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TEACHER TRAINING FOR THE IMPLEMENTATION OF COMPETENCE-BASED LEARNING AND TEACHING USING INFORMATION AND COMMUNICATION TECHNOLOGIES

Abstract. The article discusses modern ways of preparing Ukrainian teachers to implement the principles of competence-oriented learning in the context of using information and communication technologies (ICT) and digital teaching tools.

At the present moment, innovative technologies are a factor in the growth of production and business, the development of science and education, and have a significant impact on the development of contemporary education. The shift from the qualification model of a specialist to the competence one is a requirement of the modern society. In this regard, one of the major tasks facing the general education system is to elaborate the relevant scientific and methodological support for the educational process and establish the proper context for the development of a competency-oriented educational environment. Teachers are being actively involved in the introduction of competence-oriented learning models, which provide for the meaningful participation of learners in the educational process and the acquisition of a wide range of competencies and skills necessary to achieve personally defined educational goals and results.

The article examines didactic tools created on the basis of innovative teaching technologies. This analysis has shown that learning tools based on ICT and digital learning tools offer a wide scope of didactic opportunities. Assuming due attention is paid to the development of competencies, sufficient support and the availability of material, technical and resource base, each learner would be provided with the opportunity to develop their potential.

Methods of using ICT for educational purposes are considered. It is concluded that it is necessary to provide support for continuous professional development of teachers in order to improve the skills of practical application of pedagogical methods based on the use of ICT, implementation of the curricula, assessment of learners' knowledge and management of their collaboration.

Keywords: information and communication technologies; teacher training; competence-oriented approach; learning environment; digital learning tools

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ПІДГОТОВКА ВЧИТЕЛЯ ДО РЕАЛІЗАЦІЇ КОМПЕТЕНТІСНО ОРІЄНТОВАНОГО НАВЧАННЯ ІЗ ЗАСТОСУВАННЯМ ІНФОРМАЦІЙНО-КОМУНІКАЦІЙНИХ ТЕХНОЛОГІЙ

Анотація. У статті розглядаються сучасні шляхи підготовки українського вчителя до втілення засад компетентісно орієнтованого навчання у контексті використання інформаційно-комунікаційних технологій (ІКТ) та цифрових засобів навчання.

На сучасному етапі інноваційні технології виступають чинником зростання виробництва і бізнесу, поступу науки і освіти та справляють істотний вплив на розвиток сучасної освіти. Перехід від кваліфікаційної моделі фахівця до компетентісної є вимогою сучасного суспільства. У зв'язку з цим одним з провідних завдань, що постали перед загальною системою освіти, є розробка відповідного науково-методичного супроводу навчального процесу та створення умов для розбудови компетентісно орієнтованого освітнього середовища. Освітняни активно залучаються до впровадження компетентісно орієнтованих моделей навчання, якими передбачена свідома участь учнів у навчальному процесі та спрямоване набуття широкого спектру компетентностей та навичок, необхідних для досягнення особисто визначених навчальних цілей та результатів.

У статті вивчено дидактичний інструментарій, створений на основі інноваційних технологій навчання. Цей аналіз засвідчив, що засоби навчання, в основу яких покладені ІКТ та цифрові засоби навчання, пропонують широкі дидактичні можливості, а за умов приділення належної уваги становленню компетентностей, достатньої підтримки та наявності матеріально-технічної та ресурсної бази кожному учневі забезпечується можливість розвитку свого потенціалу.

Розглянуті способи використання ІКТ в освітніх цілях. Зроблений висновок про необхідність забезпечення підтримки безперервного підвищення кваліфікації вчителів для удосконалення навичок практичного застосування педагогічних методик, створених на основі використання ІКТ, реалізації навчальних програм, оцінювання знань учнів та організації їхньої спільної роботи.

Ключові слова: інформаційно-комунікаційні технології; підготовка вчителів; компетентнісно орієнтоване навчання; навчальне середовище; цифрові засоби навчання

Problem statement. The major features of the 21st century are, on the one hand, an unprecedented increase in the amount of data and information, on the other hand a high level of development of computer technology, information and telecommunications technologies should be marked, as well as the functioning of a powerful information infrastructure and, as a result, extensive use thereof in all spheres of activity. Information and communication technologies contribute significantly to the growth of production and business, the development of science and education.

