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The transition of continuous pedagogical education system to the development cluster model

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Abstract

This article aims to develop a methodology and theory of the transition of the system of continuous pedagogical education in the cluster model of development. To achieve the goal, theoretical research methods were used - information monitoring, comparative analysis, synthesis, systematization, hypothesis formulation. As a result, a competent specialist, by virtue of systematic professional development, creates and implements innovations, and is also responsible for the made decisions, both in personal and professional spheres. In conclusion, a scientific substantiation of the fact that the cluster approach has a positive effect on the formation of students' competencies.

Keywords: Pedagogical, education, continuous, system, cluster.

La transición del sistema educativo pedagógico continuo al modelo de clúster de desarrollo

Resumen

Este artículo pretende desarrollar una metodología y teoría de la transición del sistema de educación pedagógica continua en el modelo de desarrollo de clusters. Para lograr el objetivo, se utilizaron métodos de investigación teóricos: monitoreo de información, análisis comparativo, síntesis, sistematización, formulación de hipótesis. Como resultado, un especialista competente, en virtud del desarrollo profesional sistemático, crea e implementa innovaciones, y también es responsable de las decisiones tomadas, tanto en el ámbito personal como profesional. En conclusión, una fundamentación científica del hecho de que el enfoque de grupo tiene un efecto positivo en la formación de las competencias de los estudiantes.

Palabras clave: pedagógica, educación, continua, sistema, cluster.

1. INTRODUCTION

The urgency of the problem of methodological and theoretical substantiation of the transition of the system of continuous pedagogical education (CPE) into the cluster development model is connected with the need to solve an important strategic task of modernizing public consciousness, which implies, among other things, the transformation of human consciousness through education and training. New educational priorities, the introduction of a competency-based approach, require teachers, educators, and instructors to skillfully, competently and efficiently organize the educational process. The education system is continuously being reformed. However, there are problems. For example, students and their parents are dissatisfied with

the quality of education, and directors of schools and other educational institutions - with the quality of professional training of young teachers.

Also noteworthy is the ever-widening gap between the functioning of the education system and the intensive development of technologies and social processes. Consequently, the work on the improvement of professional training and retraining of teachers should be continued. Since continuing education of teachers is a direct function and the main task of the CPE system, this system requires modernization. In turn, the modernization of the CPE system cannot be implemented under the conditions of outdated methodology and theory. The cluster approach opens up great opportunities and prospects in this connection (Ponomarenko et al., 2018). However, to date, the methodology and theory of the cluster approach as the basis for the development of the CPE system in the world pedagogical science and practice have not been developed.

The purpose of the study is to develop a methodology and theory of the transition of the CPE system into a cluster development model. To achieve this goal, scientific studies of the cluster approach were carried out, and an analysis of world experience was also carried out. According to the results of theoretical studies, observations and personal reflections, methodological approaches to research were determined and scientifically substantiated, theoretical prerequisites for the transition of the CPE system into a cluster development model were developed, and a teacher-innovator model was developed based

on the cluster approach. The transition of the CPE system to the cluster development model should be carried out on the basis of the new methodology and the theory of the cluster approach, which should be developed at the first stage of the research.

In the future, educational institutions for the training of pedagogical personnel will be able to carry out more effective training of specialists who are able not only to perform work in accordance with the requirements of the state and society but also to act as subjects of their own development. The materials of the article are of scientific-theoretical and practical value for scientists, teachers and practitioners, teachers of all levels of education, employees of educational organizations for the training of teachers. The cluster approach has been successfully used in pedagogical science and practice for many years. An innovative educational cluster has been created in the Republic of Kazakhstan, providing an opportunity for continuous immersion of students in the sphere of future professional activity, which, in turn, allows studying, generalizing and accumulating experience, testing scientific achievements, updating and generalizing the organization and content of vocational training (Espaev, 2013).

The analysis of the definitions of the educational cluster has been performed, examples of functioning educational clusters in Great Britain, France, and the USA are given, the arguments of the opponents of the term cluster in education have been analyzed (Sokolova, 2014). It is proved that the organization of an educational cluster provides a transition from mass-reproductive production of

specialists to the formation of a creative competitive personality of the teacher (Davydova, 2014). The cluster approach is used to solve the problem of institutional differentiation and system diversity in higher education in China (Wang & Zha, 2018). A methodology has been developed for evaluating the university curriculum using an aggregate clustering profile (Priyambada et al., 2017). The cluster of continuous pedagogical education, an important part of which is the core classes of pedagogical orientation, has been created and successfully functions in Belarus.

2. MATERIALS AND METHODS

Since this stage of the study is theoretical and methodological, to achieve its goal, theoretical research methods were used - information monitoring, comparative analysis, synthesis, systematization, working hypothesis formulation. The system-synergetic, axiological, cluster and competence-based methodological approaches, as well as the modeling method, were used to develop the methodology and theory of the transition of the CPE system into a cluster development model.

