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PREPARATION OF FUTURE PRIMARY SCHOOL TEACHERS FOR WORK IN THE DIGITAL EDUCATIONAL SPACE OF UKRAINE

ABSTRACT

The article is devoted to the topical problem of preparing future primary school teachers to work in the digital educational environment. The authors see its solution in the introduction into the educational process of higher education institutions active forms, teaching methods that form and develop the professional competence of the future primary school teacher. The main directions, forms and means of teaching are outlined, the use of which will allow to optimally form professional competence in future teachers. The essence of the concept of «digital technologies», varieties of its interpretation are revealed. Methods of preparation of future primary school teachers for the application of information and communication technologies in the process of studying information and technical disciplines in a higher education institution are considered. Professional training of future primary school teachers helps to form students' motivation based on interest in information technology. The market of digital educational services in Ukraine is described, the subjects of advanced training that offer services for teachers, in particular for future primary school teachers. The most important methods and the main problems of practical training of future teachers in the conditions of the Concept «New Ukrainian school» are allocated.

KEYWORDS

digital educational environment, information and digital competence, future primary school teacher, informatization, digitalization

Introduction

At the present stage of development of society, characterized by the integration of our country into European educational, economic and cultural institutions, the problem of training professionals capable of performing their professional duties at a high level is of particular importance. The world community has entered a new era, when the labor market no longer needs workers who can only reproduce the previous experience of mankind. Currently, there is a growing demand for professionals with original thinking, capable of non-standard solutions, those who know how to navigate in the information space, work in a dynamic environment. That is why the priorities in the requirements for the content of education and competencies of employees are changing.

The Concept of the New Ukrainian School [8] states that the purpose of education is the comprehensive development as a person and the highest value of society, its talents, intellectual, creative and physical abilities, formation of values and competencies necessary for successful self-realization, education of responsible citizens capable of conscious public choice and directing its activities for the benefit of other people and society, enriching on this basis the intellectual, economic, creative, cultural potential of the Ukrainian people, raising the educational level of citizens to ensure sustainable development of Ukraine and its European choice.

Achieving this goal is ensured on the basis of the formation and development of such key competencies that everyone needs for personal realization, active citizenship, responsibility, which will ensure personal realization and lifelong success [19]. One of the ten key competencies of the New Ukrainian School is defined as information and digital, necessary for every modern person for successful professional activity, fast and effective mastering of the newest technologies, their application for own needs.

It should be noted that with the development of the information society, quality education is becoming one of the main factors of success, and the modern teacher is both an object and a driver of positive change. Only an information-literate person is able to effectively carry out the educational process, ensure the responsible use of digital technologies for information management, communication, and content creation. That is why the formation and development of digital competence of future educators is an important component of their training.

Analysis of recent research and publications

At the present stage of primary school teacher training, various aspects of future professional activity are covered in the research of O. Babakina, S. Belyaev, S. Yermakova, A. Kramarenko, L. Petrychenko, O. Pometun, F. Khalilova, O. Yuzyk, L. Khomych and dissertations of K. Gotsulyak, Y. Korotkova, K. Kotun, T. Kuchay, O. Nikulochkina, L. Petukhova and others.

Various aspects of the introduction of digitalization in the educational space have been studied by domestic and foreign scientists: O. Alekseev, K. Bassett, V. Bykov, O. Belous, D. Boukantate, N. Bifert, L. Vysochan. , I. Vetrov, E. Vinnichenko, D. Galkin, M. Garan, K. Gere, J. Goroshko, K. Greeber, M. Grzhybowski, R. Gurevich, A. Gurzhiy, T. Dauns, E. Dake, Y. Doroshenko, T. Dubova, M. Zhaldak, Y. Zaporozhchenko, I. Zakharova, V. Klochko, T. Koval, O. Kolgatin, A. Kolomiets, V. Kosyk, V. Kotkova, T. Kramarenko, O. Krivonos, J. Krumsvik, O. Kuzminska, N. Kulchytska, I. Kukharenko, I. Kucherak, M. Leshchenko, L. Manovich, R. Martin, O. Melnyk, N. Morse, O. Ovcharuk, A. Oliynyk, L. Panchenko, E. Polat, K. Pukelis, S. Rakov, Y. Ramsky, V. Rebrina, I. Robert , Y. Saenko, I. Selevko, S. Semerikov, O. Skafa, E. Smirnova-Tribulskaya, O. Spivakovsky, O. Spirin, P. Stefanenko, J. Stommel, O. Strizhak, Y. Trius, M. Hand, M. Shishkina, N. Yurain, A. Yatsyshyn and others.