The attitudinal changes of the society, increased information and technology growth of Ukraine and integration of our country into the European educational community specify the requirements for the level of teacher training standards, current trends in productive developments of teacher education. The conceptual framework on the content and establishment of the training process for future teachers is based on the laws of Ukraine “On higher education” (2014), “On education” (2017), The Order of the Ministry of Education and Science of Ukraine “On approval of the sector-specific concept for the development of continuing teacher education”. Regulatory legal acts defining the directions of modernization of the education system of the country are drafted basing on such documents as the “Sustainable Development Goals of Ukraine for the period up to 2030” (2019), the National Economic Strategy for the period up to 2030 (2021) and the Human Development Strategy (2021).

It should be emphasized that the reforms in the field of education in Ukraine are being implemented within the framework of the Bologna Process, which aims at transition to competence-oriented education, consequently the competence approach is proclaimed the driving one in the process of modernization of Ukrainian education system. The main goal of implementing the competence approach is to ensure the quality of education with its focus on results. The competence approach as a modern educational paradigm provides for the purposeful development of the abilities of the future teacher to effectively carry out pedagogical interaction, the advancement of professional and personal qualities, learning from the experience of professionally-oriented activities in the context of the real pedagogical process [1, p. 130]. Consequently, the key objective of Ukrainian higher education is to train a graduate who has not only mastered a certain amount of knowledge, but is also able to apply it. The implementation of a competence-based approach in the educational process requires a trained teacher.

The competence approach, its essence, categorical notions, and peculiarities of its implementation in the educational process are being studied by Ukrainian scholars. At the legislative level, the importance of implementing a competence-

based approach was acknowledged with the introduction of the State Standard of primary general education and the State Standard of basic and general secondary education. In the aforementioned documents, the need to apply this approach while establishing the educational process is emphasized.

Review of recent research and publications. In Ukrainian pedagogy and psychology, the essence of the competence approach in training specialists is reflected in the scholarly works of such researchers as Bibik, N., Kalashnikova, S., Khoruzha, L., Kuzmina, N., Lokshina, O., Markova, A., Ovcharuk, O., Parashchenko, L., Pometun, O., Trubachova, S., Vashchenko, L. and others. In the works of the aforementioned scientists, the basic provisions of the competence approach are thoroughly considered, its advantages over the knowledge paradigm are determined, and attitudes to the development of competence-oriented technologies and methodologies are elaborated.

The fundamentals of professional training of modern teachers are ascertained in the scholarly works of Babanskyi, Yu., Bekh, V., Bondar, V., Boreiko, N., Dubaseniuk, O., Goroshkina, O., Honcharenko, S., Hryshyna, Ye., Kaliuzhna, T., Khomych, L., Kuz, V., Kuzmina, N., Lozova, V., Luhovyi, V., Nisimchuk, A., Ohienko, O., Piekhot, O., Savchenko, O., Sbruieva, A., Yevtukh, M., Ziazun, I. and others. Taking into account the priority of professional training of teachers in accordance with European educational standards, special attention of scientists Bepalko, V., Bilyk, O., Dubaseniuk, O., Khoruzha, L., Khymynets, V., Kodliuk, Ya., Kulykovskyi, S., Markova, A., Nychkalo, N., Ovcharuk, O., Pavliutenkov, M., Pometun, O., Yarova, O., Yashchuk, I. is paid to the problem of introducing a competency-based approach into the content of modern education. It should be stressed that the investigation of these scholars indicated that there is a contradiction between the requirements of a competence-based approach to the provision of the educational process and the existing teaching practice in higher pedagogical educational institutions.

Aim of the article is to review and analyse advanced scholarly research on psychology, pedagogy and linguodidactics, focused on the ways to address an issue of training a modern teacher for the introduction of competence-oriented learning; systematize and summarize information about the didactic aspects of the effective use information and computer technologies as teaching aids in the context of transition to competence-oriented education.

Research findings. In the new paradigm, the innovative component of higher education is manifested in the following changes:

- the learning process is focused on the student's, and the academic function is transformed into the function of pedagogical support for learning;
- there is a redistribution of time between independent and classroom work in favor of the first one;
- a new attitude of the education system to the development of thinking and cognitive activities is being formed;

- the educational and information environment is being transformed into an open system, enriched by external sources of information;
- information technologies are being actively integrated into the educational field.

The National Report on the state and prospects of education development in Ukraine (2021) indicates the lack of communication-pedagogical components in teacher training, which hinders the humanization and learner-centeredness of the educational process.

Furthermore, it is noted that “the educational process is not taking the full advantage the potential of information and communication technologies to improve its effectiveness for the reason of a number of technical and methodological factors. The lack of teachers’ mastery of the available online educational resources, low level of skills to create their own resources and use them methodically correctly also has a negative impact” [2, p. 46].

