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MANAGEMENT OF AN ESTABLISHMENT OF HIGHER EDUCATION BY MEANS OF INFORMATION-AND-COMMUNICATION TECHNOLOGIES

General directions of improving the management of educational organizations are studied in the paper. Obtaining and applying information resources for education is also analyzed. Development of information technology for objectives of education and for management purposes is shown. Transfer of knowledge in educational and managerial processes is highlighted. The use of information units as components of technology and information resources is grounded.

Keywords: *establishment of higher education; information-and-communication technologies; quality of education; management factors; knowledge management.*

Modern society is characterized by increasing the role of social institutions of education. Hence, education appears as an aggregate of spaces: informational, educational, sociocultural, and others, which covers both separate individuals, social groups, organizations of the industry and the state. In the process of modernizing education, gradually accumulating experience and its analysis are important for improving the efficiency of education. The solving of the problem of increasing the efficiency of education necessitates the development of a strategy for optimizing the management of the establishment of higher education. This problem can not be solved without the use of information-and-telecommunication technologies. Information-and-communication technologies (ICT) can serve as one of the key tools for improving the management efficiency of establishments of higher education.

Modernization and optimization of higher education management requires analysis of experience and practical recommendations for establishments of higher education with a view to choosing the most effective and optimal solutions for implementation of the developed strategy as an integral part of the complex of measures on the participation of Ukraine in the Bologna Process on the entry of Ukrainian establishments of higher education into the international educational space.

The necessity to improve the modernization of the management of establishments of higher education in the university environment, the provision of information-and-methodological support of specialists and administrative-and-managerial personnel, who carry out modernization of management processes, as well as the improvement of the qualifications of specialists and management personnel in the field of modern university administration, require a corresponding justification. Such justification is possible based on the study of the practice and experience of existing management solutions using ICT.

Information-and-communication technologies are a broad concept, including systems, processes and people involved in communication through technology. Information-and-communication technologies imply technological means and resources used to provide communication, creation, dissemination, storage and management of information. Some areas of application of these technologies in the field of education can be singled out: a) development of organizational management technologies; b) obtaining and applying information resources for educational purposes; c) development of information technologies for educational and management purposes; d) transfer of knowledge in educational and managerial processes; e) application of information units as components of technologies and information resources; f) development of organizational management technologies.

For modern education, the notion and indicator of the competitiveness of an educational organization is characteristic. Increasing the competitiveness of an educational organization is possible through research and development of mechanisms for forming the competitiveness of an educational organization on the basis of the organization of intellectual resources.

Competitiveness of an educational organization is also associated with its innovation [1]. However, innovation is not an end in itself, but it plays the role of the basis of its reaction to the variability of the external environment, that is, the adaptability of the organization. The need for innovative development, changes in the organization arises in any case, regardless of the target orientation adopted by the top management in its operation. Competitiveness of an educational organization is also inextricably linked with the level of competence [2].

Experience shows that an effective mechanism for managing the university and enhancing competitiveness is a balanced system of indicators, which, in relation to the management problem of the university, has developed in the individually balanced system of indicators. Such an individual system allows us to consider the indicators of the organization and the individual as an interconnected complex. The Personal Balanced Scorecard (PBSC) is currently considered an effective coaching method (mentoring, work with staff, including individual training and counseling).

The special role of this method is to change the behavior of the teacher in order to increase the effectiveness of the university. PBSC is considered as an integral part of the Total Performance Scorecard (TPS).

In its ideology, the concept of TPS can be considered a systematic process of continuous, step-by-step learning and development, aimed at shaping the competitiveness of both the individual

and the organization's staff as a whole. The main components of this process which are improvement, development, training, are closely interconnected and should balance each other.

Modern trends in the development of higher education reflect the transformation of establishments of higher education from the classical to the innovative model of education. In connection with these trends, there is a problem of management of innovative processes in the educational environment. Transforming the typization of innovations into education, one can identify factors influencing innovation activity and management of innovations, namely: organizational, technological; motivational, informational, intellectual, technical. These factors correspond to the management factors of the establishment of higher education, as defined above.