According to O. Ovcharuk, information and communication competence involves the ability of a person to navigate in the digital space, to operate data based on the use of modern information technology in accordance with the needs of the labor market and to effectively perform professional duties [15, p.52].

Sukhovirskyi interprets information and communication (digital) competence as a proven ability of an individual to use ICT autonomously and responsibly in practice to meet their own individual needs and solve socially significant, including professional, problems in a particular subject area or activity [23, p. 27].

According to I. Vetrov, the primary task of the digital educational space is the effective use of the latest Internet technologies that allow to solve multidisciplinary problems [2, p. 11]. In turn, V. Bykov and M. Leshchenko note that the use of modern information technology contributes to the implementation of educational activities (formal and informal) at the intersection of two worlds: real and virtual [1, p. 117].
J. Krumsvik believes that the digital competence of the teacher is the skill of the teacher to apply information technology in their professional activities. The selection of materials, taking into account the specifics of the discipline, the characteristics of students, a particular topic of the lesson [26, p. 283].

Olga Yuzyk emphasizes the importance of forming information competence in the content of modern teacher training and cites a large number of Internet resources. He believes that „the main elements of the process of formation of information competence in the content of future teacher training are:
a) the ability to use information technology to demonstrate printed graphic documents;
b) the ability to use information technology to demonstrate audio and video materials in class;
c) ability to create presentations; ability to systematize and process data using tables, process maps;
d) the ability to build comparative tables and identify patterns using a computer;
e) the ability to use computer testing" [28, p.171].

The selection of innovative teaching methods is important in the training of primary school teachers. This is emphasized O.Yuzyk, L.Vysochan, N.Grytsyk[1]. [29]

Selection of previously unsolved parts of the problem. The modern era of informatization and digitalization of society actualizes the need of the individual to act effectively, performing various social functions in the digital space, both independently and as a subject (as a team). Given the above and in order to achieve qualitative transformations, there is a need for total digitalization, digital transformation, which will involve the introduction of a new educational paradigm, building the educational process in a cross-platform format with the introduction of new methods. Despite the interest shown by the scientific community, the issue of digitalization in the modern educational space in order to implement key competencies, in particular future primary school teachers, still needs more detailed study.

Presenting main material. Digital technologies make life easier by optimizing routine processes, leveling boundaries in the educational space that extends beyond their country and continent. On the other hand, such total implementation increases the requirements for the level of professional training of employees, increasing competition in the labor market. After all, there is a need for a highly qualified specialist who has certain competencies, will be able to effectively, appearing activity, responsibility, perseverance and creativity, to solve problems independently and (or) as part of

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[1] O.P.Yuzyk, L.M.Vysochan, N.V.Grytsyk . Innovative teaching methods in higher education institutions of Poland and Ukraine. Zeszyty naukowe Wyższej Szkoły Technicznej w Katowicach. 2019/11. p.45-50. [Online] Available at: *www.wydawnictwo.wst.pl/uploads/files/751416e17a4c2b4bba20d42c4806ff31.pdf.*

a team. Digitization is a reflection of the modern paradigm of society development, when competitiveness and efficiency appear as vital qualities. According to O. Nikulochkina, digitalization simplifies the educational process, making it more flexible, adapted to the realities of modern times, which provides the formation of competitive professionals [14, p. 178].

