

Enhancing Teaching and Learning in the 21st Century: The Role of Educational Technology

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Abstract:

This paper examines the transformational roles of educational technology in teaching and learning in the 21st century. It is expected that teachers and learners will maximize the benefits of educational technology in our classrooms. The work highlights the journey from traditional classrooms to technology based onelearning environments. It also identifies the benefits associated with integrating educational technology in our teaching process, identifying the challenges and making appropriate recommendations.

Keywords: Educational technology, teaching enhancement,,learning enhancement and 21st Century education.

Introduction:

Educational technology is a term that technically can mean anything from a pen or overhead projector to laptops and interactive web technologies (Andrade, 2012). Technology has majorly brought about a face-lift in teachers' accomplishment in their coursework and teaching activities. It is therefore important for teachers to become updated with recent information, technology and teaching–learning modalities to

enhance educational heights. The rise in students' needs and societal expectations has created more responsibilities for teachers.

As such, to attain better results, teachers are expected to use data-driven teaching and learning processes, focus on students and societal social challenges and prepare the duo for the 21st century demands. This will eventually require embracing innovative technologies that can enhance classroom instructions.

Technology is rapidly changing and young and experienced teachers may have more skills than veteran teachers and may be in better position to keep abreast of changes. Accessing the internet makes knowledge and training much more accessible to everyone in different places. Teachers and school leaders are now in a better position to take charge of their own learning which is very helpful when modeling student's behavior (TESS, India). Hence, it is important to take advantage of the technological advancement that can minimize the busy schedule and increase the productivity of teachers.

The use of technology is integral in improving productivity in teaching and learning. It introduces into the classrooms the use of digital devices, develops 21st century skills and increases student's motivation to learning.

The role of technology is significant and it can ensure that knowledge sharing teaching and learning, research and many other important facts of education and business are improved (Plaatjie, 2016).

Traditional versus 21st century education

The 21st century teaching requires a mixture of the traditional and alternative ways of teaching. It focuses on skills of students such as collaboration, critical thinking

communication and creativity, teachers readily partner with computers and other technology based materials to deliver their lessons effectively.

Traditional teaching involves pen and paper and is teacher centered. It requires students to listen passively as the teacher instructs in a classroom environment. The traditional teaching method of education does not allow learners to develop these 21st century skills.

Nemine (2008) says traditional education emphasizes direct instruction, lectures and seat work while the students learn through listening and observation whereas progressive education emphasizes hands-on activities, student-led discovery and group activities. She further stated that whereas traditional instruction is based on textbook, lectures and individuals written assignments, the contemporary approach is project-based and students work in small groups.

The traditional blackboard has been a focal point of the classroom for centuries, but with new technological innovations, the old fashioned slate and chalkboard are becoming a thing of the past. Modern blackboards, known as white interactive boards use the learning management system (LMS) platform which can create and manage a online course room (Bates, 2012).

Using Technology in Teaching and Learning:

As we sail through the 21st century, technology in the classroom is becoming more and more predominant. Tablets are replacing textbooks and we can research just about anything that we want on our smart phones. Social media have become a common place, and the way we use technology has completely transformed the way we live our lives (Janette Cox).

The effective use of technology in education has changed the face of education and has created more educational opportunities. Both teachers and students have benefited from various educational technologies, teachers have learned how to integrate technology in their classrooms and students are getting more interested in learning with technology (Karehka, 2013). It creates learning opportunities that are more engaging and effective than traditional teaching methods.

The use of technology in education has removed educational boundaries, both students and teachers can collaborate in real time using advanced educational technologies. Technology has helped in the growth of mobile learning and long distance learning. The use of Internet technology has enabled teachers to reach students across borders and also students from developing countries have used internet technology to subscribe for advance educational courses. Many universities and colleges have embraced online education by creating virtual classrooms. Online education is flexible and affordable, student can attend classroom during their free time and they can also have a channel to internet with other students virtually(Karehka, 2013).

Online learning opportunities and the use of open educational resources and other technologies can increase educational productivity by accelerating the rate of learning reduce cost associated with instructive materials and better utilization of teacher time.

Dike (2018) acknowledges that the arrival of computers in classrooms has revolutionized the way knowledge is accessed, packaged and delivered. It has changed the face of distance education from its analogue based correspondence institution or part time outreach programmes to open distances and online (ODEl) programmes or virtual universities.

Technology generally has the unique opportunity to change the way that students learn and teachers teach. The professional development of teachers has started to evolve to include ways to incorporate emerging technologies and tools into classroom activities. When technology is embraced in the classroom students are better positioned to be successful in their lives outside of school. (Agrawal, 2019).

