ЯКІСТЬ ОСВІТИ

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USE OF INFORMATION TECHNOLOGIES IN HIGHER SCHOOL TEACHERS' TRAINING

The article considers the role of information technologies in the educational process of higher school teachers. It is noted that information technologies have become an integral component of the content of training, which contribute to the implementation principles of developmental education allow to form modern young people knowledgeable in information and communication technologies. The article defines the problem of training teachers for the use of network technologies not only from the standpoint of forming the components of information-operational activity, but also from the point of view of the development of other components of information culture – information worldview, value orientations and needs. The authors give examples of preparing teachers in European countries and America. Particular attention is paid to the use of Internet resources in teaching, obtaining up-to-date information related to the professional activities of the student, as well as the system for monitoring the educational process in a foreign language. Internet resources provide the teacher with special opportunities for use in practical classes. The World Wide Web is a real support for a teacher who has the opportunity to use Internet resources in various types of educational activities. In this regard, the information culture of a teacher, which is a system of knowledge that provides purposeful independent activity to optimally meet individual information needs, the implementation of distance and online types of learning. The article emphasizes that the most important components of a teacher's information culture are the ability to define and formulate goals, to set tasks, to build informational models of the processes and phenomena being studied, analyze information models using automated information systems and interpret the obtained results, predict possible consequences of their

decisions, use modern information technology. Every teacher should strive for this in the process of their own self-improvement.

Key words: information and communication technologies, educational process, higher school, preparing teachers, self-improvement.

Statement of the problem. The rapid formation and spread of new information and communication technologies bring fundamental changes in the information environment. Their cardinal influence affects all the main elements of society without exception (political, public and administrative state structures and institutions of the society components of the economic and social sphere, scientific and educational environmental social forms of culture and lifestyle of people etc.). Information technology is the most important aspect of business communications. The rapid development of the Internet and investment in services and infrastructure fueled the explosive growth of the information technology industry.

The main features of modern IT technologies are the following:

– Transmission of information over practically unlimited distances through digital technologies;

– Widespread use of computer savings and providing information in any necessary form;

– Organization of digital data exchange standards algorithms [Зацерковний, Тішаєв, Демидов].

Analysis of previous studies related to this work. A great contribution to solving problems related to information and communication technologies in education was made by both domestic and foreign scientists: for example, such as the following: Sokolova G.N., Gromov G.R., Gritsenko V.I., Sholokhovich V.F., Agapova O.I., Krivosheev O. A., Papert J., Kleiman G., Sendov B., Hunter B., Bondarenko S. V., Kovalenko N. D., Vladimirova L.P., Gershunsky B.S., Greidina N.L., Dmitrieva E.I., Zakharova M.K. and Karamysheva T.V. and others. Many years of domestic and foreign experience in the theory and practice of the process of introducing information and communication technologies into the educational process confirms the relevance and novelty of this direction in the development of education, brings us closer to understanding of the essence the information use and communication technologies in education and is one of the modern ways of obtaining a quality education.

However, the analysis of theoretical literature on the quality of education with the help of information and communication technologies in teaching allows us to see a clear contradiction that having theoretical and material – technical equipment in the learning process, the teacher is not ready to use it in view of the content-organizational unpreparedness. In this regard, there is a problem of insufficiently effective use of information and communication technologies to improve the quality of education.

Presentation of the main material. IT technologies have covered all the resources that are necessary for information management, in particular, computers, networks and software that are necessary for the search, formation, processing, storage and transmission of information. Modern information technologies can be grouped as follows:

– Standardization;

– Organizational and methodological support;

– Communication means;

– Technical means [Биков].

A prerequisite for any information and communication activity is the presence of a communication channel. Such a channel allows the movement of material forms of messages, but not meanings, in physical space and time and refers to the material and technical means.

