IMPLEMENTATION OF EDUCATIONAL PROGRAMMES WITH THE USE OF E-LEARNING TECHNOLOGIES

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Abstract. *E-learning is a groundbreaking pedagogical approach that offers several benefits over traditional education. These advantages include unrestricted access to educational materials, a flexible learning process, unbiased evaluation, and the opportunity for networked interaction among educators and students. It also improves the accessibility of education for individuals with disabilities. Various models of e-learning—partial, extensive, and exclusive—are adapted to complement traditional higher education structures. The effective integration of e-learning technologies within an educational institution relies on adequate normative-legal, infrastructural, pedagogical, and staff resources.*

Keywords: *E-learning, pedagogical technology, accessibility, educational resources, flexibility, assessment objectivity, network interaction, higher education.*

The implementation of information and telecommunication technologies in all areas of activity of educational institutions at various levels has led to significant changes in the traditional approaches to the educational process. It has resulted in the emergence of fundamentally new learning technologies, which enhance the efficiency of students' independent work, providing broad opportunities for creative activities, and identifying and developing students' professional abilities. One of such innovative directions is electronic learning, which involves the integration of a range of educational technologies, implying the use of computer equipment and corresponding software (interactive multimedia technologies, computer-based learning technologies, internet-based learning, etc.).

Educational institutions are mandated by legal frameworks to provide students with a comprehensive electronic information and educational environment. This includes access to electronic informational resources, educational materials, information and communication technologies, and the necessary technical equipment. Normative documents specify the technical and software requirements. Pedagogical support encompasses a range of informational, consultative, instructional, and methodological resources essential for an efficient educational process. Ultimately, an educational organization's adoption of specific e-learning models is influenced by the professional expertise of the faculty administering these programs.

The adoption of information and telecommunication technologies across all functions of educational institutions has revolutionized traditional educational methods. This shift has spawned entirely new learning technologies that not only boost the effectiveness of students' solo work but also open vast possibilities for creative endeavors and the enhancement of their vocational skills. E-learning stands out among these innovations, combining various educational technologies and necessitating the use of computers and specific software, such as interactive multimedia, computer-based learning, and online learning platforms.

To fully grasp e-learning as a modern educational model, it's essential to analyze the use of information and telecommunication technologies in education alongside cognitive, learning, and psycho-pedagogical influences on students. This approach intersects with numerous scientific

disciplines, including sociology, education, psychology, systems analysis, and economics, ensuring a comprehensive understanding of the impacts and applications of e-learning.

The accumulated expertise of the scientific and pedagogical community indicates that, despite its numerous benefits, e-learning is not being utilized to its full potential within university education. The electronic educational resources provided by university departments tend to be predominantly informational.

The advantages of e-learning over traditional education include:

1. Free access to e-learning courses: the possibility to obtain knowledge relevant to the learner at any time, in any place, in any accessible point of the world.

2. Flexibility of learning: independent choice of duration and sequence of learning material, full adaptation of the whole learning process to the capabilities and needs of the learner.

3. Competent, quality education: independence of the quality of learning (teaching materials are subject to mandatory expertise and are not associated with a particular teacher) from the quality of teaching. 4. Objectivity of evaluation: determination of the definition of the quality of teaching.

4. Objectivity of evaluation: defining clear criteria for assessing the knowledge acquired by students.

5. Use of modern technologies and standards: timely and prompt updating of teaching materials, application of the fastest and most cost-effective ways of generating and transferring knowledge.

6. Possibility of network interaction: receiving consultations, assessing knowledge from a remote teacher, creating a distributed community of users united by common virtual learning activities.

7. Inclusiveness of education: accessibility of higher education for people with disabilities.

Given the context provided, it's evident that the primary goal of integrating e-learning technologies into the educational process is to enhance the quality and reach of educational services. To achieve this objective, the following tasks must be addressed:

Elevating the caliber of student education and stimulating their autonomous study efforts.

Creating electronic educational resources as a fundamental component of the instructional and methodological support of the educational process.

