

WORKING OUT OF THE MECHANISM OF THE ORGANIZATIONAL CO-ORDINATED MANAGEMENT BY THE COMPETENCE-ORIENTED EDUCATIONAL SYSTEM

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The present article views the new role of educational system in the society that is under transition to competence-oriented approach in education. There is also a conclusion that the creation of organized and coordinated management of the system is necessary. The article presents the basic elements of educational system, the collaborative mechanism of these elements and the mathematic model of educational process management based on competences.

The issue of professional staff preparation is the one of management efficiency increase by educational systems taking into account modern lines of innovative development. As a solution to the given problem the educational environment is considered to be a complete system which educational resources urged to provide, both by the requirements of the citizens and the inquiries of the regional business structures and the society as a whole. It means high degree of organizational integration of the subjects of educational environment and the coordination of their interests at all stages of the education cycle. Construction of the effective mechanism of realization of such approach can be made possible on the basis of principles of system analysis and methodology of coordinated organizational management of educational process. Its basic elements are the consumers of educational services, the higher education institutions realizing the programs of higher professional education, the employers (business structures), and other bodies of the state and municipal management that have direct connection to the issue.

The network of educational institutions of the region in this statement is considered not as a set of isolated groups of educational institutions with a set of educational programs, but as a unified educational environment. This environment sets the directions of education providing the development of the necessary "competences" as a set of knowledge, skills, abilities, and also develops positive personal qualities throughout the educational cycle. Efficient control of this process is reached by means of innovative methodology which provides the re-

quired results by coordination of interests and integration of resources of all its participants. The complex of mathematical simulation models which describe the condition, the structure and the dynamics of educational system is based on it. Research of the reaction of the system to operating influences allows to predict its development and to find optimum control at which the targets in view are reached in the conditions of restriction on available resources. The overall aim of management integrates the local aims based on the satisfaction of requirements of the citizens and the requirements of business and social structures.

Such mechanism is especially effective in the conditions of the modern innovative approach to its education, based on the development of a set of "competences" which are considered the main result of the realization of the educational program. At the heart of the former approach to education lies the problem of performance of the order of the state in experts of certain quantity and quality. The quantity was regulated by the plan of training and graduation of experts, the quality was defined by the State educational standard. The main accent was made on planned professional training for national economy branches, basically engineering-oriented. In the days of reorganization and the subsequent development of the country the views on the education aim have changed. It began to be regarded as fulfillment of educational requirements of the society and the individual. Such approach to the education system provides not only the requirements of business for experts but also solves the problem of increasing the general educational level of the

*Victor I. Drovyannikov, PhD in Techniques, Vice-rector at International Market Institute, Samara.

population. The ability to choose the forms and kinds of education given to the “customer” helps fulfill individual educational requirements.

However the problem of quality of education has become more pronounced as the tendency of its decrease eventually came to light. Therefore the conditions of the certification of specialities and accreditation of high schools have been reinforced and the new concept of quality of the education, based on quality as a set of requirements of state standard that all high schools must have a certain minimum level of has been developed. The results of education began to be considered in categories and quality characteristics. Quality became the subject of competition between high schools. The modern understanding of the results and the quality of the education set in the new generation of Federal State Educational Standards of Higher Professional Education (FSES HPE) is based on the concept of competence. It includes not only the requirements to the results of education as to a certain level of mastering the set of knowledge and skills but also as the achievement of a new synergy effect - the possibilities of qualitative realization of this complex in professional work. Qualification is considered here as an integral level generated in the course of education or as a result of the practical competence gained, official professional duties providing qualitative performance and adequate behavior in certain reality situations.

The level of each competence is defined by a set of the received knowledge, skills, understanding of various situations and problems, personal qualities, motivation of behavior, readiness for doing certain work in the role structure of activity. “Education of competence” is provided by the education system.

Working out the mechanism of a competence-oriented management in the process of training professional staff allowed to identify the following basic elements of the system:

- ◆ the model of a graduate of the program of vocational training in a certain direction of training, constructed by the principle of education of a set of the competence as the result of education;

- ◆ a set of requirements of the Federal State Educational Standard of Higher Professional Education (FSES HPE) for the direction of training;

- ◆ a set of requirements of the society;

- ◆ a set of requirements of labor market and potential employers;

- ◆ the educational program as a set of modules and the elements providing education of knowledge, abilities, skills and personal qualities corresponding to the required pre-set level;

- ◆ the system of planning and the estimating labour input of educational process by the system of test units;

- ◆ the volume of the financial and material resources allocated to solve the problem of professional training;

- ◆ multi-criteria system of the developed competence level evaluation (the level of knowledge, completeness of the set of skills, the stability and completeness of abilities, etc.);

- ◆ control of the educational system providing feedback to employers, estimating the qualification of experts and defining the requirements to their professional level on the basis of the actual problems of business development.

In the case under consideration the object of management is a multilevel hierarchical educational system. Its basic element is high school. The subject of management is the control of educational processes at each of these levels. At the heart of the proposed mechanism of educational system management in the conditions of the competence-oriented approach the lies the mechanism of interaction of the participants of professional staff training process. The generalised block diagram of the mechanism of interaction is presented in Fig.

The given mechanism allows to provide organized coordinated management of educational process. The optimum result is achieved through the coordination of interests of management in the conditions of interaction of the following participants:

- ◆ high school, as the centre of education and the provider of an educational product in the form of a complex of the developed “competences”;

- ◆ the consumers of an educational product entering high school under contractual relations for the purpose of receiving the educational product (a set of “competences”);

- ◆ the employers of business environment carrying out business realization of the educational product;

- ◆ the control of federal, regional and municipal structures providing the functioning and development of educational environment.

Fig. The scheme of the mechanism of interaction of the participants of professional staff training process

Key parameters of the model describing this mechanism are represented in the form of numerical sets, where X is entrance indicator characterizing the initial level of “competences” and personal qualities of the trainee; Y is the target estimated criteria characterizing the level of the generated “competences”; W is the requirements of FSES HPE which expresses the requirements of the consumer according to the contract on training in the set direction; T is the requirements of the employer to the set and quality of the “competences”; Z is the indicator characterizing the requirements of the social environment in “competences”.

The model is constructed on the principles of the coordinated interaction of the basic or-

ganizational and functional components: X - Consumers of educational services; Y - HIGH SCHOOL - the centre of education of an educational product, as complex компетенций; W - Consumers of educational services; T - Employers of a business environment; Z - Controls education at federal, regional and municipal levels.

ating influences (D) and resource maintenance: $Y = F(D)$. The set of operating influences is formed on the basis of the requirements of the standards and the requirements of the resources.

consisting of a set of base educational elements (BEE) (lectures, training, seminars, etc.).

In this educational space it is possible to identify the directions of education which provide the best results in the development of the competences under the conditions of available restrictions. If we present Y as an integrated indicator of the criteria of competence (KK) the system of restrictions for each competence can be written down as follows:

$$KK_i \geq DY_iK \quad P_i \leq DY_{ipec},$$

where DY_iK is the admissible pre-set level of i competence, DY_{ipec} is the admissible planned level of the necessary resources for i competence. The condition of achievement of optimum result of management will be expressed as $V = F(P)$ max in the condition on each ZUN-PROCESS.

The model is under construction in the sphere of educational system which is formed by a complex of programs “knowledge - ability-skill” (ZUN-PROCESSES) consisting of a set of base educational elements (BEE) (lectures, training, seminars, etc.).

The proposed mechanism of competence-oriented management provides elements of the educational environment for effective interaction of all the interested parties in the process of achievement of the purposes of higher professional education by professional staff training.