There are artificial and natural communication channels and means. Artificial ones are used when two contacts are deprived of information interaction and are divided into electronic, documentary and oral, as well as their combinations. Natural communication channels are inherent in every man, they provide the transmission of information in speech (verbal) and emotional (non-verbal) levels.

The process of interaction of mutually influencing and interdependent market entities is called communication [Буртовий]. There are currently quite a few definitions of this concept, but most often the following: communication is:

1. The process of information transfer.

2. The process by which one source transmits to another some idea to change the behavior of the second.

From this the main purpose of communication, control and persuasion can be defined. Communication management is the management of inter-

actions between people who, in turn, manage the means of communication in the process of communication itself. As in any other system, communication management provides for the implementation of the following set of functions: planning, organization, accounting, motivation and control.

Management of the communication process is a complex of influences on means of communication and employees who carry out this process with the help of these means. The last few decades have been characterized by rapid saturation of information processing systems of all aspects of the life of modern society. At present, information has become a strategic resource of society. This view of information has led to the inevitable spread of ICT (information and communication technology). In a competitive market, every company must be able to adapt economically quickly to new services and technologies, market conditions and constantly changing external factors.

In the conditions of the information economy, the role of information and communication technologies is increasing significantly. From an infrastructure element, they move to the stage of the main means of conducting electronic business.

The educational community has strong evidence for the existence of exemplary professional development characteristics. Opportunities for activity-based learning make it possible to increase the effectiveness of professional development. Focusing on content in a subject area is more effective than general teaching strategies that are not tied to specific subject areas. The effectiveness of the educational process is determined by professional implementation and a competent choice of modern learning technologies [Величко]. One of the main goals of information technologies in the professional activity of a teacher is the preparation of a student for life in a constantly changing world, where the basis is the orientation of the educational process to the individual abilities and needs of a person. The application of these technologies is conditioned by such educational tasks as the search for creative ways to solve important problems, the development of innovative activity mechanisms, the direction of creativity in the form of human existence.

The use of information technologies is actualized in connection with the development of educational trends – personalization and technologization of the learning process. Students can familiarize themselves with all educational material that was demonstrated at lectures in any place convenient for them and at any time with appropriate devices and access to the Internet resource. The electronic system of information presentation replaces the traditional classroom presentation of material.

However, many schools have teacher development programs that unfortunately do not meet these guidelines. There are some experiences from European and American educational establishments. Some exemplary schools and districts have developed strategies that embrace best practices and have achieved significant results. The following are some examples of effective measures to encourage teachers to use ICTs, as well as activities to improve their skills. In the Lake Washington Designated School District in Raymond, Washington, educators are required to learn one new ICT skill per year. Each district selects one technology each year, and there are many ways for educators to learn and demonstrate their knowledge. Teachers who successfully complete a refresher course receive an award. All employees in the Danish Gymnasium should use ICT in the educational process, including integrating it into existing curricula. Every employee (including administrative staff) must demonstrate basic information technology skills (computer literacy). Those who need help are offered the opportunity to pass an additional learning. Informal professional development is encouraged through self-training in a specialized classroom for teachers equipped with the necessary technological means, and planning the schedule so that teachers can definitely work together.

The Turkey Project on Empowerment and Improvement of Educational Technologies envisages that all classes will be equipped with ICT facilities and that teaching in all groups will be based on the use of modern technologies that teachers and students can use. In order to prepare teachers for the use of ICTs in the teaching process, various professional development activities were planned, both online and in person, to support teachers.

Several school districts have successfully used expert teachers to support peers, enabling them to use ICTs effectively in preparing students for future careers. The school district is identifying expert teachers in each school for the next major initiative. A summer institute has also been organized, where teachers and administration staff attend classes.

In New Zealand, each school develops its own teacher development strategy. This will require building a culture of entrepreneurship, a continuous pursuit of learning, innovation and improvement, and risk-taking decisions. All this can only be achieved through the development of the education system.

