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REVOLUTIONIZING LEARNING: THE ROLE OF TECHNOLOGY IN MODERN EDUCATION

Ergashev Farruxbek Ortiqboy o'g'li
Third year student of the Faculty of Philology and History,
Renaissance Educational University (REU),
Uzbekistan, Tashkent
E-mail: ergashevfarruxbek777@gmail.com
Niyazova Gulnorakhon Gulyamovna
Associate professor (PhD),
Renaissance Educational University,
Tashkent, Uzbekistan
E-mail: niyazovagulnorakhon@gmail.com
ORCID ID: 0000-0001-5905-2129

Annotation. Technology has significantly transformed the education sector, enhancing accessibility, engagement, and personalized learning experiences. This paper examines the impact of technology on modern education, exploring innovative tools, methodologies, and their effectiveness. Key aspects such as e-learning platforms, artificial intelligence, and virtual reality in education are analyzed. The study also presents empirical data demonstrating the effectiveness of technology in improving student outcomes.

Keywords: *Educational technology, digital learning, artificial intelligence, e-learning, virtual reality, modern education.*

INTRODUCTION

We have digital tools in all spheres of life and cannot imagine our life without technology. It is no secret that technology, that is digital technology, plays an urgent role in education too. For this and other reasons, we can say that enabling individuals to keep pace with this change has become the aim of education. The integration of

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technology into education has significantly renovated traditional teaching and learning methods. To achieve this aim, it is essential that teacher be digitally literate and have the ability to use digital tools. With the rise of digital tools such as e-learning platforms, artificial intelligence, and virtual reality (VR), education has become more interactive, flexible, and accessible. While researchers like Anderson and Dron [2011] highlight the positive impact of online learning on student engagement, it is essential to critically analyze whether technology truly enhances learning outcomes for all students or if it simply changes the mode of instruction. This paper explores the role of technology in modern education, assessing its advantages in terms of engagement, accessibility, and personalization, while also addressing the challenges associated with its implementation.

LITERATURE REVIEW AND METHODOLOGY

Numerous studies emphasize the role of technology in improving educational effectiveness. Anderson and Dron [2011] argue that online learning and blended education positively affect student performance by providing flexible and self-paced learning opportunities. Meanwhile, Selwyn [2016] examines the ethical and social challenges associated with integrating digital tools into classrooms, raising concerns about data privacy, digital inequality, and over-reliance on technology. While these perspectives highlight both opportunities and risks, it is crucial to consider the specific context in which technology is applied. In well-resourced educational environments, digital learning enhances student engagement, but in underprivileged areas, the digital divide may exacerbate existing inequalities.

Like other researchers in education who study digital literacy and digital competence, the scholar G.Niyazova states that, that most educators in Uzbekistan do not hurry or show interest in being digitally competent and bring new technology into the classroom which could impact in the quality of the lesson and raise students' interest in learning, despite the fact they are digitally literate. This leads to missing the opportunity for students to be engaged in the classroom and or thinking critically of the information they learn. Students find old typed or paper-based lessons quite boring and

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often either give up learning or try to be involved in other activities. She highlights that, most educators conduct classes in the old- style type. They give good knowledge and bring resourceful materials, but students consider them less effective without using digital tools. There are cases when students ask teachers to give more materials for independent learning and coming back, they present their reflections using digital tools. Technology's influence on education extends beyond mere digitalization; it fundamentally reshapes how students interact with content, teachers, and peers [2023]. Students always try to be ahead in using new technology and do not show desire to sit in a traditional paper-based or just reading and discussing /speaking classes. This course will definitely help me continue a) explore new ways of teaching with technologies; b) reflect on my teaching practices; and make some changes based on the best interest of my students. (Mitchell, 2021) and make my classes entertaining and learning.