During the twentieth century, the modernization of education was focused mainly on updating its content. But in the XXI century.this is not enough, because there is a growing need to improve organizational forms, methods, teaching aids, creating an effective digital educational space through the digitalization of education.

Digitization (digitalization) of the educational process is caused by the need for widespread introduction of innovative technologies, the emergence of new requirements for professionals, including the formation of key competencies, and a new digital generation.

Thanks to a carefully organized digital environment, education becomes more accessible and comfortable, which is extremely important with minimal costs - time, financial, human resources. And for modern youth - this is also a familiar plane, which has all the conditions for development, a kind of springboard for each individual. human and comfortable implementation of innovations. Not only the information technologies themselves are important, but also their correct selection, combination and management in order to establish effective work. The advantages of digital transformation of education are obvious precisely because digitalization provides a transition from „education for all to education for everyone". Thus, a modern educational space is being built, which has all the conditions for mastering key competencies.

Digitalization involves a fundamentally new format of educational environment, based on digital technologies that provide convenient and accessible services and platforms to increase competitiveness, more effective interaction of all participants in the learning process, increase its transparency, increase the role of intellectual property, digital skills. Total digitalization of education involves a number of actions. First of all, it is the development of modern infrastructure, modernization of the legislative plane, as well as the training of qualified professionals with digital competence. Such literacy is a priority, because it allows you to acquire competencies in other areas more effectively, spending less effort and time.

Based on the fact that the State Standard of Primary Education (2018) states the objective need to form in primary school students information and digital competence, the ability to solve problems using digital devices, information and communication technologies and critical thinking for development, creative self-expression, personal and social well-being, skills of safe and ethical activities in the information society, there is a need to modernize the training of future primary school teachers [3].

The Professional Standard „Primary Teacher of General Secondary Education" (2018) clearly prescribes the functions of a teacher [20]. For each function, the professional competencies, knowledge, skills and abilities that the teacher must have are specified. An important component of the professional competence of a pedagogical worker is his ability to apply digital technologies in the educational process.

In our opinion, the primary task of informatization of primary education should be the fundamental preparation of primary school teachers for the use of information and digital technologies in professional activities. If earlier there were debates about who should carry out the planned process of computer literacy in primary school students - a computer science teacher or a primary school teacher, now, with the transition to a new educational standard, this issue is completely removed. Only a primary school teacher, using the arsenal of all subjects, carrying out integration and multifunctional activities, has the opportunity to implement the requirements of the standard and use information and digital technologies as a tool for forming in young students universal learning activities (cognitive, regulatory and communicative) standard [3]. This will ensure that students master the key competencies that form the basis of the ability to learn.

Thus, the requirements of the current educational standard are an important factor influencing the formation of information and digital competence of future primary school teachers, because their implementation requires specialists who have a sufficient level of professional competence in the use of information technology in the educational process. Despite the large number of scientific papers on the issue of digital competence of primary school teachers, there is no single term for determining the professional competence of a teacher in the field of information and digital technologies. Foreign researchers use such terms as digital competence, digital literacy, ICT competence, ICT literacy and others. The Institute of Information Technology in Education of UNESCO uses the term „digital literacy" in its programs. In particular, the analytical notes of the Institute for Digital Literacy in Education (UNESCO Institute for Information Technologies in Education, 2011) state that the digital competence of the teacher includes such components as knowledge and skills related to educational strategies, awareness of innovations in didactics and pedagogy [27].

An updated version of the European System of Key Competences for Lifelong Learning (Recommendation 2018/0008 (NLE) of the European Parliament and of the Council (EU)) (2018) states that digital competence includes confident, critical and responsible use and interaction with digital technologies for learning, work and existence in society [7;25]. These include information literacy and data literacy, communication and collaboration, digital content creation skills, security (including digital well-being and cybersecurity), and problem-solving skills.

