

Possibilities and Prospects of Implementing Dual Education in the System of Higher Education in Sustainable Economic Development

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Abstract: The reforms of higher education in Uzbekistan radically changed not only the content of the system, but also its structure. Along with this, the opportunities available today in the higher education system do not always meet the needs of graduates and the labor market. The content of dual higher education is studied, the possibilities of implementation and potential risks that prevent its successful implementation in the republic are considered.

1 INTRODUCTION

The decisive factors for the sustainable development of the economy of Uzbekistan in modern conditions are the innovative component of economic growth, measures to intensify the process of modernization and the introduction of modern technologies. To achieve this, the republic has a strong innovation base, a number of scientific and specialized institutes operate, there is scientific and personnel potential, and the level of education of the population is quite high. The most important direction in the development of innovation activity is strengthening human potential.

The acceleration of innovation processes occurring in society, globalization and digitalization requires fundamental adjustment changes in all spheres of human activity, including education. To this end, it is necessary to ensure the development of a holistic system of lifelong education that meets the requirements of an innovative economy. Because education is a contribution to the future, which, first of all, benefits society itself. It comes first, necessary to work successfully, create social wealth, competitive products and have a worthy place in society. Education is a necessary factor in raising a harmoniously developed generation, the most important engine of the innovation process, the basis


for the socio-economic development of the country, its intellectual and spiritual potential. The education of society is an integral part of national wealth and the innovation process. Society needs, first of all, modernly educated, moral, initiative people who can independently make responsible decisions in a situation of choice, predicting their possible consequences, who are capable of cooperation, and who have a developed sense of responsibility for their country.


2 MATERIALS AND METHODS


In the process of research, theoretical methods of induction, deduction, generalization and comparison were used. The necessary materials are investigated on the basis of the methods of typological analysis, the synthesis of statistical data.

3 RESULTS AND DISCUSSION

Higher education institutions play an important role in the creation, dissemination, transfer of knowledge and penetration of knowledge into manufacturing sectors. To enhance such penetration, dual/cooperative higher education will become an

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additional conceptual solution for the higher education system in the task of providing the labor market with highly qualified personnel capable of effectively and responsibly performing their functions and adapting to changing economic conditions. In Germany and other European countries, a cooperative training program is directly to other professions and sectors of the economy (Heinze, 2019). In the 20th century, the compulsory school accompanying apprenticeship was dominated by the training school, which was divided by profession and, from 1920, called a vocational school. Compulsory initiated by the employer. The student receives theoretical knowledge at the university and practical experience in the company. In Europe, this system has shown positive results for a hundred years. Beginning in the 12th century, professional organizations already regulated the training (apprenticeship) of their descendants.

By the 19th century, this form of training had spread vocational school was introduced in Germany in 1938.

In world practice, three main models of partnership in the field of higher education can be distinguished (Heinze, 2019). The first model is that the state plays a minor role (Great Britain, USA). This model of interaction between the educational community and business reflects trends in the decentralization of public administration. The state does not formally regulate vocational education; most decisions are made at the local level with broad participation of employers. The second model is that the state plans, implements and manages vocational education (France, Sweden). This model of interaction between the system of educational services and the labor market is characterized, first of all, by a high level of state regulation of the sphere of higher education. The third model - the state determines the general framework for the activities of private companies and organizations for the implementation of vocational education (Germany, the Netherlands, Denmark, Scotland). In particular, the German vocational education system is characterized by the concentration and integration of educational resources. Cooperation between employers and educational institutions plays a huge role in the development of a young specialist.

In France, the dual education system opens the way for students to all professional certificates registered in the national catalog of qualifications.

In Germany, both public and private universities offer dual education, and their number is increasing every year. This system offers more than a thousand programs. Companies that have invested financial

and time resources in training dual students are interested in their further employment after completion of their studies.

On an international scale, German industrial enterprises work most actively on innovative projects together with the country's universities. Thus, the share of companies collaborating with universities in Germany is more than 50%, in the UK - 30%, in France- only 25%.

According to the research project Mannheimer Innovationspanel, in 2007 there were more than 40,000 companies in Germany with scientific contacts with universities. And this figure is constantly growing. German companies and corporate foundations are investing more than 1.7 billion euros in research at universities. Almost half of the financial resources are spent on scientific research under contracts, more than 50% are spent on joint research projects.

