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ORGANIZATIONAL-PEDAGOGICAL APPROACHES IN DEVELOPING DIGITAL COMPETENCE OF FUTURE TEACHERS

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Abstract:
The article justifies the need to use modern digital technologies and information and communication tools in teacher training in the conditions of increasing information volume and limited educational time. The development of digital competence is emphasized as a key area, especially in the professional training of future teachers. The article analyzes the importance of the course "Application of Information Technologies in Professional Activities", pedagogical conditions, organizational and methodological foundations, as well as approaches to the development of digital competence - competency-based, modular, integrative, digital environment-based, differential and digital pedagogical design approaches.

Keywords: Digital competence, future teachers, information technologies, digital education, digital literacy, pedagogical approaches.

BO‘LAJAK O‘QITUVCHILARNING RAQAMLI KOMPETENTLILIGINI RIVOJLANTIRISHDA TASHKILIY-PEDAGOGIK YONDASHUVLAR.

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Annotatsiya

Maqolada axborot hajmining ortib borishi va ta’lim vaqtining cheklanganligi sharoitida o‘qituvchilar tayyorlashda zamonaviy raqamli texnologiyalar va axborot-kommunikatsiya vositalarini qo‘llash zarurati asoslab beriladi. Raqamli kompetentlikni rivojlantirish, ayniqsa, bo‘lajak o‘qituvchilarning kasbiy tayyorgarligida asosiy yo‘nalish sifatida ta’kidlanadi. Maqolada “Axborot texnologiyalarini kasbiy faoliyatda qo‘llash” kursining ahamiyati, pedagogik shart-sharoitlar, tashkiliy va metodik asoslar, shuningdek, raqamli kompetentlikni rivojlantirishga xizmat qiluvchi yondashuvlar – kompetensiyaviy, modulli, integrativ, raqamli muhitga asoslangan, differensial hamda raqamli pedagogik dizayn yondashuvlari tahlil etiladi.

Kalit so`zlar: Raqamli kompetentlik, bo‘lajak o‘qituvchilar, axborot texnologiyalari, raqamli ta’lim, raqamli savodxonlik, pedagogik yondashuvlar.

Аннотация

В статье обосновывается необходимость использования современных цифровых технологий и информационно-коммуникационных средств в подготовке педагогических кадров в условиях возрастающего объема информации и ограниченного учебного времени. Выделяется развитие цифровой компетентности как ключевое направление, особенно в профессиональной подготовке будущих педагогов. В статье анализируется значимость курса «Применение информационных технологий в профессиональной деятельности», педагогические условия, организационно-методические основы, а также подходы к развитию цифровой компетентности — компетентностный, модульный, интегративный, цифровой средовой, дифференциальный и подходы цифрового педагогического проектирования. Ключевые слова: Цифровая компетентность, будущие педагоги, информационные технологии, цифровое образование, цифровая грамотность, педагогические подходы.

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One of the important processes today is the digitalization of the higher education system, which involves the widespread introduction of digital technologies in all areas of the educational institution and requires the formation and assessment of the appropriate professional training of future teachers, their digital competence. The main focus is on the development of students' digital literacy. The integration of digital technologies into the educational process is significant in that it is aimed at improving pedagogical methods and approaches, opening up new opportunities in terms of individualizing the educational process. The digital competence of future teachers is declared in the professional standard as an integral feature of a teacher in modern conditions. It is considered the basis for the development of digital literacy of students of higher educational institutions. Taking into account the above considerations, it can be noted that the most convenient way to develop the digital competence of students of pedagogical higher educational institutions is to develop the course "Application of information technologies in professional activities" using information technologies and multimedia technologies in the teaching process. Special courses on the basics of multimedia, aimed at increasing the level of digital competence, in our opinion, will allow graduates to demonstrate a high level of digital competence not only in higher education, but also in their further professional pedagogical activities. According to researcher A.Yu. Teshaboev, the tendency of higher education to create a digital educational environment with modern technologies predetermines the important role of the teacher, who “fills this environment, predetermines its dynamic nature, adapts new tools to achieve didactic goals.” In this case, the determining principle is the teacher’s digital competence. Many studies have already been conducted on the ICT competence of teachers, including from our country by A.A. Abdukodirov, A.S. Djuraev, M.A. Yuldashev, A.A. Ibragimov, from the CIS by Desnenko, Kozlova, Pakhomova; Zabrodin, Consuegra, Tondeur, Aesaert, Prestige reveal the main features of the manifestation of ICT competence at the international level.

