

THE DEVELOPMENT OF CONTINUING EDUCATION IN AN ENGINEERING HIGHER EDUCATIONAL INSTITUTION AS A MULTILEVEL EDUCATIONAL COMPLEX

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ABSTRACT

This article describes the main trends in the development of modern vocational education. The authors focus on the problem of continuing education in an engineering higher educational institution as a multi-level educational complex. Special attention is paid to the description of the authors' concept as one of the conditions for the successful solution of strategic tasks of continuing education in an engineering higher educational institution as a multi-level educational complex. The concept covers: a modern view on the development of definitions; strategic objectives, basic principles and key activities in continuing education of an engineering higher educational institution. The main ones are as follows: organizational and administrative, professional and pedagogical, upbringing, educational, organizational and methodic, R&D. The authors make a conclusion that the quality of human resources vocational training for the innovative development of the regional economy depends on the accuracy of setting strategic objectives that define activities of a modern engineering higher educational institution.

Keywords: strategic objectives, continuing education, engineering higher educational institution, multi-level educational complex, concept.

INTRODUCTION

Changes of the labor market and employers' demands for the training of competent employees who are responsible, highly-qualified and activities-oriented in related fields of economy, as well as updating educational standards, impose new demands on the education system. Under these conditions, one of the tendencies in the development of vocational education is its continuity.

Theoretically some modern Russian scientists (V.M. Zhurakovskiy, V.M. Zuev, B.S. Gershunskiy, N.E. Kasatkina, E.V. Tkachenko, S.N. Chistyakova, V.E. Yatsenko) consider a system of continuing education as a complex of state and public educational organizations aiming at providing the organizational and content unity and the interrelationship of all its elements. The main purpose of this system, according to these scientists, is to provide a collaborative and coordinated work to solve problems of upbringing, education and professional training of an individual taking into account his needs, desires for lifelong self-education and self-development.

INTEGRATION IN VOCATIONAL EDUCATION

As practice shows optimal conditions for the continuing education development are created in higher educational institutions as multilevel educational complexes (MEC). They are referred to as "an open multifunctional educational system which integrates institutions of vocational education and educational subdivisions of different levels with continuity and development of the education content and technologies while realizing elective educational programs of secondary, higher, postgraduate and additional vocational education" (S.G. Razuvaev) [3].

The statutory and legal basis for the process of educational complexes creation was presented as early as in the Resolution of the Government of the Russian Federation "About University Complexes" (No. 676,

17 September, 2001). It was noted that " an educational complex can be created on the basis of any university uniting educational institutions realizing educational programs of various levels, other institutions and non-profit organizations or structural subdivisions that are formed out of them" [5].

At one's time, definitions of such concepts as "a university complex" and "an integrated educational institution" which are traditionally used both in scientific literature (V.M. Zhurakovskiy, V. V. Zemlyanskiy, N.E. Kasatkina, N.M. Kosmacheva, G.V. Mukhametzyanova, Y.N. Petrov, S.G. Razuvaev, A.V. Sergeev, E.V. Tkachenko), and in practice were presented in the Concept of the Federal Target-Oriented Program for the Education Development for 2006-2010.

The statutory and legal documents mentioned above (Resolution and Concept) created the basis for the further development of the system of continuing vocational education in different models of interaction of modern secondary and higher vocational education. There are various units among them: universities, multidisciplinary training scientific and industrial complexes, regional universities, as well as regional centers for continuing education and so on.

All mentioned above allow us to state that together with continuity the tendency of integration can be clearly seen in vocational education. In particular it can be demonstrated by the integration of educational structures, the integration of educational and industrial structures, the creation of training and industrial complexes, the integration of educational scientific and industrial structures, the creation of training scientific and industrial complexes which show good results nowadays.

Modern scientists (A.B. Andreev, A.P. Belyaeva, V.M. Zhurakovskiy, V.B. Moiseev, P.N. Osipov, S.G. Razuvaev, S.N. Chistyakova, N.K. Chapayev) distinguish some characteristic features of educational complexes:

- adaptability to society needs and students' interests;
- continuity and interrelation of all levels of vocational education;
- equal opportunities for each student to be involved into the process of continuing vocational education;
- its completion at each level of professional training;
- favorable conditions for continuing vocational education at a new level.

Obviously, educational complexes fulfil functions of successful professional socialization and development of students' professional mobility, as well as further development of their abilities, inclinations and interests in the system of continuing vocational education under the conditions of carrying out graded and stage-by-stage training.

Vocational education realized via the system of multilevel educational complexes (MEC), in our opinion, opens an opportunity, on the one hand, to provide a consistent educational students' growth. Each educational stage focuses on the solution of its own set of training and professional tasks. On the other hand, one can study with time break or without it. This allows students to implement their personal trajectory of learning in the educational environment. They have an opportunity of educational maneuver at different stages of their career in educational complexes on the basis of their own interests and needs taking into account challenges in economic and social spheres.

Together with the tendencies of continuity and integration which are specific for modern vocational education the application of relations both horizontally and vertically in the process of educational complexes and educational districts creation is also very important.

