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THE DEVELOPMENT OF IC-COMPETENCES OF MANAGERS OF SECONDARY SCHOOLS VIA THE RESOURCES OF CLOUD-ORIENTED LEARNING ENVIRONMENT

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The paper summarizes the results of practical studies of the implementation of the model of the development of information and communication competencies of managers of secondary educational establishments, which was held at the educational institutions of Kiev region in Ukraine. In accordance with state standards and UNESCO normative documents of IC-competence theoretical bases of the research have been fully justified. The methodic of the development of IC-competence of managers of secondary educational establishments with reference to the use of cloud-oriented learning environment – Office 365 has been described. The tools of Office 365 which can be used in a professional activity of the head of the institution have been represented and certain scenarios of their use have been described. The practical recommendations for the use of Office 365 in the process of the construction of electronic educational environment have been generalized.

Key words: ICT, information and communications competence, Office 365.

У статті узагальнено результати практичного дослідження упровадження моделі розвитку інформаційно-комунікаційної компетентності керівників загальноосвітніх навчальних закладів Київської області України. Описана методика розвитку інформаційно-комунікаційної компетентності керівників загальноосвітніх навчальних закладів з використанням хмарного середовища – Office 365. Представлені інструменти Office 365, які можуть бути використані у професійній діяльності керівника закладу, та описані певні сценарії їх використання. Узагальнені практичні рекомендації з використання Office 365 у процесі створення електронного освітнього середовища.

Ключові слова: ІКТ, інформаційно-комунікаційна компетентність, Office 365.

В статье обобщены результаты практического исследования внедрения модели развития информационно-коммуникационной компетентности руководителей общеобразовательных учебных заведений. Исследование проводилось в учебных заведениях Киевской области в Украине. Описана методика развития информационно-коммуникационной компетости руководителей общеобразовательных учебных заведений применительно к облачной среде обучения – Office 365. Представлены инструменты Office 365, которые могут быть использованы в профессиональной деятельности руководителя учреждения, и описаны некоторые сценарии их использования. Обобщены практические рекомендации по использованию Office 365 в процессе создания электронной образовательной среды.

Ключевые слова: ИКТ, информаицонно-коммуникационная компетентность, Office 365.

Problem statement. Current reforms of secondary education in Ukraine require new approaches to the management of an educational institution [8; 10]. Actual present day requirements for schools imply a high level of professional competence of all the participants in the educational process, especially its leader – headmaster [2; 9].

Analysis of the literature and regulatory sources, research papers, practice of assessment and evaluation of the current state of professional competences of managers of secondary educational establishments (SEE) proves that the latter does not correspond to modern requirements and educational standards [1; 2; 6; 14; 15]. The current system of education is focused on building the 21st century skills and should be labile under the influence of modern macrotendentsies: processes of globalization, demographic changes and the emergence of new knowledge and competences. Analyzing the impact of macrotendentsies on the system of education, the Law of Ukraine "On education", National Qualification Framework and the results of the investigations of scientists it is necessary to rethink the system of training of headmasters of SEE. In addition, despite the fact that the training of students earning their Master's degree in "Management of the institution", qualification category: "Manager of the institution, establishment or organization" (in the

sphere of education and administrative training) has been founded since 2006, there is still a tradition of appointment of headmasters of secondary educational institutions without an appropriate qualification of training [16].

Analysis of related works and publications. It should be noted that the issue of training headmasters of schools for the management of a comprehensive educational institution in the system of postgraduate education is not new. These issues are under the examination of Ukrainian researchers (A.I. Bondarchuk, L.M. Karamushka, S.V Koroliuk, S.H. Litvinova, V.V Maslov, V.V Oleynik and others). The issue of professional competence is being explored by V.M. Vvedensky, O.A. Dubasenyuk, L.L Khoruzha, L.I. Shevchuk. The issue of the management of secondary educational establishments is being studied by the following scientists: H.V. Yelnykova, U.A. Konarzhevskyy, V.Ye. Maslov and others. Works of S.P. Goncharenko I.A. Zyaziuna, V.G. Kremen, N.V. Morse, V.V. Oliynyk deal with the methodological basis of continuous pedagogical education. The issues of the implementation of ICT in secondary educational establishments are being explored by V.Y. Bykov, O.H. Glazunova, M.I. Zhaldak, S.G. Litvinova, N.V. Morse, O.V. Spivakovsky, L.A. Chernikova and others.