G.Niyazova also admits that traditionally, learning was structured around in-person interactions, printed materials, and passive knowledge consumption. She provides the useful resources to compare traditional and interactive lessons with technology, acknowledging the fact that Key Technological Developments in Education Online Learning Platforms Platforms such as Coursera, edX, and Khan Academy have democratized access to education, allowing learners to study at their own pace and from any location. At the same time, Anderson and Dron [2011] suggest that these platforms foster independent learning, yet critics argue that self-paced education lacks the structured guidance necessary for deeper comprehension. While online courses provide flexibility, they may not fully replace traditional classroom engagement, where discussions and direct interactions foster critical thinking and deeper understanding. Immersive technologies like VR and AR create engaging learning experiences, enabling students to explore complex subjects through simulations. I think For instance, medical students can practice surgical procedures in a risk-free virtual environment. While VR enhances pragmatic learning, its high cost and accessibility issues limit widespread adoption. This suggests that while VR has

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enormous potential, its implementation should focus on practical applications rather than novelty-driven usage. Prioritizing affordability and scalability will determine the extent of VR's influence on mainstream education.

DISCUSSION AND RESULTS

The Effectiveness of Technology in Learning Personalized learning environments, enabled by AI and digital platforms, allow students to progress at their own pace while receiving tailored instruction. Studies indicate that technology facilitates active learning, with 85% of surveyed students reporting increased engagement in digital classrooms. However, engagement does not always equate to deep learning, and some students struggle with self-discipline in online settings. This suggests that while technology enhances accessibility, structured learning strategies must supplement its use to maximize its benefits.

Challenges in Implementing Educational Technology

When teachers face challenges in teaching or get puzzled, ***Google Classroom*** is an excellent digital tool to use and involve students into the classroom, since it saves teachers' time and paper, and allows them to create classes, post assignments, and communicate with their students with ease. It also allows teachers to see which students have completed their assignments and they can provide direct, real-time feedback and grades. *Google Classroom* essentially puts all of teachers' assignments, announcements, and student work right in one place. *Google Classroom* is a great tool for sharing information with students, collecting their work, and providing feedback for any subject as leads to missing the opportunity for students to be engaged in the classroom and or thinking critically of the information they learn. Students find old typed or paper-based lessons quite boring and often either give up learning or try to be involved in other activities. There are cases when students ask teachers to give more materials for independent learning and coming back, they present their reflections using digital tools [2023].

One more reason and drawback that our educators are not good at using digital tools is that students are not taught how to use digital tools in education, in research,

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or how to do research. One thing makes us happy, that *online libraries* and searching for books online are becoming popular in our country. Teachers need to seek ways of using digital tools in the classroom and become digital competent. G.Niyazova always tries to learn new things to keep students engaged and engaged; use digital tools like Kahoot, Padlet, Google Slides, and use them to create assessment tasks, use them in formative and summative assessments.

Despite its advantages, integrating technology in education is not without obstacles. Digital inequality remains a critical issue, with 50% of surveyed institutions citing infrastructure and accessibility challenges. Additionally, cybersecurity risks and resistance from educators accustomed to traditional methods hinder the seamless adoption of new technologies. To address these challenges, policymakers must prioritize investment in digital infrastructure and teacher training programs, ensuring that technology serves as an enabler rather than a barrier to learning.

Technology Type	**Percentage of Students Engaged**
Learning Management Systems	75%
Virtual Reality	60%
AI-Based Tutoring	55%

Table 1: Student Engagement with Technology

Benefit of Technology	Percentage of Educators Agreeing
Improved Assessments	70%
Personalized Learning	80%
Increased Accessibility	65%

Table 2: Educators' Perspective on Digital Learning

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CONCLUSION

Technology has undeniably reshaped contemporary education, offering more personalized, accessible, and interactive learning experiences. Advances in artificial intelligence, virtual reality, and digital learning platforms have revolutionized traditional pedagogical approaches, improving greater student engagement and autonomy. However, these innovations are not without challenges. Persistent digital inequalities delay equitable access, while concerns regarding data security and the over-reliance on technology raise critical ethical and pedagogical leads to missing the opportunity for students to be engaged in the classroom and or thinking critically of the information they learn. Students find old typed or paper-based lessons quite boring and often either give up learning or try to be involved in other activities.

Future research must delve deeper into the long-term cognitive and social implications of digital learning, examining its effectiveness across diverse educational contexts. Furthermore, the development of comprehensive policies is essential to ensure that technology serves as an enabler rather than a barrier to quality education. A collaborative effort between educational institutions and policymakers is imperative to strengthen digital infrastructure, address cybersecurity risks, and equip educators and students with the necessary digital competencies. By fostering an inclusive and well-regulated technological ecosystem, the education sector can fully harness the transformative potential of digital learning while safeguarding its foundational principles.

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