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DIGITAL TECHNOLOGIES IN THE EDUCATIONAL ENVIRONMENT

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Abstract

The most important component of the modern educational process in a rapidly developing world is visual content, "screen" perception of information. This task can be realized by digital technologies, which are a set of technologies based on electronic calculations, transformations, analysis, storage and exchange of data. In the field of education, digital technologies make it possible to form an electronic educational environment, contribute to a better perception of the material, the introduction of interactive teaching methods, and the assessment of knowledge and skills. The introduction of innovative teaching methods contributes to a student-centered approach to the educational process, focuses on the individual abilities of students. The article gives an idea of the essence of digital technologies, outlines the advantages of their implementation in the educational process, and gives examples. It is shown that the use of digital technologies contributes to the involvement of students in the educational process, focuses on the individualization of education.

Keywords: Digital technologies, education, educational platforms, innovations, students

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1. Introduction

In Russia, advanced educational technologies are aimed at developing technological entrepreneurship. A technological trend is a group of closely related technologies that develop synchronously and together create practical and economic benefits in a particular industry or economy as a whole. An important feature of technological trends is that they are interconnected. Some trends are weaker, others are stronger. Their strength is determined by the quantity and quality of relationships with other trends.

2. Problem Statement

In a rapidly developing world, the most important component of modern education is visual content and "screen" perception of information. To achieve this, digital technologies are essential, as they provide a set of electronic tools for calculations, transformations, analysis, storage, and exchange of data. Digital technologies in education facilitate an electronic educational environment, interactive teaching methods, and knowledge and skills assessments, leading to better material perception and an individualized approach to the educational process.

3. Research Questions

Due to the problem described, this research paper presents numerous research questions for consideration: What are the key features and advantages of digital technologies in education? How do digital technologies contribute to the development of an electronic educational environment, student-centered learning, and interactive teaching methods? What are the best practices and examples of using digital technologies in education to improve material perception and individualization of the learning experience?

4. Purpose of the Study

The purpose of this study is to explore the use of digital technologies in education, with a focus on their role in creating an electronic educational environment, promoting student-centered learning, and facilitating interactive teaching methods. The study aims to identify the advantages of digital technologies in education and highlight best practices based on existing literature and case studies. Ultimately, the study seeks to promote the use of digital technologies in education to improve material perception, enhance individualization of the learning experience, and increase student engagement and involvement in the educational process.

5. Research Methods

The study will use a systematic review approach to gather relevant literature and case studies on the use of digital technologies in education. The search strategy will include academic databases, such as reports and conference proceedings. The inclusion criteria will be publications that focus on digital

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technologies in education and their impact on the creation of an electronic educational environment, student-centered learning, and interactive teaching methods. Data extraction will involve identifying key features and advantages of digital technologies, best practices based on case studies, and potential limitations and challenges. The study will then provide a comprehensive overview of the findings and offer recommendations for future research in this area.

6. Findings

To date, three aspects of the use of digital technologies in a modern university are considered: teaching with the help of digital technologies; the use of digital technologies in the management of education of both an individual and an educational institution (including for assessing the degree of mastering the material, competencies, building and adjusting educational tracks); training in digital technologies for professional purposes (Gottlieb, 2015; Petrova & Bondareva, 2019; Zaitseva et al., 2022).

Technologies that have been developing for a long time and confidently influence the development of other technologies, which is why they are called end-to-end. The term Information Technologies was coined by Harold J. Leavitt and Thomas L. Whisler in their November 1958 Harvard Business Review (Kondratieva, 2019) article Management in the 1980's. Information technologies are processes, methods of searching, collecting, storing, processing, providing, distributing information and methods for implementing such processes and methods. The word "digital" acquired its modern meaning in the early 1940s, with the advent of computers in which data was represented as a sequence of electrical signals or binary digits 0 and 1.

Digital technologies in education mean the order of organization of modern educational space, which is based on digital technologies (Ilaeva et al., 2020). This includes technologies that enable the creation, storage and dissemination of data.

End-to-end digital technologies, in turn, mean innovative technologies in education, economics, etc., which can be called multidisciplinary, as they cover a range of different industries.

Digital technologies include means related to electronic computing and data conversion. Examples are gadgets, electronic devices, technologies, programs. A good example is the digital footprint, the result of human action in the digital space (Nazarov et al., 2021). This technique is used by hotel booking sites, showing users digital footprints of other people (for example, “This hotel is currently viewed by 20 people”).

The educational activity of a higher educational institution can be called successful if the training programs being implemented take into account the trends in the development of the labor market and the requirements of the main consumers of educational services and employers (Isaeva, 2022). The following digital technologies are very popular for the implementation of practical, lecture, seminar classes, for organizing independent work of students at a university, for controlling the level of knowledge:

i. creating presentations;

ii. creation of interactive video;

iii. creation of infographics;

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iv. creation of interactive content;

v. carrying out joint work;

vi. processing of audio-video images (Kondratenko, 2019).

Currently, a lot of educational online content has been developed that cannot be mastered without the necessary level of digital competencies (Perevalov et al., 2020). These educational platforms allow students to deepen existing and gain additional knowledge and skills, independently build a trajectory for obtaining the necessary competencies, combine offline and online forms of education.

Other examples of innovative approaches in the educational process that are in demand among teachers and students are:

1) Peer-to-Peer Evaluation Peering (Eng. peer-to-peer, person-to-person) is a peer-evaluation format in which answers to tasks are evaluated not by an expert, but by other course participants.

