

DIGITAL COMPETENCIES OF THE LEADERSHIP OF MODERN NETWORK SCHOOL

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***Abstract:** The article deals with the structure of digital professional competence of the head of a network educational organization, which includes educational districts, support schools, and their affiliates. Implementation of educational and managerial processes in a comprehensive educational institution, the resources of which are distributed in time and space, becomes possible subject to the executive possession of necessary competencies in the field of information and communication technologies.*

Keywords: educational districts, digital professional competencies, network management, Internet technologies.

INTRODUCTION

The modern organizations react to a new informational reality in which they have to function.

In this reality, due to the intensive development of information and communication technologies and their penetration into all production, educational and social sectors of life, vertical corporate communications are transformed into horizontal, local communication is replaced by global, the new channels of exchange of corporate knowledge are appearing, "viral" technologies of information dissemination and the formation of a brand organization are used, etc. Realizing the strength and potential of information and communication technologies for corporate life, the executives change their professional views on enterprise strategy formation 2.0.

Also, in the global economy, there is a mass emergence of network organizations that came to replace by the bureaucratic. Accordingly by B. Milner's theories, such organizations are multidisciplinary and use the following in their activity: the intellectual job and creative potential of each employee, innovation and interaction, collective activity, self-directed working project groups, institutions of freedom and collectivity, project activity, horizontal management systems, authority Consumer

(customer) (Millner 1999). To such organizations, the scientist gives the generalized name "virtual corporations", the existence of which become possible due to modern information technologies and a new type of managerial thinking.

It is clear that these evolutionary processes also penetrate the educational branch. On the one hand, educational organizations move to the level of network's consolidated collaboration and the combination into the network organizations - educational districts, on the other hand, educational and managerial processes are moving more and more into virtual (network) levels and require managers to mastering the digital competencies (Stoikova, 2016).

1. PROBLEM STATEMENT

The scientists determine the distinctive features of network organizations: the unstable nature of the elements' functioning and the formation of interim alliances; qualitative changes in the information exchange on the basis of information and communication technologies; implementation of communications and management actions on the basis of integrated and local information systems; interaction with all partners on the basis of a series of contracts, agreements; the opportunity for each participant to have equal direct relations with other participants; independence from spatial and temporal restrictions; high degree of organization and coordination of information flows and innovative processes; strengthening the role of the formation of key competencies of participants; rational use of shared resources (tangible and intangible); redistribution of risks and reduction of time and financial costs for the introduction of innovations (Millner, 1999; Sichkarenko, 2015).

The main administrative resource in the network organization is information (Sichkarenko K.O., 2015), therefore, the competencies in the ability to choose and formulate goals, setting tasks, constructing and analyzing information models of the studied processes and phenomena, interpreting the results, predicting the consequences of the decisions and making the corresponding conclusions, ability to organize, systematize, structure a certain amount of knowledge (Kozyr M.V., 2014) become one of the main structural components of the professional competence of the head of the educational district. And the distribution of structural units of the network organization in time and space requires from the head of skills to ensure effective communication at a distance through telecommunication technologies and the Internet.

M. Kozyr emphasizes the necessity of mastering the basics of information management as the basis of a qualitative educational process due to the increase of information volumes, the growth of the impact of information technology on the effectiveness of the subjects of the educational process, the necessity to optimize the process of making managerial decisions in the context of the development of the information society (Kozyr M.V., 2016). In his research, the scientist considers the information management, on the one hand, as a process of information control, and

on the other hand, as a management process with the help of information. In both cases, for the effective performance of certain functions, the head of the educational institution has to have the competence to build a quality information environment and the application of information technology for data processing, automation of management function, decision support, expert examination, e-office management, etc.

The digital competence of the head of a network educational institution acquires the status of not just a progressive skill but a vital function, without which the head can't perform the quality management of the educational district.

The notion of "managerial competence" or the competence of the head of the school has been reflected in the works of many contemporary domestic and foreign scientists (G. Bosman, L. Vasilchenko, L. Vashchenko, R. Vdovichenko, I. Grishina, L. Danilenko, R. Dahft, G. Yelnikov, L. Kalinina, L. Karamushka, P. Karstenier, C. Kwiatkowski, Y. Konarzhevsky, C. Koroliuk, V. Maslov, V. Oliynyk, T. Sorochan, E. Chernyshova, and others).

For our research, the works that are devoted to the justification of the managerial aspects of education informatization, by T. Davydenko, P. Guriy, G. Elnikova, O. Yelnikova, N. Morse, L. Kalinina, O. Naznachilo, M. Pleskach, as well as study of the development of information and communication competence by A. Gurzhii, M. Zhaldak, O. Zakhar, O. Ilkiv, G. Kozlakov, N. Morze, T. Cheprasova, A. Khutorsky, are interesting.

