

# DUAL EDUCATION IN THE TRAINING OF QUALIFIED ENGINEERING PERSONNEL IN TECHNICAL FIELDS IS THE BASIS OF THE NEW INNOVATIVE EDUCATIONAL SYSTEM

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## Abstract

The article presents information about the characteristics of dual education, which is considered a new innovative educational system in the training of qualified personnel in technical fields, and its differences from the traditional educational system.

**Keywords:** quality of education in universities, dual education, production enterprises, personnel needs, flexible mechanism.

## Introduction

Regarding further improvement of the education system in the Republic of Uzbekistan, with the decision No. 163 of the Cabinet of Ministers of the Republic of Uzbekistan dated March 29, 2021 "On measures to organize dual education in the professional education system", dual education in the professional education system regulation on the order of educational organization confirmed [1].

In the field of renewable energy sources, as in all technical areas, which allows to solve the problem of professional training in the training of qualified engineers and technical personnel with higher education in the Republic of Uzbekistan, special the practice of such urgent tasks as program development, creation of a new innovative system for personnel training using the dual education system in higher and secondary special educational institutions for these fields is important. Because the use of dual education in the current traditional education system is considered as the most important factor for the sustainable development of the economy and increasing the competitiveness of qualified personnel [2].

Currently, a dual educational form of on-the-job training based on the German experience has been launched in 57 professional educational institutions across the country. This is paying off in the preschool education system. For example, students of the pedagogical college receive theoretical knowledge for 2 days at the college, and practice in kindergartens for the remaining 4 days. In this way, he earns a salary.

It is known that the system of training qualified personnel of higher educational institutions is characterized not only by quality changes in the process of the educational system, but also by its interaction with the production sectors, as well as by the development of personnel competence [3,4,5] .

As for the name "dual", dualism (lat. dualis - two sides) is the promotion of the coexistence of irreconcilable states, principles, ways of thinking, worldviews, aspirations, and epistemological



principles. teaching doctrine. Dualism is a form of pluralism. The term dualism was introduced by the German philosopher H. Wolff (1679-1754). Dualism represents the following pair of concepts: the world of ideas and the real world. Dualism can be manifested in philosophical, religious, anthropological, ethical forms. In ancient times, religious-ethical dualism is found in the Avesta. Dualism appears in the philosophy that there are two independent things - spirit and matter. This is especially evident in the views of R. Descartes and I. Kant [6,7].

Dual education can be imagined as a "pedagogical activity that ensures the formation of individual knowledge and skills of students in their professional fields in professional training activities" [8]. In this case, direct practice plays the main role. LV Sidakova recognizes that the dual education system is "an educational system that involves the combination of educational activities of an educational institution with the activities of production enterprises" [9]. The dual education system of training specialists can be considered as "an education system aimed at training specialists who will have the required level of qualification in a specific profession, clearly coordinated between the employers and production enterprises of higher professional education." [10].

Analyzing local and foreign literature, the dual education system can be imagined as an educational model in which theoretical training can be carried out in educational institutions, and practical training can be carried out in production enterprises [11,12,13].

Dual education is the organization of career orientation, formation (forecasting) of personnel needs, modernization of educational programs, training of specialists in enterprises and educational institutions, as well as executive authorities, business associations, work It is an infrastructure that includes the equal responsibility of providers and interested parties and provides for quality training of personnel.

Our state is implementing noble goals such as radically improving the quality of professional education, taking into account the interest of students in the profession for their education in educational institutions, and creating wider conditions for young people to master their chosen specialty in depth.

In order to implement this issue, the deep changes taking place in socio-economic development and the need to solve emerging socio-economic problems (efficiency and competitiveness of professional education, ability to adapt to changes related to technological progress, "intangible growth of investments, organization of qualified labor, vocational training of the elderly population, recognition of competencies, ability to use skills, etc.) forces enterprises to pay more and more attention to the issues of vocational training.

The dual education system is considered a new form of personnel training, in which students receive theoretical training in higher educational institutions and have the opportunity to combine practical knowledge and skills in production enterprises [14-22].

The main principle of the dual education system is that educational institutions and production enterprises are equally responsible for the quality of personnel training.

The dual education system meets the interests of all parties involved in it – industrial enterprises, students, and the state:

- As a result of the introduction of the dual education system, for production enterprises - the opportunities to reduce the time of personnel training will increase, enterprises will be able to



search and select personnel, they will not have to be retrained, and they will be able to quickly adapt to the conditions of production.

- For students, when they are stepping into a big life independently as specialists after graduation, it is a great opportunity for them to adapt more easily to production conditions, and to have high employment opportunities in enterprises.

