

DIGITAL EDUCATIONAL ENVIRONMENT FOR METHODOLOGICAL TRAINING OF THE FUTURE COMPUTER SCIENCE TEACHERS

A modern society is characterized with digitization, which is reflected in the multifaceted computer networks use, digital technologies, and a wide range of mobile communication. Education does not stand aside from this process and, providing educational services, is based on the digital society requirements. In particular, it concerns with properly implemented learning management systems, innovative pedagogical technologies that involve the use of cloud applications, the Internet, digital content, as well as electronic document management, open cooperation among participants of the educational process. Digitization confidently permeates all components of the educational process: from management mechanisms to the learning environment.

In regulatory and dictionary-reference sources, it is founded individual definitions of the concept of «digital educational environment» (DEE), as it is a modern term that has been widely used in recent decades.

The author interprets DEE as an artificially developed educational environment where the didactic goals of students' training, participants' cooperation and communication in the educational process are achieved through the balanced and appropriate use of digital technologies. It is clarified that digital technologies are technologies of developing, transmitting and saving information messages, which involves encoding their content using numbers.

DEE combines educational, didactic, management resources with the use of modern digital and communication technologies, ensuring free access of the educational process subjects to information resources and digital content basing on effective cooperation within this environment. It is also worth mentioning that DEE is formed by a set of technical and programmatic, technological and informational, communicative and didactic aggregates that implement the educational process and are aimed to achieve the learning outcomes by the students.

DEE is determined by digital society needs and students' modern generation, specifically, to have access to education in a 7×24 format (that is, 7 days a week, 24 hours

a day). DEE provides the other, different from the traditional approach, construction of the educational process. Thus, students can receive educational materials through different devices and platforms, and the same information can be displayed in different formats. In addition, the organization of education is diverse; students' independence and their responsibility for the performed activities are increasing.

DEE subjects perform organizational, educational, communication, evaluation and correction, reflective activities. However, its content for those who study and those who teach is different. It is necessary to understand that DEE contains considerable amounts of information presented in various formats and, therefore, it is important to be able to process them, turn them into knowledge and competence. This skill is formed during training, a person's performance of this or that activity and giving its results personal significance.

DEE develops a number of challenges for educational process subjects. One of them is the teachers' readiness to work with DEE, which requires updating the education content, organizational forms and teaching methods, mechanisms to manage the educational process, which are designed for a significant bias towards independent, motivated, research-searching, creative educational and cognitive activity of those who study.

Under such conditions, teachers' special training is necessary, including future Computer Science teachers, who through the content of the school subject «Computer Science» ensure students' digital development and socialization under the conditions of the challenges in the modern digital society. The author stresses on the importance of the students' skills in the use of digital technologies and modern educational innovations in combination with the method of the subject teaching. Therefore, training under the educational and professional program «Secondary Education (Computer Science)» should be proactive, provide methodical training of competent teachers who have the ability and willingness to work under the conditions of society digitalization.

When implementing DEE for methodical training of Computer Science teachers, it is necessary to rely on the results of fundamental research dealing with Computer Science,

the position of psychological and pedagogical sciences, advanced pedagogical experience, and achievements in the field of Computer Science.

Another challenge of the education digitalization is the development of such an educational environment that would meet the requirements of society informatization, didactics and digital pedagogy, would act as an effective means of people's comprehensive development who are in it, would ensure the implementation of educational programs and the achievement of the outlined goals, tasks and expecting learning outcomes. Also, DEE should be safe and open, informative and protected, effective and integrated while using wisely and appropriately by the educational process participants.

The author considers DEE for methodical training of the future Computer Science teachers as an artificially developed educational environment that combines digital technologies, information objects and other resources for the purpose of students' methodical training, involving them in creative cooperation, open communication with all participants of the educational process.

The author outlines DEE with the help of technical and technological means, didactics of the educational process, and the environment subjects.

In order to support the interaction of DEE specified components, the content of various fields of knowledge is taken into account, in particular: psychology (motivation; reflection; person-oriented approach; thinking, etc.); didactics (learning content; approach to learning as a joint activity); teaching methods (organization of the educational process in Computer Science as a school discipline, etc.); digital didactics (application of engineering methods of designing and constructing an innovative educational environment, etc.); management (processes of planning, organization, motivation and control of activities for the purpose of various resources coordination (human, technical, informational ones etc.)); sociology (development and functioning of communities, the relationship between the individual and the team, comprehending the educational process in the context of the relations of its participants). At the same time, the environment is not a sum of subjects and objects that are united by certain characteristics, but is a dynamic

system that exists on the basis of subject-subject interaction, which is defined by external factors.

The modern educational environment should be: a digital model, since digital technologies are confidently and variously used in the learning and development processes by all participants of the educational process; integral dynamic system, characterized by the well-founded development of both subjects of the educational process and technical and technological support, didactic components, in particular educational and didactic content.

The rapid development of digital technologies develops the need to implement a specially organized DEE as a means of learning and as an activity tool that meets modern requirements, precisely open and flexible, adapted and integrated for cooperation and communication of the environment subjects in the educational process. Students are the subjects of learning and development through their own activity in the environment, communication with teachers, administrators and other individuals in the «teacher–environment–student» system, on the basis of which various modifications are possible, for example, «student–environment–student–environment–teacher».