INNOVATIVE CLUSTER AND INTEGRATION OF PEDAGOGICAL EDUCATION IN THE FORMATION OF PROFESSIONAL CREATIVE ABILITIES OF A SPECIALIST

Yadgarov Karim Abdullayevich
Termiz State University
Email: karimyadgarov2@gmail.com
https://doi.org/10.5281/zenodo.7663123

Abstract. In the article, the most important pedagogical problems awaiting their solution, such as the innovative cluster of pedagogical education, the theoretical foundations and principles of the integration of academic subjects, the approach to integration, the directions of integration, integrative programs, integrative lessons, and the creation of an integrated course model, are highlighted.
Key words: Pedagogical education innovation cluster, the main goal of the pedagogical cluster, interdisciplinary integration, integration, integrative programs.

To increase the quality level of personnel training in the education system of our republic, to create the necessary conditions for the training of qualified specialists based on international standards, to establish close cooperation relations between each higher education institution and the world's leading scientific and research institutes, to effectively use interactive methods, to improve the quality of education it requires raising the level, forming an educational administration in line with the country's educational strategy. The study of existing shortcomings in the educational system and their analysis showed that the lack of coordination of pedagogical education, planning of the future, the lack of communication and integration between the stages of education, the fragmentation of the activities of educational subjects caused the lack of satisfaction of the need for pedagogical personnel in the region and a decrease in the quality of education. Based on this, it has identified a new system related to the creation of an innovative cluster of pedagogical education in HEIs as its priority strategic direction, and certain works are being carried out based on this system.

The cluster system is effective in various sectors of our country, such as industrial production, agriculture, and production sectors of the economy. For this purpose, it is appropriate to apply the cluster method to the educational process. shows that it is theoretically possible to introduce it in the pedagogical education system on the basis of sequence.

Based on the high social importance of pedagogical education in the sustainable development of society, modern requirements, problems in the system and ensuring the connection between science and education links in solving them require the need to transfer continuous pedagogical education to the cluster development system.

Pedagogical education innovation cluster is a unity of all types of education, scientific research institutes and centers, practice bases, scientific and scientific-methodical structures in the continuous education system, and their shared tasks allow raising the quality of the pedagogical education system to a new level. Therefore, the main goal of the pedagogical cluster is to unite not only the level of professional activity of engineers, but also their competitiveness, creative ability, the ability to design and implement new educational programs and technologies to train modern competitive educational specialists. The cluster

system of pedagogical education development operates in general areas related to teaching, creating educational literature, increasing the scientific potential of pedagogic personnel, and the integration of education and training. At the moment, these general directions are specialized in directions such as management and organization of education, ensuring coherence and integration between types and directions of education, and the use of teaching methods and tools. The main participants of the pedagogical cluster are: students, masters and doctoral students, pedagogues and trainees, educational institutions, production enterprises, foreign higher education institutions and scientific centers. The cluster system unites these participants around a common goal and operates on the basis of a defined interest. A cluster system supports and monitors these participants. Pedagogical education innovation cluster strengthens communication with each other.

- to ensure the direct participation of students in today's rapid development processes;
- to increase pedagogical potential in the educational system of our country;
- establishing integration between interdisciplinary and production areas;

Currently, several scientists of the republic are conducting scientific research on this issue. Interdisciplinary integration plays an important role in the formation and development of professional creative abilities of students and leads to the formation of students' independent thinking, thorough assimilation of knowledge, and growth of creative activity. Therefore, it is necessary to determine the unique possibilities of teaching in technical fields, effective ways of organizing interdisciplinary lessons, preparing lesson plans and developing its teaching method. For example, "Internal combustion engines", "Technical operation of vehicles", "Hydraulics", "Theory of machines and mechanisms", "Vehicle structure and theory", etc. integrating subjects, the following active and interactive learning methods are used in training data: clusters, media education, discussions, etc.

The organization of such training will help students not only to separate technical cycle sciences from humanities, but also to find their interactions (relationships), and to have a rational and conscious approach to work in the future. Experience sessions with students can also be organized using interdisciplinary connections.

With the use of information and communication technologies in interdisciplinary laboratory work, they can also find its application in the educational process. A unified approach to interdisciplinary communication faces the challenge of determining student knowledge assessment between humanities, general and special cycle subjects. Every year, new subjects aimed at solving the problems of higher technical educational institutions appear in the educational process. This is not surprising, because the rapidly developing industry and economy, changing people's minds and humanity need new discoveries. When there is a need for such special disciplines, for example, in the field of education "Surface transport systems and their operation" of a higher educational institution, innovative technologies related to the engineering profession are developed.

In addition, it should be noted that the acquisition of students' knowledge in training with interdisciplinary connections should be carried out regularly at intermediate stages, where checkpoints and knowledge checks are planned - to the final point.

Thus, the implementation of interdisciplinarity is justified, if the students of technical higher education institutions regularly perform the tasks specified in the integration, and allow to further strengthen the knowledge gained during the study of the theoretical materials received in the practical training.

The graduate, having mastered professional skills, has the opportunity to successfully compete in the labor market, allows creative use of professional skills, and achieves the highest quantity and quality indicators.