It should be noted that in 2008 the European Parliament and the Council adopted a recommendation on the elaboration of the European qualifications framework for lifelong learning (The European Qualifications Framework for Lifelong Learning / EQF for LLL). EQF for LLL promotes lifelong learning and employment opportunities, mobility and social integration of the workers. The requirement for implementing formal, non-formal and informal training was voiced. Implementation of the latter forms under conditions of rapid technology development is not possible without the use of modern ICT. So, at this point there arises an issue of the necessity of determining and approving certain standards of IC-competence.

At the same time, since 2005, UNESCO has launched a long-term project with the aim of developing a structure of IC-competency of teachers (UNESCO's ICT Competency Framework for Teachers) [4]. It resulted in 2008 in issuing the following documents: "Standards of information and communication competence of teachers": 1) "Educational Policy" (Policy Framework), which deals with basic methodological principles and approaches adopted in the project; 2) "The structure of competencies modules" (Competency Standards Modules), which justifies the subdivision into 18 modules as a means of coordination

between the three stages of education and working facets of the teacher. The singled out modules determine the competencies of teachers; 3) "Guidelines on implementation" (Implementation Guidelines), which deals with guidelines for each of 18 modules on the formation of such competencies.

Still nowadays the majority of heads of educational institutions have no professional qualification of the head of educational institutions [10; 16]. Therefore, management of the institution is often carried out based on the level of intuition and personal experience.

However, today most managers of educational institutions have no special qualified education which is appropriate for the head of educational institutions [16]. Therefore, the institution management is often done at the level of intuition and personal experience.

In addition, in the context of the reform of the system of education the issue of the qualified development of the professional competence of heads of educational institutions in the system of postgraduate education remains current. An important role in this matter should be played by institutes of postgraduate education.

Taking into consideration the variety of existing approaches and methods as for the development of IC-competence of heads of SEE, these issues still require the clarification of approaches and methods of their implementation.

Purpose of the study

The article aims to analyze the current state of the development of IC-competence of heads of SEE in Kyiv region via the resources of cloud-oriented educational environment and the presentation of the results of the carried practical work.

Findings

According to the State classifier of professions of Ukraine the head of a secondary educational institution belongs to the group "The leaders of enterprises, institutions and organizations" and the professional name given for his/her activity is defined as "The headmaster of the educational institution".

In compliance with the Regulation on secondary educational establishment (Decree of the Cabinet of Ministers of Ukraine № 778 from 27.08.2010) the management of an institution is done by its director. The head of the institution is required to be a citizen of Ukraine who has a higher pedagogical education holding a Specialist's or Master's degrees, teaching experience must be at least three years, successfully passed certification of the administrative personnel of educational institutions in conformity with the procedure laid down by the Ministry of Education and Science of

Ukraine is required as well. According to this situation the head of an educational institution entrusted with certain tasks for the implementation of which he/she should have a certain level of professional competence. Mentioning the competence, according to the National Qualification Framework, we imply the ability of a person to perform a certain activity which is manifested through knowledge, understanding, skills, values and other personal qualities.

National Qualification Framework approved in Ukraine includes a description of ten skill levels (0 to 9), covering all the levels of the national education system. Thus, the growth of the serial number of the level of qualification corresponds to the increase in the level of difficulty of relevant qualifications.