The integration of ICT in curriculum in education is relevant as it can be used to enhance knowledge transformation in the teaching and learning process. Technology is also a great communication tool. Class blogs, group WhatsApp, websites, messaging and the likes can help teachers communicate and share with students and teachers. It also allows students to communicate among themselves and collaborate on projects.

Technology can also be used to differentiate teaching and learning. Teachers can use power point to have text, images, videos and more for students. The slides can also be printed, posted and shared to help students. Teachers can use videos, animating, websites, podcasts and more to present information in different ways. Teachers can also differentiate, individualized and personalize assignments by having students choose how they would like to demonstrate their learning. Students could create electronic posters, blogs, websites, videos, blogs and more to show that they have mastered the material. (Andrade, 2012).

Benefits of Educational Technology:

According to Marri (2007) in Plaatjie (2016), there is a perception that the integration of educational technology in enhancing teaching and learning has been a huge issue, and technology has been identified as a medium to improve teaching and learning thereby helping students to be successful.

The main benefits of using technology in making teaching and learning more effective are;

1. Improving group collaboration with educational technology in classrooms, teachers have observed an increase in collaboration amongst students it develops their collaboration skills to work in bigger groups and build team spirit (Mahanta, 2019). Technology and social media in education allows people to share ideas (Lokesh, 2013). Technology and social media in education allows people to share ideas (Lokesh,2013). Technology can encourage collaboration with students in the same classroom and even with other classrooms around the world.
2. The use of educational technology in classroom provides students and teachers opportunities to interact thereby arousing student interest and participation in class. Online polling and other digital tools helps to engage all students, including shy students who wouldn't normally raise their hands in class (Himmelsbach, 2019).
3. Technology in the classroom makes learning more fun. Students prefer technology because they believe that it makes learning more interesting and fun. They especially like laptops and tablets. Subjects that students clean, challenging or boring can become more interesting with virtual lessons, through a video or when using a tablet. (Cox, 2019).
4. Technology encourage blended learning environment where learning occurs having a combination of internet based media with traditional textbook method. Blended learning provides useful aspects of knowledge and varieties of approaches to achieve the goals set in life. It saves the time of teachers by automating the instruction through digital tools. (Boricha, 2019).Blended environments also support online submission of electronic documents, cutting school cost in paper and other materials.

Cost benefits aside, students say that they enjoy the benefit of blending online and in class learning styles, (Mata, 2015).

Education technology has other benefits as well-computer based tests have been demonstrated to curb exam malpractice and prove to have long term financial benefits which is great for cost saving activities.

Online result checkers are now being used more widely to check results of major examination and most schools have introduced portals for parents as a great way to keep them involved in their children's education (Jibrin, 2019).

Challenges in educational technology Integration

According to Lokesh (2013) technology is not the solution to 21st century education, it is simply a tool to aid education and learning. Successful integration of technology in our teaching and learning process could be challenging as it requires time, customization, experimentation and support.

The initial use of technological devices sometimes poses as a form of distraction and as such requires more effort on classroom management on the part of the teachers.

Students regularly use devices for social media playing, games; instant messaging, text messaging and emailing rather than for class work. Students have been described as "digital rebels" (accessing social media and texting), "cyber wanderers" (succumbing to virtual games and "e learning pioneers" (undertaking online studies during class time) (Brendon,2018).

Investing in technology without the support and consultation of an educational technology staff is a regular challenge in most academic institutions. Schools are spending money on technology but they don't know what it is used for or how to use it

without spending on training teachers properly on how to use it. The end result of this is that things such as interactive white boards end up being glorified TV sets in the classroom or simply used as regular whiteboards. (Lokesh, 2018).

Having teachers who are competent in the use of technological gadgets is usually challenging. According to Clayton(2014) teachers who have been brought up in a world of limited technology can find it difficult to use technology to engage and support learning. There is generally a lack of adequate and professional development for teachers who will be required to integrate the new technologies into their classrooms.

Conclusion:

This study has revealed that students interact with technology outside the classroom, so having them in the classroom will simply enhance the students knowledge.

Adopting educational technology in any level of education will help improve the quality of education which is very essential in any nation. It would help shape the sector and improve the economy of the nation.

Recommendation:

In view of what the paper discussed, the following recommendations were made.

1. The government should design specific policies on how technology should be implemented and sustained.
2. Educational technology should be included in the school curriculum leading to the acquisition of skills and knowledge.
3. Teachers should be well trained to appreciate and embrace the use of modern technology in teaching. They need access to ICT improvements for continuous technological advances.

- Schools should endeavour to have at least one technician in full-time employment to deal with technical problems and maintenance.

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