However, in spite of the increasing attention of scientists to the issue of forming information and communication competence of pedagogical workers and managers, in particular, remains out of sight are studies of the structure and formation of digital competence of managers of modern network educational organizations.

The purpose of the article is to substantiate the structure of digital competence of the head of a modern network educational organization.

2. STRUCTURE OF DIGITAL MANAGERIAL COMPETENCIES OF NETWORKING EDUCATIONAL ORGANIZATIONS

2.1. Professional competencies

Among the scientists, there are no unambiguous views on the structure of the professional competence of the head of the educational institution. In particular, in the studies there is the justification of professional competence as: a combination of knowledge, skills, attainments, abilities, professional personal qualities, professional norms and behaviour patterns (R. Vdovichenko); the synthesis of key, basic and special competencies, including: a deep understanding of the essence of the tasks and problems being solved, knowledge and experience, the ability to choose the means and ways of action, the sense of responsibility, the ability to learn from mistakes and make adjustments in the process of achieving the goals (A

Vasilchenko, I. Grishina); a combination of conceptual, human and technical skills and abilities (Richard L. Daut); a system of combined key (over professional), general professional and special-professional competencies (G. Yelnikova); a combination of more than professional; general-professional, qualification, special-professional competencies (S. Kwiatkowski).

The latter structure includes specific competencies inherent in a specialist with a certain narrow specialization. In our opinion, it is the most successful; however, it still needs some refinement.

The structure of the professional competence of the head of a network educational organization, we propose to consider as a set of key professional, general-professional and expert professional competencies. The specialty and specialization competencies we attribute to the composition of the expert professional competencies.

Thus, this structure can be used as a matrix (template) to study of any professional managerial competence. In particular, the digital competence of the leaders of modern network educational organizations we will also consider through the prism of its four-component structure of hierarchically combined components (Figure 1).

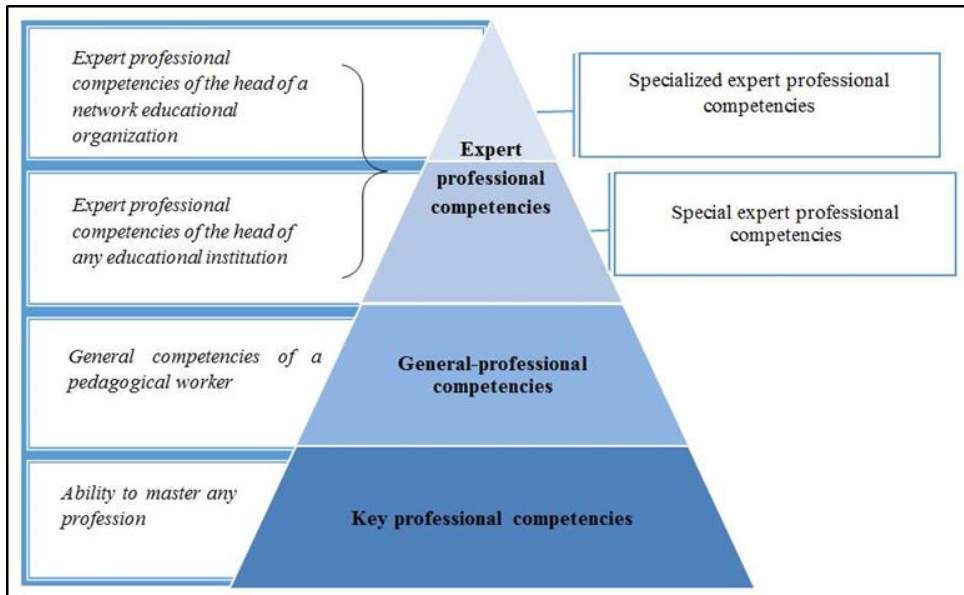


Figure 1. The structure of professional competence of the head of a network educational organization

Source: *Own Work*

2.2. Key digital competencies

In Digital Agenda of Europe and Digital Agenda of Ukraine-2020, it is determined that updating all spheres of life of countries and organizations with the help of the latest digital technologies and innovations will contribute to the enrichment and well-being of all employees of the organization and the entire population of the country (Digital Agenda for Europe, 2010; Digital Ajdzha Ukraine 2020, 2016). Therefore, among the priority directions of modernization of the European and domestic economic and social sectors, the renewal of managerial competence was determined.

The development of managerial competence in the field of digital management is determined by the leading "digital" trends, the use of each one will provide the network organization by the progressive development:

- Collection, description, storage, and processing of data, which allows obtaining valuable information for using in business processes, public life, work of the state. The ability to work with and analyze data will give the leader of a network organization the opportunity, by the first one, to get valuable market "insights", that is, to ensure the organization has high competitiveness.