In general, the system of descriptors of Ukrainian national qualification framework is similar both to European Qualification Framework for lifelong learning and training and the framework of the qualification of European environment of Higher Education [6]. Introduced to the National Qualification Framework of Ukraine the integrated competence reflects the ability of a holder of a certain level of qualification to perform tasks and solve problems of a certain level of difficulty in the process of learning or professional activities.

Thus, headmasters of secondary schools should have a level of qualification not less than 7 (higher education of Master's level). This level is characterized by the ability to solve complex tasks and issues in a particular professional sphere or in the process of education which implies research and / or the implementation of innovation and it is characterized by uncertainty of conditions and requirements. The headmaster of a comprehensive educational institution should be aware of the special conceptual knowledge acquired during the process of training and / or professional activities at the level of latest advances that are the basis for creative thinking and innovative activities, particularly in the context of research. It is required to be able to solve complex tasks and issues that involve updating and integration of knowledge, often under conditions of incomplete / insufficient information and conflicting requirements. It is necessary to be able to express one's conclusions clearly and explicitly, as well as knowledge and explanations that justify them, to specialists and non-specialists, particularly to persons enrolled. The following requirements are to have an autonomy and responsibility to make decisions in difficult and unpredictable conditions that require new approaches and forecasting.

At the same time, according to the decree of the Ministry of Education and Science of Ukraine № 665 from 01.06.2013 "On approval of qualification characteristics of professions (positions) of pedagogical and teaching staff of educational institutions" the main components of a competence of the head of an educational institution are: professional competence, informational competence, communicative and legal competence [14].

Professional competence of a manager integrates different types of competences that reveal the manager's general abilities in various areas of educational process. The focus is on the cognitive-intellectual, diagnostic, designing, organizing, predictive, information and communication, stimulating, evaluation and control, analytical, psychological, social, civilian, communicative, reflective, creative, methodical, research competences and others.

The result of the professional activity of the head of an educational institution is a compliance of a subordinate institution to educational indicators of effectiveness and quality of secondary education. In the decree of the Ministry of Education and Science № 1116 from 19.09.2016 "On approval and implementation of the list of national educational indicators of efficiency and quality of secondary education and methodology of their calculating" indicators listed correspond to four areas: the effectiveness of establishments of the system of secondary education; financial resources invested in secondary education; accessibility to education, participation in the educational process, transition between educational levels; the educational process and the organization of the learning process [15].

We are inclined to believe that only a sufficient level of professional competence of the manager will make it possible to reach the above mentioned indicators of efficiency. Taking into account the extremely intense development of the information of society and information and communication technologies (ICT) in comparison with previous years, in our opinion, these are the factors that should be considered as a significant impetus to review and update the development of the requirements for professional competence of managers, especially – information and communication competence.

The head of SEE should have his/her own appropriate level of information and communication competence (IC-competence) and be able to analyze the state of IC-competence of teaching staff in order to monitor, review and improve the system of training. The analysis of pedagogical practice of the implementation of ICT in the educational process of institutions shows that the vast majority of managers of secondary educational establishments do not have the appropriate level of IC-competence.

The results of the study

Traditionally, professional improvement of the skills of teaching staff of Ukraine, including their employers, is held at the Institute of Postgraduate Education.

The traditional algorithm of the development of IC-competence has been generalized and it can be represented in the following way: goals and objectives of the curriculum of the development of IC-competence are defined, principles of education are agreed; then training content and assessment system are developed, forms and types of educational activities are determined, desired outcomes which are measured according to a particular system are foreseen.

This technique is supposed to be successful, but the issue of the development of IC-competence still remains open. One of the reasons, in our opinion, is the lack of an effective constant motivation of adults' activities:

– to develop his/her own IC-competence of a manager;

– to implement the acquired skills in their professional activities.

The impact factor is also considered to be the lack of a corporate standard of the national level, which would carry out a catalytic role as a permanent external factor.

We have referred to the results of our own research and studies of O.G. Kuzmynska, V.M. Kukharenko, N.V. Morse, L.A. Chernikova etc. for a successful implementation of the model of the development of IC-competence of the teaching staff in Kyiv region, including heads of SEE.

