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ARTICLE

SECTION XXIV. PEDAGOGY AND EDUCATION

DIGITALIZATION OF EDUCATION: CHALLENGES FOR TEACHERS

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Summary. *The rapid development of ICT requires the development of the digital competences of every person. For educational staff, digital skills become vitally important. On the way of digitalization of education, teachers face a number of new challenges. The authors outline and analyze these challenges: the transformation of the teacher's role, the lack of live interaction, the greater workload, the increase of time spent in front of the computer monitor, and the lack of quality digital learning material, to name a few. The challenges are seen in the article as the ways to develop and further master teachers' digital competence and ensure high-quality education.*
Keywords: *digitalization of education, challenges, digital competence, students, teachers.*

In modern conditions of rapid development of information and communication technologies and digitalization of every field of human activity system of education and science requires radical changes. More and more professions need digital skills and the ability to apply new technologies. Hence, "the acquisition of digital competencies becomes a basic need for everyone" [1]. The profession of a teacher is not left out either. It is becoming an urgent task to train a teacher for the new challenges of the digitalizing educational system. The most significant task for teachers has always been to provide quality education. Today it means much more. Teachers must not only have the skills to work on a computer, but also feel free in the digital environment. This concerns teaching staff both at secondary schools and universities.

The problem of acquiring digital skills by Ukrainian educators is exacerbated by a number of factors: the brutal war waged by the Russian Federation in Ukraine, the aftermath of the COVID-19 pandemic, the lack of proper digital infrastructure and e-services in educational institutions, the lack of the Internet or its slow speed.

The problem of digitalization in education is within the scientific interests of international and Ukrainian researchers. For instance, the use of information and communication technologies in the learning process is being investigated widely by a lot of Ukrainian researchers and educators. For sharing the results of their theoretical research and practical experience a specialized scientific journal "Information Technologies and Learning Tools" was founded in 2018 [2]. On its pages, there are hot discussions on how to apply information and communication technologies in the educational process, to create a digitalized educational environment at schools, universities, and in extra-curricular activities. Yet, there are very few practical recommendations for Ukrainian teachers on how to implement new learning tools in their everyday pedagogical activities. Logically, it can be assumed that recommendations can be given when the problems and challenges have been outlined.

In view of the above, the purpose of the publication is to consider the challenges faced by teaching staff in Ukraine in the process of digital transformation of the national educational system.

First of all, it is expedient to start with the definition of terminology. The analysis shows that the most frequently used terms in researching digitalization in education are "digital competencies" and "ICT (information and communication technologies) competence".

The term "ICT competence" is used in UNESCO publications. Realizing the vital role of developing teachers' skills to use ICT for education, there has been worked out the ICT Competency Framework for Teachers. The document describes 18 competencies that involve six aspects of practical teachers' activity on three levels: knowledge acquisition, knowledge deepening, and knowledge creation. On the first level, teachers acquire knowledge about using technology and basic ICT competencies. This level is aimed at informing teachers of the potential benefits of ICT in the classroom; developing their ability to manage and organize the ICT use in the learning and teaching process at educational institutions, in lifelong learning, and further professional development.

In ICT Competency Framework for Teachers, it is emphasized that teachers, in addition to having ICT competencies and the ability to develop these in their students, must be able to use ICT to help students become collaborative, problem-solving, creative learners and innovative and engaged members of society. For this purpose, teachers' professional development should be understood as a lifelong learning process, rather than a one-off event [3].

Thus, it can be considered to be a tool to guide pre-and in-service teacher training on the use of ICTs across the education system. Its target audience is teacher-training personnel, educational experts, policy-makers, teacher support personnel, and other professional development providers [4].

The second term is typical for European scientific space. In 2013 European Commission and the Member States worked out the European Digital Competence Framework for Citizens, also known as DigComp. It offers a tool to improve citizens' digital competence. DigComp has become a reference for the development and strategic planning of digital competence initiatives both at the European and Member State level. In addition, there was worked out Digital competence

frameworks for educators (DigCompEdu) [5]. The document is based on the methodology and principles of the UNESCO ICT Competency Framework for Teachers.

Thus, the vital role of developing digital skills for teachers is officially acknowledged on the international level. On the whole, digital competence is seen as the conscious and critical use of information society technologies for work, leisure, and communication. Digital competence of a teacher is understood as the set of knowledge, skills, and attitudes that a teacher should possess in order to ensure critical and creative use of ICT and digital media for educational purposes and leisure.