2) On-demand launch format (translated from English “on request”) is a course launch format in which the user can start learning at any time and take the course without deadlines, at a comfortable pace. However, an on-demand course negatively affects the motivation of students

3) Marginalia “Marginalia means notes, images on the margins of the publication in electronic form, commenting on the text.

4) Web quest is a problematic task, accompanied by role-playing games with the integration of Internet resources. Being an innovative educational technology, it covers a number of problems of the studied disciplines. At the same time, to solve the problem, students must show independence, creativity and critical thinking. Such tasks increase the motivation of students and improve their personal achievements. Thus, this technology is based on inclusive education, where each subject of the educational process has the opportunity to use personal technical means, such as a tablet, computer, laptop, smartphone (Itinson, 2019; Klinkov, 2014; Maltseva et al., 2019; Makarova & Pugach, 2016; Vaganova, 2020; Yarmolchuk, 2018).

At the service of teachers there is a wide variety of services for creating tests, crossword puzzles, surveys, editors for creating quizzes, platforms for working in pairs and groups, services for graphical representation of structures, etc. Here are some examples of digital tools for testing students' knowledge (table 1).

Table 1. Digital tools for testing students' knowledge

Service	Reference	Short description
MADTEST	https://madtest.ru	Simple and flexible editor for creating tests and quizzes, quick placement, customization and built-in statistics
QUIZIZZ	https://quizizz.com/?fromBrowserLoad=true	Service for creating games and quizzes
QUIZLET	https://quizlet.com/ru	Card service. Suitable for learning languages
ONLINE EEST PAD	https://onlinetestpad.com	Service for creating tests, crossword puzzles, polls, lessons and dialogues

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7. Conclusion

The educational market is rapidly changing, there are new requirements for the speed of learning, its quality and the format for using educational products. And digital technologies have deeply entered our lives, contributing to the individualization of the educational process, and, undoubtedly, their introduction into the process of educating students will increase so that specialists graduating from universities are in demand in the new digital world, which will help close the gap between the requirements of the industry and the results of education.

References

Gottlieb, A. C. (2015). Could online education be an alternative to a traditional university? *Bulletin of SamSU (Samara State University), 1*(123), 15-22.

Ilaeva, Z. M., Alikhadzhieva, D. Sh., & Askhabova, Z. R. (2020). Application of Digital Technologies in the Sphere of Organic Production in the Agribusiness: Experience of the Chechen Republic. *Proceedings of the 2nd International Scientific and Practical Conference on Digital Economy (ISCDE 2020) Series: Advances in Economics, Business and Management Research* (pp. 402-406). Atlantis Press. https://doi.org/10.2991/aebmr.k.201205.067

Isaeva, E. L. (2022). Innovative technologies in the training of qualified medical personnel. *Bulletin of the Medical Institute, 1*(21), 57-61. https://doi.org/10.36684/med-2022-21-1-57-61

Itinson, K. S. (2019). Mass open online courses and their impact on higher education. *Karelian Scientific Journal, 8, 3*(28), 15-17. https://doi.org/10.26140/knz4-2019-0803-0004

Klinkov, G. T. (2014). Technological and profiling education at universities: active methods. *American Journal of Pedagogy and Education, 4*(2), 7-15.

Kondratenko, A. G. (2019). Digital technologies as an innovative approach to improving the educational process at the university. *Problems of the Russian economy at the present stage: Collection of scientific papers based on materials Interuniversity scientific and practical conference* (pp. 201-206). Moscow State Regional University.

Kondratieva, E. A. (2019). Theoretical approaches to understanding the essence of innovative technologies in the development of enterprises. *Young scientist, 11*(249), 200-203.

Makarova, E. L., & Pugach, O. I. (2016). Features of the development and implementation of courses in the educational field mathematics in distance learning systems. *Samara Scientific Bulletin, 2*(15), 165-171.

Maltseva, S. M., Vaganova, O. I., & Aleshugina, E. A. (2019). Technology for the development of an electronic educational and methodological complex in the discipline Pedagogical technologies. *Innovations in education, 6*, 103-109.

Nazarov, V. L., Zherdev, D. V., & Averbukh, N. V. (2021). Shock digitalisation of education: Education and science. *Education and science, 23*(1), 156-201. https://doi.org/10.17853/1994-5639-2021-1-156-201

Perevalov, V. D., Novgorodtseva, A. N., Sivkova, N. I., Korelin, A. V., & Korelina, E. V. (2020). Digitalization of Russian higher education: Educational process technologies (experience of universities of the Ural Federal District of Russian Federation). *Prospects for science and education, 46*(4), 36-46. https://doi.org/10.32744/pse.2020.4.3

Petrova, N. P., & Bondareva, G. A. (2019). Digitalization and digital technologies in education. *The world of science, culture, education, 5*(78), 353–355. https://doi.org/10.24411/1991-5497-2019-00138

Vaganova, O. I. (2020). Digital technologies in the educational space. *Baltic Humanitarian Journal, 9, 2*(31), 53-56. https://doi.org/10.26140/bgz3-2020-0902-0012

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Yarmolchuk, T. M. (2018). Synchronous and asynchronous online tools, learning a foreign language in the process of professional training of specialists in information technology. *Humanities Balkan Research, 1*, 75-79.

Zaitseva, T. V., Putivtseva, N. P., & Igrunova S. V. (2022). Higher school: introduction of end-to-end digital technologies. *Innovative approaches in higher education in the field of computer science: Proceedings of the III International scientific and practical conferences* (pp. 79-81). Ural Federal University named after the first President of Russia B.N. Yeltsin.