American Journal of Alternative Education
ISSN: 2997-3953 (Online)
Vol. 2, No. 10, Oct 2025,
Available online at: https://scientificbulletin.com/index.php/AJAE

Theoretical Analysis of the Use of Dual Education in the System of Vocational Education

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Article information:
Manuscript received: 02 Aug 2025; **Accepted:** 03 Sep 2025; **Published:** 15 Oct 2025

Abstract: The article analyzes the advantages and disadvantages of the dual education system. The integration of theory and practice in the learning process and the importance of cooperation with production enterprises are highlighted. Current problems of vocational education – the inconsistency of curricula with industry requirements, difficulties in training highly qualified specialists, and challenges in employing young professionals – are examined. The author provides scientific and practical recommendations on the effective organization of industrial practice, the strengthening of integration between education and production, and the development of professional competencies.

Keys words: dual education system, vocational education, industrial practice, qualified specialists, professional competence, innovative economy, integration of education and production.

In the Decree of the President of the Republic of Uzbekistan dated January 28, 2022, PF-60 "On the New Development Strategy of Uzbekistan for 2022–2026," the following priority tasks were set: “To fully transfer the issues of dealing with vocational education to the jurisdiction of the Ministry of Employment and Labor Relations. To double the scope of vocational training and provide 1 million unemployed citizens with opportunities for vocational training. To establish a system in which every general secondary school graduate wishing to acquire a profession will be assisted by the state to master at least one profession.” The importance of dual education in ensuring the implementation of these tasks is elaborated in detail in this dissertation.

In the Action Strategy for the Development of Uzbekistan in Five Priority Directions for 2017–2021, the tasks were set to continue the policy of training highly qualified personnel in line with the demands of the labor market, introducing international standards for assessing the quality of education, and creating effective mechanisms for implementing scientific achievements into practice. For the purpose of radically reforming the system of vocational education, the Decree of the President of the Republic of Uzbekistan “On measures for further improvement of the activities of secondary special, vocational education institutions” adopted on June 14, 2017, and the Decree of the President of the Republic of Uzbekistan PF-5812 dated September 6, 2019, “On additional measures for further improvement of the system of vocational education” have also served as an important legal basis for the further advancement of this sector.

The main goal of vocational education institutions is to train competitive personnel that meet the needs of the labor market, particularly for small businesses and private entrepreneurship, by introducing vocational education stages and to satisfy the demand of individuals of all ages for education on the principle of “Lifelong Learning.”

The main tasks of the vocational education system include:

training specialists with practical skills based on the demand and supply of the labor market, and meeting the needs of various sectors of the economy for qualified personnel;

preparing personnel with practical competencies in the use of modern information and communication technologies in labor activities;

developing cooperation with domestic and foreign educational institutions and involving qualified foreign specialists in the joint implementation of modern innovative educational projects;

gradually introducing differentiated curricula harmonized with international classification standards and a credit-modular system of instruction;

along with education, providing students with entrepreneurial knowledge, supporting them methodically in establishing their own businesses in the future;

ensuring the effective participation of vocational education and production in the processes of further reforming, modernizing, and accelerating the economic development of the country;

creating conditions for students to choose educational institutions freely, acquire knowledge in a profession or specialty, and to undergo retraining and advanced training on the principle of “Lifelong Learning”;

through vocational education, satisfying individuals’ intellectual, cultural, and spiritual development needs, fostering patriotism, active citizenship, responsibility, and creativity.

In 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 system of vocational education,” the stages of introducing dual education were defined as follows:

formation of organizations implementing dual education based on the demand for personnel in economic sectors by the Council of Ministers of the Republic of Karakalpakstan, regional and Tashkent city administrations, ministries and agencies;

conclusion of contracts between organizations and vocational education institutions, and between organizations and students;

organizing career guidance activities in the regions;

developing and updating relevant curricula;

continuously studying the demand and supply of mid-level personnel in the labor market;

assessing the personnel being trained under dual education programs.

The samples of contracts to be formalized between organizations and vocational education institutions, as well as between organizations and students, are approved by the relevant ministry in agreement with the Ministry of Employment and Labor Relations of the Republic of Uzbekistan. At the same time, organizations are allowed to formalize contracts with one or several vocational education institutions, and vocational education institutions, in turn, may formalize contracts with one or several organizations.

The development of society, the economy, and information technologies requires mid-level specialists to expand their functions such as administrative-technical support of management processes, direct management of technical, technological, and information systems, monitoring consumer demands and ecological properties of products, and ensuring their safety.