IBA is Germany's largest state-recognized university for cooperative education and is part of the F+U group, which has been involved in higher education for more than 40 years (Gnezdova et al., 2021). The university was founded in 2006 and offers bachelor's programs on a dual training scheme (work + study) in twelve study centers throughout Germany. Today, over 3,500 students study at the university.

Dual programs are becoming increasingly popular in Germany among both students and employers. Students work in a company while studying for a bachelor's degree. This means that they gain valuable work experience during their studies and thus have excellent job opportunities in the competitive German job market.

IBA training programs are delivered in partnership with approved organizations, which employ students as trainees for the duration of their studies. IBA practices a "split week" training model based on a 40-hour work week: students spend approximately 20 hours studying per week and 16-20 hours on-the-job training at a partner company. By the time they graduate, IBA students have an ideal combination of academic and practical competence. IBA offers over 30 undergraduate programs to choose from;

Opportunity to study at one of 12 training centers located in major cities in Germany;

IBA has over 2,000 partner organizations where students can find employment.

In the Decree of the President of the Republic of Uzbekistan dated October 8, 2019 PP-5847 "On approval of the Concept for the development of the higher education system of the Republic of Uzbekistan until 2030," important tasks in the direction of systemic reform of higher education in

the Republic of Uzbekistan are defined: “implementation of advanced standards of higher education, in particular phased transition from education, whose curricula are aimed at obtaining theoretical knowledge, to an education system aimed at developing practical skills based on international experience, raising the content of higher education to a qualitatively new level, establishing a system for training highly qualified personnel capable of finding their place in the labor market, make a worthy contribution to the stable development of the social sphere and sectors of the economy” (Bosch, 2018).

Tashkent State Agrarian University participates in the implementation of the international project “Vocational education in Central Asia - Promoting systemic approaches in the food production sector” in cooperation with the Agency for International Development Cooperation and international educational work of Germany (Gesellschaft für internationale Zusammenarbeit - GIZ). This project provides support to partner countries (Republic of Uzbekistan, Republic of Kazakhstan, Kyrgyz Republic, Republic of Tajikistan) in reforming vocational education using the example of the food production sector. Main goal of the project - improving the regulatory and institutional foundations of dual/cooperative vocational higher education in Central Asia in the field of food production. Particular attention is paid to orientation towards employment



ACQUIN Akcreditierungs-, Zertifizierungs- und Qualitätszertifikat-Institut	
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Логистика в пищевом производстве (B.Sc.)	
(Фрагменты отчета)	
Общая информация	
1	Вузы Казакский национальный аграрный университет (КНАУ); Кыргызский государственный технический университет (КГТУ); Худяковский политехнический институт (КПИ); Ташкентский государственный аграрный университет (ТГАУ)
2	Название учебной программы Логистика в пищевом производстве
3	Уровень образования Бакалавриат (B.Sc.)
4	Начало внедрения Начиная с 2023 г.
5	Факультет/факультет
6	Срок обучения (семестры) 8
7	Количество кредитов ECTS 240
8	Количество учебных мест Будет определено
9	Количество студентов, обучающихся в настоящее время 0
10	Среднее количество выпускников в год Будет определено
11	Целевые группы Выпускники общего среднего и среднего профессионального образования
12	Требования к кандидатам • Формальный доступ для выпускников общего среднего и среднего профессионального образования, определенный соответствующим национальным законодательством • Доступ к материалам определяется совместно университетом и компаниями-партнерами в части формальных квалификаций, а также дополнительных навыков, опыта и личных качеств
13	Форма обучения Очная
14	Плата за обучение Будет определена
Дата отчета: 14 марта 2023 года	
¹ Авт. Assessment Report and Certification Recommendation Professional Education & Training in Central Asia (PECA). German Agency for International Cooperation (GIZ). Logistics in the Food Industry (B.Sc.)	

Figure 1: This training program is certified by the Institute for Accreditation, Certification and Quality Assurance (ACQUIN).

and the introduction of international quality standards at the level of higher professional education. The development of dual/cooperative training, that is, the combination of training in a real working environment with training at a university, is at the core of the activities of this project.

In addition, the project actively strives for regional harmonization and compatibility of national vocational education systems. The project is aimed at its subsequent implementation at the university on the basis of the department of “Agricultural Economics” of the cooperative undergraduate program “Logistics (for food production)”. This is a 4-year (8 semesters) program with a total credit volume of 240 ECTS, characterized by a constant alternation of theoretical study phases at the university and practical phases in the company and modern, practice-oriented teaching.