Vertical integration of educational organizations is based on deepening of general and vocational education providing the improvement of students' vocational training quality.

In its turn the horizontal integration of educational organizations is based on the expansion of this type in terms of training, which provides the formation of professional mobility of would-be graduates.

The above mentioned trends are considerably embodied in educational institutions of an engineering type, namely, in an engineering higher educational institution as a MEC. In our opinion this is primarily due to the strategic tasks of a modern engineering higher educational institution as a MEC. Here are some of them:

- to meet different needs of a society, state and individual in engineering education of higher quality;
- to realize continuing education in accordance with the demands of a society in connection with the need for the innovative development and modernization of the region's economy;
- to train and retrain academics of higher qualification capable of realizing innovative technologies in professional activities;
- to expand the scope of scientific and innovative activities via close interaction with business and creation of innovative enterprises on the basis of a higher educational institution [2; 3;5].

THE CONCEPT OF THE CONTINUING EDUCATION DEVELOPMENT

One of the conditions for a successful solution of the strategic tasks is the availability of a developed concept as a system of opinions and scientific ideas which defines the main activities areas for achieving them. In this regard, Penza State Technological University developed a concept explaining the development idea of continuing education in an engineering higher educational institution as a MEC which includes the levels of secondary vocational education and higher vocational education [4; 5].

The main objectives of the developed Concept are:

- to optimize the management mechanism of a higher educational institution, which provides the realization of the functions of continuing vocational education at all levels;
- to develop an innovative educational environment as a proper condition for engineers' training who are competent, competitive and in-demand in the labor market;
- to improve R&D activities and innovations development on the basis of the "Education-Science-Business" integration;
- to develop students, to create optimal conditions for their self-determination and professional socialization on the basis of socio-cultural, intellectual and moral values, and rules and norms of behavior in terms of a man, family, society and state accepted in this society;
- to provide the teaching-learning process by professional academic staff;
- to create an educational environment taking into account demands of a state, society and individual including the needs of the labor market, as well as further development of the economy and social sphere of a region.

The concept was developed on the basis of the leading principles of vocational education proposed by such leading scientists as: V.A. Anishchenko, V.M. Zhurakovskiy, N.E. Kasatkina, G.V. Mukhametzyanova, R.L. Perchenok, E.V. Tkachenko, N.K. Chapaev, S.N. Chistyakova, etc. Multilevel

education and continuity, integration, adequacy and quality, mobility, anticipation, openness, social partnership and feedback are among them.

To our mind, the principle of multilevel education and continuity of education is a core one. This principle presupposes the existence of many levels and stages of education, relative regularity in the development of the integration system, i.e. continuity of the content and stages of the whole system in accordance with the changing requirements to the students' training content, and also the relative completion of each stage with concrete results.

The principle of integration is a unification of previously disparate subsystems of continuing education and their transformation into a multilevel educational complex based on interdependence and complementarity in terms of structure and content.

The principle of adequacy and quality presupposes the consideration of specific peculiarities of areas and levels of would-be graduates' training for real sectors of the economy in order to optimize this process. One should consider here the interrelations of vocational training of different levels in a large group of majors including additional vocational education as well as the interrelations with enterprises in terms of the creation of joint educational programs and systems of corporate vocational training, the organization of their direct participation in the teaching-learning process, the monitoring of students' quality and knowledge level. Educational services quality achievements are demonstrated by the constant correspondence of performance data of engineering higher educational institution subdivisions as a multilevel educational complex to the criteria values of the state accreditation.

The principle of mobility is expressed in the variety of techniques, methods, organizational forms of the system of continuing education, their flexibility and readiness for a rapid restructure in accordance with the changing needs of production, society, and a man. It focuses on the collective usage and combination of different methodic systems, technologies and modules.

The principle of anticipation relying on scientific forecasting requires an immediate and flexible restructure of educational institutions of the system of continuing education in accordance with the requirements of public practice. This principle aims at the wide and active usage of the most advanced forms, methods, techniques of mastering modern content of education in the course of students' vocational training, and the introduction of innovative approaches into this process.

The principle of openness of the system of continuing education makes an engineering higher educational institution as a multi-level educational complex expand its activities by attracting students of higher educational institutions to vocational training, academic staff and representatives and specialists of industrial enterprises to various retraining courses. These representatives are patrons of employees' vocational training. At the same time this principle also aims at the active realization of the interaction of an engineering higher educational institution with academic staff of educational institutions of general education in terms of the organization of the career guidance work. Openness is provided via a variety of scientific, educational and up-to-date programs in terms of levels, content and focus. This, in its turn, enables a learner to advance in his education and intellectual development, to improve professionalism personally, to join or to leave certain units of the educational system if it is necessary.

The principle of social partnership and feedback presupposes the readiness of members of a multi-level educational complex to form fruitful strategic relations based on the agreement of the corporate partnership in the field of training of highly-qualified personnel in terms of an integrated educational institution backed up by the statutory and legal basis. It is necessary to use both external and internal resources for this: human, scientific and information personnel of higher educational institutions and enterprises, finances, infrastructures, educational technologies, computer-aided facilities, scientific laboratories, training workshops and others.