In preparing students for professional activity, the connection of theoretical and practical knowledge, interdisciplinary integration, pedagogical and technical knowledge links systematically serve to develop professional creative abilities of students. Therefore, a systematic approach was taken to ensure the integration of pedagogical and technical knowledge in the diagnosis of professional readiness. Based on the classification of the stages of formation of important personal and professional qualities in future specialists, the mechanism of development of competencies such as mobility, reflexivity, integrativeness in the directions of theoretical, practical, scientific-research training was improved.

At the stage of professional self-awareness (II year), special development of students' personality continues, their cultural needs and requirements are formed. During this period, attention is paid to general professional subjects.

At the stage of professional self-determination (III course), students' attention to the subjects of preparation for specialization is strengthened, and the motives for improving their readiness for professional activity are strengthened. At this stage, their specialization (specialization) begins, their interest in scientific research increases, they learn about the features of their chosen profession.

At the stage of improvement of professional preparation (professional training) (IV course) it encourages the mastering of methods and technologies of specialist work related to the establishment of future activities. At this stage, the requirement to choose the place of practice to use in the experience of professional activity is more consciously approached. At each stage of improvement of students' personal readiness for professional activity, the main attention is focused on these specific qualities - professional characteristics of improvement of professional activity preparation.

Currently, the concept of "integration" in education is used in the following meanings:

1) a process that determines the state of interdependence of the relevant components.

2) the process of creating integrated, unified concepts that are related to each other.

The great didactic scientist John Amos Comenius states: "everything that communicates must be taught in the same communication." Later, many teachers turn to the idea of interdisciplinary communication by developing and generalizing it. Issues such as the theoretical foundations, principles, approach to integration, directions of integration, integrative programs, integrative lessons, and the creation of an integrated course model are the most important pedagogical problems awaiting their solution.

As a result of the analysis of existing literature, articles, and developments related to the problem, the following conflicts were identified in the process of training teachers:

- scientific and methodological inadequacy of interdisciplinary practical connection in ensuring the quality of training of future engineers;
- insufficient coverage of all necessary aspects of education in training future engineers to become fully qualified specialists;
- the criteria and indicators for determining the effective forms and methods of the teaching process based on the integrative approach are not perfect, and the use of science in pedagogical activities is not at the level of modern requirements;

- the need to strengthen the personal qualities and independent educational-methodical activities of the trained specialists related to their professional and creative development;
- showed that in the higher education system, the subjects in the curricula of bachelors' training are implemented in the field of professional pedagogical education.

The term "integration" has a long history in terms of content and essence, it was first used by the philosopher and scientist G. Spencer in the 18th century. Nowadays, integration is gaining importance in the economic, production, social, including educational spheres of society, from the micro to the macro world, and realizing that it is possible to solve important scientific problems only as a result of the practical application of its developmental functions, there is a great need for it.

Before we dwell on the history of the integration process in science and education, we found it necessary to comment on the dictionary meaning of the word "Integration". This term is explained in the national encyclopedia of Uzbekistan as follows: the word "integration" is derived from the Latin word integratio - restoration, filling, integer - whole, and means the process of convergence and interaction of sciences.

In the education process of many foreign countries, integrative courses are effectively used. For example, integrated courses such as "Environment and foreign language", "Economic and social sciences" in France, and "Swimming in technology and biology" are taught in Germany. Also, integrated programs on literature, fine arts, and music are used in Russia. And in the USA, programs that integrate various fields of science and technology, production and culture are widely supported.

The study of the practical situation of the problem of integrated teaching shows that although some positive work has been done in this area (on the integration of the content of educational subjects), it is still necessary to carry out more work, because:

- The concept of integrated education for HEIs has not been developed;
- the integrated content of educational subjects and the methodology of its teaching have not been improved;
- the methods of integrating the content of educational subjects have not been defined;
- teachers cannot clearly imagine the educational possibilities of integrating the content of the educational subject.

Integration of sciences - in the process of students taking classes in the science of fuels and lubricants, connecting them with humanities, mathematics and natural sciences and general professional sciences creates a foundation for the formation and development of professional creative abilities of students.

In conclusion, it was shown that the teaching of fuel and lubricants science in higher education institutions in integration with other subjects gives good results. The most effective directions for solving the identified problems were considered. It was explained that on the basis of integrated education, general professional, specialty and other subjects can be interrelated and complement each other. In order to implement this idea, it was emphasized that it is necessary to define the tasks of fundamental reform of all stages of education.

References:

1. G'.I. Muhamedov. "Pedagogical education innovation cluster: need, necessity, result. People's word newspaper 2019. Tashkent.
2. Yadgarov.K.A. Methodology of teaching the science of fuel and lubricants. Study guide. - Termiz-2021 -107 p
3. Hopfner G.D. The importance of independent study in the system of secondary special vocational education. Study guide for vocational colleges. T., 2009, pp. 28-31
4. Maksimova V.N. Mejpredmetnye svyazi v processe obucheniya. - M: "Prosveshchenie", 1988. -S. 91
5. Hasanov A.A. Interdisciplinarity in improving the quality of training of specialists in vocational colleges. // Scientific-theoretical and methodical magazine "Pedagogika", TDPU, 2015, issue 5.