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Realization of dual education as a technology for training bachelor of professional training in modern conditions of the higher education

The article deals with the essence of dual training, domestic and foreign experience of its formation and development; clarified the concept of dual training in a broad and narrow sense; the distinctive characteristics of traditional and dual training systems are given; the technology of training specialists in vocational training in the current conditions of the university; the bridging of the gap between education and production; the effectiveness of the dual training and the form of preparation bachelors of vocational training; the practice of its implementation by higher education institutions; the pooling interests of business, the future specialist and the state. This article was analysed on the basis of scientific and pedagogical literature devoted to the experience of the dual vocational training system in Germany, where he was born of dual system of education, we can conclude that the main underlying factor of the German dual forms of vocational education were defined by the Institute of social partnership with a clear definition of the interests and responsibilities as an educational institution and the industrial enterprise. The problems of the Kazakhstan system of professional education, where there are shortcomings of modern equipment, materials and technologies in educational institutions, low prestige of working specialties, insufficient efficiency of career guidance.

Keywords: dual education, vocational training, dual training of bachelors, education in higher education, modern dual training system, experience of dual education.

The purpose of this article is to comprehend and substantiate the conditions of elements application of the dual education system and its implementation as a technology of the bachelors vocational training in modern conditions of Higher education. Methods used in the work, comparative analysis of the dual training practice in the system of vocational education in Germany and Kazakhstan in order to identify existing problems and determine the optimal organizational, legal and didactic conditions.

Germany became the first country to use the principles of the dual system of education. The implementation of the educational process proceeds by synthesis of production activities as an intern (student) and studying the theoretical part in an educational institution. In addition, step-by-step complication of educational and practical tasks occurs. It is known that Germany's professional education, although decentralized, is however built according to the certain standard.

In Germany, since 1981, there are such legislative acts as «On the promotion of vocational education» (describes the regulation tools in the planning and statistical data of vocational education), «The Law on the Protection of Youth Labor» (justifies the protection measures for the students), «An apprenticeship agreement» [1].

Higher education in Germany differs significantly from the Kazakh system. One of the basic principles of organizing a German higher school is academic freedom, which has many different consequences and manifestations. Not only universities themselves are autonomous entities, but every member of the university community has freedom and independence. In education in Germany there is no strict order. The students of the German university are left to their own devices, which gives freedom of choice and action, but requires self-discipline and responsibility.

Education in Germany is such that a student at a German university does not need to attend classes with his classmates. He must independently choose a certain specialty and a training programme, organize a curriculum and personal time in accordance with the requirements that are imposed on students on this program. The student can go to seminars and lectures at random, choose time for practice and internships, and find free time for gig. To deep into the theory at the university, and with practice to get acquainted at the enterprise - dual training becomes more and more popular among graduates of universities. For the economy this is also a positive indicator - over the past ten years the number of students who are ready to study directly at work has doubled, the unemployment rate in Germany has been declining, while in other European countries it has reached a critical point.

Owing to the so-called dual education system, the essence of which is that graduates receive a higher education diploma supported by longterm work experience.

On the basis of scientific and pedagogical literature devoted to the experience of the dual system of vocational training in Germany, where the dual education system was born (G.A. Fedotov, VA Teshev, As Rodikov, EA Korchagina, An Kirilovsky et al.), it can be concluded that the Institute of social partnership with a clear determination of interests and responsibilities as an educational institution and a specific industrial enterprise was defined as the main strategic factor of the German dual form of vocational education.

At the same time, the leading role is played by the employer. As the main indicators characterizing the dual form, are qualitatively peculiar periods of its formation. The presented organizational and pedagogical model of vocational training in the FRG includes industrial and craft vocational training, according to which the didactic approaches to the construction of curricula, programs, to the development of teaching methods that meet the standards of the countries of the European commonwealth are formulated. It should be noted that the dual system of Germany provides for early diagnosis of the professional interests of students and their propensity [2].

Theoretical education at the University is a lot and at the same time not enough. Though, not every applicant wants to study, not everyone can financially support themselves during the studentship. Therefore, many companies, especially those well-known world giants or mid-level, offer a framework for dual education system (duales Studium): paid internship at the company and theory at the University.

