USING DIGITAL TECHNOLOGIES IN TEACHING

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Summary

The article examines the growing role of digital technologies in higher education, emphasizing their importance for maintaining quality standards and preparing graduates for modern labor market challenges. It highlights how adaptive platforms, interactive tools, and virtual resources increase accessibility, personalize learning, and enhance student engagement. The COVID-19 pandemic and subsequent war accelerated the adoption of online courses, virtual labs, and AI tools such as ChatGPT, as shown by research at Igor Sikorsky Kyiv Polytechnic Institute, where over half of surveyed academic staff regularly use digital tools in teaching. Beyond technical knowledge, the development of soft skills—critical thinking, communication, teamwork—is essential, requiring educators to adopt mentoring roles and maintain continuous self-education, including foreign language learning. Digitalization erases physical boundaries of classrooms, enabling immersive experiences like virtual tours and expert guest lectures, which bridge theory and practice. Overall, technology fosters interactive, relevant, and competency-oriented learning, preparing both students and educators for continuous development in a changing educational landscape.

Key words:

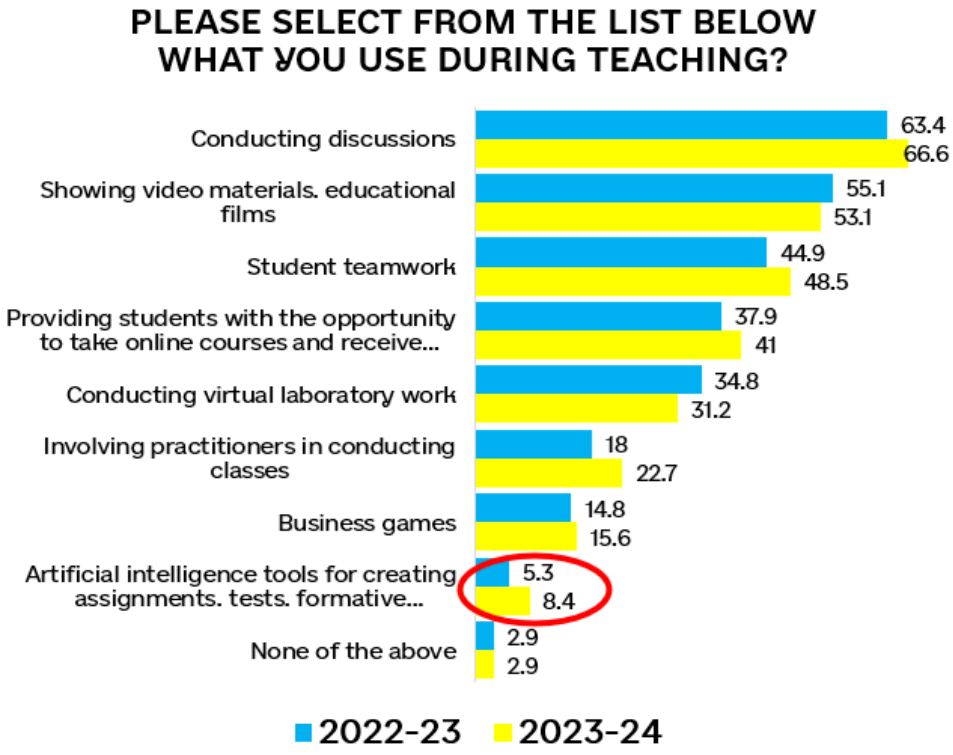
digital technologies, higher education, quality of education, adaptive platforms, interactive tools, online courses, virtual labs, ChatGPT, soft skills, digital competence, self-education, student engagement, critical thinking, KPI research.

Ensuring the proper quality of education has always been a priority for every educational institution. The modern learning process cannot take place without the use of digital technologies, and each year these tasks become increasingly demanding and complex. Higher education institutions must provide high-quality education so that graduates are prepared for the challenges of the modern labor market. Digital tools allow education to become more accessible and enable the learning process to be customized to the needs of each student. Adaptive platforms take into account the pace of learning, and the use of interactive tools during instruction promotes more active student engagement. Since the beginning of the pandemic, and later the war, digital education tools have become nearly the only opportunity to stay involved in the educational process, which in turn has become a tremendous impetus for the development and use of digital tools in teaching.

