groundwork in teaching;

7) development of cross-cutting educational programs in related specialties of different levels from the standpoint of acquiring new competencies by employees that meet the requirements of a new technological level of the economy.

The main elements of the system of continuing professional education are as follows: pre-university education; initial vocational education; secondary vocational education; higher professional education; additional vocational education (professional retraining programs at all levels, advanced training of specialists in a particular area).

Solving the problem of creating an educational cluster brings to the fore the issues of the quality of personnel and the availability of the required professional competencies.

Achieving this goal is possible only with the use of a systematic approach to the education process. Therefore, it is extremely important to implement measures aimed at becoming a specialist at each stage of his education - from the system of secondary general education to postgraduate education [4, 14-18].

A cluster is a single economic, social and educational space formed on the basis of an innovative ideology. The role of the university in the cluster is to produce an innovative product.

In this case, an innovative product means, in the language of a market economy, the main product that a university produces is a graduate of a higher education program or a specialist who has improved his qualifications at the university. But there are other goods, for example, the results of fundamental or applied research.

The promotion of this product on the market consists in interaction within the cluster. By and large, the entire population of the region acts as customers and consumers of the university's products. These are citizens, business structures, administrations of various levels.

The specificity of the educational cluster as a form of social partnership requires a new mechanism for the participation of vocational education authorities in the process of forming and implementing its development strategy. The main task of creating an educational cluster is to increase the attractiveness of cooperation between local vocational education institutions and industry enterprises. The main difference between educational clusters is the market mechanism for managing them, which is created from below, on the initiative of the institutions of vocational education and enterprises themselves.

In order to evaluate the effectiveness and competitiveness of such a complex system as an innovative educational cluster, it is necessary to select adequate criteria. Under the criteria of efficiency and competitiveness, we mean indicators that can be used to assess the degree of achievement of the goal and the amount of costs incurred by various resources. In our opinion, these criteria most fully show how effective the feedback from the subjects included in the innovative educational cluster is.

4 Conclusion

Educational clusters, as a rule, include the following components:

1) subjects of educational activity; 2) science (academic institutions, creators of new technologies, etc.); 3) manufacturing firms that are grouped around a major specialized university.

Thus, the formation of an educational cluster allows you to get the following benefits:

- 1) creation of a single educational space;
- 2) integration of vocational education with industry enterprises;
- 3) creation of a new high-quality educational product through integration;
- 4) reducing the time for training specialists and, as a result, reducing the cost of training specialists;
- 5) increasing the competitiveness of education.

The effectiveness of the implementation of the concept of clustering the vocational education system is also proposed to be determined by indicators of the social and economic value of the results achieved. Social value for society can be expressed by the following indicators:

1. Achieving quality education in the cluster system will ensure that graduates of professional educational organizations that are members of the cluster are in demand and competitive in the labor market.

2. The creation of a cluster system of vocational training, advanced training and retraining will increase the mobility of workers in the labor market, solve the problem of employment of the redundant able-bodied population, and provide the possibility of lifelong learning.

3. Planning for admission and graduation in the system of an educational cluster based on the forecast of the need for training will reduce the number of unemployed graduates.

Structural unification into a territorial cluster form of various organizations and institutions leads to the integration of their joint cooperative activities, and also gives a synergistic effect due to their mutual influence on the innovative development of the relevant industries, industries and the country's economy as a whole.

Thus, the experience of implementing in Uzbekistan a new effective mechanism for the integration and cooperation of educational institutions, science, production, infrastructure organizations and the transfer of innovative technologies within the framework of various models of production, innovation, including educational, scientific and industrial and interstate clusters is considered.

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