We started the development of IC-competence of teachers and heads of SEE in Kyiv region with the immediate creation of a modern educational environment in Kyiv region, an integral component of which is its electronic part – electronic learning environment (ELE).

The overall structure of ELE corresponds to the views of scientific school of N.V. Morse and consists of the following components: organizational, semantic and technological.

The technological component of ELE is implemented via a cloud-oriented service of Office 365. Recalling a number of factors that favour the use of cloud technologies (Morse N., 2016), we have summarized the following advantages of using Office 365 as a basis of the technological component of ELE in Kiev region:

– Accessibility. The resource is cloudy and does not require any physical space for the equipment of SEE. There is no need to download software directly to the computer itself – all products are available on-line. There is no need to buy an expensive equipment, it is enough to have an equipment with access to the Internet.

– Mobility. Resource access is available both from any device and operating system. It is necessary to have a device with the access to the Internet.

– Free of charge. This resource is free for educational institutions in Ukraine. For its installment one must verify the right of ownership of the domain name of SEE and verify the status of the institution that provides educational services. This status must be verified annually. There is no charge for the use of this product.

– Efficient use of working time (Fig. 1). The use of the resources of Office 365 can significantly save time both in management and in teaching. Properly organized Calendar, Mail, Planner, OneDrive and other tools allow teachers to master the tools of modern time management. The integration of these resources into a smartphone or any other mobile devices allows to have an access to the personal learning environment (PLE) from any location.

– Security. The resource is reliably protected. The protection is developed according to the lifecycle of security system of Microsoft. Also the approach of the thorough protection on the physical, logical levels and the level of data is used.

– Easy to use. One should have basic computer skills to install Office 365 at the educational institution. If necessary the telephone support service is available.

During the first phase domain name kyiv-oblosvita.gov.ua was purchased and platform of Office 365 was installed. On confirming the status of the institution by Microsoft free license of Office 365 Education (unlimited number of users) was received.

We have created accounts according to the following hierarchy (Fig.2).

A full list of resources of Office 365 for workers of educational establishments is shown in Figure 3.

Thus, at this stage the technological component of the electronic educational environment in the Kiev region was installed and built. During the implementation of the process of each its participant (managers, educators, and administrative staff) received certain tasks as for filling the semantic component of e-learning environment (training and other resources). Participants must have some developed competences in order to carry out these assignments. It is clear that not all the heads of secondary educational establishments had competences developed enough to deal with such tasks.

That is why at the stage of filling the semantic component of the electronic educational environment in Kiev region the partici-
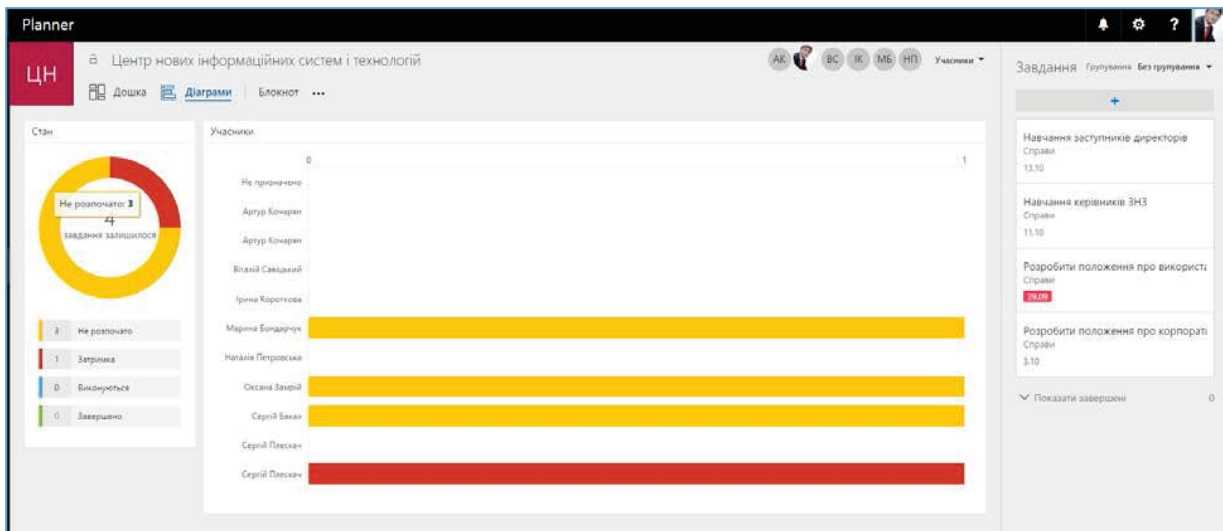
Fig. 1. Planner – tool of Office 365

