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THE ROLE OF TECHNOLOGY IN EDUCATION AND LEARNING OUTCOMES

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Annotation. The article deals with the role of technology in education and learning outcomes. The author discusses various aspects of technology integration in educational settings, such as the use of online resources, digital tools, and interactive platforms. It describes the cons of technology implementation in schools. This article presents reasons why the judicious use of technology can improve the quality of learning. The main theme of the article is the significant role of technology in shaping contemporary education and its impact on student learning outcomes.

Keywords: education, technology, networking and online learning facilitation, learning feedback, educational resources, gamification

Introduction. Technological progress does not look back and every year innovations are introduced into our daily life. The Internet has been for several years and has a huge database to which everyone has access and can search for any information. You don't have to queue at the library for a book or share it with acquaintances because of their scarcity. The Internet has become the most powerful tool for students and teachers to access relevant and diverse materials including e-books, research articles, video lessons and other educational resources. This allows students to explore a topic in depth, expand their knowledge and develop critical thinking.

Despite the advancement of technology, the "Traditional" model of teaching with a teacher in a classroom, students at the desks, complete assignments and tests have been around for centuries and have not been subject to significant changes. Nowadays, technology has reached such a peak that it is possible to integrate into the educational process. Modern educational technology has improved the quality of education. It is a systematic way of conceptualizing the execution and evaluation of the educational process.

Technology has become an integral part of our daily lives, transforming the way we communicate, work, and learn. In the field of education, technology has had a significant impact, revolutionizing traditional teaching methods and opening up new possibilities for both educators and students. Understanding the role of technology in education is crucial in harnessing its potential to enhance learning outcomes and prepare students for the future.

This article will present reasons why the judicious use of technology can improve the quality of learning:

Access in education. Technologies can improve access in education by providing online learning platforms, mobile learning options, distance learning opportunities, open educational resources. These advancements break down barriers of time, location, cost, and physical limitations, making education more accessible to a wider range of learners. At the moment, a lot of universities already support online learning and have their own online platforms.

MOOCs, or Massive Open Online Courses, have emerged as a popular and innovative approach to online learning in recent years. MOOCs are online courses that are designed to be accessible to a large number of learners from around the world. They are typically offered by renowned educational institutions, such as universities and colleges, as well as online learning platforms. One of the key features of MOOCs is their scalability. They can accommodate thousands or even hundreds of thousands of participants simultaneously. This makes them an attractive option for individuals seeking to gain knowledge and skills in various fields, regardless of their geographical location or educational background. MOOCs offer flexibility in terms of when and where learners can access course materials and engage with the content. MOOCs typically consist of video lectures, readings, assignments, quizzes, and discussion forums. They

cover a wide range of subjects and learners can choose courses of interest that match their learning objectives.

Networking and online learning facilitation. A networking in education emphasizes active participation, cooperation, and shared responsibility among students and educators. It involves working together in groups, exchanging ideas, and collectively contributing to knowledge building. This approach promotes teamwork, communication skills, critical thinking, and problem-solving abilities.

A networking in education can be greatly enhanced by leveraging various technologies. Some technologies that facilitate collaborative learning are as follows:

Online collaboration tools: Platforms like Google Docs, Microsoft Office 365, and collaborative whiteboards enable students to work together on projects and assignments in real-time. They can simultaneously edit documents, brainstorm ideas, and provide feedback, promoting seamless collaboration regardless of physical location.

Discussion forums: Online discussion forums provide spaces for students to engage in discussions, ask questions, and share resources.

Video conferencing tools such as Zoom, Microsoft Teams and Skype. These platforms provide fast communication between team members on various topics.

Learning Management Systems (LMS) like Moodle, which provide a platform for course delivery and management. LMS platforms offer various collaboration features, such as discussion boards, group workspaces, and shared document repositories.

Online peer assessment and feedback tools: Technology-enabled peer assessment tools allow students to provide feedback and evaluate each other's work. These tools streamline the feedback process, promote constructive criticism, and encourage students to take an active role in assessing their peer's work. Some feedback tools include tests, and assignments enabling instructors to monitor learner progress and offer feedback.

Fun in education process. Going back to the "Traditional" model of teaching, time goes by and the number of requirements grows, and with them the study load that students need to absorb grows. The brain gets overloaded from this load and motivation drops. Fun factor can play a significant role in keeping the student motivated and actively involved in the learning process. The introduction of gamification into the educational process is one of the solutions. Gamification involves incorporating game elements, such as points, badges, leaderboards, challenges, and rewards, into various activities to make them more enjoyable and engaging. In education, by integrating game elements into the learning process, educators can create immersive and interactive experiences that motivate students to actively participate in their education. Gamified learning platforms often incorporate quizzes, challenges, and rewards to make learning more enjoyable and encourage students to explore and master new concepts. Through gamification, students can experience a sense of accomplishment, track their progress, and receive immediate feedback, which enhances their learning experience. Gamification has the potential to transform routine tasks into engaging and rewarding experience.