In this regard, one of the major challenges facing the general education system is to provide comprehensive scientific and methodological support for the educational process, notably using information and communication technologies (ICT), digital resource environments and electronic and digital learning tools.

The introduction of a wide range of learning aids and tools in the implementation of the competence-based approach, particular aspects regarding the use competence-oriented learning tools, their impact on the enhancing the effectiveness of learners’ educational activities were studied by Khyzhniak, O., Levchenko, T., Popova, L., Tsarenko, O., Zaichenko.

I. Popova, L. points out that “Learning tools are one of the indispensable components of the educational process.

The methodological expediency thereof defines the productivity of learners’ educational and cognitive activities, their acquisition of speech experience, and, consequently, the effectiveness of the development of subject and key competencies.” [3, p. 110]. Moreover, the researcher s argues that “the effectiveness of the implementation of the education process is associated with the delivery of theoretical material of a particular academic subject to learners, its visual representation. And the faster the society moves towards technical and technological progress, the faster training and learning need to be modernized” [4, p. 164].

We concur with the view of Dziuba-Shpuryk, L. that in a rapidly changing flow of information , a future teacher is required not only to be able to find information, but also to analyze, synthesize, compare, structure, generalize, classify, evaluate it and draw conclusions [5, p. 44], that is, to develop information and communication competence, which is regarded as the ability of a teacher to foreground, select, integrate and apply in specific educational situations the acquired knowledge and skills, methods and experience of ICT use. Hramatyk, N. emphasizes that “future teachers should be encouraged to master of advanced information and communication technologies, so that they could provide the pedagogues not only

with a means for visualization of educational information, but with a vital need for professional and personal growth and self-improvement” [6, p. 76].

The implementation of the competence-oriented approach provides for the extensive use of active and interactive forms of delivery of classes in the educational process (computer simulations, business and role-playing games, analysis of specific situations, psychological and other trainings). The competence-oriented approach to the educational process is implemented through the use of advanced pedagogical technologies, forms and methods of teaching. Creation of diversity of pedagogical technologies used is a prerequisite and consequence of implementing competence-oriented educational programs. Consequently, competence-based education involves the shift from traditional technologies based on the reproductive model of learning towards proactive and interactive learning technologies. In the reproductive model of teaching learning, the central figure is the teacher who delivers knowledge. In the second model, there is a rather independent student there who develops one's own competencies under the guidance of a pedagogue [7]. It should be noted that the use of ICT-based teaching tools in the education process in the context of modern educational technologies can significantly increase the educational and educational effectiveness of the teacher's work.

The overview of didactic means created using advanced learning technologies demonstrates that learning tools based on ICT and digital learning tools offer greater didactic potential, namely:

- preparing, editing, and processing information;
- representation and communication of information in textual, graphic, audio, and video formats;
- storage and systematization of information;
- quick search for information;
- dissemination and communication of data through information and communication means;
- interaction and socializing through network services;
- demonstration of texts and graphics on the screen, which enables group work on information.

Thus, digital learning tools provide a universal framework for activities related to information sharing, and creation of an information and educational environment.

A major trend in the development of the information technology in the field of education is the determination to use educational Internet resources, which ensures access to domestic and foreign sources of information, provides an opportunity to choose the form and place of study and the level of education.

For instance, we consider Internet usage for educational purposes:

- retrieval of information (review of scholarly publications and abstracts on the selected themes, evaluation of available information; compilation of a list of annotated references on the topic studied, creation of presentations; collection of multimedia material; search for information in electronic libraries, specialized

databases, information and reference systems, electronic journals, newspapers, encyclopedias, dictionaries);

- communication (correspondence in online communities; blog discussions; virtual meetings at webinars and video conferences);

- publications (creation of focus web pages, thematic data banks, electronic educational resources, web quests; publication of term papers, graduation works, articles, presentations);

- preparation for classes (planning training sessions using electronic calendars; development, accumulation, dissemination and distribution of educational materials);

- delivering of teaching (lectures and courses online; collaboration of learners in web projects; support of extracurricular activities; virtual worlds, whiteboards, excursions, exhibitions);

- assessment and control of learners' knowledge (testing and internet testing; doing the assignments and evaluating the completion thereof).

Practical implementation of the developments requires for extensive use of ICT in education and their integration with advanced forms and methods of teaching. Intensive research activities in this field are undertaken by UNESCO Institute for Information Technologies in Education. The recommendations of the Institute demand to consider the professional development of teachers as a continuous learning process throughout life.

In this sense, the training of teachers and application of digital skills is recognized as an integral part of increasing pedagogical potential at all stages starting from primary training to professional development in the course of professional activities.

