The Conceptual Model of Future Teachers Training to Dual Education in Vet (Vocational Education & Training)

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In the article the author presents the theoretical understanding of research problems of training of the future teachers-organizers of the dual training system in vocational education & training (VET) in the conditions of the credit technology of education. The author's vision of way to solve the problem is discussed in the description of the conceptual model and its structure - functional components.

Keywords: dual training, the credit system of education, vocational training, future teachers, vocational education & training (VET), the conceptual model.

INTRODUCTION

In recent years, dual system has become flexible, effective mechanism for training teachers-organizers of the dual training (DT) in new conditions of managing and training of staff of the new formation in Kazakhstan. Today the elements of the dual training are introduced in many institutions of vocational education & training (IVET) in training of specialists for agricultural, engineering, transport, oil and gas, steel, metallurgical, chemical and mining industries [1,2,3]. At the same time we should note a number of contradictions, concerning traditional system of future teachers training to the dual training: in reality the country’s higher education institutions are
not ready now to reorient the new goals of training of specialists which requires serious changes in the system of vocational education; weak connection between theoretical courses and practical experience during the teaching process in HEI, as opposed to the high requirements for theoretical knowledge and practical skills in the modern workplace; there are difficulties in doing an internship in the workplace, companies, etc., which entails a lack of demand graduates of HEI in the educational market and production without practical knowledge.

Judge from the essence of dual system of teacher-organizers training of the dual training in vocational education and training system we emphasize that it strengthens the practical orientation of training of specialists through integration into the educational process of high-volume manufacturing practice (sometimes with partial payment of student labor), which significantly increases the financial independence and professional mobility of graduates. At the same time, the introduction of the dual system involves a fundamental change in the organization of process of training of the future teachers of the dual training which is based on rational combination of theoretical training in HEI and expanded manufacturing practice in enterprises and organizations (Yeslyamova A. [4], Zholdsasbekov S.A. [5,6,7], Zemlyanskiy V.V., Kanakin Y.V. [8], Mardenov M.P. [9], Polyanin V.A. [10,11], Romanov S.P. [12], Samoldina L.N. [13], Fedotova G.A. [14,15] and others).

Development of a conceptual model (Figure 1) allows us to more clearly present the process of preparation of future teachers - organizers of the dual training system in technical and vocational education in accordance with the requirements of the high-tech industry to the modern professional. The conceptual model allows different approach to the process of training of teacher of DT in VET system.

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We see the main task of creating a conceptual model of training future teachers to the dual training in system in using of structural components in the unity and integrity, a variety of methods in order to ensure the dynamism and flexibility of the system, to make it capable of responding quickly and to adapt to the constantly changing conditions.
TECHNIQUES

The development of a conceptual model (Figure 1) allows us to present the training process of future teachers-organizers of the dual training in vocational education and training much clearly in accordance with the requirements of the high-tech industry to the modern professional. Conceptual model allows different approach to the process of teachers training of DT in VET.

We see the main task of creating a conceptual model of training future teachers to the dual training in VET system in using of structural components in the unity and integrity, a variety of methods in order to ensure the dynamism and flexibility of the system, to make it capable of responding quickly and to adapt to the constantly changing conditions.

Figure 1. The conceptual model of future teachers training to dual education in VET system
METHOD

Under the model of future teachers training to DT in VET system is understood a holistic pedagogical process in which a set of approaches to training focused on the acquisition of certain KAS (knowledge-ability-skill) by students, as well as on the development of the individual student as a future member of professional activity. Our proposed model of modern training of future teachers to the dual training as an important resource of HR industry in VET system proceeds from satisfying the needs of Kazakhstan Republic in skilled workers and teaching staff, who are able to provide long-term development of the country and the state order for training specialists in higher education for technical and vocational education system. The model is determined by an innovative labor market and the perceived need to review traditional approaches in the system of vocational training teachers in the dual format. In the educational process is student gets a lot of descriptive information, and this requires him to recreate the images every time, without which it is impossible to understand the course material and understand it, it recreates the student's imagination from the start of training included in purposeful activity and contributes to mental [15].

As fundamental factor of the functioning of the dual training system are the needs of production, society and the individual, we believe that the dual training allows to the future competitive specialist to disclose the personal potential, to develop skills, and eventually be a full member of society. Our model is built on the integration of the two spheres. They are production and education, which, in our view, creates optimum conditions for mutual conversion of industrial and educational activities. It is a dynamic, flexible, mobile, variability pedagogical system that allows to solve the basic problem of vocational teacher education - the gap between theory (university) and practice (production).

