

Ensuring Interdisciplinary Continuity through Dual Education in the System of Higher and Vocational Education

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Abstract:

This article presents indicators of professional competence and achievable pedagogical effectiveness of future specialists by ensuring interdisciplinary and interdisciplinary continuity in the technical areas of professional and higher education.

Keywords: interdisciplinarity and interdisciplinary, continuity, dual education, professional competence.

On June 20, 2024, a video conference was held under the chairmanship of President Shavkat Mirziyoyev on personnel training in engineering fields and further improvement of the activities of higher educational institutions. The Head of State, first of all, focused on the problems of the industry, noting that there are not enough highly qualified engineers yet, that foreign universities have such specialties as “cost engineering”, “comparative engineering”, “reengineering”, and that the equipment we have is not established in universities, as a result of which domestic industries they spend a lot of money on training their employees abroad or attracting specialists from abroad. He also emphasized the need to come. The decree of the President of the Republic of Uzbekistan dated February 2, 2024 No. PP-54 "On additional measures to accelerate reforms in the field of education" defines a number of tasks, in accordance with which the organizational and managerial activities of higher educational institutions providing training in engineering and technical areas are being improved. Based on the above-mentioned meeting and decision, the compliance of existing curricula with modern technologies and the requirements of employers is being studied and radically changed.

Based on the task set in the strategy of action for the development of the Republic of Uzbekistan “Further improvement of the system of continuing education, increasing the possibilities of high-quality educational services, continuing the policy of training highly qualified personnel in accordance with the modern needs of the labor market”, consistent work is being carried out in the country to ensure that education meets international standards.

The main directions of further development of educational, educational and scientific spheres in the new period of development of Uzbekistan have become:

- and to prepare a new generation of personnel with high intellectual and spiritual potential, capable of entering the field with new initiatives and ideas for the development of the country, to form the necessary knowledge, skills and abilities among graduates of educational organizations so that they can become modern professionals;
- Creating a national education system capable of withstanding today's fierce competition around the world, improving textbooks and teaching aids in accordance with the requirements of the time, creating a new generation of them, optimizing curricula and standards;
- creation of an automation system and comprehensive analysis of learning management using modern information and communication technologies, further development of electronic resources and distance learning, popularization of professions in the IT field among students, etc.[2]

By a resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated March 29, 2021, the Regulation on the procedure for organizing dual education in the vocational education system was approved, as well as in a video selector dated June 20, 2024, President Shavkat Mirziyoyev announced new initiatives for the development of the engineering sector. As a result, the teaching and research processes in the field of technology will now be completely transformed based on best practices, and 36 higher education institutions and their branches will gradually expand, leaving a total of 20 universities that will completely switch to dual education.

As we all know, the special role of mid-level personnel in the development of the economy. The need for working professions and specialties in manufacturing, industry and the service sector is very high. In the traditional form of training, the future specialist receives more theoretical knowledge in a professional or higher educational institution, passing the practical part in enterprises and Organizations in a very small number of hours. Therefore, the education system of developed countries was studied and a dual form of education was introduced into the education system of Uzbekistan, which allows to carry out activities at enterprises and organizations simultaneously with training on modern technologies and machine tools.

The word "double" comes from Latin and means that something refers to two parts, which represent two things consisting of two parts. Dual training is a system that allows future professionals to combine training with work in an organization that corresponds to their field. At the same time, future specialists take 2-3 days to master theoretical knowledge in an educational institution and 3-4 days to acquire practical skills in real work processes at enterprises and organizations. When hiring future specialists studying in the form of dual training at enterprises and organizations, a mentor from the enterprise is attached to them. Today, the field of science and technology is also becoming more and more progressive. One of the main mechanisms of this direction is the technology of mechanical engineering, which is inextricably linked with science and the production process. And there is a wise saying among our people: "It's better to see once than to hear ten times." Guided by this, effective results are provided by training in the subject classes "Materials Science and technology of structural materials" in the specialty "Technology of mechanical Engineering", which directs future specialists to a larger number of manufacturing enterprises using the technologies

available there. After all, the determining factor in the assimilation of educational material is the degree of mobilization of the senses of the individual.

Visual perception is especially important when learning new material. Therefore, the dual system of organizing educational processes greatly contributes to the development of creative thinking, mental thinking, activity in obtaining knowledge, independence of reasoning, the need for independent enrichment of their knowledge, analysis, generalization of all processes, and the development of logical conclusions based on professional knowledge, skills and abilities.

