

FORMULATING THE MODEL OF COMPETENCE-ORIENTED MANAGEMENT OF EDUCATIONAL PROCESS

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The article examines the new role of educational system in society in the period of transfer to competence oriented approach in education. The conclusion is made about the necessity to develop the organizational management of such system. The main elements of educational system are shown.

Contemporary problems of innovative economic development determine the importance of professional employees' education, whose qualification allows them to solve those problems.

The level of their qualification depends on competences formed in educational process. The requirements to each competence for a specific direction of training are defined by the federal state educational standard of higher professional education. These requirements are defined, as a matter of fact, by consumer demand and can be corrected according to the inquiries of employers and the requirements of society.

Thereupon the management mechanism of educational process acquires special value which should have a competence-target orientation and provide the coordination of interests of all interested parties. By means of working out such a mechanism it is necessary to define the functional dependence of changes in the level of the competence throughout the educational process (EP) on external factors in the form of consumer demand, employers and the society, and also on the volume of the resources allocated for the realization of EP.

It is provided with the information-technological model of EP management created on the basis of the technique of functional modeling of

business processes with SADT-technology on the basis of the IDEF0-notation. Such model allows not only to describe EP as a sequence of stages of an educational cycle in detail, but also to estimate the material, cost and time resources necessary for its realisation. The basic working elements of model are diagrams which consist of functional blocks and unite in hierarchical treelike structures. The functional block of the diagram of top level is shown in fig. 1.

The functional block includes EP as a set of educational complexes or KAS-PROCESSES (K-knowledge, A-ability, S-skills) which in turn consist of a set of base educational elements (lectures, seminars, experts, etc.). The entrance block represents the initial skill level of the trainee, or $Y_H = \{Y_{1H}, Y_{2H}, \dots Y_{cH}\}$. The exit block represents the reached skill level as the integrated result of influence generated competences. These are $Y_K = \{Y_{1K}, Y_{2K}, \dots Y_{cK}\}$.

The management of the process is provided by the development of operating influences which are transferred by the system of the standard and administrative documentation (D). In these influences the instructions on performance of the co-ordinated requirements of consumers (standard), employers and the society are put. The volumes of

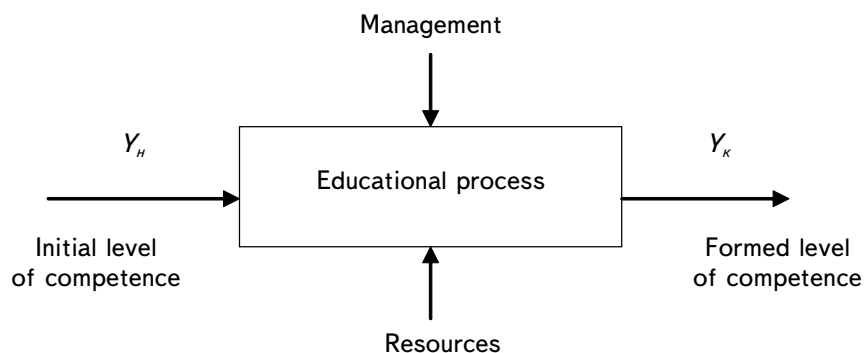


Fig. 1. The functional block of educational process of training in training directions

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realization of works in KAS-PROCESSES are defined by the level of the resources allocated for this purpose (D). In this statement document EP looks like: $D = \dots$, where n is the quantity of documents in system of the document circulation, operating educational process; D_i - the document in the form of the order, instructions, the specification. $P = \dots$, where m is the quantity of kinds of the involved resources; P_i is the resource volume in money terms, labour input units, etc.

Blocks similar in structure are formed at each level of hierarchy. On fig. 2 the diagram the process of development of universal competences by means of training in the of direction "Management", where GSC is general scientific competence, TC is a tool to the competence, SPC is socially-personal and common cultural to the competence.

- ◆ cycle (cycles of educational process - a term, an academic year, etc.);
- ◆ element (elements of high school organizational structure);
- ◆ base (educational system of high school as a whole);
- ◆ region (educational system of municipal union, area).

