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Educational Technology and Management Academy

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Table of Contents

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Editorial

Digital Innovations and Transformation in Education

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Digital innovations and transformation in education are instrumental in the rapidly changing technological landscape (Acilar, 2021). By incorporating new technologies into the education system, students are better prepared for the future and more able to succeed in a global economy. Digital transformation helps to improve educational outcomes by providing more personalized and engaging learning experiences. Digital innovation refers to creating new or improved products, services, or processes through digital technologies. Digital transformation results in the creation of improved or new business services, models, or experiences. Digital innovations in education and training lead to improved or new educational or training experiences through the use of digital technologies.

There are a few competing concepts and definitions of digital innovations and transformation in the education domain. One concept is digital natives, which are individuals who have grown up using digital technology and are comfortable with it (Keengwe & Georgina, 2013). Another concept is digital immigrants, which are individuals who are not as comfortable with digital technology and need to learn how to use it (Duan, Kotey & Sandhu, 2020). Digital literacy pertains to the skills, abilities, and competencies of using digital technologies for accessing, creating, and communicating information (Avni & Rotem, 2019; Biezā, 2020; Reddy, Sharma, & Chaudhary, 2020). The definition of digital transformation in education has been debatable. Some consider it as improving the educational experiences of students using digital technologies, while others define it as improving the efficiency and effectiveness of the educational process using digital technology.

Potential

Online and blended learning provides students with flexible and personalized learning experiences (Sharma & Mishra, 2007). Gamification makes learning engaging and fun for students by incorporating game-like elements into educational content and experiences. Virtual reality and augmented reality provide students with more immersive learning contexts. Artificial intelligence has a plethora of applications in education. Online learning platforms provide students with anytime, anywhere access to course materials and resources. Mobile learning apps allow students to access learning content and resources on their smartphones and other mobile devices. Virtual reality (VR) can transport students to different places and times, providing them with an up-close and personal look at history, science, and other subject matter (Sharma & Sharma, 2021).Augmented reality (AR) allows students to superimpose digital content onto the real (physical) world. For example, AR can be used for educational purposes, such as providing students with information about the stars and planets while they gaze at the night sky.3D printing technology can be used to create physical models and objects (Alabi, 2017). This can be helpful for visual learners or for students who need to create prototypes for projects. Robotic technology can be used to create educational experiences and learning opportunities. For example, robots can be used to teach students about coding and programming. Blockchain is a digital ledger that can be used to store educational data and records. Blockchain can help to improve data security and protect against fraud and tampering (Sharma, Yildirim & Kurubacak, 2020). The Internet of Things (IoT) comprises physical devices and appliances embedded with sensors, software,

electronics, and connectivity for exchanging data. An example of an IoT system is a Fitbit wearable device that tracks someone's activity and sleep patterns. The Internet of Things (IoT) in education is the use of internet-connected devices to enhance and improve the educational experience for students and educators (Belkeziz & Jarir, 2020). These devices can be used to provide real-time feedback, increase engagement and collaboration, and improve communication and learning outcomes.

Benefits

The benefits of digital innovations and transformations in education include improved educational outcomes, easy and open access to education, enhanced engagement through gamification, virtual reality, and augmented reality, metaverse and personalized learning through the applications of artificial intelligence and blockchain. Blockchain also helps to improve data security and protect against fraud and tampering. This is especially important for sensitive educational data, such as student records and test scores.

Challenges

There are several key challenges for digital innovations and transformation in Education (Rupeika-Apoga & Petrovska, 2022). One challenge is the need to provide equal access to education for all students, regardless of their socioeconomic background. Not all students have access to the internet or mobile devices. This can limit their ability to take advantage of digital learning opportunities. A second challenge is the effective and efficient use of digital resources and technologies to improve learning outcomes. A third challenge is to develop innovative models of education that take advantage of the latest digital technologies. Some digital technologies can be expensive to implement and maintain. This can be a barrier for schools and districts that have limited budgets. There may be an issue of equity. Some students may receive unequal access to digital technologies and resources depending on their socioeconomic status. This can lead to a widening of the achievement gap. The use of digital technologies in education can raise privacy concerns. For example, students' data, such as their test scores and attendance records, may be collected and stored electronically. The use of digital technologies in education can also raise security concerns. For example, hackers can access online learning platforms and mobile learning apps to steal sensitive student data.

