

Describing the Role of Technology in Education

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Abstract

The term "technology" is often used to describe our time in the twenty-first century. We can't imagine our lives without technology. Thanks to technological advancements, students no longer have to travel large distances to get education. Almost every business has been impacted by technology, and education is no exception. It's a kind of learning in which a group of people's knowledge, talents, and habits are handed down via teaching, training, and study. The role of educational technology in the classroom has never been more critical than it is now due to the extensive usage of information and communication technologies (ICT). The systematic use of contemporary technology to improve educational results is known as educational technology. Education design, implementation, and evaluation are all facilitated by this technique, which may be used to develop new educational practises or to support the implementation of existing ones. According to earlier descriptions, the research looks at how technology has expanded from a single medium to serve a variety of educational purposes. Increasing numbers of young people are being swayed by the allure of information and communication technologies. Schools have to adapt to suit the needs of today's students since they begin using digital technology at a young age. The use of information technology is now essential in every field. With the help of computers and the Internet, we have unlimited options and resources to improve our work performance. To be successful in today's educational environment, teachers and students alike need the ability to use computers and related technology, which necessitates the acquisition of necessary computer skills and equipment. Instead of resisting change, educators should embrace new technology to enhance the quality of their lessons and make them more interesting to students. Educators and kids alike will benefit from increased reliance on modern technologies. Using and integrating technology in the classroom requires considerable planning on the part of the instructors. The quantity of computers accessible is a major factor in determining how technology may be used in education.

Keywords: technology, educational technology, internet, computer skills, integration of technology

INTRODUCTION

By "pedagogic technology," we mean the combination of programmes, processes (steps), and instruments aimed at realising the educational process in transition from a logical approach to carry out this process, but also for learning and a hopeful means of attaining its purpose. In educational literature, the terms "techniques" and "technology" are commonly used interchangeably. Defining the concepts of techniques and technologies is a daunting task, therefore I'm going to begin by doing just that. For example, ways for teaching, learning, reading and doing research are defined in the Dictionary of Pedagogy II's methods section (1967 f.453-455). When it comes to Pedagogical Encyclopedia's 2nd edition (1989, pp 107-108.) According to this definition, "scientific and technological revolution in education" refers primarily to technological advances in production: "the content and methods of education in qualifying educational structures of employees... undergo more major changes, transformations in the structure, dynamics of production..." Although industrial technology is often discussed, educational technology should also be discussed.

A relationship between technology and education is inescapable, but it also requires active engagement of both vital parts in the educational process, as well as an easy and accessible method for students to learn. As an alternative, bear in mind that educational technology is a stimulant, encouraging you to deal with a wide range of learning scenarios, as well as allowing you to make fresh reports during the teaching and learning process. Many different instruments and tactics are required for a successful implementation of education. In addition, instructional technology makes it simpler for students to acquire new concepts and concepts more quickly and effectively. A correlation between the rapid development of technology and the use of diverse media in learning may be drawn. Teaching aids include any material resources that enable teachers and students in completing the educational process. Using this educational tool helps students meet their academic duties more effectively. The learning process is more efficient and successful when all media (tools) are used in conjunction with one another. If you employ all of your senses in your schooling, it will be more effective for you to learn. Students who keep or store their knowledge in their thoughts are more likely to retain and use it for a longer period of time and in a more effective manner (Murati & Ceka, 2017).

As a result of using educational technology to execute the learning process, students will be better prepared to cope with the challenges and demands of contemporary life, as well as more current teaching. A student's only access to information and knowledge in class was via their teacher's lectures, as was customary in the conventional teaching technique. Individual sessions and tasks at home have both benefited from the content. In today's classrooms, students are no longer passive recipients of instruction, but active participants in the learning process, where the teacher and student worthy transform into learning partners. The use of various technologies in teaching, all with the single goal of making learning more appealing and accessible to students, is also essential to the modern schooling and learning process. Schools have a responsibility to educate their kids for the various changes that may come their way in the future. It should never be confined to only preparing, training, and teaching students about the historical time in which we now live and the present conditions that we are in. The children must be ready for a life that is very different from the one they are living now (Lazar, 2015).