Organizational factors of management are determined by the structure of the organization, which affects the quality of education. Technological factors are conditioned by the possibility of introducing other educational technologies into the learning process. Motivational factors are one of the most important factors. On the one hand, without the awareness of the necessity of developing and introducing innovations at all levels of the educational system, both teachers and heads of educational establishments, the progress of modern education is impossible.

The information aspects of the management of education are related to the availability of information resources and a high level of information culture of pedagogical staff. These include the availability of electronic libraries and educational portals. For modern high schools, innovative methods of innovation are becoming topical for quality training.

Intellectual factors are related to the need for human resources management (HR) [3]. Abroad, in many organizations, there is a HR Director, Head of the HR Department or HR Manager. In Ukrainian education, there are no such types of management yet. Personnel management and human resource management are essentially different technologies. It is human resources and their management that create intellectual capital [4], which is not included in the field of personnel accounting and accounting.

The development of a single information-and-educational space of Ukraine envisages the creation of a system of integrated network educational resources. These educational resources have different scales and functions. Managing networked educational resources includes strategy, tactics and operational actions.

Virtual resource resources are a special type of resource. The problem of the use of informational educational resources is receiving these resources or the transformation of educational resources from information.

The use of information technologies for managing education is an actual topic that is regularly covered in various sources. At the same time, the coverage of these issues always applies to certain aspects: methodological, organizational, technical, innovation, etc. It is possible to speak about the levels of the hierarchy of issues of informatization of education, which are considered in various sources. The general characteristic of educational processes can be given using the model introduced by I. V. Robert: "disclosure; development; realization" [5]. The specification of educational processes by groups makes it possible to distinguish the next level of the " group of processes" hierarchy. These groups of processes include: marketing of educational services; management of an educational establishment; personnel management; educational content management; innovative technologies; management of educational process, etc.

In general, we can talk about information management in relation to the education system. One of the innovations of the information management for universities is the use of information-defined indicators [6]. They are indicators whose value is explicitly determined on the basis of the collection of information or measurements. Experience shows that an effective mechanism of management of the university and personnel is a balanced system of indicators, which, in relation to the management of the high school, has developed in the individual balanced system of indicators [7]. These indicators can be informally defined, but may not be. This situation depends on the application of indicators. The use of a system of indicators for management can be applied on conceptual (theory), formal (complex indirect calculations and analysis) and real levels. The conceptual level defines the principles, and the indicators themselves can be calculated in each case in different ways and in each case there can be a specific set of these indicators. The formal level will involve complex calculations and indicators will be obtained on the basis of calculations, which entails the appearance of errors. In both cases, indicators are calculated. The real level of use of indicators is possible only with their information certainty. It is based on their direct measurement. Information indicators of the university are an instrument of direct or explicit

management. Such a system of indicators allows us to consider the activities of the organization and the individual as an interconnected complex and simplifies the calculation of management influences.

The transfer of knowledge in educational and managerial processes involves two technologies: knowledge extraction and knowledge management. Nowadays, technologies that use knowledge are becoming topical. One of the most urgent problems is the study of the theoretical basis for representing knowledge both for storage in the database and in the knowledge base, and for application in educational technologies. Therefore, the general technologies of knowledge extraction are relevant. The methods used in the theory of learning are actively based on knowledge. Therefore, the perception of knowledge as learning is the boundary field between sciences developing outside the sphere of education, and those methods that are characteristic of educational systems. Typically, learning methods are procedures based on the use of verified information stored in the database.

Knowledge management refers to any processes and principles associated with the creation, acquisition, capture, exchange and use of knowledge or experience. In some definitions it is emphasized that this is the process of acquiring collective experience for its comprehensive use by the company where it can be useful for achieving the highest return. Collective experience or "knowledge resources" is defined as key competencies, common practice or key art. Some definitions emphasize that knowledge management is based on the use of people, processes or technologies that allow organizations to optimize knowledge sharing and conservation.