- For the state - this is the effective training of highly qualified personnel for the further development of the country's economy.

When dual education is used in the educational system of a higher educational institution, taking into account the production activity, it implies their mutual harmony in the organization of the educational process.

The educational process is organized as follows: students go to certain production enterprises or firms in parallel to attend regularly organized classes at the higher educational institution to gain practical experience.

The dual education system meets the interests of all enterprises, students, and the state involved in it. The dual education system for production enterprises gives them the opportunity to reduce the time spent on personnel training, to search and select them, to retrain them, and to achieve rapid adaptability to their conditions.

Dual education is an opportunity for young people to acquire the necessary knowledge and skills early and adapt to adult life in an easier way. Also, they get paid for their work by production enterprises during their education and get a good job when they finish their studies. will be

For students, receiving education on the basis of dual education means a completely different level of socialization: young people can look at the "real life" from their own perspective, passing tests in production enterprises.

As a result of the introduction of dual education, higher educational institutions create educational programs based on the needs of the market, as a result of which the qualifications of professors and teachers also increase, and in educational institutions it ensures an increase in the quality of personnel training and as a result, it leads to an increase in the competitiveness of educational institutions.

Another feature of the dual education system for production enterprises is the possibility of "on-demand" training of personnel that can meet all the requirements of enterprises, and in this, it is necessary to search for, select, retrain and adapt the necessary personnel. leads to cost savings.

In addition, students reveal their strengths and weaknesses over the years of their education. In turn, this approach creates the ground for students to work independently in production enterprises "in real life", not just for training in name.

The dual education system provides students with opportunities to perfectly manage their individual careers. Also, their qualification level is constantly increasing.

The experience of using dual education shows that it has the following advantages compared to the traditional system:

- the dual system of training specialists between theory and practice, which is considered the main drawback of traditional training forms and methods reconciliation of differences;



- in personnel training through the dual education system, students are highly motivated to acquire knowledge and skills directly related to the performance of duties at the workplace.
- the interest of the managers of the respective institutions in the practical training of their employees;
- the educational institutions are in close contact with the production enterprises that are the customers and take into account the requirements for the future graduates.

When dual education is used in the educational system of a higher educational institution, taking into account the production activity, assuming their mutual harmony in the organization of the educational process, the traditional education system and dual education. It is necessary to take into account the differences between the systems.

As a result of the analysis of the literature on the dual education system, the differences between its traditional education system and the dual education system are presented in the table below.

**Table 1 Peculiarities of traditional and dual education systems**

<b>Traditional education system</b>	<b>Dual education system</b>
budget places in educational institutions is formed by the state	The order for personnel training is formed by the enterprises
Due to economic expediency, Universities themselves attract students as much as possible, while not paying attention to students abilities and personal qualities .	Every student to an educational institution They are accepted with understanding where to work after graduation
The gap between practice and theory.	Theoretical training and practical training are combined at university and workplaces
Production practices do not meet the requirements of employers	Production practice is based on the maximum approximation to the real conditions of production enterprises and an individual approach
Training of specialists is financed through the state	Providing students with appropriate degrees is provided by employers.
Employment is not guaranteed. Much depends on the personal qualities of the graduates	Employment is guaranteed and no additional retraining is required
Up to 70% of education is spent at the university	the total volume of audience training does not exceed 30-40%
is production practice	The volume of production practice has increased to 60-70 % .
The production practice does not meet the necessary requirements of the employing enterprises	Production practice is based on an individual approach and is close to the real conditions of the enterprise.
Skills are described in the learning profile standard	Acquisition of important practical skills for the profile
Lack of monitoring of the need for specialists	Monitoring is carried out and a specific list of specialties required by specific enterprises in the area is determined
Practitioners are involved	Practice for teachers of special subjects is held at the enterprise.
Lack of a real opportunity to get acquainted with the traditions and characteristics of the enterprise during the internship	Ability to work in a team, get to know the corporate culture from the inside.



Students no manufacturing enterprises are able to build successful careers on such knowledge and opportunities without applying dual education based on their internal capabilities.

In educational institutions, it is necessary to develop normative-legal and educational-methodical documents on the dual education system: in this, the issues of training enterprise personnel on the basis of pedagogy, and in order to improve the qualifications of teachers of the educational institution, they should be developed it should be assumed that they will consider the issues of graduation internships.

Thus, **in conclusion** , the dual educational form of teaching helps to significantly strengthen the practical component of the theoretical preparation level of the educational process, to solve the problem of training specialists who meet the requirements of state educational standards. This increases the professional mobility of students. and competitiveness in the labor market increases.