Dual/cooperative higher education is a training format that combines training at a higher educational institution with experience gained during internship in companies and organizations, that is, the theoretical part of education is carried out on the basis of an educational organization, the practical part is carried out at the student's workplace. The combination of higher education and work-based learning aims to provide both academic skills and professional knowledge. In this regard, academic theoretical knowledge acquired in the classroom is complemented by on-the-job experience. Thus, the effectiveness of the theory is tested in real life situations and vice versa. It is based on a structured partnership between a higher education institution and employers (commercial or non-profit organizations, enterprises or public and private services).

The procedure for organizing dual education is determined by the Cabinet of Ministers of the Republic of Uzbekistan (Articles 15 and 17 of the Law of the Republic of Uzbekistan "On Education" No. ZRU-637 dated September 23, 2020) (Saidov, 2002). It should be noted that in Uzbekistan, a Resolution of the Cabinet of Ministers of the Republic on dual vocational education was adopted ("On measures to organize dual education in the vocational education system" Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 163 dated March 29, 2021) (Peregudov and Saidov, 2001).

In dual/cooperative higher education, internship experience is an integral component of the academic program, curriculum and plan. The stages of training at a university and at the workplace are related in time and content. Students receive academic credits for practice, as well as support from the university at all stages of their studies, including during practice. The basic principle of dual/cooperative higher education is a continuous cycle between obtaining theoretical knowledge at a university and applying this knowledge in practice, in the workplace. This cycle allows for the creation of synergy between theory and practice.

Thus, dual/cooperative higher education provides academic qualifications at undergraduate level, while enabling students to gain extensive practical experience. This allows students to take on challenging tasks early in their professional development and helps them build a successful career. It does not replace existing academic programs in educational institutions, but is a complementary and necessary learning format for improving the higher education offering at the institutional, national and

international levels. If necessary, they can also be offered as part of master's and doctoral programs, under joint partnership and contractual conditions.

Dual cooperative higher education programs provide integrated training (by days, weeks, months) for students within the walls of a higher educational institution and on the basis of an enterprise/organization, in compliance with the requirements of educational standards of dual/cooperative higher education and professional standards. These programs are developed on the basis of systematic/regular coordination of training, organizational and contractual conditions of stakeholders, with a clear distribution of enterprise/organizational functions within the training program, including placement of students in workplaces during internships.

In organizational and legal terms, dual/cooperative higher education is a symbiosis of two independent (legal) units of the socio-economic system: an educational institution and an enterprise/organization. Such integration is a necessary component of personnel training in the context of globalization and digitalization of the economy (in accordance with the provisions of the strategy "Digital Uzbekistan - 2030", No. UP-6079 dated October 5, 2020) (Saidov and Saidova, 2020) and an important contribution to ensuring the professional competence of the workforce. Availability of qualifications in accordance with the requirements of the labor market and international standards, a guaranteed level of providing graduates with jobs are important factors in employment and reducing unemployment in the country, and the involvement of more qualified personnel in production activities improves the economic performance of the enterprise/organization.

The gradual introduction of dual/cooperative higher education in Uzbekistan, on the one hand, will help raise to a qualitatively new level the process of training independently thinking highly qualified personnel with modern knowledge and high personal qualities, the modernization of higher education, the development of the social sphere and economic sectors, and on the other hand - strengthen the role and participation of enterprises and organizations in the educational process and improve the professional and communication skills of graduates (Table 1, 2, 3, 4).

Table 1: SWOT analysis of dual/cooperative higher education in Uzbekistan- Strengths.

Strengths
<ul style="list-style-type: none"> • Provides academic qualifications at the undergraduate level, enables students to gain extensive practical experience and apply scientific knowledge in practice; • A high level of academic and administrative support; • Pedagogical and methodological support for students at the stages of study at a higher educational institution and in the workplace • Professionally oriented training, combining classroom study and on- the-job practice; • Tuition fees are usually paid by the partner company; • Flexible response of the curriculum and academic qualifications to the needs of the labor market for highly qualified specialists with appropriate professional skills and abilities; • Strengthening the educational infrastructure of the university of dual/cooperative higher education through the use of the infrastructure of a partner enterprise; • Close connection of the educational process at the university with practice at enterprises/organizations; • Faculty development through exposure to new trends, technologies and developments, as well as potential collaboration in training and research; • Emergence of new models of financing.