The created dual system of future specialists training at the university which are represented in the model, focused on the real needs of the labor market, individual companies, implementation of social and career expectations of students. In our view, it helps to implement the interaction of universities, vocational training institutions and enterprises on a qualitatively new basis, and thereby improve the quality of teachers-organizers training of dual training in VET system.

MAIN PART

According to our model, we consider that the transformation of students education to the dual training system is efficiently to carry out from 3d course of their education, because by that time they have fully understood the cycle of general education disciplines, it is acquired a basic knowledge by occupation and created fertile ground for studying majors. The basic professional knowledge, skills and abilities are formed on this basis and in this situation a dual system for students can become "an educational ground" on which the quality of the knowledge is checked adequately and fixed theoretical material, formed practical skills. This will strengthen the practical orientation of training of future teachers-organizers of the dual training absolutely by integrating the relationship of theoretical training with a large volume production - practical activities into the educational process and also by their reasonable
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alternation during the learning process, which increases significantly the occupational mobility of graduates.

The objective of the educational process by such model is to improve the process of future teachers training to the dual education in VET system which is focused on mastering scientific knowledge, abilities, skills and the necessary individual and professional qualities in production-and-training environment.

The objectives of model are:
- the definition of conceptual and theoretical foundations of the process of building a university training of the future teachers to the dual training in VET system;
- the development of a holistic and integrative students thinking in the dual training;
- the encouraging of students to professional development;
- the formation of professional competence and the mobility of the individual;
- the experimental verification of theoretical assumptions of a system construction of future teachers preparation in HEI to the dual training.

The structure of the vocational training of teacher of dual training includes the following components:

- **integral motivation** (to plan goals of educational and production activity of the future teacher of DT in HEI and industry systematically in order to achieve the goal; real goals and warranty of their achievement; the realization of students' interest to their future professional activity and professionally significant requirements; the presence of motives and subjective characteristics of future teacher of DT in VET system which are important for profiling, development of aspirations to apply modern methods, techniques and tools in DT and others.);

- **personal component** is supposed the formation of the future teacher-organizer of dual training as a person, as a subject of professional activity; the formation of professional interests, attitudes, beliefs, and their code of conduct that are required for the organization of production-and-training activity of students in vocational education & training; development of internal personal resources, competencies and skills, ability to manage their condition in real teaching situations; emotional and value education of the future teacher of DT to taking into account the psychological peculiarities, the formation of emotionally-valuable relation to the process of professional activity in VET system with a view to a positive emotional impact on the student and future organizer of DT, etc; raise the sense of responsibility for the achievement of result of production-and-training and educational activities, self-control; the desire for the ability to control the actions that make up the performance of duties, to defend the personal positions;

- **scientific-informative component** includes the leading trends of vocational education, students possession of complex of scientific and professional knowledge, ability and skills of DT in VET system, allowing to carry out the work in a certain field of activity; the content of the profession and its features and conditions of professional activity in DT system; the structure of the pedagogical, educational and production activities in DT in VET system; informative characteristic of subjects, etc.

The basis of the content of the curriculum of pedagogical specialties, rebuilt in view of the dual training system to VET is based on two factors:

1) the content of State standard of the Republic of Kazakhstan as per specialties, which establishes the level of mandatory training and basic requirements for the quality of training for each specialty;

2) the accounting of specific labor content of future teacher-organizers of DT in VET system, from which depends the contents of knowledge, ability and skills which are acquired by a particular professional.

**procedural (activity)** component is a set of abilities and skills of practical problem solving of dual training; learning of ways of solving professional problems in the dual manner, the transformation of knowledge and skills for the individual student; the
process of practical mastering of the educational work content by future teachers which is associated with the use of interdisciplinary connections, the ability of transformation of knowledge from one discipline to another, in particular psychological, technical - technological and other knowledge in the educational - production activity, the transformation of the essential relationships of scientific knowledge in the learning objectives of DT, transformation of formal knowledge in professional skills;

- **technological component** (connection of educational programs, curriculum with the institutions of VET system, enterprises (employers); mastering of complex of humanitarian technologies of learning (problem lectures, design technology, case studies, educational workshops, gaming technology, methods, techniques, tools and application in the organization of production-and-training activity of students; technological development of educational and production-and-training processes; the gradual promotion of a student to the objectives by individual educational trajectory, etc.);

- **reflexive - evaluative component** (a sensually undergoing process of realization of the activity by cooperating subjects of dual training; identification and realization of the main components of activity i.e. its meaning, ways of achievement of results, and others; development of professional perception; expanding of communicative- reflexive space; solving of informative and reflexive tasks; the use of informative and reflective technologies; summing-up of professional activity of future teacher-organizer of the dual training; self-assessment of their professional preparedness and compliance of its best professional models; diagnostics and control of students production-and-training activity and others, i.e., evaluation of KAS based on understanding the goals, methods and meaning of their acquisition).

