OPPORTUNITIES FOR THE USE OF DIGITAL EDUCATIONAL TECHNOLOGIES IN THE TEACHING OF ECOLOGY ON THE BASIS OF FOREIGN EXPERIMENTS

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Annotation
This article analyzes the technologies of digital education used in the teaching of Ecology in higher education institutions of foreign countries.nnotation. This article analyzes the technologies of digital education used in the teaching of Ecology in higher education institutions of foreign countries. Virtual laboratories, digital simnnotation. This article analyzes the technologies of digital education used in the teaching of Ecology in higher education institutid.

Keywords: ecology education, digital technology, foreign experience, higher education, distance education, virtual laboratories.

ВОЗМОЖНОСТИ ИСПОЛЬЗОВАНИЯ ЦИФРОВЫХ ОБРАЗОВАТЕЛЬНЫХ ТЕХНОЛОГИЙ В ПРЕПОДАВАНИИ ЭКОЛОГИЧЕСКОЙ НАУКИ НА ОСНОВЕ ЗАРУБЕЖНОГО ОПЫТА

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Аннотация
В данной статье анализируются цифровые образовательные технологии, применяемые при преподавании экологических наук в высших учебных заведениях зарубежных стран.ннотация. В данной статье анализируются цифровые образовательные технологии, применяемые при преподавании экологических наук в высших учебных заведениях зарубежных стран. Виртуальные лаборатории, цифровоннотация. В данной статье анализируются цифровые образовательные технологии, применяемые при преподавании экологических наук в ва.

Ключевые слова: экологическое образование, цифровые технологии, зарубежный опыт, высшее образование, дистанционное обучение, виртуальные лаборатории.

The rapid development of digital technologies creates new opportunities in the educational system, radically changing the content and forms of teaching subjects.he rapid development of digital technologies creates new opportunities in the educational system, radically changing the content and forms of teaching subjects. In particular, the use of digital educational technohe rapid development of digital technologies creates new opportunities in the educational system, radically changing the content and forms of teaching subjecn.

Digital educational technology means the effective organization of knowledge, learning and assessment in the educational process with the help of information and communication tools, modern software and internet resources. These technologies serve to make the learning process more interactive, flexible and student-centered.igital educational technology means the effective organization of knowledge, learning and assessment in the educational process with the help of inform.

Digital technologies in EcologyDigital technologies in Ecology:

* modeling complex ecological systems, that is, by reflecting the effects of ecosystems, population dynamics, climate change and anthropogenic factors in a virtual environment, allows students to deeply understand the causegital technologies in Ecology:

* modeling complex ecological systems, that is, by reflecting the effects of ecosystems, population dynamics, climate change and anthropogenic factors in a virtual environment, allows students to deeply understand the cause-and-effect relationship of events;

• visual representation of environmental processes, showing ecological phenomena in a clear and understandable form through graphs, animations, interactive maps and 3D models, ensures a solid assimilation of theoretical knowledge;

• develops skills to direct students to independent and active learning, that is, to independently expand and deepen their knowledge through online assignments, virtual experiences, digital projects and distance learning platforms.

In foreign experience, digital education is seen as an important pedagogical tool that complements and enriches traditional methods in teaching ecologyn foreign experience, digital education is seen as an important pedagogical tool that complements and enriches traditional methods in teaching ecology. It effectively supports audience training, laboratory work, and field practices, increasing student interest in science and preparing them for analysis and solution of real environmental problems on the basis of modern technologies. As a result, digital education technologies serve to improve the quality of knowledge in Ecology, digital competence in students, critical thinking and the formation of an innovative approach.

1. Virtual laboratories and simulations. In developed countries such as the United States, Germany, the United Kingdom, virtual laboratories and environmental simulations are widely used in the teaching of Ecology, which are considered as an important component of modern digital education.. Virtual laboratories and simulations. In developed countries such as the

United States, Germany, the United Kingdom, virtual laboratories and environmental simulations are widely used in the teaching of Ecology, which are considered as an important component of modern digital education. These technologies serve as effective training tools that complement real laboratory and field experiments, and in some cases, replace them. The Virtual environment helps students to gain a deeper understanding of complex environmental processes by allowing them to conduct safe, accessible and repetitive experiments.

Students using Virtual laboratories:

✓ study the mechanisms of functioning of ecosystems and analyze the interaction between the circulation of matter and energy, trophic chains, populations through interactive modelsudents using Virtual laboratories;

✓ study the mechanisms of functioning of ecosystems and analyze the interaction between the circulation of matter and energy, trophic chains, populations through interactive models;

✓ by simulating climate change processes, they will be able to gradually monitor the environmental impact of changes in global warming, greenhouse gases, temperature and fat content;

✓ experimentally analyze factors affecting biodiversity to determine how anthropogenic activity, natural disasters, and changes in environmental conditions affect the diversity of living organisms.

Virtual laboratories also develop the skills of experimentation, analysis, inference, and decision making in students.irtual laboratories also develop the skills of experimentation, analysis, inference, and decision making in students. As a result, the process of studying ecology is more visual, interactive .

2. Online learning platforms. Modern online educational platforms such as Coursera, edX, Moodle are widely used in the teaching of Ecology, which make it possible to organize the educational process not limited by space and time.odern online educational platforms such as Coursera, edX, Moodle are widely used in the teaching of Ecology, which make it possible to organize the educational process not limited by space and tiodern online educational platforms such as Coursera, edX, Moodle are widely used in the teaching of Ecology, which make it possible to organize the edus.

