METHODOLOGY FOR FORMING DIGITAL PEDAGOGICAL DESIGN SKILLS IN FUTURE TEACHERS

Shodyorbek Yo'ldoshovich Do'schonov
Urgench State Pedagogical Institute

Abstract: This article covers the essence, scientific and theoretical foundations and practical directions of the methodology for forming digital pedagogical design skills in future teachers. In a digital educational environment, pedagogical design not only increases the effectiveness of the educational process, but is also an important factor in strengthening the interactive communication between the teacher and the student.

Keywords: design, methodology, interactive education, design thinking, innovative approach, digital literacy

Introduction

The rapid development of modern information and communication technologies (ICT) requires the formation of new pedagogical approaches and methodological concepts in the education system. In particular, digital pedagogical design is a conceptual model of the educational process, in which pedagogical goals, content, technologies and an assessment system are built in an integrated manner. This process requires the teacher not only to have digital competencies, but also to be able to work on the basis of design thinking, didactic modeling, and reflective methodology. In today's globalization and digital transformation, the role of the teacher must change from being just a provider of knowledge to a subject designing an interactive and flexible learning environment. In this regard, the formation of digital pedagogical design skills in future teachers is one of the modern tasks of pedagogical education. These skills are aimed at developing an educational strategy taking into account the individual characteristics of students, the effective use of ICT, the use of multimedia tools on a methodological basis, and the organization of independent learning.

Also, theoretical foundations such as constructivist pedagogy, a competency-based approach, and multimodal education play an important role in the effective implementation of pedagogical design in a digital environment. Based on these approaches, the teacher's choice of digital tools and the achievement of didactic goals through their integration are ensured. Therefore, this article provides an in-depth analysis of the scientific and methodological foundations of the formation of digital pedagogical design skills, the stages of modeling curricula, and the mechanisms of their impact on students. Literature review: The issue of forming digital pedagogical design skills of future teachers is one of the current areas of modern pedagogical science, and important scientific and theoretical views have been put forward in this regard by many foreign and domestic researchers.

In particular, the TPACK model put forward by J. Branch is based on the teacher's integration of digital technologies with content and pedagogical approach. This model is recognized as the modern scientific and methodological basis of digital pedagogical design. In local studies, the concept of the President of the Republic of Uzbekistan "Digital Education" and the works of leading scientists in the field of pedagogy - A.Kholmukhamedov, N.Yuldasheva,

G.Juraeva - deeply studied the psychological and pedagogical foundations of the digital educational environment, digital competence and distance learning.

The theories of futurists such as A.Toffler and M.Castells about digital civilization and the information society have influenced the formation of pedagogical design processes in a global context. In particular, V.V.Serikov's concept of person-centered education forms the methodological basis of approaches based on student activity in creating modern digital design. The nine-stage model of teaching proposed by R. Gagne is widely used as a practical basis for step-by-step planning of pedagogical design. At the same time, the theories of instructional design by I.Robert and K.Reiser play a key role in developing the skills necessary for future teachers to select and effectively use didactic tools in a digital environment. Thus, the analysis of the literature shows that the formation of digital pedagogical design skills is a multi-level and complex process, which is formed on the basis of innovative technologies, modern educational theories, and practical pedagogical experience. Based on scientific research conducted in this area, the development of methodological approaches that serve the development of digital competence is of urgent importance.

Materials. The materials, elements of educational activities, and methodological approaches used in the process of forming digital pedagogical design skills in future teachers constitute the theoretical and practical basis of this study. As part of the research, experimental and diagnostic work was carried out with 3rd-4th year students studying in the field of pedagogy. During the experimental work, digital pedagogical design skills were formed based on the following main components: Designing educational resources in a digital environment - Students were given tasks to prepare presentations, tests, and interactive lessons on platforms such as Google Classroom, Moodle, Canva, Genially, Powtoon. Shaping educational content based on design thinking - Students were encouraged to use an innovative and critical approach by developing personalized educational modules based on the needs of students. Cognitive load management - The comprehensibility of educational materials was increased through the correct planning of the flow of information based on multimedia didactics, the effective use of visual components (infographics, animation, videos). Reflection and self-assessment tools - Through the introduction of digital portfolios, blog posts, and peer-feedback mechanisms, critical thinking and metacognitive skills were developed in students. Module-based educational projects - Each student developed a small educational project based on digital design and presented them using QR codes, electronic resources, and virtual classrooms.

As a result of educational activities conducted on the basis of these materials, the following skills were formed in future teachers: systematic design of educational resources, didactic analysis of digital technologies, visualization of educational materials in an interactive format, as well as reflective approaches to evaluating and improving educational design. Among the methodological tools used in the study, pedagogical observation, questionnaires, competency diagnostic tools, as well as pre-test/post-test assessment methods were effective. This allowed for an objective assessment of the level of skills developed.

Discussion: In today's globalized and digitized educational environment, the role of the teacher as not only a provider of knowledge, but also as a pedagogical designer is becoming increasingly important. In order to effectively organize the educational process, the teacher must not only be aware of technologies, but also be able to justify them pedagogically in an appropriate

manner. This, in turn, requires the formation of digital pedagogical design skills. The conducted practical studies show that, although future teachers are familiar with digital tools, they need certain methodological training to effectively use them in terms of educational design. In particular, the skills of working on the principles of design thinking, multimodal approach and constructivist pedagogy in designing educational content are not sufficiently formed. It was observed that although students have mastered digital tools technically, they have difficulties in adapting them to the psychological and individual characteristics of students. This means that in the process of forming skills in digital pedagogical design, not only technical knowledge, but also pedagogical thinking, the ability to construct methodologically, and the competences of reflective analysis are important. Involving students in the development of real educational projects, teaching them to work not individually, but on the basis of collective design, increases the quality of the digital educational process.

In this process, the use of advanced foreign experiences, in particular models such as TPACK, SAMR, strengthens the scientific and methodological basis of pedagogical design activities. From this point of view, the skills formed in digital pedagogical design are, by their nature, transformational (changing), integrative (unifying), and innovative (oriented to innovation). This, in turn, serves to develop the professional competencies of the future teacher based on the requirements of the 21st century.

Conclusion. In conclusion, the formation of digital pedagogical design skills in future teachers remains one of the urgent methodological issues in modern education. By developing these skills, teachers will not only be able to organize interactive and person-oriented education, but also acquire the ability to re-develop and adapt educational content in a digital environment on a design basis.

The results of the study showed that methodologically based approaches - namely, design thinking, a reflective approach, educational processes organized on the basis of a competency-based and constructivist model - are an important factor in the formation of deep, stable and practice-oriented digital skills in future teachers. In the future, the systematic introduction of digital design modules into pedagogical training programs, their organization in a project-based manner based on real educational problems, and the development of scientific and methodological manuals in this regard will serve as the main factor in educating a generation of digitally competent teachers.

References

1. Ganye R. Conditions of education. - M.: Pedagogika, 1985. - 320 p.

2. Serikov V. V. Lichnostno-orientirovannoe obrazovanie: concept and technology. - M.: Logos, 1999. - 208 p.

3. Kholmukhamedov A. Z., Yuldasheva N. N. Pedagogical technologies: theory and practice. - Tashkent: TDPU publishing house, 2020. - 252 p.

4. Robert M., Reiser K. Theory and practice of uchebnogo design. - SPb.: Peter, 2005. - 344 p.

5. Castells M. The Rise of the Network Society. - Oxford: Blackwell Publishers, 2000. - 594 p.

6. Toffler A. Future Shock. - New York: Bantam Books, 1970. - 505 p.