**RESULTS**

For the effective functioning of educational process of teacher - organizers vocational training of DT in VET system it is necessary to create the following pedagogical conditions by our model in the dynamics of achievement of goal in a view, in which the process occurs:

1) The scientific commitment of the content of future teacher-organizers vocational training of the DT to some new requirements to pedagogical, production-and-training activities and the consideration of students as subjects of this activity who are able to self-knowledge, self-education and self-realization. Providing the students with the free choice of a subject position in the self-organization and self-learning.

2) The construction of educational process of future teacher-organizers training of the DT in VET system based on the interrelation of theoretical and industrial training, the use of competency approach at the level of goal-setting, guiding pedagogical process to the creation students goal set on mastering the knowledge-ability-skill system according to DT, personal development, his steady increase, the orientation of the future teacher of DT to the constant search for creative ideas that can be realized in VET system.

3) The differentiation and personalization of content of teachers vocational training of dual education system is focused on: professional mobility and choice variety of level of professional qualifications by students, further specialization which is achieved by elective courses, special courses and seminars, by inclusion of students in the project activity, by using innovative technologies, by different forms and method of dual training, by development of individual educational routes, by modeling of learning situations, by variability of educational tasks for writing essays, by performance of creative works, reports that in the form of presentations at the seminars become the condition for admission to examinations and tests.
4) The undertaking pedagogical and technological internship are realized at the various stages of university education on the basis of educational institutions executing various models of dual training and having sufficient production resources.

5) The pedagogical support of formation of professional training process of dual training teachers in HEI in VET system is carried out on basis of the competence approach and organized by combining theoretical training with strengthening connection with the production, which combines practical training with part-time work in the production and training in a traditional educational institution.

6) The development of criteria of personal and professional development of the dual training teacher; reflection of training and production activities at all stages of the teachers training process of the dual training system. The realization of this pedagogical conditions requires: intermediate diagnostic process of formation of the individual components of vocational training; actions which reduce the difficulty of the teacher in the realization of dual training at the expense of the individual and collective consultations; examination of profiling products (programs of elective courses, curriculum of introduction of dual training system experimental work of regional departments of education and specialized schools).

7) The scientific support of the teachers training process of the dual training system. The realization of this provision is based on the creation of scientific and methodological resources, which push forward the realization of the main ideas of the dual training. This will reduce the resistance of teachers’ participation in the innovative activities that have a positive impact on the process of formation of the professional training of teachers of the dual training system.

8) The systematic coordination and regulation of vocational training of teachers of the dual training system. The realization of this pedagogical condition associated with the establishment of close relationship between theoretical training of teacher of DT and his or her practical training, i.e. strengthening of training. This was proved by experimental work, which involved teachers who have studied courses "Basics of dual training", "Methods of dual training." In our view the providing of connections between theoretical training and practical activities of the realization of dual training in VET determines the formation of all components of the teachers’ vocational training of the dual training system.

Speaking about the shape of the pedagogical process of preparation of teachers - organizers of DT in VET system and in various types of educational institutions we mean the appearance, the pedagogical process unit, the expression of interaction of training and trainees, a method of providing educational services to a specific mode of learning, where the dominant vector is the State standard of education.

DISCUSSION

Our model is realized in a flexible, mobile credit system, on which all universities of Kazakhstan work today. It involves the 3-step model of training: Bachelor - Master - Doctorate, which enables graduates to be in demand in the rapidly changing labor market. The credit system is supposed the existence of a set of measures aimed at improving the competitiveness of the graduates without abidance of these measures it is impossible to achieve the desired result of the dual training.

The essence of the credit system is based on the personality - oriented approach to the trainee, in which the trainee is given the freedom to choose the educational path of academic disciplines, the elective courses and even teachers. A student receives syllabus (with Lat. syllabus - a list) from the first training program of the course. Syllabus is a document containing all necessary information on the proposed rate and regulating the relationship of the teacher and the student on the subject - a subject basis. The pass to the syllabus entails a rejection of traditional work programs.
In other words, the syllabus – is a work program of disciplines adapted to the student. The syllabus includes a unique mechanism of mastering academic discipline which allows the student to participate actively in the promotion of personal development and the construction of their educational trajectory.