Therefore, in order to train mid-level specialists with qualifications and skills that meet the modern requirements of the labor market, to harmonize national standards of vocational education with international educational classification systems and qualification requirements, the President of the Republic of Uzbekistan adopted the Decree “On additional measures to further improve the system of

vocational education" on September 6, 2019. The decree set out major tasks such as improving the system of vocational education based on advanced international experiences, integrating the stages of initial, secondary, and secondary-specialized vocational education, training skilled and competitive personnel for the labor market, and involving employers broadly in this process.

According to this decree, the main directions of activity of vocational education institutions were determined as follows:

In vocational schools, training of personnel is organized for graduates of the 9th grade of general education institutions in two-year groups based on integrated curricula of general and specialized subjects in the form of full-time education. Students are provided with a monthly stipend equal to the basic calculation rate and three meals a day from the State budget of the Republic of Uzbekistan. Vocational schools also have the right to either provide three meals a day or to pay the meal allowance to students in cash. Expenses for maintenance, functioning, strengthening of material-technical base, and training of personnel are covered by the State budget.

In colleges, training of personnel is carried out for persons who have completed at least level 3 of the International Standard Classification of Education (ISCED) and who, based on the principle of "Lifelong Learning," possess at least general secondary education. Depending on the complexity of professions and specialties, training is conducted for up to two years in full-time, evening, or part-time forms, on the basis of both state grants and tuition contracts. Expenses are covered by the relevant ministries and agencies through extra-budgetary funds, tuition fees, and other sources not prohibited by law.

In technical schools (technicums), training of personnel is organized for persons who have completed at least level 3 or 4 of ISCED and who have at least general secondary education, in groups formed based on the principle of "Lifelong Learning." Depending on the complexity of professions and specialties, training lasts no less than two years in full-time, evening, or part-time forms, on the basis of both state grants and tuition contracts.

The goal of vocational education is to train highly qualified and competitive personnel in accordance with national and international labor market requirements, including the standards of WorldSkills, to improve the quality of vocational training, and to prepare young people capable of applying innovative scientific achievements in practice.

WorldSkills International is a global non-profit organization that promotes working professions and improves professional training in line with international standards. Currently, 85 member countries participate in WorldSkills International, and Uzbekistan became its 83rd member in 2020.

Obtaining a profession according to WorldSkills International standards and receiving its international association certificate confirms the possession of high professional competencies and guarantees full confidence in employment with good wages. Therefore, Uzbekistan has also set the goal of introducing this mechanism of vocational training into its national system of professional education.

As a result of ongoing reforms in our society, significant changes are being implemented in the vocational education system.

In particular, according to the Decree of the President of the Republic of Uzbekistan PF-4947 of February 7, 2017, "On the Strategy of Actions on Further Development of the Republic of Uzbekistan," approved in the framework of "The Strategy of Actions on Five Priority Directions of Development of the Republic of Uzbekistan for 2017–2021," clause 1.2 emphasized the need to introduce modern mechanisms of public-private partnership aimed at enhancing mutually beneficial cooperation in implementing socio-political and socio-economic development tasks. This indicates the particular importance of this direction today.

Taking into account the prospects for the development of the economy, priority tasks, and modern technological trends, the urgent issue is to train qualified specialists for economic sectors and industries

and to prepare managerial personnel capable of effectively leading vocational education institutions.

In our opinion, solving this problem requires the targeted training of managerial staff capable of optimally managing educational institutions based on the integration of national and advanced international experiences in organizing the educational process. For this purpose, the Decree of the President of the Republic of Uzbekistan PF-5812 “On additional measures to further improve the system of vocational education” was adopted on September 6, 2019.

This document defined that starting from the 2020/2021 academic year in the Republic of Uzbekistan:

an initial vocational education system aimed at supporting 9th-grade graduates, based on ISCED level 3, would be introduced;

a secondary vocational education system training personnel, based on ISCED level 4, would be established;

a secondary-specialized vocational education system integrated with higher education, based on ISCED level 5, would be implemented;

and differentiated curricula would be introduced.

One of the main tasks facing the new system of professional education is to train highly qualified personnel in accordance with the modern needs of local and foreign labor markets.

Training qualified specialists capable of meeting the demands of high-tech production is considered one of the key tools to increase the investment attractiveness and competitiveness of regions. This dual education system is distinguished by its main advantage – the close cooperation between education and production in the training of specialists, as well as the guaranteed employment of graduates in well-paid jobs.