The use of these platforms leads to the following results (Figure 1):

Figure 1. Opportunities for using online learning platforms

Also, online education platforms increase student engagement, communication culture, and digital competencies through discussion forums, group projects, and tests.lso, online education platforms increase student engagement, communication culture, and digital competencies through discussion forums, group projects, and tests. As a result, these platforms effectively complement tradition.

3. Digital maps and GIS technologies. Digital maps and GIS technologies The use of geographic information systems (GIS) technologies in the teaching of Ecology in institutions of higher education of European countries is widespread, which are an important tool in the study and analysis of environmental proce. Digital maps and GIS technologies The use of geographic information systems (GIS) technologies in the teaching of Ecology in institutions of higher education of European countries is widespps.

Students using these technologies:

- implementation of environmental monitoring, i.e. monitoring the condition of air, water and soil, assessment of pollution levels and analysis of environmental changes occurring over timeStudents using these technologies;
- implementation of environmental monitoring, i.e. monitoring the condition of air, water and soil, assessment of pollution levels and analysis of environmental changes occurring over time;
- analysis of regional environmental problems, study on the basis of maps of industrial zones, transport infrastructure, population density and the impact of natural resources on the ecological state;

➢ will be able to form skills of working with statistics, associate environmental indicators with digital databases, compare, analyze and draw scientific conclusions.

GIS technologies also develop spatial thinking, systematic data analysis, prediction, and decision-making skills in students.IS technologies also develop spatial thinking, systematic data analysis, prediction, and decision-making skills in students. As a result, the use of digital maps and GIS tools increases the quality of education in teaching ecology and serves to prepare students as profes.

The introduction of digital technologies in the teaching of Ecology in higher educational institutions of Uzbekistan can be carried out in the following areas (Figure 2):

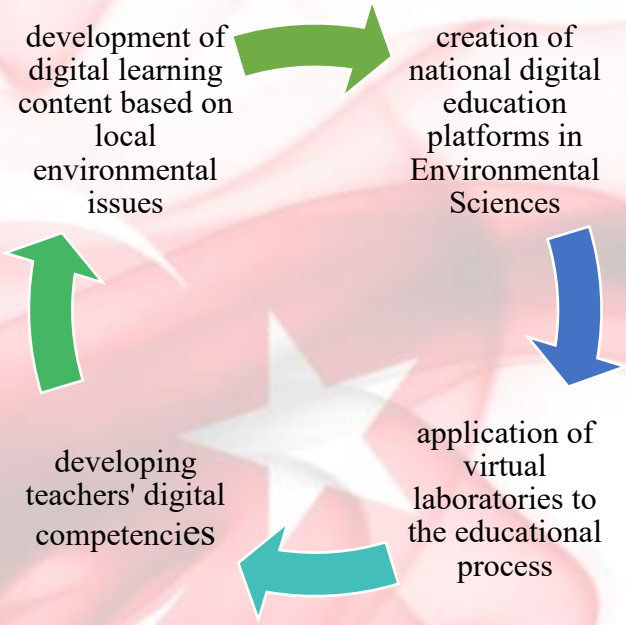

Figure 2. Directions for the introduction of digital technologies in the teaching of Ecology in higher educational institutions of Uzbekistan

4. Problems in the use of digital educational technologies The introduction of digital educational technologies into the educational process creates a number of challenges as well as providing greater opportunities for teaching ecology.. Problems in the use of digital educational technologies The introduction of digital educational technologies into the educational process creates a number of challenges as well as providing greater opportunities for teaching ecology. In particul.

The following main problems are observed in the introduction of digital educatione following main problems are observed in the introduction of digital education:

❖ inadequate technical infrastructure, i.e. limited high-speed internee following main problems are observed in the introduction of digital education;

❖ inadequate technical infrastructure, i.e. limited high-speed internet access, low levels of access to modern computers, tablets and specialized software;

❖ limitations of digital pedagogical experience, insufficient qualifications of teachers in the design of lessons based on digital technologies, the creation of interactive materials and their effective application;

❖ that the quality of electronic resources is not uniform, that is, that certain digital learning materials are not sufficiently scientifically-methodically grounded, outdated in content or incompatible with the level of students ' training.

To eliminate these problems, it is necessary to carry out comprehensive measures at the level of state and educational institutions.o eliminate these problems, it is necessary to carry out comprehensive measures at the level of state and educational institutions. In particular, it is important to strengthen the material and technical base of educational institutions, organize training courses aimed at increasing the digital competencies of teachers, develop and introduce quality and standards-compliant electronic educational resources. At the same time, the systematic implementation of digital education policies serves to improve the quality of education, ensuring the effective use of digital technologies in the teaching of Ecology.

In conclusion, the experience of foreign countries shows that the use of digital educational technologies in the teaching of Ecology significantly increases the effectiveness of Education.n conclusion, the experience of foreign countries shows that the use of digital educational technologies in the teaching of Ecology significantly increases the effectiveness of Edun conclusion, the experience of foreign countries shows that the use of digital educational technologies in the teaching of Ecology significan.

Literature used

1. Mirziyoyev Sh1.. Mirziyoyev Sh.M. New Uzbekistan development strategy. - Tashkent: Uzbekistan, 2022. – 464 b.
2. Stanford Mobile Inquiry-based Learning Environment information about.
3. The role of virtual learning environments in education.
4. Cloud LMS and sustainable learning environment.