After analyzing the syllabus of the specialty 013 „Primary Education", we came to the conclusion that most institutions of higher education in the context of digitalization and informatization focus on the training of future primary school teachers in the following disciplines:
- „Modern universities in the organization of professional activity", „Methods of teaching the educational course „Technology" (Melitopol State Pedagogical University named after Bohdan Khmelnytsky) [11];
- „Modern information technologies with the basics of informatics and programming", „Methods of teaching informatics", „Methods of teaching informatics in secondary schools", „Technologies of teaching informatics in primary school", „Pedagogical innovation", „Pedagogical innovations" (Vasyl Stefanyk Precarpathian National University) [18];
- „Educational information and communication technologies", „Informatics with teaching methods", „Information technologies in primary education", „Methods of using information and communication technologies in primary school", „Methods of teaching

information education", „Modern lesson of integrated learning in NUS ", „Informatics and programming in primary school „(LesiaUkrainka East European National University) [24];
- „Programming", „Information and Communication Technologies", „Computer Networks and Internet", „Computer Graphics and Multimedia Technologies", „Methods of Teaching Informatics" (Taras Shevchenko National University of Chernihiv Collegium) [13];
- „Informatics", „Network technologies", „Elements of algorithmization", „Information technologies in the professional activity of a primary school teacher", „Hardware and software maintenance of computers", „Methods of teaching computer science in primary school" (Drohobych State Pedagogical University Ivan Franko) [6];
- „Fundamentals of computer science with elements of programming", „Information technology in primary education", „Methods of teaching computer science in primary school", „School course of computer science with teaching methods" (Kherson State University) [22].

With the adoption by the Cabinet of Ministers of Ukraine of the resolution of August 21, 2019 № 800 „Some issues of professional development of pedagogical and scientific-pedagogical workers" (as amended in accordance with the Resolution of the Cabinet of Ministers№ 1133 dated 27.12.2019) [4] in the market of educational services there are many subjects of advanced training. In particular, they offer in-service training, including participation in seminars, workshops, trainings, webinars, workshops, as well as the opportunity to do an internship. Among the types of professional development offered by the subjects of professional development, there are many resources that teach digital literacy and information technology. It should be noted that many entities cooperate with the Ministry of Education and Science of Ukraine.

Thus, the online education studio „EdEra" for both teachers and students majoring in 013 „Primary Education" in terms of informatization and digitalization of the educational process offers a number of courses: „Online course for primary school teachers" (introduction to the new State Standard Primary Education and Competence Learning Methods), ProPowerPoint (an online PowerPoint presentation design course created by EdEra in partnership with Reprezent), Key 21st Century Skills (a blended course in two forms: the online part is available to everyone, the offline program is designed for teachers), „Take and do" (a course based on practical tools for young teachers, with which you can diversify your lessons and change their form, and sometimes a content) [21].

The Ukrainian public platform for mass opens online courses Prometheus is the first and largest free education project for everyone in Ukraine. The project is constantly evolving and growing, increasing the number of available courses and introducing the latest teaching methods for all. According to the founders, their goal is a revolution in education in Ukraine. Together with leading higher education institutions, blended learning technologies are being implemented on the platform. Among the courses offered for future primary school teachers are the following: an online course from Columbia University's Pedagogical Institute „Science of Learning: What Every Teacher Should Know?", A course „Innovating in Schools", a course „Media Literacy for Educators", a course „Digital communication in the global space", the course „Fundamentals of Information Security" [21].

The NaUrok educational project is a site with webinars, conferences, competitions and a magazine for educators, an all-Ukrainian Olympiad, materials for extracurricular

activities and lessons. Students and teachers receive certificates and awards for taking courses or competitions. There are many webinars on the NaUrok project website that will be useful for future primary school teachers [21].