Providing methodological and organizational assistance to educators utilizing e-learning technologies in their teaching.

Streamlining the workload of academic staff to ensure efficient teaching.

In higher education institutions (HEIs), the organization of the educational process traditionally takes three forms: on-campus (full-time), off-campus (part-time), and distance learning. Each form necessitates a distinct e-learning model, characterized by specific organizational methods, pedagogical techniques for student-teacher interactions, and the designated amount of time for work within the electronic learning management system to ensure successful comprehension of the academic subject or module.

Accordingly, the following e-learning models can be identified for organizing the educational process:

- Partial use of e-learning technologies.
- Maximum exploitation of e-learning capabilities;
- Adoption of e-learning as a standalone mode of educational process organization.

The use of these models depends on the regulatory documentation developed in the educational institution (local acts regulating the use of e-learning technologies in the educational process), logistical and personnel support, methodological support.

Partial use of e-learning technologies is used in the organization of the educational process in full-time education. One of the factors influencing the place of e-learning in the educational process is the quality of the content of the electronic educational resource of the discipline (module). Another significant factor is the amount of time allocated for independent work of students (for full–time education - 50-70% of the time allocated for the study of the discipline). Integration of traditional pedagogical technologies and e-learning allows:

– organize the transfer to the electronic environment of certain types of training sessions (lectures, practical classes, laboratory work), if they are not provided for in the curriculum, but are traditionally used in the educational process.

– to increase the effectiveness of the teacher's contact work through the implementation of the possibility of rapid response to students' requests, i.e. conducting electronic consultations;

– to record the stages of the educational process, the results of current control, intermediate certification, the results of the development of the educational program.

– organize independent work of students supervised by a teacher.

– provide students with access to curricula, work programs of disciplines (modules), practices, electronic educational resources specified in work programs.

– organize research and project work of students.

The maximum (maximum possible) use of the e-learning environment in part-time and distance learning implies that 85-90% of the time allocated for the mastering of the educational programme is used for working with electronic resources. In such an organisation of the educational process, almost all types of learning activities are fully transferred to the electronic environment, and the contact classroom work is group and individual consultations of the teacher on the disciplines (modules) under study, laboratory work requiring special equipment, and some types of interim certification.

E-learning as a form of organisation of the educational process assumes that all learning activities are carried out remotely in an electronic environment using a specialised learning management system and solves the problem of accessibility of education for all comers, including persons with disabilities. Prospective directions, implemented through e-learning technologies, are programmes of additional professional education, pre-university training and career guidance work of different orientation.

For the successful use of e-learning technologies in the educational process of the organization, it is necessary:

1. Legal support of e-learning. As we have already noted, the regulatory framework for e-learning developed at the federal level obliges an educational institution to ensure that students master educational programs in full, regardless of their location, to create an electronic information and educational environment that includes:

– electronic information resources;

– electronic educational resources;

– a set of information and telecommunication technologies;

– appropriate technological means.

Currently, the active use of e-learning technologies at the university is complicated by the lack of local regulations.

2. Material and technical support of e-learning. Technical and software requirements are laid down in regulatory documents, and depending on the selected models, the educational institution must ensure the functioning of the information and educational environment. Effective use of e-learning technologies is possible if teachers and students have free high-quality access to the Internet without time and spatial restrictions. The formation of the information and educational environment is carried out with the help of a learning management system, where all educational activities are carried out. The university uses a free learning management system LMS Moodle (Modular Object-Oriented Dynamic Learning Environment – modular object-oriented dynamic learning environment), aimed at organizing interaction between the teacher and students.

3 Methodological support of e-learning includes the development of a set of information, reference, training and methodological tools necessary for the effective organisation of the educational process using e-learning technologies, as well as support of the educational process carried out in the electronic environment. The learning management system used in the organisation should provide all interested parties with:

- access to training, information and methodological materials;
- the possibility of interaction between all participants of the educational process;
- fixation of the results of the educational process, stored in the information environment and used to form a portfolio of students.