At the stage of professional training, subject or interdisciplinary pedagogical training is aimed at forming future teachers' understanding of the role of ICT in the learning and teaching process, that is, the formation of knowledge of technological pedagogical content.

If teachers did not have the opportunity to develop the skills of using technology to a sufficient level at the stage of professional training, it is important not to reduce the acquisition of information and digital competence solely to the formation of computer and digital technologies skills.

The theoretical components of teaching and learning as well as practical methods offered to future teachers should enable acquisition of knowledge and improvement of the awareness about ICT, as well as the use of these technologies in professional activities. Should such an opportunity not be available, professional development in the course of work could increase the level of teachers' information and digital competence.

It is necessary to develop specific institutional strategies aimed at enhancing the effectiveness of the respective training programs and improvement of teachers' skills in the course professional activities, which is able to provide support to working teachers based on the knowledge they acquired in the course of professional training.

Moreover, it is essential to support continuous professional development of teachers to improve the skills of practical application of pedagogical methods created on the basis of the use of ICT for classroom work, implementation of curricula, assessment of learners' knowledge and structuring of their collaboration.

The integration of the advanced technologies into the educational process specifies an expansion of the repertoire of teacher roles, which provide for the incorporation of innovative pedagogical approaches and techniques in the teacher training system. Successful integration of ICT into the learning environment depends on the ability of teachers to apply modern approaches to structuring the educational process, introduce technological tools into pedagogical methods, enhance social activity in the class, and ensure effective cooperation among learners and teamwork. In this regard, a significant number of teachers will need to acquire completely new skills.

Teaching skills that will be in demand in the future include the ability to establish innovative approaches to the use of technologies to enhance the effectiveness of the educational process and provide students with greater opportunities to acquire knowledge. The professional development of teachers will become an essential element of improving the educational process.

One of the key points of the transition to competence-oriented education is a significant increase in the importance of independent work of learners and the use of activity-oriented and personality-oriented forms of education. Effective structuring of this type of activity implies the solution of such educational tasks as the development of critical thinking; mastering the techniques of autonomous cognitive activity; training to work with considerable amounts of information and constructing new knowledge; effective interaction with others. Solving those problems is possible only if the independent work of the subjects of education is monitored and transparent.

It should be emphasized that at a time when the priority form of learning and teaching is autonomous cognitive activities of students, the role of the teacher also changes, notably the pedagogue becomes a consultant and coordinator of the educational process. The task of the teacher is to support and develop the ability of the learner community to make decisions, understand the essence of the phenomena being studied, and form intellectual skills. Under these conditions, training and learning tools, in particular ICT and digital learning tools, serve, on the one hand, as one of the most effective means of organizing and ensuring independent cognitive activity of learners, on the other hand, they act as a catalyst to these activities. Furthermore, ICT-based learning tools help to motivate students and awaken a thirst for knowledge.

The advanced technologies and e-learning tools can enhance the effectiveness of established forms of provision the educational process, notably lectures, tutorials and laboratory sessions. The use of ICT and digital learning tools allows teachers to compile challenging and high-quality educational materials, design and deliver

classes, determine the level of acquired knowledge, skills and abilities, and enhance learners' activities. Moreover, ICT and modern digital learning tools play a major role in structuring students' independent work. Advanced electronic educational resources, electronic learning environments, and computer testing systems enable to effectively provide well structured and supervised independent learning activities.

The current stage of development of information computer technologies and e-learning tools significantly expands access to educational and professional resources. For these reasons, the extensive and accurate use of ICT and digital learning tools is an indispensable prerequisite for further implementation of the model of competence-oriented education. How effective this process will be depends on the level of ICT competence of teachers and learners, the quality the content of digital materials, the activity of formation of online educational communities as an innovative environment, and the exchange of the best educational methods and practices.

Conclusions. Summarizing the foregoing, it could be stated that information and communication technologies are a factor of the increase of production and business, the development of science and education, thus having a significant impact on the development of modern education. The transition from the qualification model of a specialist to the competence model is a requirement of the contemporary society.

However, despite the fact that modern information and communication technologies and digital learning tools offer a wide range of didactic opportunities, it would be a mistake to assume that their use can undoubtedly and unconditionally improve the quality of teaching and learning. The efficiency of ICT introduction is determined by the quality of pedagogical technologies forming basis of the educational process. Prospects for further research are in the study of the opportunities to combine digital learning tools with advanced learning technologies aimed at enhancing and individualizing the educational process, developing communication and creative skills.

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