传统师范教育现代化的一个重要方面，是将学生的艺术与思维经验纳入教学过程，从而推动艺术特性与艺术教育核心价值的实际获取与内在发展。基于此，学生艺术-教育心智的形成被视为当前美术教师培养体系中的一个重要且必要的目标。

关键词： 美术教师、艺术教育者、高等师范教育机构的美术教师培养、艺术-教育心智、STEAM 教育模式、美术教师培养的趋势与问题。

DOI:
UDC:

Chornyi Oleksandr
Doctor of Philosophy (PhD),
Department of Pedagogy,
The State Institution "South Ukrainian National Pedagogical University named after K. D. Ushynsky",
Odesa, Ukraine

PECULIARITIES OF TRAINING FUTURE COMPUTER SCIENCE TEACHERS AT THE CURRENT STAGE OF EDUCATIONAL DEVELOPMENT

Abstract. At the current stage of rapid development of digital educational systems and the implementation of artificial intelligence, the role and functions of Computer Science teachers have significantly expanded. Among modern trends, the integration of artificial intelligence plays a key role, as universities across Europe and Asia increasingly adopt adaptive systems that analyze students' performance and deliver individualized content. Future Computer Science teachers are required to have a solid knowledge of Computer Science at a fairly high level, significantly higher than that provided in the process of studying only school courses, to know the methodology for acquiring new theoretical knowledge and using it in their professional activities, and the levels of their awareness must correspond to the

current state of the subject area. The peculiarities of the training of future teachers at the current stage of education development is associated with the need to improve the methodological basis, enrich the psychological, pedagogical and substantive unity of the organization of the educational process. Among the current trends in improving the training aimed at future teachers of Computer Science, the integration of artificial intelligence plays the greatest role, as universities are increasingly resorting to adaptive systems that analyze children results and offer individualized content.

Keywords: *Computer Science teachers, training of future Computer Science teachers in higher pedagogical education institutions, virtualization of the educational environment, digital educational tools, education digitalization, blended learning technologies «blended courses», online courses.*

Introduction. One of the most pressing issues in modern education is the training of highly qualified teachers capable of implementing and utilizing elements of the digital learning environment, which requires the extensive and active application of advanced information technologies. In accordance with the reform of school education, the future Computer Science teacher must be able to deliver subject content professionally. To achieve this, they need to create a learning environment for computer science that takes into account the educational interests of children across different grade levels (elementary, middle, and high school), corresponds to children's age-specific knowledge and skills in using IT, and enables in-depth study of the subject [6]. The use of such an environment increases children's motivation to study Computer Science and helps the teacher implement modern forms and methods of teaching the subject.

The analysis of recent research and publications has confirmed the existence of a substantial body of literature on the methodology of training future Computer Science teachers. The academic foundation is represented by the works of T. Vakaluk, M. Zhaldak, O. Spirin, and N Morze. However, the contemporary

directions of digitalization within the educational environment still require further specialized research.

The purpose of the article is to characterize the peculiarities of training future Computer Science teachers at the current stage of development of the education system in Ukraine.

Presentation of the Main Material. The foundations of the system for training future Computer Science teachers have been thoroughly studied by N. Morze, who distinguishes two key levels in their training: fundamental and specialized (professional). Fundamental training ensures the formation of teacher's information culture. Its content includes the areas as follows: theoretical foundations of informatics, algorithm theory, data structures, software development technologies, computer systems architecture, programming paradigms, computer graphics, operating systems, information systems, theoretical foundations of databases, discrete mathematics, and the global Internet network, Among Others. According To N. Morze, The professional component of the future Computer Science teacher's training lies in methodological training, which builds upon the content of fundamental education and the training must take into account the activity-based model of the teacher, developed through the analysis of the core types of professional activities and key functions of a Computer Science teacher in modern schools: information-oriented, design (modeling), analytical, mobilizing, instructional (translational), and diagnostic-evaluative activities [5].

At the stage of rapid development of digital educational systems and the implementation of artificial intelligence, the functions of the Computer Science teacher have undergone significant changes. Among the current trends, the integration of artificial intelligence plays a leading role, as universities in Europe and the United States increasingly adopt adaptive systems that analyze students' performance and offer personalized content. Virtual and augmented reality technologies are also gaining popularity, being actively used in schools in South Korea, Japan, and several European countries. The development of the STEM field

remains one of the priorities for most countries: in Germany, Finland, and Singapore, children are introduced to project-based learning and the development of innovative solutions from an early age, while the blended learning format allows for consultations, remote communication with mentors, and the presentation of prototypes.