4. Personnel support of e-learning. The choice of models used in the organisation depends on the level of professional competence of teachers implementing educational programmes, their ability to work in the electronic environment. Professional development of scientific and pedagogical staff on programmes of additional professional education should be organised in the very learning management system in which they will interact with students. The software and hardware support of the learning management system should be entrusted to the relevant specialists.

The experience shows that the electronic environment, with the maximum use of the capabilities of the learning management system, the competent organization of the activities of both teachers and students, contributes to the effective use of modern pedagogical technologies, for example, technologies of personality-oriented learning aimed at the development of individual educational trajectories [10], which are consonant with the ideas of social constructivism*, embedded in the LMS Moodle and having a direct impact on the beliefs of students, to form an attitude to the learning process, to reassess their role in it. The role of the teacher, who now acts as a tutor, is also changing. it helps students choose their individual educational trajectory, advises on issues of interest to them. Thus, the rigid regulation of students' activities in traditional training is replaced by the need to acquire skills in planning and organizing their educational activities, which is accompanied by an increase in the level of psychological comfort and increased motivation for learning activities and initiative of students.

Students usually study the academic discipline "Informatics" in the first year, therefore, it is the teachers who are responsible for the formation of students' philosophical foundations of e-learning, which contribute to understanding the need for lifelong learning and, most importantly, help students acquire knowledge of how it can be implemented practically.

Social constructivism is a sociological and psychological theory that studies the processes of social and psychological construction of social reality in human activity. Social reality and social interaction of individuals are considered as

The LMS Moodle learning management system, available to the teachers provides the following opportunities:

– structuring of information and educational resources by academic disciplines (modules), practices according to the calendar plan for the development of the academic discipline

– formation of the course content (creating a course "from scratch", including various resource elements, editing the course content, changing the settings for managing educational content, etc.);

– control of the development of an academic discipline (module) by using various methods of evaluating the work of students;

– accounting of students' activity, which allows you to track the development of the course as a whole and provides detailed information about the study of each element of the course;

– analysis of the results of mastering the academic discipline (module);

– interaction between teachers and students via e-mail, forum posts, feedback and comments from teachers.

Thus, LMS Moodle provides teachers of the department with extensive tools for designing electronic educational courses, conducting theoretical and practical classes based on them, organizing group and individual educational activities of students.

All these opportunities are actively used by teachers of the Department of General Informatics [11, 12]. The teachers of the department have created electronic courses for full-time and part-time forms of education in all areas of bachelor's degree and specialty training implemented at the university. Each course is filled with high-quality content in the form of interactive lectures, workshops, laboratory work, test tasks of various types, allowing a set of thoughts, ideas and values that cannot be reduced to material, in philosophical terms, conditions. These advantages include unrestricted access to educational materials, a flexible learning process, unbiased evaluation, and the opportunity for networked interaction among educators and students. It also improves the accessibility of education for individuals with disabilities. Various models of e-learning—partial, extensive, and exclusive—are adapted to complement traditional higher education structures. The effective integration of e-learning technologies within an educational institution relies on adequate normative-legal, infrastructural, pedagogical, and staff resources. Educational institutions are mandated by legal frameworks to provide students with a comprehensive electronic information and educational environment. This includes access to electronic informational resources, educational materials, information and communication technologies, and the necessary technical equipment. Normative documents specify the technical and software requirements. Pedagogical support encompasses a range of informational, consultative, instructional, and methodological resources essential for an efficient educational process. Ultimately, an educational organization's adoption of specific e-learning models is influenced by the professional expertise of the faculty administering these programs.

The integration of e-learning technologies in higher education has the potential to significantly enhance the quality and reach of educational services. It requires comprehensive legal, material, methodological, and personnel support to be fully effective. The experience demonstrates that the promise of e-learning in fostering a more engaged, motivated, and self-

directed student body. As higher education continues to evolve, e-learning stands as a testament to the enduring pursuit of educational excellence and inclusivity.

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