Among the «dual» graduates, there are many successful people: Bernhard Schreyer, CEO of Heidelberger Druckmaschinen AG; Hans-Jürgen Budenbender, member of the board of Sparkassen-Versicherung Sachsen; Andreas Bernhardt, former CEO of Alcatel SEL. All three are an excellent example of that the new system is working on.

The dual system of vocational training, which has received worldwide recognition as a form of training, is based on the maximum attraction of conditions of real production for mastering the profession by students of different levels of professional training. The dual system makes it possible to combine theoretical and practical training in the educational process, and the study of theory in an institution is supplemented by practical training at a production enterprise, the future employment place.

Along with the concept of the «dual training system», the concepts «dual training model», «dual training technology», referring to the vocational training system and, in fact, defined by the meaning of the word duality as a duality, ambiguity, are used.

If dual training is defined as a form of training that involves the combination of training in an educational institution with periods of production activity, the dual training model is a system of methods, organizational forms, means of their implementation, as well as the techniques of pedagogical technology in conditions of professional training on the basis of interaction between the educational institution and enterprise.

In research of B. T. Likhachev under pedagogical technology determined the set of psychological and pedagogical installations with a certain social kit and arrangement of forms, methods, ways and methods of training, and also educational means is defined; which in turn define tools of educational process.

Under the teaching technology, according to V.M. Monakhov, can be understood as a well-thought-out model for designing, organizing and conducting the educational process with joint pedagogical activity with unconditional provision of comfortable conditions for both students and the teacher.

Technology answers the question — how best to achieve the goals of training, management of this process. Some ways to improve the quality of practical training of specialists in professional activities abroad are considered in various studies [3].

Dual training is a type of training in which the theoretical part of the training is conducted on the basis of an educational organization, and practical — in the workplace. This system of training future specialists is aimed at improving the model for the training of professional personnel, taking into account economic needs in specialists to increase the investment interest of the regions.

The main advantages of dual training are:

- First, high level of employment of graduates;
- Secondly, the achievement of high motivation for obtaining knowledge, the psychology of the future worker is formed.

In Kazakhstan, dual training is mentioned in the Law of the Republic of Kazakhstan «On Education» in edition No. 398-V of 13.11.15: «dual training - a form of training, combining training in the organization of education with mandatory periods of training and practice in the enterprise with the provision of jobs and compensation payments by students with equal responsibility of the enterprise, educational institution and student» [4].

In recent years, the problem of employment has been paying close attention. A legal basis has been created for the employment of graduates in the labor market of Kazakhstan; responsible positions in 2002 by the order of the Ministry of Labor and Social Protection of the population of the Republic of Kazakhstan are included in the Qualification Handbook of managers, specialists and other employees.

For the adoption of conceptual solutions for the employment of graduates of higher education institutions, who are trained in state order, the Ministry held a number of meetings, round tables with representatives of the Ministry of Labor and Social Protection of Population, the Confederation of Employers of the Republic of Kazakhstan, the Eurasian Industrial Association. Information and Analytical Center «Education and Career» of universities, as well as other activities [5].

The issues of training modern specialists in the system of dual education, various aspects of professional educational services of the dual system of training, networking are widely discussed. In this area there are interesting works of Kazakh and foreign scientists: the experience of modernization of education, the prerequisites for its orientation toward the needs of real production in the conditions of acute shortage of qualified personnel in many sectors of the national economy, the differences between dual and traditional systems of higher education.

In the context of implementing the policy of import substitution and as a result of active innovative industrialization of domestic production, the urgency of integrating the educational process with profile organizations has increased many-fold. Business needs qualified personnel, who along with theoretical training have practical skills in working with modern equipment, have modern technologies. In fact, this is called dual training, the result of which is the training of future cadres. Dual training in the classical sense is a form of training that combines theoretical training in an educational institution and practical training at a production enterprise. The basic principle of the dual system of education is the equal social responsibility of educational organizations and enterprises for the quality of personnel training. This system serves the interests of all parties involved in it - profile enterprises (business partners), students and the government, since for the enterprise it is a real opportunity to prepare qualified personnel for themselves, while reducing the costs of finding and selecting of employees, their re-training and professional adaptation; for students - adaptation to real work (identification with production) and a high probability of successful employment after graduation.