In modern literature, knowledge management is treated as a new managerial function, which consists in the purposeful formation, updating and application of knowledge to increase the efficiency of an educational establishment and educational processes. In the same context, knowledge management is defined as a new type of management activity aimed at the intensive use of intangible assets as the main resources of the knowledge economy and the stimulation of innovation with the aim of maximizing the efficiency of the economy and the individual enterprise and building on this basis real competitive advantages.

The essence of knowledge management in education is the targeted influence of the subjects of management on the development of corporate human capital with the goal of expanded reproduction of new knowledge and educational information products, providing the university with strategic competitive advantages. It is possible to note a number of key aspects arising from the interpretation of the essence of knowledge management.

Firstly, the leadership of an educational establishment should have such managerial knowledge and competences that would be adequate to the requirements of reproduction of human capital of high quality. These management subjects, or managers in the field of corporate knowledge retrieval, must have the skills of managerial activity that would be the leader's basis for the highly efficient functioning of their managerial capital.

Secondly, if the object of the appropriate management influence is human capital, represented by the complex and contradictory unity of human personalities and characters, then the expected high quality of this management should be a function of purposeful influences on the corresponding sociocultural, socio-psychological, sociological and other humanitarian and economic aspects and spheres of collective corporate activity.

Consequently, the final product of an educational establishment, acting in the form of educational services, is not only a function of direct professional knowledge and competencies of managers and staff of the university, but an integral result of social, institutional, and other knowledge of this establishment. Therefore, existing approaches to the management of educational knowledge are closely linked to the cognitive model of human capital of an enterprise.

The main functions of the educational knowledge management system are to solve two common interrelated tasks. Firstly, in the formation of an innovative and self-taught corporate human capital capable of high speed creative-labor, creative "converting". Secondly, in the creation of social conditions in which the corporate human capital of innovative quality implements itself in the creation of innovations demanded by the market and other consumers in the form of educational products.

Recently, information units are widely used in various scientific and technological fields. They serve as a tool for describing and forming: processes, models, situations. At present, a systematic

approach is used widely to model management technologies, educational systems, educational technologies and educational resources.

In different learning methods, traditional, informational, virtual, and remote information units are used as elements of knowledge transfer. These informational units, unlike the information units used, for example, in communication theory, can be defined as informational educational units. Analysis and study of these units is relevant and especially important in the distance and virtual education in which they are the elements and basis for the transfer of knowledge and learning. The process of education and the quality of education depends on the correct accounting and use of these units. Informational educational units are informational bricks in the system of constructing educational scenarios, technologies and resources.

From the standpoint of a systematic approach, information units are elements of a complex system that describes management processes. In the management aspect, interest groups of information units are: structural, semantic, procedural; operational, visual, transactional. All groups of information units are a means of describing different management technologies or management support technologies.

The structural unit of the information units includes means for describing the structures of management models and structures of situations in which the managed object is located. The semantic group of information units includes means for transmitting the content of control and corrective actions. The procedural group includes tools for describing management processes at the formal level of management.

The operating group of information units includes tools for describing management processes at the operational level of management. It essentially implements management processes in practice. The visual group of information units includes means for presenting the results of information processing in the form of images, presentations, visual dynamic models, models of virtual reality. It serves as a support function for management decisions. The transaction group includes tools for describing transaction exchange when working with databases and vaults.

Analysis of management methods with the use of information units provides an opportunity not only to improve the quality of management, but also to implement interdisciplinary knowledge transfer. The applied technique with the use of information units makes it possible to conduct a comparative analysis of different methods and control technologies.

From a formal point of view, information units enable the use of a structured programming device to analyze management technologies, which improves the quality of management, since it uses the method of generating grammars.

Application of information-and-communication technologies is the basis of modern education management. However, unlike the original approach, at present, such a management is diversified and includes a more complex set of control technologies and models. At the same time, the management of the university itself and the management of knowledge transfer are divided. All this relies on the concept of information units and integrated information technology. Also, information resources for educational purposes are organized in a new way. They are more structured and formed using cognitive models.

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