- Providing communications of physical objects or devices at the level of simple communication or process control through built-in sensors, software products that allow the interaction of physical things with computer systems and networks, including the Internet. This trend includes "Internet things".

- Creating a new level of provision and receipt of service. Digital technologies have become the basis for creating new products, values, properties and, accordingly, the basis for obtaining competitive advantages in most markets.

- The introduction of the "shared economy" ideology and the transition to service models through the virtualization of physical infrastructure IT systems. Such technologies include "cloud" technologies.

- Reducing the amount of initial capital expenses for deploying the necessary digital infrastructure through the using of "cloud" technologies and software-defined architecture.

According to these trends, the educational system must be directed and able to ensure the development of the necessary digital competencies. These are the following five groups:

- information literacy and literacy in relation to data (ability to search, filter, evaluate, use and manage data, information and digital content);

- communication and interaction (communication skills, information sharing, interaction, contact with the public, use of public and private services through the use of digital technologies, knowledge of the digital "etiquette" of identity digital management, that is, the ability to create and manage accounts);

- digital content (creation, ability to change, improve, use digital content; awareness of copyright and licensing policies with respect to data, information and digital content; programming, that is, the ability to write code);
- safety (ability to protect devices and content, knowledge of security measures, understanding of risks and threats; protection of personal data and privacy; knowledge and skills to preserve their health and others from the point of view of the environment as digital technology; understanding of the impact of digital technologies on the environment environment);
- solving problems (ability to solve technical problems which arise with the computer technics, software, networks; ability to create knowledge, processes, and products through the digital technologies, individually or collectively, in order to solve every day and professional problems; the ability to independently determine the necessity of obtaining additional new digital skills).

It is indisputable that these groups of competencies are necessary for any profession, so we associate them with the key professional competencies of the head of a network educational organization (Figure 2).

2.3. General-professional digital competencies

General professional competencies - are formed by acquiring basic skills of practical actions inherent in a whole group of pedagogical professions. For their determination we apply the international standard "ICT-Teachers Competency Structure" (ICT-CFT) (UNESCO) proposed in 2012 by the United Nations Educational, Scientific and Cultural Organization, which defines the competencies of teachers necessary for effective ICT education. According to the standard, it is not sufficient to be the technologically competent and able to form the appropriate technological skills and abilities of his students for a modern teacher, and hence, for the head of an educational institution, a modern teacher should help students use ICT for successful cooperation, solving emerging tasks, forming a learning ability for further adaptation and Socialization in society. The proposed standard covers all aspects of the teacher's activity: understanding the role of ICT in education, educational plans, and evaluation, pedagogy, information and communication technologies, organization and management, teacher training.

The structure of information and communication competence of teachers is based on three approaches to learning (three successive stages of teacher development) - "Technological literacy" (the teacher helps students use ICT for effective learning activities), "Deepening of knowledge" (the teacher helps students learn the contents of the subjects on More profound level and use the knowledge gained to solve life's problems) and "Creating knowledge" (the teacher helps students acquire the skills to create new knowledge for the harmony social development of future citizens and employee) (Figure 2).

Key digital competencies	1.1. Information literacy and literacy in relation to data 1.2. Communication and interaction 1.3. Digital content 1.4. Safety 1.5. Solving problems
General-professional digital competencies	2.1. Technological literacy 2.2. Deepening of knowledge 2.3. Creating knowledge
Special expert professional digital competencies	3.1. Management and Strategic Vision 3.2. Teaching and learning activities of pupils 3.3. The efficiency of professional activity 3.4. Ensuring of school informatization, the organization of educational process and management 3.5. Examination and evaluation of results 3.6. Social, legal and ethical issues
Specialized expert professional digital competencies	4.1. Communication network management 4.2. Logistic network management 4.3. Team network management 4.4. Project network management 4.5. Innovation and information management 4.6. Media skills

Figure 2. The structure of digital competence of the head of a network educational organization

Source: *Own Work*

2.4. Special expert professional digital competencies

N. Morze and O. Kuzminska, analyzing the Standards in the branch of information technology for the heads of educational institutions, developed by the World Association for the support of the introduction of information technologies in education, distinguish 6 areas of activity of the heads of educational institutions (Morze, Kuzminska, 2012) (Figure 2):

– Management and Strategic Vision. The heads of educational institutions promote and promote the ideas of informatization, develop ICT competencies, and ensure the formation of an educational environment that promotes the implementation of these ideas.

– Teaching and learning activities of pupils. Heads of educational institutions strive to ensure that the ICTs that are implemented in the learning process, teaching methods and the educational environment, maximally contributed to the effectiveness of teaching and learning activities of students.