Kazakhstan has identified sectors that need personnel (agriculture, transport, metallurgy and mechanical engineering, oil and gas and chemical production), and educational institutions where they can prepare the staff. Nowadays Kazakhstan has moved quite far along the path of the plan of implementation. The country has established an organization that conducts and coordinates work in this area (Methodology of dual education system management), developed model curricula and educational programs in the field, the novelty of which is that more than 40-50 percent of the training time allocated to work practice [6].

In Kazakhstan, there are 24 experimental sites on the principle of the formation of a diploma in the format of «theory, enshrined in practice» on the basis of colleges in all 16 regions. In order to implement such professional training, an agreement was signed between the Ministry of Education and Science of the Republic of Kazakhstan and the German Society for International Cooperation (GIZ) on the implementation of the pilot project «Introduction of dual training in Kazakhstan» of April 1, 2013. Within the framework of the Agreement, the development and implementation of the principles of dual training on the basis of German educational standards, taking into account the needs of the economy of the RK, expert support for the activities of the National Council for the training of professional and technical personnel are envisaged.

Taking into account the specifics of each region, such German trades were offered: «Industrial mechanic», «Industrial electrician», «Electronic engineer of automated machinery», «Farmer», «Mechatronics of agricultural machines» [7].

With regard to the introduction of dual training, the system of higher education lags somewhat behind the secondary vocational education. There is no single state program and pilot projects for higher educational institutions, and basically dual training in higher education institutions is realized for the sake of own initiatives.

In the triangle «enterprise — university — learner» many problems are related to the activities of enterprises. These should include the following:

1. Insufficient interest of employers in investing such a form of training. To increase the interest of enterprises in joint training of personnel, more than a million dollars have been allocated from the state budget in Kazakhstan. The money must go to update the qualification requirements that companies impose on their employees. In addition, the Ministry of Education of Kazakhstan proposed to reduce the taxable income of

enterprises operating in the dual system by the amount of expenses for training, retraining and raising the level of skills of staff with a coefficient of 1.5.

2. Insufficiently high level of equipping local production with modern scientific technologies; As a result, students often master only working specialties, performing weeding, plant transplanting and similar work;

3. Insufficient interest of employers in transferring «industrial secrets» to potential competitors;

4. For enterprises of forestry and agriculture - seasonal nature of work, dependence on weather conditions, the need for transport [8].

In the system in the organization of the activity of universities on the introduction of dual training there is a certain specificity.

The Latin expression says: *usus magister est* optimum or practice is the best teacher. Traditional higher education often pays too much time on the theoretical component, leaving the practical part of the training in the background. However, the implementation of dual training in the preparation of bachelors in a university makes it possible to create structural units that provide practical training for trainees on the base of an organization that must carry out activities on the profile of the educational program. The purpose of creating the basic departments is the practical training of students in the relevant educational program by implementing the educational organization part of the educational program of the relevant profile.

The activity of the basic departments should be aimed at the implementation of the following goals:

– organization and carrying out in laboratories of the enterprise or the organization of training sessions with students of full-time departments according to curricula of the educational organizations;

– preparation and implementation of author's elective courses on the subject of enterprises and organizations for the purpose of professional orientation of students and their further employment at the request of enterprises and organizations;

– organization and ensuring the passage of industrial and pre-diploma practices of full-time students;

– management of diploma projects;

– involvement of students of educational organizations to research and design works of enterprises and organizations.

In order to form a vocational education oriented to real production, it is necessary to carry out an inventory of educational programs for their compliance with the requirements of employers, to develop pilot programs for resourcing that ensure the implementation of dual education.

A new system of practice-oriented vocational education should receive a number of modern characteristics that are methodologically related to market approaches to the functioning of the Kazakh economy. The most important of these are: the public-government model of governance; the formation of a modern model of qualifications; modernization of educational standards and programs in accordance with the new qualification system; changing the mechanisms for implementing educational programs, taking into account the flexibility and diversity of educational trajectories, the search for the most effective combinations of educational resources in both the state and non-state sector of vocational education and training, involving various social groups in the responsibility of educational organizations of the adult population, and the target order of both public and private educational organizations; new approaches to the planning and financing of educational programs; new construction of the educational network; transparent requirements for employees of vocational education organizations; the formation of an external evaluation of the results of education and training; modernization of statistics in vocational education; a new model of management motivation and personnel of educational organizations on the final results.