The syllabus adoption, in some way, allows the student to pass from a passive consumer of knowledge to an active participant in training and production process, to be aware of what he needs to know clearly about the organization of DT in VET system and to know how to get the designated by credit with which his knowledge and skills are valued. If the performance of the traditional system of education of the work program were supervised by the department chair or dean, now learning outcomes is controlled directly by each student and in each lesson the student gets the amount of knowledge to which he is capable, and those skills that he could form himself. What is very important in the syllabus, according to the Kyrgyz scholar K.D.Dobaev, it was laid down mechanisms for the development of analytical, critical thinking and self-building skills. The well-composed syllabus teaches the student to learn.

It is clear that the student of credit system of education should realize his needs for knowledge about DT in VET. The teacher only acts as a guide and consultant, guiding the work of the student.

The transition to the credit system of study at our university required the development of proprietary standards [16], model curricula of undergraduate specialties, consisting of three cycles of academic disciplines (AD): general (GD), basic (BD) and major (MD). Each cycle of disciplines includes a list of subjects of compulsory component and a component of the student’s choice indicating the specified amount of credits.

Mental activity always gets reflected in the actions and reactions of the speech. It is important to study the mental life in the process of human activities, watching his actions, behavior. I. M. Sechenov wrote: "The human mental activity is expressed, as it is known. Mental activity is exhibiting outward signs. All people, and simple and scientists and naturalists can characterize the human by external features (Baron & Richardson, 2000).

In the adolescent's personality most relevant are the following contradictions:

- Between the level of mental potential of the personality of teen and the degree of its realization in activities.
- Between social motives and expectations are related to the work and not coinciding with their results.
- Between the high level of claims of great achievements and low psychological readiness for such activities.
- Between an adequate assessment of the situation and the inability of self-control.
- Between the need to predict the future course of activity and the lack of prospects for the ability
- Between the demands of modern times to an intensive work and a low culture [17].

In the educational environment of the HEI in the preparation of working curricula of specialties volume of credits are determined by all types of AD (GD, BD and MD), and elective courses. The working curricula of specialties are serves as the basic foundation for the subsequent development of individual educational plans for students who have chosen their educational trajectory, respectively, profitability and self-sufficiency training group.

The organizational and methodical side of the provision of the educational environment became the development of the Regulation on the organization of production-and-education process on the basis of the credit and rating system of training, guidelines and instructions on the preparation and execution of training and planning documentation of the university and VET system, which includes recommendations for the development of educational complex disciplines and guidelines for the preparation of the work program of the discipline (syllabus) 1-st
course student's handbook, a register of attendance of students, transcripts of the new sample.

According to the order of the university it was created the Office of the Registrar (service which registers the whole history of educational achievements of students) [18]. One of the major objectives of its creation is the separation of the learning process and knowledge of the assessment process, as well as carrying out intermediate and final attestation of students in HEI and the training and production environment.

The production-and-training environment of vocational education of future teacher-organizers of dual training in VET system includes:

• the tripartite agreements (Institute of higher education, enterprise);
• the educational plans;
• the syllabuses;
• the people ware;
• the adaptation of classrooms, classes, workshops and laboratories to the multi-functional load equipment minimum necessary technical and technological equipment;
• the workplaces for students with partial pay;
• the in-company training in the process of industrial and technological practices.

According to our model it is assumed the implementation of term papers, students’ scientific researches and diploma works by students according to agreement with the companies-employers and it is possible a partial payment for their work. That is, the student of dual system is more independent financially because receives a small salary during training.

At the same time, of course, significantly increased the volume of pre-treatment to the teacher, including the design of variant employment scenarios, development (selection) the appropriate training and methodological support of the CDS and SRSP (independent work under the supervision of the teacher). The most commonly used method is the variety of case studies (incident method, analysis of situations, etc.), small group work, project method, business games, modular training, use of resources and Internet technologies. We note in particular the advantage provided by the internet educational services, reflected in the increase in the availability of reference materials and data for all categories of users who are using any hardware and software can be removed from the web the necessary information regardless of the location of the data and knowledge bases.