Dual education fully corresponds to the main principles of the competence-based approach in modern professional education standards (integration of theory and practice, complex approach to sciences during the learning process, and the focus on applying knowledge and skills in professional activity). Therefore, the introduction of dual education into the educational process of professional education is appropriate.

This complex, entitled “Introduction of Dual Education Principles into the System of Professional Education”, is designed to provide learners with an understanding of the concept, purpose, and tasks of dual education, the regulatory documents and their content important for implementing dual education, the concepts, principles, mechanisms of implementation, and its advantages, as well as the experiences of foreign countries (on the example of Germany). It also addresses the organizational and methodological support of introducing dual education elements into the professional education system.

Our state is carrying out noble objectives such as radically improving the quality of professional education, creating broader opportunities for students to deeply master their chosen specialties by taking into account their professional interests, and establishing conditions for achieving high-level professional preparedness.

For the realization of these tasks, profound social and economic changes, as well as newly emerging socio-economic challenges (such as improving the efficiency and competitiveness of professional education, adapting to technological changes, the growth of “intangible investments,” the organization of skilled labor, adult retraining, recognition of competencies, and the ability to use acquired skills) require increasing attention to the issue of professional readiness of the workforce.

The content and essence of organizing education, the creation of new directions depending on the specific features of the labor market and the location of the educational institution, ensuring integration of education with production, introducing models of public-private partnership into the professional education system, and modernizing the forms of education within professional institutions require the development and implementation of modern methods and techniques that meet current requirements.

It is necessary to establish broad mechanisms of cooperation between enterprises and educational institutions, so that future specialists may acquire the necessary skills directly in enterprises, while employees improve their qualifications, change professions if necessary, and meet the needs of business for qualified personnel.

The preparation of highly qualified workers and engineering personnel for the real economy is not the responsibility of an individual enterprise or the private sector alone, but a nationwide task, one of the main conditions for significantly increasing labor productivity, and one of the main objectives of development.

As emphasized in the documents of the Second UNESCO World Congress, the 21st century brings with it an economy and society fundamentally different from previous ones, and this requires technical and vocational education to ensure the future through the "quality training of skilled specialists."

The profound socio-cultural and economic changes in Uzbekistan also affect education, particularly vocational training. The development of an innovative labor market in Uzbekistan requires a revision of traditional approaches in the professional education system. The labor market needs highly qualified personnel capable of performing their tasks efficiently and responsibly, while also adapting to rapidly changing economic conditions. Complex professional criteria, as well as the requirements of life in all spheres, demand increasing the level of readiness of specialists.

The principle of lifelong learning is determined by combining two logics – the educational logic (developing the abilities of citizens) and the economic logic (rational use of human resources). The most important characteristic of the current stage of professional education development is, on the one hand, the integration processes reflecting the transformations within the professional education system, and on the other, the interactive processes between professional education and the production sector.

The active development of the economy requires specialists who not only theoretically, but also practically, understand their profession. Therefore, in recent years, interest in dual education has been growing.

In our country, choosing an educational system that develops competencies capable of applying theoretical knowledge in practice is one of the most appropriate current tendencies, since it allows training workers who meet the requirements of high-tech industries and increases the investment attractiveness and competitiveness of regions.

In world experience, Germany's dual education system, which has passed through all stages of testing, is now attracting the attention of the whole world.

In Germany, young people are trained in two directions. Most of them acquire professional preparation in agriculture, industrial enterprises, trade, other sectors, healthcare institutions, law firms, offices, and public service organizations. At the same time, during their studies, students attend vocational schools and acquire theoretical knowledge.

In some specialties, such as healthcare or social services, education is conducted only at one institution (a specialized educational institution or a special vocational school). This is called vocational school education. At present, the demand among young people for vocational schools that provide training for office employees is very high, and admission is carried out on a competitive basis.

In Germany, nearly three-quarters of young people complete vocational training within the "dual system" in conditions as close as possible to enterprise environments.

Advantages of the Dual Education System:

- The learning process is carried out directly in conjunction with practice. In this system, approximately 40% of education consists of theoretical knowledge, while about 60% is conducted in production enterprises or sectors connected with agriculture;

- In organizing the learning process, the demand and need of students for acquiring professional skills are fulfilled at a rapid pace;
- Since training is carried out directly alongside production, the mechanism of financing becomes easier;
- As enterprises are involved in the learning process, social partnership is established, which, in turn, creates strong political connections;
- From the point of view of the state structure of the national economy, as well as from private entrepreneurship, this is considered a financially beneficial method;
- At the upper levels of the national economy, employment of highly qualified personnel is ensured.

