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THE ROLE OF DIGITAL EDUCATIONAL TECHNOLOGIES IN THE VOCATIONAL EDUCATION SYSTEM

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Abstract

This article thoroughly analyzes the role of digital educational technologies in the vocational education system, their integration into the educational process, and the potential for improving education quality through their application. Digital technologies are considered not only as technical tools but also as an approach aimed at developing students' knowledge, skills, and competencies in accordance with the real-world professional demands.

Keywords: Digitization, vocational education, quality of education, digital technologies, online learning, learning platforms, educational technologies.

Introduction

The gradual introduction of digital technologies into every sector of our country, along with the decisions being made to enhance the efficiency of information technology exchange, can rightfully be considered one of our achievements. The Decree of the President of the Republic of Uzbekistan "On the Approval and Effective Implementation of the Digital Uzbekistan – 2030 Strategy" outlines the task of improving the digital economy in our country based on digital technologies. In modern society, the role of information technologies and digital tools is steadily increasing. The education sector, too, is undergoing changes influenced by these technological transformations, striving to widely implement digital technologies. In particular, digital educational technologies enhance the efficiency and interactivity of the learning process for students, enabling them to quickly find, process, and evaluate information from various sources [1]. Numerous recent studies demonstrate the effectiveness of digital technologies in the field of education. According to research, digitalization enhances individualized approaches, provides greater flexibility for teachers, and allows students to participate more actively in the learning process. In particular, in vocational education, students can reinforce their practical skills through digital simulations, online textbooks, and interactive tools. However, during the digitalization process, factors such as the digital literacy of teachers and students, technical infrastructure, and financial barriers play a significant role [6].

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Literature Review and Methods

In recent years, numerous studies have been conducted on the implementation of digital technologies in vocational education. In particular, the research by Moloshov and Kakhkhorova (2023) highlights the role of digital educational resources in vocational training, emphasizing their importance in making the learning process more flexible and interactive. They stress that using platforms such as Moodle and Google Classroom in practice can significantly enhance the effectiveness of education [2].

Fozilova (2024) demonstrated through experimental research that students' academic performance improves with the integration of digital technologies. She also substantiated that digital tools positively impact students' ability to work independently [4].

Kholiqov (2024), in the context of higher education, analyzed the challenges related to infrastructure, technical tools, and human resources when implementing digital technologies. These issues are also relevant to vocational education, where a systematic approach is necessary for full-scale digital integration [3].

The review of these sources indicates that digital technologies in vocational education not only transform methodological approaches but also influence the content and organizational aspects of education.

Method Used in This Study: An analytical-methodological approach was applied: based on existing scientific and practical literature, the significance of digital educational technologies in vocational education was explored. A total of eight articles related to digital education technologies in vocational education were reviewed during the research.

Results and Discussion

Types of Digital Technologies in Vocational Education:

1. **Distance learning platforms** – Platforms such as Moodle, Google Classroom, and Edmodo allow students to acquire knowledge independently and at their own pace [5].

2. **Multimedia resources** – These include video lessons, animations, and interactive assignments that enhance engagement and make learning more dynamic.

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3. **Virtual laboratories and simulations** – These provide opportunities to conduct practical sessions in a virtual environment. Simulation software related to various professional fields is used to develop vocational skills [6].

4. **Mobile learning applications** – These offer students convenient and fast access to educational content, enabling learning anytime and anywhere [8].

5. **AI-based adaptive learning systems** – Artificial intelligence is used to personalize the learning experience by adapting content and pace to each learner's abilities and progress.

Advantages of Implementing Digital Educational Technologies [11]:

1. **24/7 access to learning materials** – Students can study at any time, regardless of location or schedule.
2. **Personalized learning paths** – Learners can follow individualized educational trajectories based on their abilities and interests.
3. **Automation and real-time monitoring of the educational process** – Teachers can efficiently manage and track students' progress.
4. **Strengthening vocational skills through innovative methods** – Interactive and technology-based approaches enhance the development of professional competencies.

Challenges in Implementing Digital Educational Technologies

The implementation of digital technologies in vocational education faces the following challenges [7]:

- **Insufficient infrastructure**: In some regions, poor internet connectivity negatively affects the quality and continuity of the educational process.
- **Teachers' digital literacy**: Some educators lack sufficient knowledge of digital tools, which hinders their effective use in the teaching process.
- **Lack of technical equipment**: A shortage of modern technological devices in educational institutions reduces the overall efficiency of digital learning.

Recommendations for the Effective Implementation of Digital Educational Technologies in Vocational Education

Developing infrastructure: Improve internet quality and equip educational institutions with modern technological tools.

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Enhancing teacher qualifications: Organize specialized training courses for teachers on the use of digital technologies.

Updating curricula: Develop and implement modern curricula that incorporate digital technologies.

Education is no longer limited to reading books, writing on the board, and taking notes. The digital classroom has transformed these traditional practices, making learning more interactive and engaging. Various features of digital technologies used in the classroom are presented in Table 1 [9].

