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DEVELOPMENT OF A METHODOLOGICAL SYSTEM OF TRAINING BASED ON THE CLUSTER APPROACH

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Abstract

This article discusses the theoretical and methodological rules of the cluster method, the role of the cluster method for optimizing the learning process, the content of pedagogical design, topical issues that allow the implementation of the cluster method.

Keywords: trajectory, learning process, qualimetric approach, professional, general professional concepts, talent formation.

The problem of training qualified specialists is a complex solution based on an in-depth theoretical study of methodological approaches to the design of pedagogical tools that provide a guaranteed result that fully meets the requirements of the state educational standard, using the cluster method. Such approaches include the dialectical logic of modern pedagogy, the concept of student-centered education and the scientific foundations for the development of innovative processes in the conditions of standardization of education, the theoretical foundations of pedagogical technologies, as well as classical theories of quality management.

Designing a methodological system of education involves, first of all, the selection of didactic material for the educational process. In cooperation with the administration of the educational institution, the teacher should exclude the fact of the oral presentation of the program material, which is not provided (supported) by visual aids and tools for the implementation of project tasks. Our study does not specify the forms and methods of activation in the field of science and logic of students. However, the lack of elementary visual aids (visual aids) related to the topic of training, as well as the subject of problem-based learning and means of solving the task does not allow to achieve the effectiveness of the learning process. [1].

This is precisely the situation when pedagogical practice does not correspond to the optimal size.

On the basis of the cluster method, the teacher can select didactic tools based on the analysis of the content of the studied structural element. Here, the model corresponding

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to this stage of learning should be based on a complex goal. The disclosure of the content of the structural element is associated with the actualization of the previously studied material, and on its basis the learning task is represented[2]. Therefore, it is possible to form a cluster in which the studied structural element is its central element, and all elements based on the central element serve as its immediate environment. Structural elements that are logically related to each other with the structural element under study constitute the second level of convergence, which makes it possible to single out a didactic cluster.

Based on the coefficients of interaction between the elements of the didactic cluster, it is possible to choose the most appropriate means of presentation, allowing to increase the efficiency of assimilation in terms of understanding the structural element. Didactic tools can be a computer presentation on the topic under study, a demonstration model designed to demonstrate the process or phenomenon under study, a physical or chemical experiment, video and audio aids, diagrams, etc.

After conducting a qualimetric survey, it is necessary to determine the situational nature of the respondents' opinions and assign the status of an expert to the most objective and professionally qualified. In addition to the possibility of using the correlation method for this purpose, it is also possible to analyze the answers of respondents to questions or the rating of the criteria they have established using the cluster method. [3].

The cluster method allows you to determine the degree of interaction between different criteria. Obviously, the criteria that characterize one object of study will have the highest correlation coefficient. If the opinion of the experts who determine the numerical value of the corresponding coefficient is consistent with the assumptions of the person who developed the questionnaire, then the correlation method was applied correctly. If there is no clear interaction, the correlation pairs of questions should be changed.

The cluster method turns out to be the most effective in determining the consistency of opinions of the members of the expert group, as it allows estimating the coefficient of interaction between individual subjective standards of experts[4]. The consistency of experts' opinions depends primarily on their professional qualifications. The higher the correlation between these indicators, the higher the convergence of their opinions.

Measuring properties are possessed not only by qualimetric questionnaires, but also by standardized didactic tests. Standardization technology requires an expert assessment of the content of the elements of the curriculum and the choice of structural elements.

It is necessary to create test tasks of different levels of complexity based on the selected structural elements of the curriculum. The content of tasks and the level of connection between the relevant structural elements can be assessed using an expert method[5]. The

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difficulty or complexity of the test items is determined by the representation of the group selected for testing. As a result, with the help of cluster analysis, we provide the normative design properties of the pedagogical meter (instrument).

The representativeness of the selected group allows us to determine the value of constructive and criterion validity, as well as the reliability of the didactic test. Such a selected group can be formed by cluster stratification, which is subject to a quota or random method.

Our analysis of the principles of designing pedagogical facilities shows the universality of the cluster method. That is why there is a need for a theoretical and methodological substantiation of this design technology.

Thus, the cluster method is an expert assessment of the significance of the content of educational elements and the allocation of structural elements of the curriculum, the formation of a working space for project activities in the educational space based on the level of interaction. between structural elements, giving a trajectory of professional development, coordination of opinions of a group of experts, selection of structural elements based on an expert, selection of test items using a representative selected group. All of these processes make it possible to develop a curriculum, form a trajectory for the professional development of a specialist, and create a methodological system of education. [6].

In the process of forming the working space of project activity, an arbitrary structural element found as a result of designing the curriculum is placed in the center of the software cluster, and the interaction of other structural elements with it is determined. Analysis of the configuration of the working space of project activities in the educational space can be carried out on the basis of the cluster method. According to the orientation of the curriculum, it is possible to build a cluster for the development of the learning process, considering the first element as the starting point of the educational trajectory.[7] The teacher is critical of the curriculum and moves in a direction close enough to the learning element.

Disclosure of the content of a structural element in the educational process involves updating the previously studied material, on which the learning task is formed. Therefore, it is possible to form a didactic cluster in which the studied structural element is its central element, and all elements based on the central element serve as its immediate environment.

It is necessary to recognize the universal nature of the cluster method based on pedagogical diagnostics. Applying this method in the technology of designing

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pedagogical facilities, we provide a guaranteed level of professional competence of a specialist, which fully reflects the state educational standard of students.

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