

ПЕДАГОГІЧНІ НАУКИ

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DIGITALIZATION OF EDUCATION AS A FACTOR OF FORMATION OF A BOUNDLESS EDUCATIONAL SPACE

The digital revolution has profoundly transformed all spheres of our lives, expanding the possibilities of exchanging, creating, processing, and storing information. Thanks to the Internet and mobile technologies, billions of people around the world have gained access to communication, education, and collaborative knowledge creation. Digitalization affects not only production and business but also the education system, encouraging constant knowledge renewal and professional development for citizens regardless of age or field.

In the current conditions of educational transformation, the concept of successful education is acquiring a new meaning. The notion of effective learning has changed significantly, leading to the widespread implementation of distance and blended learning models.

Among the key trends in modern education are the concepts of open science and open education. A well-known researcher in the field of open educational resources, David Wiley, emphasizes that open pedagogy is formed through the application of the “5Rs” principles: reuse, remix, redistribute, retain, and revise content. Wiley sees open pedagogy as a set of teaching and learning methods directly related to open educational resources [2]. However, the implementation of open textbooks in the educational process requires curriculum updates, teacher retraining, and adaptation of learning materials to specific course objectives.

The professional development of educators, as well as the increased motivation of students, is largely supported through access to open resources. A key condition for the effective functioning of electronic educational platforms is the ability to freely edit and reuse learning materials according to user needs.

The European Council, in turn, has adopted several regulatory documents governing the use of internet technologies in education [3, p.134].

The modern education system is increasingly integrating into the online space. One of the most popular platforms in online education is the American platform Coursera, which partners with more than 65 prestigious universities, including MIT, Stanford, Yale, Bocconi, and New York University [4, p.647].

Digital technologies are rapidly evolving, enabling people to communicate without knowing foreign languages and to access education from leading online universities or massive open online course platforms. For instance, Google’s Translatotron system operates on a sequence-to-sequence neural architecture that processes a voice message as a spectrogram—a visual representation of speech frequencies—and generates a translated spectrogram in the target language. This accelerates the translation process and reduces the risk of meaning loss or errors.

Mobile learning, or m-learning, is a combination of mobile technologies and e-learning. It means that educational materials and tools are available anytime and anywhere, enabling information search, communication, effective learning support, and knowledge assessment. In addition, m-learning promotes microlearning—the acquisition of knowledge in small chunks.

At the same time, the learner profile is also changing—more and more older adults are joining the learning process, and in many countries, universities of the third age are being established. At the intergovernmental level, educational spaces are being integrated, and unified digital markets are being formed to promote open science and implement open e-pedagogy principles.

Technology giants such as Google, Intel, Microsoft, and IBM provide users with digital tools for creating, sharing, and disseminating knowledge. In turn, social networks like Facebook, LinkedIn, ResearchGate, and Mendeley serve not only as communication tools but also as platforms for learning and academic collaboration, especially for educators and researchers [1, p.1283].

Blended learning incorporates a wide variety of methods, both traditional and interactive: lectures, lab work, computer presentations, e-learning, and online learning. It gives students the freedom to choose the time and place of learning, ensures constant access to necessary materials, and allows them to learn at their own pace [5, p.459]. Blended and distance learning have the potential to become the main form of education in the future, especially in response to the needs for inclusivity, flexibility, and lifelong learning.

Effective education in blended and distance formats is only possible if pedagogical approaches, technological capabilities, and cultural differences are comprehensively considered. Its success is determined not only by access to knowledge but also by the ability to flexibly adapt to learners' needs and the challenges of the modern world.

Thus, the digital transformation of education opens new horizons for both students and educators. It expands access to knowledge, fosters independence, and develops essential digital skills for the 21st century. However, the true success of digital education lies not only in technologies but in the ability of educational systems to provide flexible, inclusive, and high-quality learning tailored to individual needs. The future belongs to those who can learn throughout life—openly, freely, and with inspiration.

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