The current task is to determine the current state of digital competence of future teachers based on the analysis of empirical data obtained during the survey on the use of modern digital technologies in the educational process of future teachers.

In pedagogy, conditions, although not the causes of events in themselves, strengthen or weaken the effect of the cause. From such positions, conditions are

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manifested as a set of factors, circumstances, measures, and the effectiveness of the pedagogical system depends on this. In our country, the Technical Committee for Standardization of "Information and Communication Technologies" operates under the auspices of the Ministry of Development of Information Technologies and Communications. This committee carries out the following tasks in the field of digital technologies:

- Participate in ensuring the functioning and development of standardization systems in the field of information technologies and communications, harmonizing them with international, interstate systems based on the use of international standards;
- Participation in ensuring the competitiveness of the manufactured product by introducing advanced foreign experience in the development, adoption, and revision of standards, including taking into account the advanced capabilities of traditional technologies and the definition of initial requirements for the future.

It is necessary to identify organizational and pedagogical conditions for the effective improvement of the digital competence of future teachers being trained in the higher education system.

In our study, we define the concept of "pedagogical conditions" as follows: Pedagogical conditions are a feature of the pedagogical system that reflects the possibilities of developing an educational environment aimed at ensuring the functioning and development of the pedagogical system. By organizational and pedagogical conditions for improving the digital competence of future teachers, we understand a set of purposefully developed possibilities of the content, forms, and methods of a holistic process that forms the basis of their pedagogical activity. The development of digital competence of future teachers is an integral part of the educational process, which requires effective approaches. The founder of cybernetics, N. Wiener, wrote: “If we demand the use of electronic machines everywhere, without paying attention to the human factor in considering the main issues, and if we do not give people a worthy place in the world, we will perish.” The rapid development of communication and information technologies and the introduction of the subject “Application of information technologies in professional activities” in higher educational institutions create new opportunities for students and teachers to master the educational process at all stages. The use

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of computer technology combines the following: acquiring computer skills to manage information technologies; creative understanding of the capabilities of information technologies aimed at information flow in the Internet environment; application of the knowledge gained in practical activities.

In addition, the following psychological aspects should be taken into account. They include: explaining to students how to get rid of Internet and social media addiction (autism) in an e-learning environment, achieving sufficient memory for students to quickly and effectively absorb the knowledge being learned, developing students' abilities, creating motivation, teaching the dependence of knowledge acquisition on memory properties, concentration, perseverance, goal setting and aspiration, and encouraging students to be patient and innovative in learning new knowledge. Below are the main aspects of the most effective approaches used in this process and ways to put them into practice:

Figure 1. Organizational and pedagogical approaches to developing digital competence

Competency approach: According to researchers Arlene C. Borthwick and Randall Hansen, “this approach emphasizes the ability of future teachers not only

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to know digital technologies, but also to effectively use them in their pedagogical activities."

The main aspects of this approach are the effective organization of the educational process using the tools of the "Application of Information Technologies in Professional Activities" course, improving the quality and efficiency of education using digital technologies, and selecting and using innovative technologies appropriate to pedagogical situations. In implementing this approach in practice, we can implement this approach by using modern educational platforms that are compatible with the educational process (Moodle, Google Classroom, Microsoft Teams), introducing interactive teaching methods (gamification, project methods), and applying an individual approach depending on the level of mastery of students.