In order to make learning and teaching effective, teachers should be competent in the following digital competence areas: information (e.g. identify, locate, retrieve, store, organize and analyze digital information), communication (e.g. communicate through online tools, ensuring privacy and safety), safety on the internet (e.g. properly manage personal data protection), problem-solving (e.g. creatively use technologies, solve technical problems) and content creation (e.g. create and edit new content, integrate previous knowledge and content, apply for intellectual property rights and licenses) [6].

Transforming the educational process in Ukraine into a distance format in 2020 because of a COVID-19 pandemic became a real impetus for the vast majority of teachers and educators to realize the urgent need to acquire and master their digital skills. At first, the most crucial challenge was simply to organize video communication with students. Then over time, teachers realized that online classes in the form of simple transfer of knowledge and information are ineffective. During such classes, the students' concentration is much lower than in reality. An active search for new learning and teaching forms and methods with the use of web services for video conferencing has begun.

As it turned out, the teacher's charisma is not enough to bring the necessary information to students and keep their attention throughout the online lesson. Teachers had to change their roles from an ordinary teacher to an actor, blogger or video blogger, podcaster, content manager. This required new knowledge and skills from them, as their activities were to be aimed not only at the interesting and extraordinary transfer of information but also at organizing productive actions of students with the received information.

In addition to this challenge, another one was the lack of live interaction between participants in the educational process. The mode of work "teacher-student" and "teacher-class" does not meet the needs of the students' and teachers' social interaction. Performing certain educational tasks requires the use of the following modes: work in pairs, mini-groups, and teamwork. Teachers' ignorance of the possibilities of communication messengers and educational platforms for organizing various types of work with their students has become a serious obstacle to the provision of high-quality knowledge.

The age of teachers can also be considered an objective factor in the difficulty of acquiring digital competence, which is why students sometimes appear to be much better oriented than their teacher in the digital environment and have a higher level of digital skills.

A significant increase in the time spent in front of a computer monitor and hence, the greater workload has become an unexpectedly serious challenge in terms of the physiological condition of teaching staff: visual impairment, immobility, posture problems, etc., as well as their psychological and emotional state due to lack of empathy.

However, one of the most serious challenges was the lack of quality digital content, that is the appropriate information and learning content for academic disciplines and courses. Using a traditional textbook during online classes is impractical and time-consuming. New forms of information presentation are required – electronic textbooks and manuals, videos, presentations, various tests, video lessons, animation, collages, slides, etc.

Unfortunately, the achievements in digital learning content in Ukraine are few and far from known to the wide pedagogical community. In particular, the implementation of the all-Ukrainian experiment "Electronic textbook for general secondary education", which took place in 2018-2021, needs more coverage in the educational media. And there are no guidelines on how to create electronic textbooks and manuals for higher education. That is why teaching staff must rely on their digital knowledge and skills, which are often lacking.

Therefore, in order to create high-quality digital learning content for academic disciplines, teachers should develop their digital competences. To identify ways how to achieve a proper digital competence, it is first necessary to determine its level, identify gaps in knowledge, lack of specific skills, and then accordingly – choose ways to acquire it.

To begin with, teachers need to pass the national test "Tsyfrogram (digital grammar) for Teachers", which was created on the basis of the professional competencies of a teacher. The test tasks assess 21 professional digital competences within five categories: teacher in the digital society; professional development; use and analysis of digital educational resources; teaching and assessing students using digital technologies; development of digital competence [7]. In this way, Tsyfrogram will allow the teachers to find out what they need to pay attention to in order to acquire an appropriate digital competence.

To develop the necessary digital skills for teachers and to overcome the challenges faced by them in the process of digital transformation, first of all, a new form of education is proposed – edutainment (made from the terms "education" and "entertainment"), which means a combination of education/learning and entertainment. In other words, the teacher will develop the necessary digital skills by watching educational series instead of online courses, seasons instead of levels, and series instead of lessons. Currently, the following series have been created for teachers and are available for use: "Digital skills for teachers", "Interactive learning: tools and technologies for interesting lessons". Educational series intended for students will also be useful for teachers: "New digital professions", "Artificial intelligence for schoolchildren", "Digital marketing for schoolchildren and students", and others.

In addition to edutainment, useful for the development of teachers' digital competence will be: the development of digital learning content; ready-to-use digital teaching materials; webinars and seminars for teachers as a part of their personal

and professional development; social networks for exchanging experience in the practical application of digital technologies in the educational process; digital education centers at pedagogical universities, etc.

Conclusion. To sum up, it is necessary to admit that the outlined challenges of digitalizing the education system in Ukraine are not comprehensive. There are much more of them. Certainly, they should be investigated and discussed by researchers and pedagogues since they can be treated as a way to further develop teachers' digital competence and ensure the proper quality of education. However, only an integrated approach to the development of teachers' digital competence will allow them to successfully overcome the challenges of the digital transformation of education.

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