Table 2: SWOT analysis of dual/cooperative higher education in Uzbekistan- Threats.

Threats
<ul style="list-style-type: none"> • Cooperative (joint) training of 1 or 2 specialists with higher education, once every 3 or 5 years; • For some enterprises/organizations, long-term investment of financial resources is impractical due to a possible oversaturation of specialists in a certain profile/specialty or potential workplace in the enterprise, the possibility of obtaining a ready-made workforce of specialists from outside (i.e., there is an excess of specialists with higher education in the labor market, who are looking for a suitable and well-paid job in their specialty); • For an enterprise/organization, the financial costs that will be spent on training (payment for tuition at a higher educational institution) of a future specialist employee may seem unjustified; • There is a possibility that enterprises will refuse to cooperate in dual/cooperative higher education and long-term investment; • It will be a challenge to attract a sufficient number of enterprises willing and able to invest in dual/cooperative higher education and the individual student in terms of financial support, provision of human resources (mentoring) and related jobs during co-operative education.

Table 3: SWOT analysis of dual/cooperative higher education in Uzbekistan- Weaknesses.

Weaknesses
<ul style="list-style-type: none"> • Insecure employment of graduates; • Uncoordinated policies of enterprises/organizations and higher education institutions; • Structural changes in a higher educational institution (organization of a department of dual/cooperative higher education, appointment of responsible coordinators/mentors, etc.); • Organization of the educational process and redistribution of the teaching load; • The complex profile of partner companies in dual/cooperative higher education cannot always be clearly reflected in the curriculum of dual/cooperative higher education, which can cause difficulties in formulating goals and obtaining expected learning outcomes at a higher educational institution; • Creating overly specialized programs to meet specific employer requirements; • Developing educational programs that are too general for the needs involved; • Requires a relatively high academic load on the part of the student to study and master the academic load and for practice in enterprises and/or other organizations; • Curricula are too dense; • Organizing payment (partial or full) of contracts and scholarships by interested parties for students studying in dual/cooperative higher education programs.

Table 4: SWOT analysis of dual/cooperative higher education. in Uzbekistan- Opportunities.

Opportunities
<ul style="list-style-type: none"> • Promotes the modernization of higher education; • The process of training independently thinking, highly qualified personnel with modern knowledge and high personal qualities will rise to a qualitatively new level; • Expands the prospects and scope of employment opportunities for graduates; • Allows higher educational institutions to increase their competitiveness and attractiveness in the educational services market; • Provides universities with the opportunity to enhance the practical relevance of the higher education they offer; • Provides the labor market with qualified personnel of the required/required qualifications; • Reduces unemployment in the country; • Improves the economic performance of an enterprise or organization; • Promotes strengthening connections in the "knowledge triangle" - an integrated approach to policy in the field of science, education and

innovation, with an emphasis on the role of universities as a subject of knowledge production;

- Expands opportunities for applied research and technology transfer between universities and industry, thereby promoting innovation in the economy and in the academic environment;
- Promotes the development of the social sphere and economic sectors;
- Training competitive specialists in their field with communicative and professional competencies that meet the needs of society and the national economy of Uzbekistan

4 CONCLUSIONS

Implementation dual/cooperative higher education requires a thorough assessment from the perspective of all parties interested in dual/cooperative higher education and their minimization to ensure a viable approach, including when developing the provisions of the legislative framework, strategic and management issues of dual/cooperative higher education within the framework of this concept and formulating further actions for its sustainable implementation (pilot project, road map, recommendations).

The objectives of the organization of dual/cooperative higher education are:

Development of socio-economic mechanisms for supporting dual/cooperative higher education and models of cooperation between enterprises/organizations and higher educational institutions;

Ensuring the relationship between educational processes of higher educational institutions and production conditions at the enterprise/organization;

Organization of the practical part of training at enterprises/organizations and the theoretical part in a higher educational institution, with the involvement of students in work activities;

Formation of competencies through the implementation of educational programs in combination with work activity;

Systematic improvement of educational programs taking into account the requirements of employers and their technological innovations;

Further expansion of the participation of enterprises/organizations in the certification of graduates.

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