The Vseosvita project develops courses for the personal and professional self-development of teachers, parents, students and anyone seeking new knowledge. The platform offers lectures on the most relevant topics that will help to be in the trend of educational technologies and better understand the needs of modern children [21].

SuHaRi lifelong learning portal is a site with courses, trainings, hackathons and lectures. The platform collects information and comparisons of all courses and schools: from English classes or QA courses (testing) to learning 1C. Basically, most courses and trainings provide a basis or help to deepen knowledge [21].

MOU (Maidan Open University) is an educational initiative that disseminates ideas and promotes the development of civil society in Ukraine. On the site of this platform, you can take a lot of useful and informative courses. The Digital Security and Online Communication course is based on more than 100 hours of training conducted under the USAID Program by the Eastern European Foundation Foundation with Internews-Ukraine and partners. Also, the course „Information Security in the Digital World" will be useful to increase digital literacy and ICT competence [21].

In addition, the Ministry of Digital Transformation has developed and implemented a course on digital literacy on the platform Osvita.diia.gov.ua („Action. Digital Education") [5]. This site features informative and useful videos about the digital skills a person needs in the 21st century. Also, on this platform you can take a test to determine your own digital literacy. The resource will be useful for the older generation, but young people can also find a lot of interesting information.

In our opinion, the availability and simplicity of information and communication technologies contribute to the widespread use of their tools in the educational process, as they provide its intensification, increase the speed and quality of perception, understanding and assimilation of knowledge.

The Concept of Development of the Digital Economy and Society of Ukraine for 2018 -2020 [10] states that the learning process with the introduction of digital technologies becomes mobile, differentiated and individual. However, technology does not replace the teacher, but gives him new opportunities, allowing the student to enjoy the exciting process of communication and cognition, help him automate much of his work, freeing up time for search, communication, self-improvement, individual work with students, provide feedback. increase the efficiency of management of the educational process and education in general. Therefore, the formed information and digital competence of the future teacher will allow him in professional activities to make effective decisions on the use of information and communication technologies in a given situation, taking into account the needs and capabilities of modern primary school students [9;10].

The Recommendations of the European Parliament and the Council of Europe on the development of key competences for lifelong learning [19] state that the basis of digital competence is basic skills in the use of information and communication technologies: the use of computers to search for information, analysis, storage, production, presentation and exchange, as well as for communication on social networks on the Internet.

Currently, in the field of educational standards, the most modern strategic document developed by the European community is the Digital Competence Framework for Citizens (DigComp 2.0: Digital Competence Framework for Citizens) [25], which defines the main components of digital competence in five areas (information and digital literacy, communication and cooperation). creation of digital content, security, problem solving) at three levels (basic, independent, professional user).

The DigCompEdu conceptual benchmark for digital competence, developed by the European Commission Research Center [25] in 2017, targets professionals at all levels of education, from early childhood to higher and adult education, including general and vocational training, training for people with disabilities and non-formal learning. The model clearly identifies 22 components in six areas of digital competence of the teacher:
- professional involvement (use of digital technologies for communication, cooperation and professional development);
-digital resources (search, creation and distribution of digital resources);
-teaching and learning (management and organization of the use of digital technologies in education);
-evaluation (use of digital technologies and strategies to improve digital evaluation);
-empowerment of learners (introduction of digital technologies to improve inclusive, individual education and active involvement of pupils and students);
- promoting digital competence of students (providing opportunities for creative and responsible use of digital technologies for working with information, communication, content creation and problem solving).

According to the presented model, the formed digital competence will allow the future educator not only to use digital technologies for professional interaction with colleagues, students, their parents, their own professional development, providing learning strategies focused on students, their evaluation, improving feedback, learning process, but also involves the acquisition of skills and experience in the formation of information and digital competence of students.