The chosen methods are very reliable, their use is typical for most scientific and pedagogical research, and their validity and relevance for the theoretical phase of this study is not in doubt. The application of these methods as a whole has had a positive impact on the research, has made it possible to achieve the planned results and to

obtain additional information for reflection and analysis. To achieve the goal of the study, the methods were applied in the following sequence. Informational search allowed us to find research and record the results of applying the cluster approach for the development of educational systems that are currently available.

3. RESULTS AND DISCUSSION

Projections of methodological approaches to the process of transition of the CPE system into a cluster model of development have formed the theoretical basis of the study. Studying a scientific problem with the help of not one, but various methods of scientific knowledge allowed us to identify and study the links between methodological approaches, as well as to justify their interdependence. The essence of the system-synergetic approach Duff & Marriott (2017) lies in the possibility of systematically studying the problem of research based on modern scientific concepts, from the standpoint of self-organization, non-linearity and irreversibility.

The strengths of the approach are the ability to analyze the transition of the CPE system to the cluster model of development as a multidimensional and holistic process. The application of the system-synergetic approach will help determine the conditions for an adequate response to changes in the environment of the formation of the teaching staff and then influence its structure. This method is needed to develop the content and stages of the transition of the CPE system into

a cluster development model since IT allows you to make preliminary predictions of the effectiveness of the model.

The main feature of the system is its integrity, which, as is commonly believed, is provided by the numerous interrelations between its components. However, the weak side of the pedagogical system is that the exclusion or poor-quality work of one of the components can destroy the system, make the result of its work formal. As an example, we can point out the common practice of improving the qualifications of school teachers, when the institution for professional development is chosen not by the teacher himself, taking into account his personal professional needs, goals and opportunities, but the school's leadership, which, in turn, is also not free to choose. There is no doubt that a teacher who will improve his qualifications without intrinsic motivation, desires and interests, is unlikely to pay back the money spent on his training in the future.

One of the reasons for this state of affairs, in our opinion, is the lack of continuity, freedom of choice, integrity and prospects for personal growth. If the CPE system goes into a cluster development model, this disadvantage will be minimized, since the interconnected components of the system will perform not only their own, but also cross-functions, and will be able, if necessary, to replace the retired or poorly working element. In this case, the educational environment will be open, large-scale and benevolent in nature, and the school teacher will be able to upgrade their skills by visiting a master class of a more experienced colleague using an informal channel, a digital or network

resource. And if before the main obstacle for the implementation of the cluster approach in CPE was the requirement of geographical proximity of cluster elements, now this restriction has been removed, the world of knowledge and experience is open.

The possibilities and prospects of the cluster approach are not limited to this. The cluster approach can significantly enhance the synergism of the system, lead to the emergence of such a unique result that would be impossible under the conditions of traditional interaction in the system. Finally, it is the cluster approach that is the mechanism that will ensure vertical and horizontal continuity and the ramification of the channels of non-formal pedagogical education. However, the system-synergetic approach warns of possible risks associated, for example, with the problem of the quality of the new experience used by the teacher to improve the qualifications of the resource and the compliance of the state and society with which the teacher acquires it.

Consequently, the control function of the resource used in advanced training should be assumed by one of the elements of the developed cluster model of the development of the CPE system. The cluster approach can significantly enhance the synergism of this system, lead to the emergence of such a unique result that would be impossible in the context of traditional interaction.

Finally, it is the cluster approach that is the mechanism that will provide vertical and horizontal continuity and branching channels of non-formal pedagogical education, including the network principle of

integration of educational institutions, Internet resources and other opportunities beyond basic vocational education. The weak points of the system-synergetic approach are the revolutionary nature of the transition of the CPE system to the cluster model of development during the bifurcation period, as well as the failure to take into account negative feedbacks in the development of the system. But for a comprehensive study of the transition of the CPE system into a cluster model of development as a scientific problem, it is important to consider not only positive, but also negative systemic links. Consequently, the system-synergistic approach must be applied in combination with other methods of scientific knowledge.

The most important characteristic of the personality of the teacher is its moral and spiritual essence. Issues related to the nature of values, social and cultural factors of their development, study axiology; the axiological approach is designated as a methodological approach due to the need to modernize the public consciousness, which requires adequate changes in the educational system. It is the cluster model of the development of the CPE system that is able to create the conditions for training competitive and professionally mobile teachers with a high level of patriotism and morality. The axiological approach will allow studying the transition of the CPE system into a cluster development model from the standpoint of identifying the nature of the value of the new Kazakhstani patriotism and morality, their links with other values and the personality structure of the teacher.

The strengths of the axiological approach include the creation of prerequisites and the definition of conditions for the formation of spiritual and moral values among teachers. It was an axiological approach that allowed us to identify the main feature of pedagogical activity - a creative, creative, humane character. The rationale for this lies in the fact that the main characteristic of the personality of the teacher, in contrast to representatives of other professions, is the inviolability of the generally accepted system of values. Humane attitude means a generous, kind, humane, expressed in a willingness to understand another person. Thus, the most important part of the modernization of public consciousness is the orientation of the individual towards a humane attitude towards the world, towards the improvement of the inner world of a person.