Digital Educational Technologies in the Vocational Education System

Components of Digital Devices:	Platforms and Software:	Advantages of Digital Technologies:	Advisory Mechanism:	Development of Education:
1. Laptops 2. Tablets 3. E-books 4. Smart gadgets	1. Websites 2. Multimedia 3. Social Network 4. Electronic Educational Methods	1. Fast learning 2. Engagement 3. Exploration of interesting platforms	1. Constant communication with students 2. Utilizing feedback loops	1. From traditional teaching methods to digital classrooms 2. Opportunities for independent learning 3. Improvement in the quality of education

The establishment of Wi-Fi zones and IT parks plays a significant role in the advancement of digital education systems. These developments provide educators with the opportunity to enhance their skills in working with digital technologies and create various open courses through the internet. This, in turn, encourages educators to improve their own professional capabilities, and the resulting competition contributes to further enhancing the quality of education.

Conclusion

Digital educational technologies provide an opportunity to organize the learning process in vocational education systems in a more interactive, flexible, and modern way compared to traditional methods, while aligning with the demands of the contemporary labor market. These technologies foster the development of students' skills in independent work, information analysis, problem-solving, and active participation in collaborative efforts. In particular, components such as virtual laboratories, simulation tools, online assessment systems, and AI-based learning offer students experiences closely related to real work environments.

For instance, students in technical fields have the opportunity to engage in practical training through 3D modeling, programming environments, or industrial automation simulators. This, in turn, enhances their professional competencies and helps shape them as competitive specialists who meet the demands of employers.

References

1. O‘zbekiston Respublikasi Prezidentining 2019 yil 8 oktabrdagi “O‘zbekiston Respublikasi oliy ta’lim tizimini 2030 yilgacha rivojlantirish konsepsiyasini tasdiqlash to‘g‘risida”gi PQ-5847-sonli farmoni. https://lex.uz/docs/4545884
2. Moloshov Y., Kaxxorova S. (2023). Professional ta’limda raqamli ta’lim resurslarini qo‘llash. Golden Brain jurnali. https://researchedu.org/index.php/goldenbrain/article/view/5295
3. Xoliqov K. A. (2024). Oliy ta’limga raqamli ta’limni joriy etish. ResearchGate. https://www.researchgate.net/publication/381120258_OLIY_TA%27LIMGA_RAQAMLI_TA%27LIMNI_JORIY_ETISH
4. Fozilova L. S. (2024). Raqamli texnologiyalarining ta’lim sohasida qo‘llanilishi. ScienceBox jurnali. https://sciencebox.uz/index.php/ajed/article/download/12009/11298/11853
5. Yuz.uz (2023). Oliy ta’limda raqamli texnologiyalar. https://yuz.uz/uz/news/oliy-talimda-raqamli-texnologiyalar
6. Tursunov S.Q. Ta‘limda elektron axborot resurslarini yaratish va ularni joriy qilishning metodik asoslari. Monografiya. -T.: Adabiyot uchqunlari, 2018.
7. J. Khamidov Using Multimedia Technology Problems in Professional Education Eastern European Scientific Journal /Auris – Verlag.de 2019, №1. 187- 190 стр.
8. Hamidov J.A. Shermukhammedov A.A. Mobile Learning “Maxsus ta’lım muammoları: innovatsıya va istıqbolları” Respublika ilmiy-texnik anjumani materiallari Jizzax, 2025. –
9. Jones, A., Lang, M., Fyffe, G., Yu, X., Busch, J., McDowall, I., Bolas, M., Debevec, P.: Achieving Eye Contact in a One-to-Many 3D Video Teleconferencing System. In: ACM Transactions on Graphics, Proc. SIGGRAPH, 28(3), 64, (2009)
10. Shaxnoza Abduhakimovna Abduraxmanova. (2022). INDIVIDUALIZATION OF PROFESSIONAL EDUCATION PROCESS ON THE BASIS OF DIGITAL TECHNOLOGIES. World Bulletin of Social Sciences, 8, 65-67. Retrieved from https://scholarexpress.net/index.php/wbss/article/view/721G

ISSN: 2776-0987 Volume 6, Issue 4, April – 2025

11. Hamidov J.A. Shermukhammedov A.A. Ta’lim jarayonida raqamli texnologiyalardan foydalanish “Muhandislik oliy ta’limi transformatsiyasi jarayonida ta’lim sifatini oshirishda dual ta’limning istiqbollari ” mavzusida I-an`anaviy xalqaro ilmiy-amaliy anjuman Buxoro-2025
12. Abdurahmonov, B. (2022). Raqamli pedagogika asoslari. Toshkent: O‘qituvchi.
13. J. Khamidov, and K. Akhadova. «THE ROLE OF MATHEMATICS IN THE FORMATION OF DESIGN COMPETENCE OF FUTURE ARCHITECTS AND BUILDING ENGINEERS» Science and innovation, vol. 2, no. A1, 2023, pp. 97-102. doi:10.5281/zenodo.7541432
14. Zabiyeva, K., Seitova, S., Andasbayev, Y. S., Tasbolatova, R., & Ibraeva, S. N. (2021). Methodology for using web technologies to develop the intellectual abili-ties of future mathematics teachers. Thinking Skills and Creativity, 41, 100904. Kirriemuir, J. (2002). Video gaming, education, and digital learning technologies. D-lib Magazine, 8(2), 7.