At the same time, we can observe the widespread adoption of various formats for organizing the educational process, in particular, blended learning technologies (blended courses).

O. Koval notes that since the early 2010s, “blended course” formats have increasingly become systematic in both North American and European educational institutions. Additionally, the flipped classroom model has gained popularity, where students study theoretical materials at home and focus on practice, discussions, and teamwork during in-person sessions. Massive Open Online Courses (MOOCs) on platforms such as Coursera, edX, and Udacity, as well as initiatives like MIT OpenCourseWare, have significantly influenced the development of blended learning in many universities, as institutions began integrating individual online modules into their curricula. During this period, government programs played an increasingly important role in Asian countries, particularly in South Korea and Singapore, where students were introduced to the digital environment from primary school and prepared to learn through the use of educational technologies [4].

According to T. Bodnenko and L. Kulik, the professional training of Computer Science teachers is acquiring the characteristics of a holistic, dynamic, multi-level, non-linear, and structurally organized open pedagogical system. The organizational and pedagogical principles of this system are being refined in accordance with societal demands and are consistently implemented within the educational environment of higher education institutions, in the context of the competency-based approach and learner-centered teaching technologies [2].

According to V. Bykov and O. Burova, future Computer Science teachers

must possess deep and advanced knowledge of informatics, at a level significantly higher than that provided by standard school curricula. They should understand the methodology of acquiring new theoretical knowledge and applying it in their professional activities, and their level of expertise must correspond to the current state of the subject area [1]. At the same time, future Computer Science teachers should be well-versed in the methodology and didactic principles of teaching informatics. They must be able to develop their own teaching methods, as well as select and create pedagogically appropriate and well-balanced software and methodological support for the educational process.

At the same time, future Computer Science teachers must possess the skills that enable them to: use global and scientific-educational computer networks; collaborate with students to develop and implement educational software tools into the learning process; create software solutions for school management. The modern school requires a teacher who is knowledgeable, adaptable, equipped with a high level of critical thinking, ready for research and innovation, and capable of self-actualization within their chosen profession.

We share the view of O. Karabin that the professional training of future Computer Science teachers – taking into account globalization and national identity, scientific progress, the informatization and digitalization of education, the transformation of educational content, the implementation of cloud-based digital environments, the strengthening of methodological approaches and levels of methodological structuring, the renewal of instructional formats, and the reinforcement of cultural and humanistic priorities – is aimed at meeting the educational and professional needs of citizens [3].

The training of future computer science teachers must be multifaceted and comprehensively focused on enriching and transforming the worldview dimension of the educational and cognitive processes. It should aim to enhance the methodological foundation, strengthen the psychological-pedagogical and content-based coherence of educational organization, expand the forms of instructional

delivery, renew the potential of research-intensive and digital technologies, and create favorable conditions for professional learning. This training involves acquiring a holistic system of theoretical knowledge, practical skills, and competencies necessary for effective professional activity, continuous personal development, and creative self-realization. It also encompasses the advancement of competencies, the acquisition of professional mobility, and an appropriate level of educational preparedness to perform applied professional tasks and to apply them skillfully throughout lifelong learning.

Conclusions. It is now evident that Computer Science teachers represent a new generation of educators, tasked with meeting the ever-increasing demands of the information society in educating the younger generation. A Computer Science teacher, like no other subject teacher, works under conditions that are constantly changing and modifying, therefore his|her professional training requires diversification not only in forms, methods, approaches and pedagogical technologies, but also in means and training that will contribute to the formation of professional competence of students – future Computer Science teachers. A Computer Science teacher – whose level of qualification and openness to innovation grant them a significant role in society – should inspire the younger generation to realize their potential, enabling them to become fully engaged citizens. Such individuals must be trained not only to fulfill their personal and professional goals, but also to actively contribute to the development of the information society.

The prospects for further scientific exploration within the framework of the issues raised lie in the development of a specialized system for training future Computer Science teachers to implement digital educational tools and to facilitate the virtualization of the modern educational environment.

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