The upbringing of spiritual and moral values is a direct task of the education system, therefore, the model of a teacher-innovator based on the cluster approach should reflect those parties that reflect the personal and spiritual-moral spheres developing in specially created conditions. Of course, the application of the axiological approach as a method for analyzing the transition of the CPE system into a cluster development model also has its limitations. Under the conditions of monologue, submission and authoritarianism in the professional-pedagogical environment, the application of the axiological approach is difficult, if at all possible. The active and ill-conceived introduction of innovations, the domination of consumer values, and the moral degradation of a person have nothing to do with the formation of spiritual and moral values.

In our opinion, the presence of competence presupposes the existence of a constantly developing positive motivation, a corresponding inner spirit of a person, when he not only performs his work well but purposefully seeks to constantly improve its quality. A competent specialist is constantly engaged in self-education, studies and correctly applies various methods of activity, approaches, techniques and methods, including those born at the junction of various sciences, adopted and processed by him on the basis of knowledge, self-education, research and creativity. In other words, a competent specialist is committed to doing his job in such a way that its quality demonstrates stable, constant growth. At the same time, a person develops both as a person and as a specialist, thus the level of his competence also shows a positive trend.

So, as a result of a scientific search, we decided to consider aspirations the core of the teacher's model — the innovator. According to the results of psychological research, aspirations are a form of activity in which I want and I can act together, supporting each other and would go into each other; an aspiring person not only knows what he is seeking but also acts purposefully. Thus, the term aspirations include not only the motives and needs, knowledge and skills, abilities and skills but also specific actions that are expected and approved by society: the main content of the human ethical activity is to realize his desire for value-rich and responsible actions.

As a result, a competent specialist, by virtue of systematic professional development, creates and implements innovations, and is

also responsible for the made decisions, both in personal and professional spheres. It is aspirations that contribute to self-education of the teacher, the formation of his morality, will, emotional experiences, creativity, intellectual efforts, reflexive abilities, and many other qualities and properties that the traditional model of the CPE system does not form (Abdul Rahman, 2019).

4. CONCLUSION

The research results of the cluster approach are studied and analyzed; the results of the cluster approach research in the theory and practice of education are analyzed. A preliminary conclusion was received that the components of a CPE system developed on the basis of the cluster approach will perform additional and cross functions, and will be able, if necessary, to replace the retired or poorly working element of the system. It has been confirmed that the cluster approach can significantly enhance the synergism of the system, lead to the emergence of such a unique result that would be impossible under the conditions of traditional interaction in the system. It is proved that the cluster approach is the mechanism that will ensure vertical and horizontal continuity and the ramification of the channels of non-formal pedagogical education. It was received a scientific substantiation of the fact that the cluster approach has a positive effect on the formation of students' competencies.

It has been proved that the transition of the CPE system into a cluster development model will have distinctive features, caused primarily by the qualitative differences and the state of national economies. It is revealed that the cluster approach is considered as one of the promising, innovative, modern methodologies for managing the socio-economic development of society and the education system. The understanding of the cluster structure has been expanded, the possibility of obtaining non-formal teacher education, including using the network and digital resources, has been taken into account. The methodology and theory of the transition of the CPE system into a cluster development model have been developed.

1) Methodological approaches to research were determined and scientifically substantiated, and the interrelations between them were revealed. The system-synergetic, axiological, cluster and competence approaches are defined as the main methodological approaches. The analysis of the problem from the point of view of each of the approaches was carried out, the success or limitations of the implementation of their ideas were evaluated. Revealed and studied the relationship between methodological approaches, justified their interdependence. The basic technologies that ensure the effectiveness of cluster interaction are indicated.

2) The theoretical background for the transition of the CPE system into a cluster development model has been developed. The distinctive features of the cluster model of the development of the CPE system at the present stage are revealed; the creative nature of the

cluster is scientifically grounded; clarified and supplemented the principles of the formation of the innovation-educational cluster of CPE; proved the relationship between the stability of the cluster and the degree of interaction of its subjects; the general methodological principles for the creation and functioning of a cluster are indicated.

3) A model of a teacher-innovator based on a cluster approach has been developed. The model reflects the main characteristics of innovative pedagogical activity and includes the core (aspirations that ensure constant growth of positive motivation, continuity, systematic and continuity of pedagogical education) and six clusters of competencies. Structural analysis, identification and study of the relationships between the competence clusters and the core of the model will allow establishing their nature, predict ways and conditions for further development, which in general will contribute to the modernization of the CPE system.

The materials of the article are of scientific-theoretical and practical value for scientists, educators and practitioners, teachers of all levels of education, employees of educational organizations for the training of teachers, who can carry out more effective training of specialists who can not only do the work in accordance with the requirements of the state and society, but also to act as subjects of their own development. The publication is carried out within the framework of the scientific project AP05131906 development of the transition of the system of continuous pedagogical education to the cluster model of development.

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