The solution to the problems of management is provided through a set of operating influences with the high school system of document circulation. Its functions are the following: generation, introduction, and control of passage and functioning of standard, administrative, methodical and information documentation. According to this approach to the life cycle of an educational product there is the life cycle of the documentation accom-

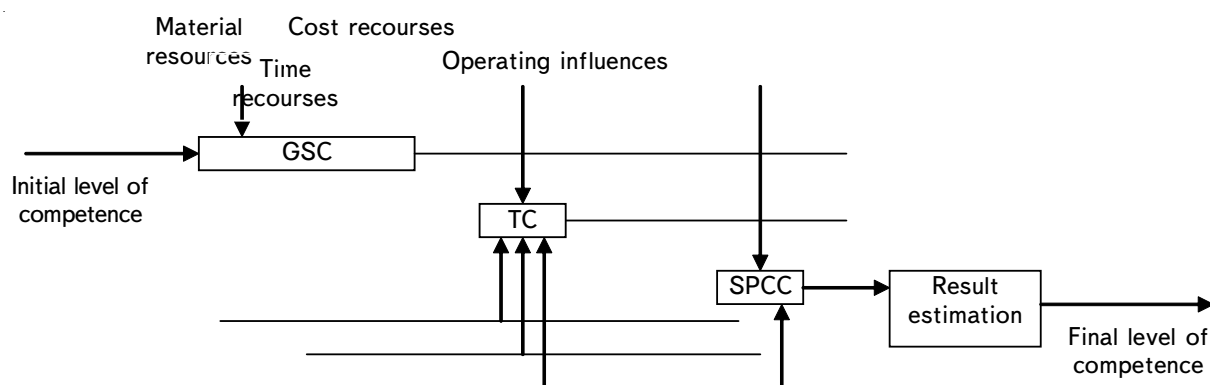


Fig. 2. The diagram of the process of universal competences' development

The possible structure of information-technological model (IDEFO-model) in the form of hierarchical treelike structure is shown on fig. 3. It reflects the process of formation of universal (UC) and professional (PC) competences, and t is the quantity of UC, while p is the quantity of PC.

To form the system of operating influences it is necessary to co-ordinate the components of managerial process to the set of directive, standard and regulating documents transferring these influences to the executors. The approach based on drawing up a functional matrix of management [1] for this purpose is offered. This matrix will coordinate the problems and the subjects of management with the set of documents transferring operating influences.

Functional matrices of management can be made for all hierarchical levels of management. The following levels are set for this purpose:

- ◆ subject (educational-methodical complexes of disciplines);
- ◆ competence (processes of formation of the competence);

panying the advancement of an educational product (complex formation of competences) on all elements of an educational cycle. In turn the effective functioning of document circulation system is provided with its automation and correlation with the system of high school quality management.

The structure and the maintenance of documents in quality management system should correspond to the requirements of ISO 9001-2001 standard. Table 1 shows a fragment of the functional matrix of management-connected problems and subjects of managerial process at base level (the high school educational system) with a set of operating influences. According to the given approach the cells of the functional matrix of management show the set of documentation setting operating influences for an educational cycle.

Among the principal views of the documentation providing management of an educational cycle, there are:

- ◆ standard (SD) - positions, instructions and etc.;