The lack of understanding and awareness of the potential and opportunities that digital technologies can bring to education is a matter of concern. Its potential applications in education are not yet fully understood. There is a lack of awareness of the different digital technologies available and how they can be used to support and improve education. As a result, many educators and decision-makers are not aware of the potential benefits of digital technologies and how to best utilize them (Kilic & Karakuş, 2021).

Another key challenge is the lack of funding and resources for the development and implementation of digital technologies in education. The development of digital technologies requires significant investment, and many educational institutions do not have the necessary funds to support such development (Del Baldo et al., 2022). In addition, the implementation of digital technologies can be expensive and requires the purchase of hardware and software, as well as the training of personnel. As a result, such educational institutions are reluctant to invest in digital technologies.

The lack of skilled and qualified personnel to support the use of digital technologies in education is conspicuous. The use of digital technologies requires personnel with specific skills and knowledge (Krevskiy, 2020). Many educators are not familiar with digital technologies and lack the skills and knowledge necessary to effectively use them.

The issue of standardization and interoperability of digital technologies across different platforms and systems is

another concern (Milovanović et al., 2020). Digital technologies are constantly evolving and new technologies are being developed. As a result, it can be difficult to maintain compatibility and interoperability across different platforms and systems. This can lead to frustration among users and limit the effectiveness of digital technologies in education.

The adverse attitudinal and skill digital divide among the elders in educational institutions is another crucial challenge. Mukhopadhyay (2022) describes digital divide under attitudinal, skill, and digital access. Elders (academic leaders and teachers, and parents have better access to digital devices with immature skills and unfriendly attitudes towards digital innovations. Learners have better attitudes and skills without adequate access to digital devices. It is an adaptable innovation. The academic leadership is burdened with laggards, and the late majority. Innovators and early adopters are still too few among the leaders (Mukhopadhyay, 2022).

Changes over the next few years and how do we get there

The impact of digital innovations and transformation in education can be observed in the trends like improving access to education, enhancing the quality of education, encouraging lifelong learning, empowering learners, fostering collaboration, supporting teachers and educators, promoting equity and inclusion, addressing the digital divide, building capacity for change, and sustaining the momentum for transformation (Muwani et al., 2022).

The impact of digital innovations and transformation in education is far-reaching (Wang & Chen, 2022). It has the potential to change the way learners are educated, the way the workforce is trained, and the way we provide access to education and training for everyone. It also has the potential to improve the quality of education and make it more affordable. It will allow more people to have access to education and training, regardless of their location or economic status. Digital innovations and transformation in education will revolutionize the way we educate our children, train our workforce, and provide access to education and training for everyone.

Digital innovations and transformation in education will continue to evolve and change over the next few years. We can expect to see more changes in how education is delivered, more use of technology in the classroom, and more focus on individualized learning as the world of metaverse is emerging fast (Tlili et al., 2022). We can also expect to see more changes in how we assess student learning. To get to this future, we need to continue to invest in research and development in this area. The research, practice, and policy perspectives can contribute to digital innovations and transformation in education in a variety of ways. for example, the perspectives can provide insights into how educational institutions can use digital technologies to improve teaching and learning. additionally, the perspectives can also offer guidance on how policymakers can support the use of digital technologies in education. We also need to continue to support and encourage innovation in education. We need to provide educators with the resources they need to implement new technologies and approaches in the classroom. And we need to continue to evaluate and improve our educational systems to ensure that they are meeting the needs of our students.

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