- The efficiency of professional activity. Managers of educational institutions use ICT to increase the efficiency of teaching and management activities of both the manager and all employees.
- Ensuring of school informatization, the organization of educational process and management. Heads of educational institutions provide the implementation of ICTs to support the effective organization of educational process and management activities.
- Examination and evaluation of results. Heads of educational institutions use ICT to plan and implement effective methods of examination and evaluation.
- Social, legal and ethical issues. Heads of educational institutions understand the importance of the social, legal and ethical components of the use of ICT and develop relevant provisions and local acts.

However, such a list is not complete and may be supplemented. Modern trends in the managerial field are oriented towards ever-increasing openness in managerial processes, decentralization, institutional autonomy, and the involvement of all those who are interested in a consolidated management solution. From this point of view, the development of managerial competencies in the branch of digital management and the launch of digital education management, have the particular relevance. For managers of educational districts, such competence can become one of the basic ones, since the educational districts that are the centers of public state management of education, the initiation of democratic traditions, and the development of public factors in the management of general secondary education (Vatkovska, 2013).

M. Vatkovska notes that the benefits of e-governance in the field of education include: greater openness and transparency of management activity at all levels, the possibility of involving the public in the formation and implementation of state policy in the field of education, as well as management of individual educational institutions, increasing the personal orientation of educational services, raising public awareness about the services of public authorities in the field of education (Vatkovska, 2013).

The determined directions of activity may be the basis for special professional competencies of the head of the educational institution. They include 7 groups of competencies: strategic management in the field of digital technologies, organization of educational process on the basis of digital technologies, optimization of professional activities through the introduction of digital resources and technologies, digitalization of expert and monitoring activities, legal and regulatory activities of the head in the use of digital Technology and content, e-government.

2.5. Specialized expert professional digital competencies

A significant problem in the educational network may be the establishment of logistical chains for the provision of educational services in the primary school, branch, and other subjects of the district. Optimization of the process of giving the teachers and students to lift to the educational institutes, the organization of distance learning, etc. is a prerequisite for the functioning of the educational district and provided with skills in the field of logistics of educational services.

The modern approach to solving these problems lies with the plane of possession of the head of the educational institution by modern digital technologies, in particular, the technologies of providing distance educational services, collaboration and communication in "clouds", network management, etc.

Widespread use of Internet technologies for the implementation of information, communication and logistics management leads to the emergence of new approaches in the organization of work with personnel and the formation of effective management teams in the network educational organization (Shmorgun L.G., 2010).

It is obvious that the educational process in network organizations is mostly distributed among individual network members. The basic unit of this process is the "project". The project form of activity is the basis of the management structure of all types of districts. The projects are implemented by the project teams that have double or even triple subordination: to the head of the organization (department) and the project(s) manager. Such a management system is implemented within the framework of project management.

Network organizations are innovative socio-economic formations that implement innovative educational processes (organization of profile education, pre-professional training, the provision in parallel with general secondary vocational education, etc.) and carry out research experimentation, therefore, the leadership has to master by the basics of innovation management and management skills by innovation regarding to organization of the educational process in all subjects of the network. Taking into account the peculiarities of a network educational organization, it becomes obvious that effective project and innovation management becomes possible in a digital format. Equally important is the media dimension of presentation of a network education organization, providing PR, brand creation: managers have to develop the new, technologically related with the social infrastructure of the organization, which, in design, will promote the constant interaction between physical and geographical subjects, and will provide self-organized discourse and the exchange of information between actors and service users (Deiser, Newton, 2013). In this direction, Roland Deiser and Sylvain Newton have researched a six-dimensional set of skills and organizational capabilities that executives need to shape in order to ensure the media presentation of the organization as an important source of its competitive edge.

For those skills, the researchers attributed: production skills for creating high-quality content, distribution skills for using the dynamics of information dissemination in controlled linear chains, the skills of receiving the information and elimination of

non-important information for the allocation of valuable elements in the information space, skills for advising, supporting and coordinating the use of social tools in the organization in particular Through the system of "reverse mentoring", the skills of designing a social architecture that will provide a significant amount of space for excuse and external interactions, analytical skills.

Thus, specialized digital competencies are represented by six groups of network management: communication, logistic, team, project, innovation and information management as well as media skills (Figure 2).

CONCLUSION

Thus, the digital competence of the head of a modern network educational organization is a difficult complex formation and the main component of the professional competence of the head of a network educational organization. It consists of five key, three general-professional, as well as six special expert professional and specialized expert professional digital competencies of the heads of the educational districts. It provides the steadfast ability of the head to carry out systematic management of the educational network organization on the basis of leadership and create a harmonious educational and development environment of the educational institution.

It should also be noted that digital competence, like any other, is a dynamic entity and is modified in accordingly with the development of the economy, society, the emergence of new technologies, etc.

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