There will be a big difference between the process of taking a lesson in the classroom and the process of taking a lesson in a manufacturing facility. Therefore, the teacher needs to prepare specifically for the lesson, which will be organized at the production enterprise, and on it:

a the content of the topics that will take place at the manufacturing enterprise, and a clear definition of the methodology based on cluster technologies;

a have in-depth knowledge of a given topic and have a good command of this knowledge;

and before bringing future specialists to a production enterprise, it is necessary to familiarize them with the rules and regulations of the production enterprise, give the necessary ideas about how they should behave at the production enterprise and with what preparation to come there.[3]

The teacher should pay special attention to regulatory documents, drawings, diagrams, audio and technical means and innovative technologies at a manufacturing enterprise so that future specialists understand and perceive their structure, principles of operation and manufacturing technologies of high-quality products. This is considered the principle of clarity and legibility of didactics, laying the foundation for future specialists to memorize information in the data warehouse, realizing its essence and significance. After the future specialists return from the production enterprise, they will have the opportunity to further consolidate the acquired professional knowledge, skills and abilities by writing a report or annotation based on what they saw, and the following results will be shown in Figure 1.

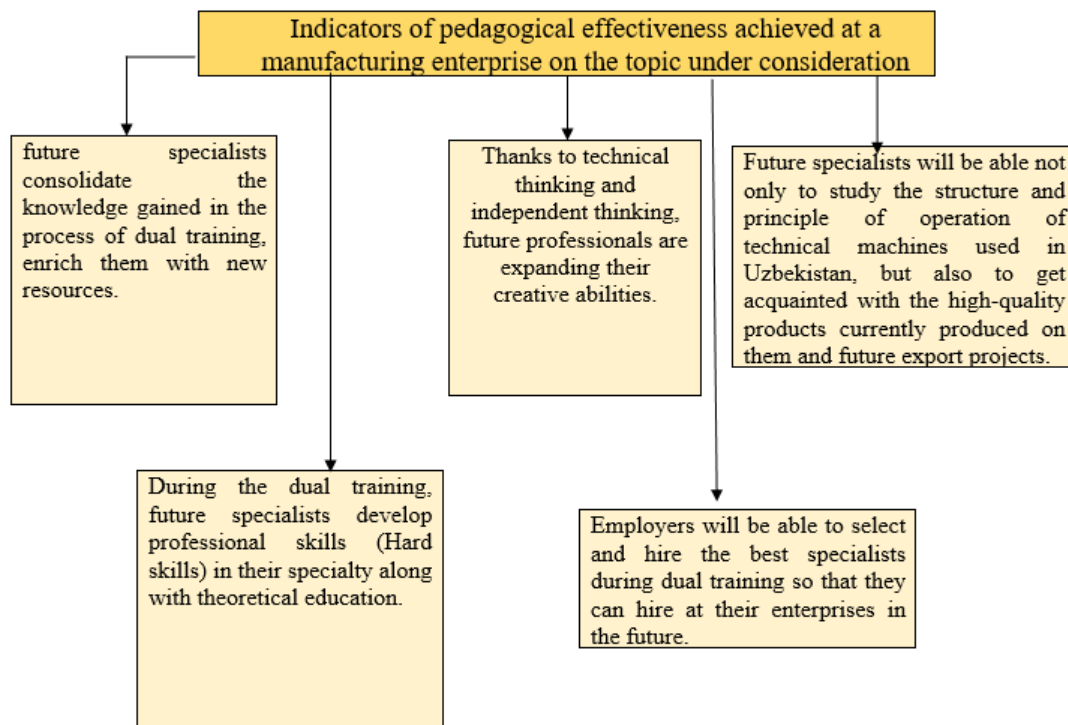


Figure 1. Indicators of pedagogical efficiency achieved at a manufacturing enterprise on the topic under consideration:

This is done in order to find out the level of effectiveness of the passed subject at the production enterprise, answers to test questions are obtained from future specialists. Control questions are compiled on the basis of knowledge gained at the manufacturing enterprise, that is, the structure of machine tools (internal and external structure of parts); the composition and quality of products produced at the manufacturing enterprise. The discussion of abstracts on the following topics serves to ensure the continuity of subsequent topics. As a result, it is possible to form the professional competence of future specialists by ensuring interdisciplinary and interdisciplinary continuity by applying the knowledge acquired by future specialists at manufacturing enterprises to practical and experimental training.

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