The Department of education in Kyiv region

- •The head of the department of education
- •The deputy heads of the department
- •The heads of the department

Educational establishments in Kyiv region

- •The heads of institutions
- •The deputy heads of institutions
- •Teaching staff
  - •*Humanities teachers*
  - •*Mathematics teachers*
  - •*Primary school teachers*

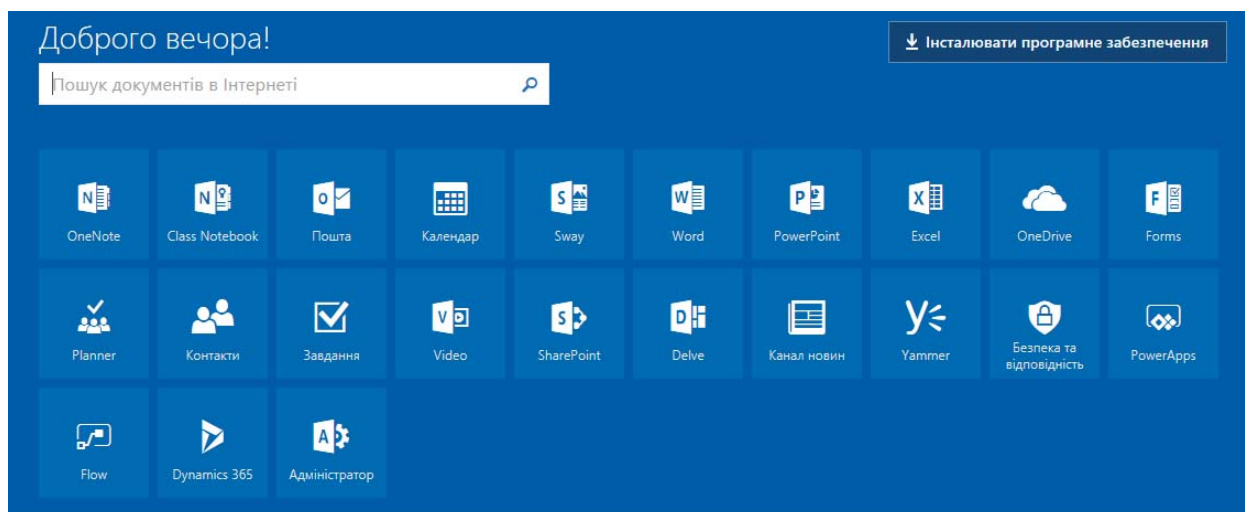**Fig. 2. The hierarchy of created groups of accounts**

Fig.3. Resources of Office 365 Education

pants were offered a training program where they could determine their own gaps in their competences and learning according to our methodology, thereby they were developing their level of IC-competence.

The Author's educational program consists of three levels and it was started with the input monitoring of the level of the formation of IC-competences of managers of educational establishments.

Thus, it is reasonable to conduct monitoring of the basic level of the formation of IC-competence, in our opinion, through online surveys. The questions of the questionnaire are formed in accordance with the recommendations of UNESCO concerning the development of IC-competence of teachers, namely, understanding and awareness of the role of ICT in the process of education, the use of basic ICT tools.