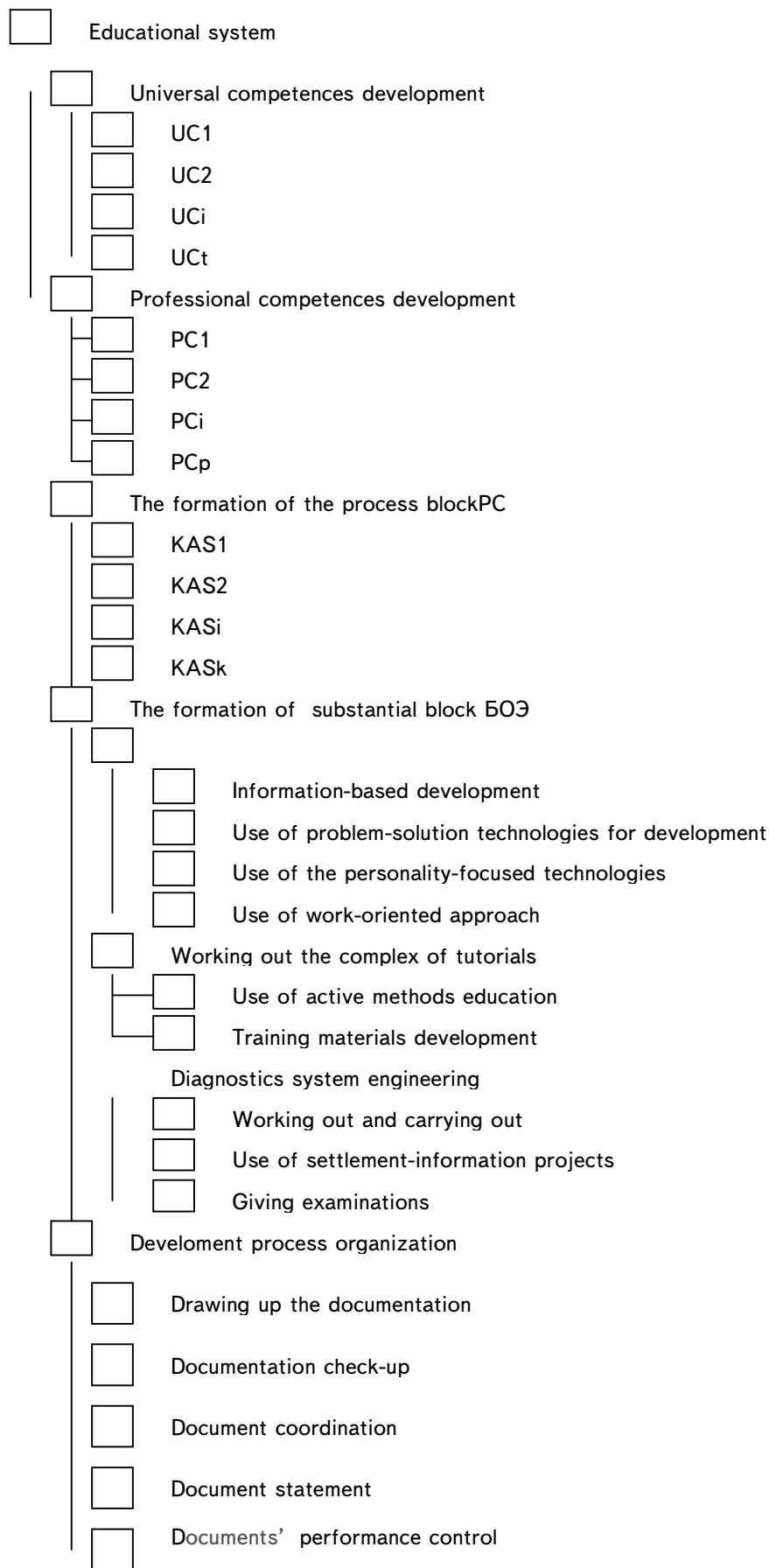


Fig. 3. Structure of information-technological model (IDEFO-models) of a competence-oriented management of educational process

Fragment of a functional matrix of management

Management problems	Monitoring of a condition of the educational environment and labour market. The analysis of the information and formation of a package of proposals	Formation of a portfolio of orders for educational services	Performance of requirements on resource maintenance of educational process	The organisation of educational process	The organisation of educational work	Advancement of an educational product	Budgeting and resource controlling	Quality assurance of an educational product
Management subjects								
The supply and demand coordination on educational services (the consumer - high school)	IAD	CD	EAD FAD			IAD CD		
The supply and demand coordination on graduates (the employer - high school)	IAD	CD IAD	EAD FAD			CD IAD		ECD
Structure and maintenance of the processes of an educational cycle in the formation of competences	IAD		DRMD	ECD EMD EMD IAD DRMD	MOD EMD IAD EMD	IAD	EAD FCD	ECD
Structural elements of high school organizational system			ECD	SD IAD OAD EMD EMD FAD ACD	SD OAD FAD IAD	IAD CD	EAD FAD FCD	ECD
Resource maintenance of educational process	IAD	DR MD	DRMD	EAD DRMD FAD ACD	ACD	FCD	EAD FAD FCD	
Structural elements of educational system and student self-management	IAD		DRMD	ECD	DRMD EAD			ECD

- ◆ organizational-administrative (OAD) - orders, etc;
- ◆ education-organizational (EOD) - curricula, schedules and schedules of employment;
- ◆ education-methodical (EMD) - working programs of disciplines, educational tasks, instructions, grants;
- ◆ information-analytical (IAD) - analytical notes, information and advertising materials;
- ◆ demands for resource maintenance (DRMD);
- ◆ financially-administrative (FAD) - estimates and orders on payment of wages, representation on charge of extra charges, surcharges, awards;
- ◆ financially-control (FCD);
- ◆ economic-analytical (EAD) - estimates, business plans, plans for development;
- ◆ contractual (CD);

- ◆ education-control (ECD) - total documents of the control of results of training, the sheet and etc.;
- ◆ Is administrative-control (ACD) - the documentation on the control of terms of passage and results of performance of directive documents (magazines of the control, a drawing of works, etc.).

Application of such functional matrixes at designing of the mechanism of management by educational system helps to structure managerial process, having co-ordinated problems and subjects of management to a set of necessary operating influences. It in turn details the maintenance of system of document circulation and provides designing of algorithms of IDEFO-models at all levels of management.

1. Novikov D.A., Glotova N.P. Models and mechanisms of educational networks management. M., 2004.