An important innovation is the certification of graduates, that is, future specialists. Previously, the qualification of a young graduate was confirmed by a commission on the final certification of educational organizations. Today, the Law of the RK «On Education», the procedure for assigning qualifications to graduates is separated from the training process. Since 2012, in accordance with the order of the Head of State in Kazakhstan, work has begun to transfer this function to a competitive environment, employers' associations. To date, there are three certification centers - in the tourism, mining and oil and gas industry.

Among the new measures to strengthen the links between the university and a third-party organization is the introduction of practice-oriented higher education programs - applied bachelor's degree. Graduates of the applied bachelor degree trained on the dual system will be able to work in the conditions of introduction of modern production technologies, when the requirements to the qualification of the worker increase.

The Ministry of education and science approved the rules for the organization of dual training in organizations of technical and vocational education. In addition, during the course of industrial training, students

may be enrolled in working experience. The idea of dual training acquires its real practical contours. Interaction of education with business, subjects of labor markets is one of the components of the modern model, which is in demand by society.

The Ministry of Education and Science pays special attention to the level of education of engineering and technical specialists, because they are primarily necessary for the innovative development of our country's economy.

«In the context of global competition and the need for economic diversification, the research team of the project identified six priorities that should be considered if Kazakhstan plans to achieve the President's vision for 2050. These priorities are the most important elements in the development of human capital. The first three priorities are aimed at increasing the productivity of the education system. The last three priorities highlight the actions of the state related to the overall capacity of the system, the financing, leadership and management necessary to improve efficiency» [9].

Cooperation between the university and enterprises has long been, as they say, in the trend of the national educational policy. According to experts, now companies are more interested than ever in the fact that specialists come to them already prepared from universities. «Recently, a great deal of interest in qualified personnel has arisen at enterprises. If in the past the university went to the enterprise, now, on the contrary, the enterprise goes to universities. Manufacturing companies that come to the Kazakhstan market, building a strategy for personnel development, initially pay much attention to the «work with universities» block. Their task is to build interaction with educational institutions so that, on the one hand, they can introduce their qualification requirements at the training stage, and on the other hand, create a flow of these personnel to their enterprises».

The state is now making significant efforts to reorient the education system to the needs of economic development. All of the above priorities are aimed at training those professionals who really need the industrial and social sector. This is a pledge and demand for graduates, and the dynamic development of production.

Knowledge and skills of specialists, their willingness to work in accordance with world quality standards determine the viability of entire industries, their ability to resist competitors from other countries. The need for the development of human resources is equally felt in many industrial sectors and sectors.

The most acute problems of the Kazakh vocational education system remain the lack of modern equipment, materials and technologies in educational institutions, low prestige of working specialties, and insufficiently effective career guidance. An important practical step towards its transformation and improvement in recent years has been the organization of competitions of professional skills among young professionals. One of such competitions is WorldSkills International.

WorldSkills International (WSI) is an international non-profit association whose goal is to improve the status and standards of vocational training and qualifications around the world, to popularize working professions through international competitions around the world. It was founded in 1953. To date, 77 countries are participating in the organization's activities, including Kazakhstan.

WSI's mission calls for drawing attention to working professions and creating conditions for the development of high professional standards. Its main activity is the organization and conduct of professional competitions of various levels for young people under the age of 22 years. Once every two years, the World Championship of WorldSkills working professions is held, which is also called the «Olympiad for Workers». Currently, this is the largest competition of this kind.

The mission of WorldSkills Kazakhstan is to form mechanisms for staffing high-tech industries for the technical professions on the basis of international standards, including mechanisms for vocational guidance, training, the formation of expert communities and increasing labor productivity.

Basic goals:

1. Identification of the best world practices of professional training for young people and their introduction into the system of technical and vocational education of the Republic of Kazakhstan;
2. Stimulation of innovative processes and introduction of new teaching technologies in the system of TVET of Kazakhstan;
3. Development of Kazakhstan's expert community through regular methodological assistance for improving curricula;
4. Raising the status of a man of labor and the prestige of technical professions.

Thus, the dual system of training is an innovative type of organization of targeted vocational training, which implies coherence between the educational and production spheres in training specialists.