When choosing the methods of DT, we were guided by the principle replacement of teachers’ role repertoire: from a predominantly “knowledge translator” to the dominance of the generic “organizer of educational resources”. At the same time, of course, the amount of preliminary training of teacher of DT increased considerably, which includes the design of variant scenarios of lessons, plan (selection) of certain training and methodological support of the SIW and SIWT (independent work under supervision of a teacher). It was commonly used variety of case studies (method of incident, analysis of situations, etc.), work in small groups, the method projects, business games, modular training, use of resources and Internet technologies. Here we should mention the advantage of educational services provided by the Internet, which is expressed in increasing the availability of reference materials and data for all categories of users who are using any hardware and software can extract the necessary information from the Web, regardless of the location of data and knowledge bases.

The quality of educational services received by students in the process of vocational education to DT is also dual: on the one hand, the received educational outcomes can be viewed as a set of professional competencies of students, and on the other - as the quality of teaching and production process.
CONCLUSION

The structure of future teacher training of the dual training in VET system includes the necessary competencies - (common cultural, professional, subject, key-note).

Common cultural concerns the development of the culture of the individual, the future organizer of DT, and society in production-and-training environment. They suppose the ability:
- to analyze and evaluate the most important achievements of national and world science and culture, to orientate the cultural and spiritual life of modern Kazakhstan;
- to apply the tools and technologies intercultural interaction between the participants of the educational process of the dual training;
- to use fluently their native language and a foreign language, to use their language skills and standards of certain language culture in the active cooperation of national identity of cultures of the region;
- to direct the self-education on the unity of the individual, national and universal values;
- to form a model of tolerant behavior of students in terms of cultural, linguistic, religious and other differences between the peoples of a multi-ethnic region.

Professional means the presence of objectively necessary psychological, technical and technological and pedagogical knowledge-ability-skill in graduates for a successful organization of DT; the presence of their professional psychological positions, attitudes which are required for teacher-organizer profession of DT in VET system, taking into account personal characteristics, which provides teacher mastery of professional knowledge and skills for production-and-training activities involved in the educational process in the dual format, rational choice of means and methods of its implementation.

Subject is formed in the course of theoretical and industrial training; during the studying academic subjects by students, and gain experience of production-and-training activities. They provide the presence of the teacher’s ability to solve the current problems of technical and vocational education based on the well-known scientific facts, concepts, and received knowledge and skill from different educational areas.

Key-notes acts as the skills and abilities of graduates, teachers of DT to define the objectives of teaching and learning activities, to plan and to organize their work, to be aware of their activities and to improve it, to adapt to VET system, to seek, to think, to cooperate, to use the skills of self-control and self-esteem.

The study confirmed our idea that the construction of a conceptual model of training future teacher-organizers of the dual system of training in technical and vocational education on the unified methodological basis allows us to more clearly present the production-and-training process of preparation of experts for DT in HEI. The model provides the interrelationship and interdependence of conceptual and theoretical foundations of the construction of production-and-training process of the dual training on the relationship of educational and industrial activity of students with part-time jobs in manufacturing and a partial payment. According to our model the core of the training of teachers of DT is the organization of training in accordance with the requirements of education and knowledge-intensive industries to the modern specialist which is carried out in educational institution parallel to workshops of various enterprises.

We think that our main task is to provide the flexibility of system, to make it capable to respond quickly, to adapt to constantly changing conditions, using the unity and integrity of the various methods and tools. The structural components of our model reveals the internal organization of professional training of future teachers of DT, i.e. its objectives, tasks, the content of the basic ideas, organizational forms and methods and they are responsible for the constant reproduction of the interaction
between the elements of the process. In our view it will help to increase the competitiveness and being in demand of our graduates in the education market, and in general it will help long-term development of the Republic of Kazakhstan.

REFERENCES


Modulnaya obrazovatel'nya programma po spetsialnosti 5V012000-Professionalnoe obuchenie vyshego professionalnogo obrazovaniya

Obrazovatel'ny standart FS UKGU - 50.04.7.3.- 002 - 2004:
Obrazovatel'ny standart FS UKGU - 50 - 04 - 7.3.- 003;
Obrazovatel'ny standart FS UKGU - 50 - 04 - 7.3- 004-2004; FS UKGU:


The message of the President of Kazakhstan, Mr. Nursultan Nazarbayev to people of Kazakhstan "Kazakhstanski put - 2050: Edinaya zel, edinye interesy, edinoe buduschee". – Astana, January17, 2014. www.kazpravda.kz/rubric/.../