The main areas of activities for developing continuing education in an engineering higher educational institution as a MEC were specified in accordance with the strategic objectives and principles. They are organizational and managerial, training and organizational and methodic, R&D, upbringing, professional and pedagogical, and social and coordinating ones.

The organizational and managerial area aims at improving the management system of an engineering higher educational institution as a MEC which provides the realization of functions of continuing vocational education. It presupposes the realization of a set of the following measures:

- to develop and improve statutory and legal documents regulating the performance of a higher educational institution as a MEC;
- to coordinate the interaction of units and subdivisions providing the efficient performance of a higher educational institution as a MEC;
- to develop integrated R&D laboratory complexes providing services to all levels of vocational education in a higher educational institution; to provide planned changes of financial resources of a higher educational institution under changing market conditions;
- to develop a computer-aided management system of a higher educational institution, to improve its efficiency in accordance with complex management tasks; to improve the electronic document flow at all levels of the organization; to develop the personnel reserve in accordance with management positions of a higher educational institution.

The training and organizational and methodic area aims at decision making on formation of the innovative educational environment as conditions for vocational training of competent, competitive and in-demand in the labor market engineers. This area provides the realization of the following measures:

- to develop the content of educational integrated programs in accordance with the levels of vocational education under a social order of a particular employer;
- to use vertical and horizontal links in the course of the educational process;
- to organize and realize advanced mastering of general educational programs of secondary vocational education and higher vocational education;
- to strengthen practice-oriented vocational students' training at each level of the educational process;
- to organize on-the-job training using distance technologies guaranteeing graduates' employment after graduating from a higher educational institution;
- to develop and realize additional educational programs providing an opportunity for their simultaneous mastering taking into account the qualifications and experience of practical activities;
- to introduce modern pedagogical and information technologies into the educational process of a higher educational institution;
- to develop training and methodic instructions in accordance with the content of integrated educational programs; to use modular-rating technology as a means of monitoring the quality of the teaching-learning process.

The R&D area aims at the improvement and development of innovative and R&D activities based on the integration of "Education - Science - Business" via a set of the following measures:

- to organize R&D activities in high-priority areas of science, technology and engineering;
- to correlate the areas of innovative and R&D activities with the needs of the basic branches of the economy and the regional labor market;
- to create favorable conditions for efficient innovative and R&D activities on the basis of scientific and educational centers, structures and industrial enterprises;
- to develop innovative subdivisions (departments, centers, offices) in a higher educational institution together with scientific and production associations and innovation centers of the region;
- to improve the forms of R&D cooperation of a higher educational institution with partners (schools and enterprises) in the region;
- to develop special mechanisms for motivating and encouraging academics and students to participate in R&D activities;
- to organize joint units with scientific organizations realizing fundamental and applied researches; to analyze, synthesize and evaluate the researches results and experience via their publications in central national and leading foreign journals.

The upbringing area solves the problems associated with the development of learners' personalities, the creation of conditions for their self-determination and socialization on the basis of socio-cultural, intellectual and moral values, rules and norms of behavior in the interests of a state, society and man accepted in the society. In this regard, the following measures are expected to be realized:

- to carry out some actions to evaluate the efficiency of upbringing work;
- to carry out some career guidance actions providing students' professional self-determination and formation of their social competences;
- to develop and realize a program of pedagogical support for the students' adaptation under MEC conditions;
- to improve the system of students' self-governance aiming at the formation of professionally important and socially significant qualities;
- to organize and realize psychological and pedagogical support for students at all levels and stages of continuing education in an engineering higher educational institution as a MEC;
- to develop a set of methodic and information support for carrying out upbringing work [1; 4].

The main objective of the professional and pedagogical area is to train highly-qualified specialists for carrying out the teaching-learning process. In this case you are:

- to improve pedagogical activities under the conditions of the integrated educational environment development of an engineering higher educational institution;
- to work out “a vertical of development” for each teacher;
- to improve the system of professional retraining of academics and their involvement into innovative units of a higher educational institution;
- to monitor the quality of academics' professional activities on the basis of the rating system [6; 7].

The social and coordinating area involves solving problems of creating an educational environment that takes into account the needs of a state, society and individual, as well as the needs of the labor market, prospects for the development of the economy and social sphere in terms of the region. The set of measures is as follows:

- to improve the “School – College – Higher Educational Institution” and “College – Higher Educational Institution - Enterprise” system of interaction;
- to analyze the regional labor market, to form a package of proper educational services;
- to create an information base on educational services provided by an engineering higher educational institution as a MEC;
- to improve forms of the interaction with employers, representatives of regional authorities, science and business.

CONCLUSION

We can make the following conclusion that the solution of the strategic problems of the development of continuing education in an engineering higher educational institution as a MEC can be accomplished via the realization of the Concept developed and presented in this article. The training of highly-qualified personnel for the innovative development of the regional economy on the basis of the integration of "Education - Science - Business" considerably depends on the strategic tasks formulation defining the main areas of modern engineering higher educational institution activities.

CONFLICT OF INTERESTS

The author confirms that this article content has no conflict of interests.

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