Taken together, all these successful approaches to professional development of teachers meet the individual needs of teachers and focus on creating an environment that stimulates the adoption of technologies, equal interaction of participants in the educational process and decision-making that involves certain risks. They also include technological component in the overall goals and directions of work on curricula at the level schools and district. All these approaches imply that ICT integration should take place both at the level subject content, and within the framework of pedagogical approaches to schooling.

The above examples also show that successful professional development of teachers with using ICT is certainly possible. The challenge is to use effective professional development to bring about the change, from the micro level of schools to large-scale systemic reforms of education as a whole.

Requirements for the use of information and communication technologies by a subject teacher, outlined in this document include the need for every teacher to:

– make a conscious choice of educational technologies, including information technologies, as well as make a choice of electronic educational resources;

– implement control and evaluation activities in the educational process using modern methods of assessment in the conditions of information and communication technologies;

– know the basics of working with text editors, spreadsheets, e-mail and browsers, multimedia equipment.

The next step should be the development and adoption of relevant state standards training and retraining of teaching staff in the field of ICT.

All of the above said determines the requirements for the need to implement innovative models of advanced training. However, despite the fact that pedagogical research has developed and innovative models of advanced training based on ICT, distance learning technologies have been tested, but these models have not been widely used in the advanced training system. The course linear model of advanced training is still prevailing, while in demand are:

– personalized model model of advanced training using the Internet and distance learning technologies;

– a corporate model of advanced training (in-house training), which involves on-the-job training in an educational institution, taking into account not only the level of the ICT-saturated environment formed by a particular educational institution, but also satisfies professional pedagogical needs of each individual student and the educational institution as a whole. At the same time, a necessary condition is a cumulative system of advanced training in the environment of continuous learning, which implies constant updating of its content, which is adequate to the level of development.

As the analysis of advanced training programs of academies and advanced training institutes showed, initiative, that was implemented within the framework of educational initiatives, most of them lack programs or modules focused on training in modern educational technologies based on ICT [Вакалюк, Медведєва, Новіцька]. There are not enough programs focused on training moderators, tutors, facilitators, as well as programs that involve preparing teachers for professional pedagogical interaction via the Internet, which could also show the teacher the possibilities of self-education, co-creation in developing networked pedagogical communities, as well as programs on modern developing models of e-learning (mobile learning, adaptive learning etc.). The content of the professional development programs for teachers in the direction of their use of ICT in their professional activities should be designed taking into account the patterns of formation of ICT competence.

While forming ICT competence, it is necessary to use the following general strategies for solving problems: 1) a problem-based approach; 2) determination of information needs; 3) tactics for collecting information; 4) ability to work with sources of information; 5) the ability to synthesize information obtained from different sources; 6) creative approach to problem solving; 7) critical thinking [Антонів].

Training of teachers in the field of creating and using ICT tools for teaching can be carried out within the framework of a subject-oriented course based on an activity approach and having a practical orientation.

Training should include the following areas: technical and technological (the level of ICT

user), psychological and pedagogical (formation of knowledge and skills implementation of didactic principles in teaching using ICT tools, knowledge of didactic opportunities and directions for using various digital and electronic educational resources, the ability to integrate ICT tools into the existing traditional learning model and use them to develop student-centered teaching methods) and content-methodical (knowledge of the principles, forms, methods and techniques of learning using ICT tools content knowledge and opportunities to use multimedia training programs, Internet resources and educational sites, the ability to use ICT tools to carry out various types of educational activities) [Івашньова].

To determine the components of the teacher training process in each particular school, it is necessary to take into account:

– the level of readiness of teachers to use ICT and, in particular, digital and electronic educational resources, Internet resources in the educational process;

– the need to select specific forms of implementation of training within the framework of specific programs in academic disciplines that provide an open methodology for conducting classes.

– space – a real school ICT environment that provides the possibility of organizing independent work of teachers and the possibility of conducting lessons using ICT.