The idea of dual learning acquires its real practical contours. The interaction of education with business, the subjects of labor markets is one of the components of the modern model, which is in demand by society.

The implementation of dual training will promote the development of practice-oriented approaches to the training of modern specialists, including for the agro-industrial complex of the region and the country as a whole.

The «dual» training system in Kazakhstan will ensure the successful entry of young people into the labor market and the qualitative growth of their professional competencies.

Effective development of dual training, and, ultimately, professional training of personnel is possible only with joint efforts from enterprises, educational organizations, trainees. Therefore, it is necessary to have a clear, systematic, legislatively justified coordination of interaction of all participants in the process.

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Ж.Г. Жакиянова, М.Е. Мусатаева

Жоо қазіргі жағдайда кәсіптік оқыту мамандарын даярлау технологиясы ретінде дуалды оқытуды жүзеге асыру

Мақалада отандық және шетелдік тәжірибені қалыптастыру және дамыту; дуалды оқыту тұжырымдамасын кең және тар мағынада түсіндіруді қарастыру, дәстүрлі және дуалды оқыту жүйелерінің айрықша сипаттамаларын келтіру; жоо қазіргі жағдайында кәсіптік оқыту мамандарын даярлау технологиясын; білім мен өндіріс арасындағы айырмашылықты жою, дуалды оқыту мен кәсіби оқыту бакалаврларын даярлау тиімділігі; жоғары оқу орындарымен оны жүзеге асыру практикасы; бизнес мүдделерін біріктіру; бизнестің, болашақ маманның және мемлекеттің мүдделерін біріктіретін дуалды оқытудың мәні қарастырылды. Авторлар ғылыми және оқу әдебиеті негізінде талданып, Германиядағы кәсіби білім берудің дуалды жүйесінің тәжірибесіне арналды және дуалды білім беру жүйесі пайда болды. Бұдан онда білім берудің дуалды жүйесі туындап, неміс кәсіптік білім берудің дуалды формасының негізгі жүйе қалыптастырушы факторы білім беру мекемесінің де, белгілі бір өнеркәсіптік кәсіпорынның да мүдделері мен міндеттерін нақты анықтайтын әлеуметтік әріптестік институты болды деп қорытынды жасауға болады. Қазақстандағы кәсіптік білім беру жүйесіндегі проблемалар болып оқу орындарындағы қазіргі кездегі заманауи жабдықтар, материалдар мен технологиялардың жетіспеушілігі, жұмыс мамандықтары беделінің төмендігі, кәсіптік бағдар беру жұмысының жеткіліксіздігі зерттелді.

Кілт сөздер: дуалды білім беру, кәсіптік оқыту, бакалаврларды дуалды даярлау, жоо білім беру, қазіргі заманауи дуалды оқыту жүйесі, дуалды білім беру тәжірибесі.

Ж.Г. Жакиянова, М.Е. Мусатаева

Реализация дуального образования как технология подготовки бакалавров профессионального обучения в современных условиях вуза

В статье рассмотрены сущность дуального обучения, отечественный и зарубежный опыт его становления и развития. Уточнено понятие дуального обучения в широком и узком смыслах. Приведены отличительные характеристики традиционной и дуальной систем обучения, технология подготовки специалистов профессионального обучения в современных условиях вуза. Показаны ликвидация разрыва между образованием и производством, эффективность дуального обучения и формы подготовки бакалавров профессионального обучения, практика его внедрения учреждениями высшего образования, объединение интересов бизнеса, будущего специалиста и государства. Статья была проанализирована на основе научно-педагогической литературы, посвященной опыту дуальной системы профессиональной подготовки в Германии, где и зародилась дуальная система образования. Сделан вывод о том, что основным системообразующим фактором немецкой дуальной формы профессионального образования был определен институт социального партнерства, с четким различием интересов и обязанностей как образовательного учреждения, так и конкретного промышленного предприятия. Авторами изучены проблемы казахстанской системы профессионального образования, где имеются недостатки современного оборудования, материалов и технологий в учебных заведениях, наблюдаются низкий престиж рабочих специальностей, недостаточная эффективность профориентационной работы.

Ключевые слова: дуальное образование, профессиональное обучение, дуальная подготовка бакалавров, образование в вузе, современная система дуального обучения, опыт дуального образования.

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