Disadvantages of the Dual Education System:

- Since students in educational institutions are trained in professional skills mainly within the boundaries of a certain specialty, they are not provided with broad opportunities to work in other areas of society and the economy;
- Because training is conducted in a single direction, their adaptability to a second close field is limited;
- Vocational education has its own specific, narrow character;
- Due to being trained strictly in one specialization, the initiative and creativity of the professional are somewhat restricted;
- Since the proposed educational institutions depend on the financial expenses of production enterprises, many trainees cannot benefit from skill improvement programs.

On the other hand, in schools, along with specialized subjects chosen for a profession, students study compulsory subjects on the basis of the curriculum, acquiring both theoretical and practical knowledge.

The cooperation of enterprises (factories) and schools creates opportunities to provide future junior specialists with workplaces. Normally, depending on the type and complexity of the profession, the study period is organized for 2–3.5 years.

After completing their studies, students take a graduation exam. At this examination, both school teachers and representatives of the enterprises participate.

At the same time, successful performance in the graduation exam helps graduates secure a place in the enterprise.

Training in Production Workshops:

The main goal of teaching students in enterprise workshops is to improve their professional skills, expand and deepen professional knowledge, introduce them to advanced production experience, prepare them for production practice, and thereby teach them to carry out independent professional activity after graduating from vocational colleges.

Teaching students in enterprise workshops is a decisive stage in training junior specialists. Here students get acquainted with the production environment, new equipment and technological devices, and modern technological processes.

Industrial training in enterprises is aimed at consolidating and improving important skills in performing complex tasks, acquiring the ability to plan technological processes, and becoming familiar with the assortment of finished products.

The content and features of students' professional activity in vocational schools are reflected in the following processes:

1. **Changes in professional tasks**: production shifts to tasks such as management, supervision, adjustment, re-adjustment, repair, programming, etc., which are increasingly complex;
2. **The pursuit of uniqueness in professions**: mastering higher levels of professional skill leads to the emergence of new professions;
3. **Changes in the structure of skill requirements**: the functions of production knowledge are constantly changing and being updated.

The task of vocational education is to develop graduates' ability to adapt quickly to changes in high-tech sectors, to technological processes (technologies, equipment, integration of sciences, etc.), and to production practice.

However, unfortunately, the analysis carried out by us shows that the formation of personnel potential for high-tech industries faces several negative factors arising from the lack of adequate interaction between the education system and high-tech enterprises:

1. The education system is not ready to switch to training specialists at the required level for an innovative economy;
2. The main curricula and the practical training programs of specialists do not correspond to the requirements set by enterprises;
3. There is no system in place to forecast the demand for highly qualified personnel from both enterprises and educational institutions;
4. The social and financial issues of employing young specialists in high-tech industries remain unresolved;
5. Lack of interest in technical specialties.

Thus, the main factor in ensuring the quality of vocational education is its compliance with the needs of the labor market and technological development.

For this reason, organizing students' industrial practice in a productive manner, with the aim of forming their professional competencies, is of particular importance, and it is advisable to involve vocational schools in cooperation with higher educational institutions and industries.

Based on the above, the main tasks of higher vocational education can be identified as follows:

- To ensure the integration of educational activity and industrial practice in order to develop graduates' ability to adapt quickly to changes in high-tech industries;
- To involve graduates in professional activities that require high social responsibility with regard to professional tasks carried out using modern high-tech equipment;
- To develop and implement innovative mechanisms of cooperation between vocational education institutions and employers within the framework of dual education;
- To create effective organizational-pedagogical conditions for the development of professional competencies and professional growth of the individual during the process of acquiring a specialty [4];

According to A.P. Belyavin, in line with the requirements of rapidly developing scientific and technical progress, it is advisable to select multi-profile (sectoral) and multi-level directions in training highly qualified specialists [7].

Currently, specialists with professional education are mainly required in two key professional directions: **technical workers** and **highly complex workers**.

In conclusion, the dual education system is an effective tool for improving the professional training of young specialists. However, its disadvantages include narrowing specialization and limiting creativity.

Therefore, it is necessary to harmonize the content of education with modern production requirements, regularly update curricula, and apply innovative approaches in developing professional skills. Moreover, strengthening social partnership between the state, educational institutions, and production enterprises will further enhance the effectiveness of the dual education system.

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