The purpose of monitoring of the formation of the basic level is to create conditions for the heads of educational institutions to realize their level of the formation of IC-competence in accordance with international standards and to identify so-called "weaknesses" which will be necessary to master; on completing the survey the head of the educational establishment should realize the need for further training to improve his/her rating and successful professional career.

After input monitoring and determining the level of the formation of IC-competences the head proceeds to the educational program, which is formed in accordance with a certain level of IC-competence.

Basic level consists of four modules. On completing the basic level of the Training Program the manager will be able to:
– create and use e-documents, presentations, graphs, charts, work with databases;
– work with digital photos and audio files;
– search and find relevant information via the Internet services;
– use corporate email.

Advanced semantic level and operational-technical component of the model of the development of IC-competence of managers of educational institutions consist of three modules. On completing the advanced level of Training Program in addition to basic skills the manager will be able to:
– use Wiki to create his/her own portfolio using digital photos, audio and video;
– use corporate e-mail;
– plan his/her activities using resources of Office 365;
– use resources of social networks;
– create and update his/her own blog;
– use social geoservices, online storage of documents and files (OneDrive);

– jointly create and edit documents online;
– create maps of knowledge;
– find, use, create and upload his/her own podcasts;
– use the Internet resources for online communication;
– use applications of advanced productivity, calendars and notes;
– arrange and conduct webinars Skype for business.

Thus, using andragogical, competence and learner-centered approach, taking into account relevant factors of influence, we have created the conditions for a stable and constant motivation (internal and external) of heads of secondary educational establishments to develop their own IC-competence. During the process of training they filled e-learning environment with appropriate resources which were immediately used in their professional activities.

Conclusion

Taking into account the results of the work on the possible precautions while using Office 365 for creating ELE it is possible to note the following:
– unstable Internet connection. The resource is only available online;
– corporate standards. It is not enough to open the platform; it is necessary to develop corporate standards as for the unified use of pointed resources of Office 365. Only standardized use can ensure the effective implementation of e-learning enviroment.

We note that the creation of e-learning environment and efficient use of its resources is possible under the following conditions:
– corporate standard of IC-competence of the head of an educational institution and its teaching staff;
– corporate standard of the creation of electronic educational resources (presentation materials, etc.);
– reforming of the system of the improvement of skills of heads of secondary educational establishments and teaching staff, as part of which the creation of open portfolios of participants of the educational process is provided;
– ensuring openness of ELE for guaranteeing the interaction.

In accordance with these requirements when installing Office 365 in an educational environment in Kyiv region, the following standards were defined:
– the following roles of access were determined: global administrator of e-learning environment, administrator of passwords, administrator and user;
– the following groups with appropriate levels of access were created: administration;

Department of Education and Science of Kyiv State regional Administration; heads of institutions; deputy heads; teaching staff (teachers); teachers of science; primary school teachers; mathematics teachers; Humanities teachers; students of grades 1–4; students of grades 5–10, student of grade 11; parents; parent committee. Each group has its own resources closed to other groups: mail, calendar, files for viewing and sharing;

– the standard for electronic signature was approved. Correspondence on working issues is done via corporate email accounts. Mailbox name is formed by the following algorithm: first initial of a name + last name + @ domain name (kyiv-oblosvita.gov.ua), for example – a.kocharyan@kyiv-oblosvita.gov.ua. In the text message an automatic signature is immediately generated of the following format: full name, position, name of institution, office telephone and site of the establishment;

– the standard of the use of the following resources of Office 365 is accepted: email, calendar, contacts, OneDrive, Planner, Sway, Yammer. For example, in the calendar work schedule should be displayed, which is available for editing by the direct supervisor and available for browsing by colleagues, students and parents. All the workshops and meetings are planned only in the calendar that makes the communication much easier.

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