Modular approach: In this approach, the development of digital competence of future teachers is carried out in stages, dividing the subject "Application of Information Technologies in Professional Activities" into separate modules. The main aspects of this approach include the integration of digital competence modules into the curriculum, the systematic structure of the modules in relation to each other, and the combination of theoretical and practical exercises in each module. This approach allows for the optimal combination of theoretical and practical parts of education, their integration. This ensures a reconsideration of the place and role of theoretical knowledge in the process of mastering competencies, their regulation and systematization, which ultimately leads to an increase in student motivation. The modular-competent approach can be associated with a technological approach to education, the purpose of which is to design the educational process based on the given conditions (social order, educational guidelines, goals and educational content).

Integrative approach: In this approach, the development of digital competence is integrated into the entire educational process and the use of digital tools is encouraged in all subjects. This approach involves expanding the possibilities of using ICT in all subjects, enriching traditional forms of teaching with digital resources, and introducing distance and blended learning. O.A. Otajanov in his article "Integrative approaches in the process of higher education" cites the necessary concepts of what problems the integrative approach solves: "The

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integrative approach is implemented at a technological and substantive level, the integrative approach helps to solve the following problems: reveals the intellectual potential of the student, forms the personality, professional competencies of students, creates psychological and pedagogical conditions for self-education, self-education, self-development, socialization". We will give the above concepts based on a comparison of their place in the educational process.

T/r	Educational process	Traditional education	Competency-based education based on an integrative approach
1	Educational content	Knowledge, skills and competencies	Knowledge, skills and competencies, as well as basic, subject-specific competencies
2	Teaching tools	Tables, slides,	Tables, slides, handouts and "computer-based educational tools" (multimedia resources)
3	Teaching methods	handouts	Oral, demonstrative, practical and logical, problem-based, control and self-control methods
4	Pedagogical technologies	Oral, demonstration,	Didactic game, modular learning, collaborative learning
5	Teaching forms	practical	technologies, problem-based learning technologies, project-based learning
6	Expected results	Traditional educational technologies	Training, independent work, extracurricular activities

This approach allows for the organization of experiments using simulations and virtual laboratories in the teaching process, the use of interactive maps, multimedia resources, electronic textbooks and audiobooks in the lessons.
An approach adapted to the digital environment: creating a special digital environment is important for the development of digital competence of future teachers. There are these aspects of adaptation to the digital environment: fully or partially adapting the educational process to the digital environment, using interactive educational platforms and developing distance learning. N.S.Sayyidova also expressed her views on these approaches, and we can put them into practice by conducting lessons in an electronic learning environment, using virtual and augmented reality technologies and introducing learning systems that work with artificial intelligence. The future of artificial intelligence (AI) in the field of education looks promising, and achievements are expected to

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further improve the learning experience and results. Adaptive learning platforms, which are designed to shape the future of AI in education, are designed to adjust the content and delivery of lessons based on the individual performance and preferences of students. These platforms can continuously analyze data to provide personalized recommendations to ensure that each student receives the most effective education. Such an approach not only improves understanding, but also engages students. Accelerating the delivery of knowledge by teachers of information and communication technologies in all areas is currently a relevant, scientific and educational direction. All this indicates that the use of computer technology in science and education and, as a result, the rapid development of the education system are rapidly developing.

Differential approach: When developing the digital competence of each teacher, their current level of knowledge should be taken into account. We can cite aspects of this approach such as adapting curricula to the level of digital knowledge of teachers, providing an individual approach, and organizing special courses on advanced digital technologies for experienced teachers.

Digital pedagogical design approach: In this approach, the main goal is to create digital educational resources and use them didactically. As the main aspects, we can cite the concepts of preparing educational materials in digital format, using interactive and visual elements, and creating methodological guides for teachers. We can put these aspects into practice by preparing video tutorials, infographics, and electronic textbooks, using animation and multimedia tools, and teaching teachers innovative digital design skills.

Approaches to developing the digital competence of future teachers include various methods and strategies. Competency-based, modular, integrative, and digital environment-based approaches serve to increase teachers' digital literacy and form their ability to effectively use technologies. Also, through a differentiated approach, pedagogical design, and collaborative approaches, the educational process is improved in accordance with modern requirements. As a result of a systematic approach to developing digital competence, educators will be able to prepare the next generation for learning in a high-tech environment.

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