Learning feedback. Learning feedback is an essential component of the learning process that provides students with information about their progress, strengths, and areas for improvement. It helps students understand their current level of understanding, identify gaps in knowledge, and make adjustments to enhance their learning outcomes.

Numerous software programs and virtual learning include functions that deliver automated reports to students as they move through lesson plans, including answers and advice for growth. It can save the instructor's time on more important aspects of teaching, improving overall productivity and efficiency.

Technology enables the recording and sharing of video or audio feedback with learners. For example, instructors can utilize screen recording technology to provide comments on a student's written assignments, or utilize video conferencing tools to deliver real-time analysis during remote learning sessions.

With machine learning and artificial intelligence, there is an opportunity to analyze large amounts of student data, identifying patterns, trends, and areas of improvement. Learning analytics

can provide insights into individual student progress, learning behaviors, and performance, helping instructors offer targeted feedback based on data-driven observations.

Problems emerging in the implementation of technology in education. With the great potential of technology in education, it has its own malformation and obstacles, which creates problems in the transition of education to technology-enabled learning. In a rapidly growing digital world, it is important to embrace technology to create effective learning. The following aspects are worth considering:

Unequal access. Many students and schools face unequal access to technology due to limited internet connectivity, lack of devices, or inadequate infrastructure. This digital divide exacerbates educational disparities and hampers the ability to leverage technology for learning.

Lack of digital skills. Students and educators may lack the necessary digital skills and literacy required to effectively use technology for educational purposes. Insufficient training and support in developing digital competencies can hinder the successful implementation of technology in the classroom.

Cost of obtaining the technology. Implementing and maintaining technology infrastructure, software, and resources can be financially burdensome. Budget constraints may limit the availability of necessary technological resources, upgrades, and ongoing technical support, barriers to the long-term sustainability of technology integration initiatives.

Privacy and security concerns. The use of technology in education raises concerns about data privacy, security, and student confidentiality. Safeguarding student information, protecting against cyber threats, and ensuring compliance with privacy regulations are significant challenges in technology implementation.

Pedagogical adaptation. Integrating technology effectively into the curriculum and instructional practices requires thoughtful pedagogical approaches. Aligning technology use with educational goals, designing meaningful learning experiences, and ensuring technology enhances learning outcomes can be a complex task to perform.

Conclusion. Technology plays a multifaceted role in education, enhancing access to information, promoting engagement and active learning, facilitating personalized instruction, fostering collaboration and communication, and preparing students for the future. Embracing technology in education empowers students, expands learning opportunities, and equips them with the skills needed to thrive in an increasingly digital world. By leveraging technology effectively, educators can create dynamic and inclusive learning environments that prepare students for success in the 21st century and beyond.

References

1. *The Role Of Technology In Education, Post Pandemic by Shashank Joshi [Электронный ресурс]. Режим доступа: https://elearningindustry.com/the-role-of-technology-in-education-post-pandemic. Дата доступа: 22.06.2023.*

2. *THE ROLE OF TECHNOLOGY IN EDUCATION / Kanika Budhwar // International Journal of Engineering Applied Sciences and Technology, 2017 Vol. 2, Issue 8, ISSN No. 2455-2143, Pages 55-57. https://www.ijeast.com/papers/55-57,TESMA208,IJEAST.pdf*

3. *12 Ways Technology Can Yield Better Educational Outcomes by Expert Panel® [Электронный ресурс]. Режим доступа: https://www.forbes.com/sites/forbestechcouncil/2021/01/26/12-ways-technology-can-yield-better-educational-outcomes/?sh=894a258157a2/. Дата доступа: 26.01.2021.*

4. *Education Through Technology: Enhancing Quality Learning By GGI Insights [Электронный ресурс]. Режим доступа: https://www.graygroupintl.com/blog/education-through-technology#:~:text=Examples%20include%20adaptive%20learning%20software,based%20on%20each%20student's%20progress. Дата доступа: 23.01.2024.*

5. *The Role of Technology in Improving Student Learning Outcomes by Nitin Sharma [Электронный ресурс]. Режим доступа: https://www.hurix.com/role-of-technology-in-improving-student-learning-outcomes/. Дата доступа: 13.11.2023.*

6. *USAGE OF TECHNOLOGY IN EDUCATION by DEEPAK RAJ [Электронный ресурс]. Режим доступа: https://findinsights.in/usage-of-technology-in-education/. Дата доступа: 06.02.2023.*

7. *The Role of Technology in Modern Education and Its Impact on Learning Outcomes by Let'sGradeIt [Электронный ресурс]. Режим доступа: https://medium.com/@letsgradeit_19932/the-role-of-technology-in-modern-education-and-its-impact-on-learning-outcomes-8f4e3da3729d. Дата доступа: 03.05.2023.*

8. *Impact of Technology in Education by Lora Evanouski [Электронный ресурс]. Режим доступа: https://www.academia.edu/335899/Impact_of_Technology_in_Education. Дата доступа: 06.05.2009.*

9. *Technology as a Tool to Support Instruction By Lynne Schrum [Электронный ресурс]. Режим доступа: https://www.educationworld.com/a_tech/tech/tech004.shtml. Дата доступа: 17.08.2005.*