As part of the development of the programs, each teacher learns to create elements of his own teaching materials on a specific educational topic – multimedia presentations, publications using hyperlinks, a website / block using designers, multimedia reference materials, multimedia didactic materials; selects digital educational resources for presentation; electronic educational resources of a new generation for organizing independent learning activities in the classroom and outside the classroom controls etc.

It is necessary to convey each teacher the understanding that ICT is a holistic ICT competence and professional development of teachers, a technology that has a philosophical, pedagogical and psychological basis, that it is an integral part of the school of information civilization, the result of which should be not only the development of information technology competence of both the student and the teacher, but also the transition to a new educational paradigm of learning.

Results and conclusions. The results of the analysis of modern approaches to the study of the professional activity of a modern teacher in the aspect of his interaction with ICT allow us to conclude that:

ICT competence of a modern teacher is one of the most important indicators of the success of his activity and, at the same time, a necessary prerequisite for further increasing the level of his professional competence, which determines the importance of developing a system for advanced training of a modern teacher, focused on the systematic use of ICT.

The models of advanced training described above make it possible to solve some problems of increasing the level of ICT competence of a modern teacher, however, they have a number of shortcomings and do not allow to solve the problems of active use of ICT by a teacher in their work fully. This allows us to talk about the need to develop a model for teacher training based on the idea of integrating the considered models and the personalized needs of a modern teacher.

At the present stage of education reforms, serious changes are associated with the introduction of information and communication technologies in the educational process. The implementation of the reform is carried out by universities through the solution of tactical, methodological and organizational tasks.

Use of information and communication technologies saves time both in the classroom, when explaining new material, and in preparing for it, inspires teachers to look for new approaches to teaching, stimulates the professional growth of the teacher and the competence of parents, frees from unproductive routine work. The use of information and communication technologies in the work of a teacher enhances the positive motivation for learning, respectively, along with this comes an increase in the quality of knowledge and academic performance, and its effective side increases.

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ВИКОРИСТАННЯ ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ В ПІДГОТОВЦІ ВИКЛАДАЧІВ ВИЩОЇ ШКОЛИ

У статті розглядається роль інформаційних технологій у навчальному процесі викладачів вищої школи. Зазначено, що інформаційні технології стали невід'ємною складовою змісту навчання, яка сприяє реалізації принципів розвивальної освіти, дозволяють формувати сучасну молодь, обізнану з інформаційно-комунікаційними технологіями. У статті визначено проблему підготовки вчителя до використання мережевих технологій не лише з позиції формування компонентів інформаційно-операційної діяльності, а й з точки зору розвитку інших компонентів інформаційної культури – інформаційного світогляду, ціннісні орієнтації та потреби. Автори наводять приклади підготовки вчителів у країнах Європи та Америки. Особлива увага приділяється використанню інтернет-ресурсів у навчанні, отриманню актуальної інформації щодо професійної діяльності студента, а також системі моніторингу навчального процесу з іноземної мови. Ресурси інтернету надають викладачеві особливі можливості для використання на практичних заняттях. Всесвітня павутина є справжньою опорою для вчителя, який має можливість використовувати ресурси інтернету в різних видах навчальної діяльності. У зв'язку з цим інформаційна культура вчителя, яка є системою знань, що забезпечує цілеспрямовану самостійну діяльність для оптимального задоволення індивідуальних інформаційних потреб, здійснення дистанційного та онлайн видів навчання. У статті підкреслюється, що найважливішими компонентами інформаційної культури вчителя є вміння визначати та формулювати цілі, ставити завдання, будувати інформаційні моделі процесів і явищ, що вивчаються, аналізувати інформаційні моделі за допомогою автоматизованих інформаційних систем та інтерпретувати отримані результати, прогнозувати можливі наслідки своїх рішень, використовувати сучасні інформаційні технології. До цього повинен прагнути кожен педагог у процесі власного самовдосконалення.

Ключові слова: інформаційно-комунікаційні технології, навчальний процес, вища школа, підготовка викладачів, самовдосконалення.