Undoubtedly, digitalization in education holds great potential for ensuring the quality of learning and improving the efficiency of educational processes. However, beyond knowledge, it is also important to develop key competencies (soft skills) in students, such as critical thinking, communication, emotional intelligence, teamwork skills, and others. To achieve this, instructors need to pay more attention to the individual needs and interests of students. This means using more interactive teaching methods and involving students in active participation. These tasks are changing the role of educators; it is no longer enough to simply transfer knowledge to students—they must become mentors, coordinators, and at times even psychologists. It is essential to remain open to new knowledge and technologies in order to teach effectively and implement innovations. Digital competence of educators must become one of the key elements of modern teaching.

Equally important is the need to consider the conditions for intellectual development and professional growth, as well as the systematic research work of instructors. In the context of current educational reforms focused on European standards, teachers must restructure their mindset and recognize themselves as participants in these changes. An integral part of this process is self-education; teachers must improve their skills through courses, trainings, and independent learning. Knowledge of foreign languages significantly broadens access to educational, methodological, and scientific resources.

At Igor Sikorsky Kyiv Polytechnic Institute, annual research is conducted on the quality of the educational process among students and academic staff regarding the level of implementation of individual components of educational quality. The diagram below shows that the vast majority of surveyed academic staff use digital education tools in their activities (Figure 1), specifically: “Showing videos and educational films” was used by 55.1% in the 2022–2023 academic year and 52.9% in 2023–2024; “Providing students with the opportunity to take online courses and receive credit for them” was used by 37.9% in 2022–2023 and 41.0% in 2023–2024; “Conducting virtual lab work” was at 34.8% in 2022–2023 and 31.2% in 2023–2024; “Using ChatGPT to create assignments, tests, formative assessments, etc.” was reported by 5.3% in 2022–2023 and 8.4% in 2023–2024.



The use of modern technologies in teaching activities cannot be overestimated—they erase the physical boundaries of the classroom and provide students with real experiences. For example, a teacher can organize a virtual tour of significant sites without leaving the classroom, creating an immersive effect that cannot be replicated through textbooks. Virtual meetings with guest speakers also allow students to communicate with experts in various fields, linking theory to real-world concepts and applications. This combination of theory and practice makes learning more engaging and relevant.

Overall, technological tools promote the development of critical thinking by offering all participants in the educational process diverse perspectives and practical challenges, preparing students for future problems and career decisions, and encouraging continuous self-development in educators. They also contribute to creating a more interactive and engaging learning environment where everyone can find their own path to success by using modern technologies to achieve their educational and professional goals.

References

1. Myronchuk, N.M. (2018). *Professional activity of higher education teachers: social challenges and content training issues*. In O.A. Dubaseniuk (Ed.), *Professional education: an andragogical approach: monograph* (pp. 146–172). Zhytomyr: O.O. Yevenok. Retrieved from http://eprints.zu.edu.ua/27786/1/Мирончук%20Н.М.pdf
2. Zelenska, L.D. (2016). *A university teacher under modern challenges*. In *Personality under the crisis challenges of modernity: materials of the methodological seminar of the NAES of Ukraine, March 24, 2016* (pp. 269–274). Retrieved from https://www.researchgate.net/publication/330937880_VIKLADAC_VISOGO_NAVCALNO
3. Stoika, O.Ya. (2023). *Formation of teachers' digital literacy in the system of postgraduate education in Ukraine*. *Continuous Professional Education: Theory and Practice*, 2(75). ISSN 2412-0774. Retrieved from https://dspace.uzhnu.edu.ua/jspui/bitstream/lib/52624/1/2833639.pdf
4. *Study on the quality of the educational process through the eyes of teachers, academic year 2023–2024.* Retrieved from https://socioplus.kpi.ua/research/quality-education/