Dual education system is a system in which the combination of training in educational institutions with the period of activities of production enterprises is provided. Dual education is an effective way to improve the quality of education. The implementation of the mechanism of mutual cooperation between educational institutions and enterprises by affecting the balance of demand and supply of labor force is related to the improvement of the quality of personnel training, employment and employment of graduates. helps to improve the situation and develop human resources.

## References

1. Resolution No. 163 of the Cabinet of Ministers of the Republic of Uzbekistan dated March 29, 2021 "On measures to organize dual education in the professional education system".
2. Decree of the President of the Republic of Uzbekistan No. PF-37 of 21.02.2024 on the state program for the implementation of the "Uzbekistan-2030" strategy in the "Year of Youth and Business Support".
3. Mullaboyeva N. Kasbiy pedagogika. Namangan, 2019, 364 bet.
4. B.Sharopov; M.Muxtoraliyeva. Pedagogika fanining metodologiyasi. Pedagog international research journal. 259-262 (2). Volume-2, Issue-1, www. pedagoglar. Uz. 30.01.2022 <https://doi.org/10.5281/zenodo.5925607>
5. Kozlova S.A., Kulikova T.A. Doshkolnaya pedagogika. Moskva, 2000.
6. Shodmonova M.U. Dual ta'limni amaliyotda qo'llash / issn: 2181-3337 Science and innovation international scientific journal 2022 № 3 p. 356 -358
7. Xadjaboev A., Xusanov I. "Kasbiy ta'lim metodologiyasi" – T., 2007 yil.
8. Novikov A.M. Ta'lim metodikasi.M.: EGVES, 2006.-492 b.
9. Sidakova L.V. Сущност и основные признаки дуальной модели обучения. Образование и воспитание. 2016; 2: 62 – 64.
10. Растегаева Д.А., Филимонюк Л.А. основы реализации системы дуального обучения в профессиональной подготовке студентов организаций высшего образования. Мир науки, культуры, образования. 2017; 6 (67): 110 – 112.
11. Харитонов Н.Д. Дуальная система образования в высшей школе: эффективность внедрения. Электронный научно-методический журнал Омского ГАУ. 2017; 3: 15.



12. Терещенкова Е.В. Дуальная система образования как основа подготовки специалистов. Научно-методический электронный журнал «Концепт». 2014; 4: 41 – 45.
13. Yusupov X. Tizimli innovatsion yondashuv asosida ta'lim sifatini boshqarishning asosiy yo'nalishlari. – T.: Xalq ta'limi, 2019. – 44- b
14. Alijonov O'. Dual ta'lim: O'quv reja va o'quv jarayoni grafigini ishlab chiqish bo'yicha uslubiy tavsiyalar:. Toshkent 2021.
15. G.N. Uzakov, X.A. Almardanov, I.N. Kodirov, L.A. Aliyarova. Modeling the heat balance of a solar concentrator heliopyrolysis device reactor. BIO Web Conf., 71 (2023) 01098. DOI: <https://doi.org/10.1051/bioconf/20237101098>
16. Uzakov, G.N., Almardanov, X.A., Kodirov, I.N., Aliyarova, L.A. Studying the temperature regime of the heliopyrolysis device reactor. E3S Web of Conferences, 2023, 411, 01040 DOI: 10.1051/e3sconf/202341101040
17. Kodirov I. N. et al. Thermal efficiency of the solar heating system based on flat reflectors installed from the Northern side of the building //Austrian Journal of Technical and Natural Sciences. – 2018. – №. 5-6. – S. 25-26.
18. Kodirov I. N., Sh M. M., Panjiev J. E. THERMAL EFFICIENCY OF THE SOLAR HEATING SYSTEM BASED ON FLAT REFLECTORS INSTALLED FROM THE NORTHERN SIDE OF THE BUILDING //Austrian Journal of Technical and Natural Sciences. – S. 25.
19. Kodirov I. N. et al. Investigation of surface layers composition of the silicon epitaxial films used in the printed circuits //Uzbekiston Fizika Zhurnali. – 1996. – T. 3. – S. 31-35.
20. Kodirov I. N. The perspective of ion implantation and annealing using in microelectronics; Perspektivy primeneniya ionnoj implantatsii i otzhiga v mikroelektronike //Uzbekiston Fizika Zhurnali. – 1998. – T. 4.
21. Kodirov Ismoil Norkobilovich. (2023). Physical Basics of Semiconductors. Texas Journal of Engineering and Technology, 26, 1–5.
22. Kodirov Ismoil Norkobilovich. (2023). RELATIONSHIP OF VOLT-AMPERE CHARACTERISTICS OF SOLAR ELEMENTS TO TEMPERATURE. Proceedings of International Conference on Scientific Research in Natural and Social Sciences, 2(11), 79–85.