The international standard „Structure of ICT competence of teachers" [27], developed by UNESCO together with leading experts in the field of ICT, defines the competencies of teachers necessary for the effective organization of learning using information and communication technologies. The structure of ICT competence of teachers is formed by the integration of three approaches to learning based on personal development (technological literacy, deepening and creation of knowledge), with six aspects of pedagogical work (understanding the role of ICT in education, curriculum and assessment, pedagogy, ICT, organization and management, teacher training).

Conclusions

The professional training of future primary school teachers in the direction of readiness to work in the digital educational space of Ukraine from the point of view of personal aspect is correlated with the tasks of each discipline studied in pedagogical education to achieve a bachelor's degree. Thus, we believe that the digital environment of a higher education institution „works" for the development of the future teacher's personal aspect of information and digital competence.

Continuing the opinion, we emphasize once again that the general professional aspect of information and digital competence is based on its components such as: value, communication and technology and all general competencies set out in the Standard of the first level of higher education, bachelor's degree, specialty 013 „Primary Education". (2017). These requirements of the mentioned standard inevitably lead to the need for continuous development of information and digital competence of the teacher by improving the relevant competencies [12;17].

Professional information and digital competence of a teacher is the ability, ability and willingness to solve professional problems, using common in this professional field of information and digital technologies. Based on the analysis of pedagogical and methodological literature, we can conclude that the greatest potential opportunities in the training of future primary school teachers has a competency approach aimed at enhancing the activities of students as subjects of educational activities. This problem becomes especially relevant for the training of future primary school teachers in the context of Ukraine's entry into the European educational space, taking into account changes in priorities in domestic educational policy. Moreover, the potential of digital technologies and, in particular, their application in the implementation of a new educational paradigm, has not yet been deeply explored.

In the Ukrainian education system, the reform of state standards at all educational levels has begun, there is a transition to competence-based learning and the processes of informatization and digitalization in education continue. In light of the above, there is a need for purposeful formation of information and digital competence of future primary school teachers. Summing up, we note that the factors of formation of information and digital competence of future primary school teachers while studying in pedagogical institutions of higher education are: ensuring the continuity of its development; study of the state of competence of the entrant; correction and development of competence in students; stimulation and orientation of the graduate on its improvement; finding ways to modernize the training of future teachers who should become a specialist of the New Ukrainian School.

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PRZYGOTOWANIE PRZYSZŁYCH NAUCZYCIELI SZKÓŁ PODSTAWOWYCH DO PRACY W CYFROWEJ PRZESTRZENI EDUKACYJNEJ UKRAINY

STRESZCZENIE

Artykuł poświęcony jest aktualnym problemom przygotowania przyszłych nauczycieli szkół podstawowych do pracy w cyfrowym środowisku edukacyjnym. Jej rozwiązanie autorzy upatrują we wprowadzaniu w proces dydaktyczny szkół wyższych form aktywnych, metod nauczania kształtujących i rozwijających kompetencje zawodowe przyszłego nauczyciela szkoły podstawowej. Zarysowano główne kierunki, formy i sposoby nauczania, których wykorzystanie pozwoli na optymalne ukształtowanie kompetencji zawodowych przyszłych nauczycieli. Ujawnia się istota pojęcia „technologie cyfrowe", różnorodność jego interpretacji. Rozważane są metody przygotowania przyszłych nauczycieli szkół podstawowych do stosowania technologii informacyjno-komunikacyjnych w procesie studiowania kierunków informacyjno-technicznych. Szkolenie zawodowe przyszłych nauczycieli szkół podstawowych pomaga kształtować motywację uczniów opartą na zainteresowaniach informatyką. Omówiono rynek cyfrowych usług edukacyjnych na Ukrainie, czyli tematy szkoleń zaawansowanych, które oferują usługi dla nauczycieli, w szczególności przyszłych nauczycieli szkół podstawowych. Przedstawiono najważniejsze metody i główne problemy praktycznego przygotowania przyszłych nauczycieli w warunkach Koncepcji „Nowa szkoła ukraińska".

SŁOWA KLUCZOWE

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