UDC 004.4:37.0

ELECTRONIC LEARNING SYSTEMS

Sarachinsky A.A.

Belarusian State University of Informatics and Radioelectronics, Minsk, Republic of Belarus

Perevyshko A.I. – Senior Lecturer at the Department of Foreign Languages

Annotation. This text about electronic learning systems. At the beginning, the author tells about the evolution of e-learning, starting with the PLATO system and before the advent of massive online courses (MOOCs) and mobile applications. Next, much attention is given to popular platforms like Duolingo and SoloLearn. After that, the author describes the possibilities of platforms for higher institutions. Then it is reported about advantages and disadvantages of learning with electronic systems. At the end, the author underlines the important role of education for people of all ages.

Keywords: Education, electronic learning systems, e-learning, PLATO system, Learning Management Systems, online courses, MOOCs, mobile applications, Duolingo, SoloLearn, gamification, programming education, Moodle, online platforms, remote learning, interactive learning, accessibility, flexibility, personalization, video conferencing, artificial intelligence.

Introduction. Education is one of the most important aspects of modern life, as knowledge and skills are essential for personal and professional growth. With the rapid development of technology, electronic learning systems have become a key part of education. These systems enable people to study from home, choosing a convenient time and pace, which is especially important in today's fast-paced world. Electronic learning systems, mobile applications, and online platforms help students balance education with work, family, and other responsibilities, making learning more flexible and efficient. The transition to digital education happened rapidly, seamlessly integrating into daily life. From university courses to professional training, electronic learning systems have transformed the way people acquire knowledge, making education more accessible than ever before.

Main part. Electronic learning systems began developing in the mid-20th century with the introduction of the PLATO system (Programmed Logic for Automated Teaching Operations). PLATO pioneered interactive learning across multiple disciplines, including mathematics, languages, programming, biology, history, and aviation. In the 1980s, personal computers facilitated the rise of Learning Management Systems (LMS), which enabled structured learning in various fields, including science and the arts. The advent of the internet in the 1990s further revolutionized education by enabling online courses that provided access to a broad range of disciplines remotely. By the 2000s, multimedia elements such as videos and graphics enhanced the comprehension of complex subjects like medicine and engineering. The emergence of Massive Open Online Courses (MOOCs) allowed millions of students worldwide to enroll in courses covering topics from artificial intelligence and data analysis to literature, arts, and philosophy. Thus, electronic learning systems evolved from simple programs into powerful platforms that transformed educational accessibility and methodology.

Modern e-learning systems continue to evolve, offering increasingly sophisticated opportunities for education and self-improvement. One of the key developments is educational applications that make the learning process more engaging, flexible, and accessible. Duolingo is one of the most popular language-learning applications, offering courses in dozens of languages, from English and Spanish to rare ones such as Irish or Hebrew. A distinctive feature of Duolingo is its motivational system, which encourages consistent learning through a streak mechanism. Users are required to complete at least one task daily to maintain their streak, and missing a day resets progress, fostering regular study habits. The app is also widely recognized for its mascot, an owl that sends reminders, motivates learners, and even humorously nudges them to continue studying. Furthermore, Duolingo incorporates gamification elements, allowing users to compete with friends, which enhances engagement [3].

SoloLearn is another educational platform, focusing on programming and technology. It offers courses in multiple programming languages, including Python, Java, C++, and HTML. SoloLearn provides bite-sized lessons, interactive exercises, and a community where learners can ask questions and exchange knowledge. Additionally, users can participate in coding challenges and competitions to refine their programming skills [4].

Beyond educational apps that personalize learning experiences, large-scale platforms offer comprehensive solutions for structured education. Moodle, one of the most well-known and widely used learning management systems, is an open-source platform employed in educational institutions, corporate training programs, and by individual instructors. It facilitates course organization, learning process management, and integration of interactive assignments. Moodle's support for forums, quizzes, assessment systems, and plugins for course customization makes it suitable for both small-scale courses and universities with thousands of students [5].

Many universities, including ours, utilize similar e-learning systems. These platforms allow students to review missed lectures, complete assignments, take tests, and participate in remote classes. Moreover, features such as video conferencing tools, similar to Zoom, make these platforms essential for online learning and communication with instructors. Such technologies exemplify how digital solutions can scale to support education at various levels.

E-learning has opened new horizons in modern education, connecting millions of learners worldwide and providing access to knowledge regardless of location. One of its primary advantages is accessibility. According to the World Economic Forum [1], 72% of students engage with online platforms at least once a year, making education more inclusive. Additionally, course personalization allows students to tailor their learning experiences to their individual needs. The integration of gamification and interactive elements, as seen in platforms like Duolingo and SoloLearn, enhances motivation and retention. E-learning also proves cost-effective; corporate reports indicate a 40-60% reduction in employee training costs when utilizing online courses. However, e-learning presents several challenges. A notable drawback is the lack of direct personal interaction. According to an Educause study [2], 47% of students reported that limited face-to-face engagement negatively impacts their learning experience. Another issue is the high dropout rate, with statistics showing that between 40% and 80% of online course participants fail to complete their studies due to a lack of motivation. Technical issues also pose difficulties, as approximately 21% of students face connectivity problems or lack modern devices necessary for effective learning. Despite these challenges, e-learning continues to evolve, incorporating new technologies to enhance flexibility, interactivity, and accessibility.

Interactive elements such as quizzes, competitions, and educational games contribute to a more engaging and effective learning process. These features help reinforce knowledge in an enjoyable way, making education both beneficial and stimulating. E-learning systems have become an integral part of contemporary education, reshaping traditional learning methods and making education more flexible and accessible. They benefit students seeking to expand their knowledge, children learning through interactive applications, and adults pursuing professional development or new hobbies. While self-discipline and technical readiness remain essential, e-learning continues to break down barriers, offering opportunities for learners of all ages.

Conclusion. E-learning has transformed education, making it more accessible, interactive, and personalized. It empowers students, children, and adults to learn at their own pace, develop new skills, and leverage advanced technologies such as artificial intelligence. Despite challenges such as the need for self-discipline and hands-on practice, e-learning remains a key tool shaping the future of education and expanding opportunities for learners worldwide.

References

1. *World Economic Forum. The Future of Online Learning [Electronic resource]. Mode of access: https://www.weforum.org. Date of access: 24.03.2025.*

2. *Educause. Student Perceptions of Online Learning [Electronic resource]. Mode of access: https://www.educause.edu. Date of access: 24.03.2025.*

3. *Duolingo. Learn Languages for Free [Electronic resource]. Mode of access: https://www.duolingo.com. Date of access: 24.03.2025.*

4. *SoloLearn. Learn to Code [Electronic resource]. Mode of access: https://www.sololearn.com. Date of access: 24.03.2025.*

5. *Moodle. Open-Source Learning Platform [Electronic resource]. Mode of access: https://moodle.org. Date of access: 24.03.2025.*