Today's civilization would be unimaginable without technology. Almost every day, there is a brand-new piece of technology that promises to make our lives easier. Every field, including education, is impacted by technological advancements. Progress in technology is making it easier, more pleasurable, and more cost-effective for people to pursue a higher education, and this trend is expected to continue. In light of technology improvements, children's education is no longer tiresome and boring. Due to advances in technology, students may now learn and have fun doing it. Distance education may help students who have been unable to finish their degrees. Technology has made it possible for people from all over the world to communicate with one other (Budhwar, 2017). Examples of instructional technology in action include the following:

1. Technology as a tutor: It works as an instructor. Students use technology to improve their performance. Internet is also the form of technology and with a single click, all pieces of information are in students' access,
2. Technology as a Teaching tool: Not only students, teachers also use technology to boost their teaching methods. To update their knowledge, they rely on technology. In this modern area of technology, no teacher can be beneficial without using technology. Teachers use slides to present the teaching materials in front of the students. They use computers.

COMPARISON OF TRADITIONAL EDUCATION AND TODAY'S EDUCATION

Despite their differences, both traditional and contemporary education have a strong connection to one another. Traditional schooling has had a significant impact on modern education. In the past, there were no places where children could go to learn. During their time, students learned mostly via the teachings of their gurus, who were primarily concerned with ceremony and tradition (Budhwar, 2017). Contrary to this, modern education places a high value on literacy skills like reading and writing as well as numeracy skills like adding and subtracting. Because of new technology, modern education has been able to take the place of original schooling.

Need of Technology in the Classroom

By learning how to use wireless technology, students will be better prepared for future careers that rely on their skills. It's a great idea to include technology into the classroom in order to accommodate to a variety of learning styles. It promotes teamwork, allowing pupils to become more involved with their fellow classmates. Teachers may use technology to better prepare students for the real world. Students take interest in learning if technology is used in the classroom because they become excited to be able to use it. Students may now access the most up-to-date material in the classroom thanks to the usage of mobile technologies. It is no longer possible for students to learn in a passive manner, and teachers now have to fill the roles of consultant and coach. If students want to utilise digital textbooks, they may do it at their own pace since they are constantly updated.

ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

ICT has a significant and positive influence on student progress for today's students. When used effectively, information and communications technology (ICT), such as television, computers, and the internet, may assist reinforce, expand, and enhance education. Application of computers and the internet in educational institutions has been seen as an ideal since it makes learning more relevant to real-life situations. The electronic media period will be home to the people of tomorrow, who are today's students. Using ICT in the classroom has the potential to improve students' ability to think creatively and solve problems. Whereas, ICT introduced many new tools to teach different subjects like science and technology. Standard software tools include databases, spreadsheets, statistics, and graphical applications. In addition, the ability to model, visualise, and simulate processes is critical. Time series measurements on a wide variety of parameters may also be performed using ICT (known as "data logging"). Science and technology are expected for their contribution to boost the ICT as a tool for education and learning. Teachers in the fields of science and technology may be more equipped for this role than their peers because of their education and experience, but even they will need to keep their skills up to date via suitable training (Budhwar, 2017).

ADVANTAGES OF TECHNOLOGY IN EDUCATION

Easily access to learning material:

Students may utilise e-books, study aids, and past test questions that can be found online to enhance their understanding of the subject matter.

Continuous learning

Because of the widespread use of technology in schools, students may now study anywhere they choose, even at home. This has resulted in a significant increase in educational sector efficiency.

Sharing of knowledge

In today's technologically advanced world, students belonging to any part of the world may get together expressing their experiences; geographical limits are no longer an issue.

Learning aids

If we include the use of audio and video materials, students can understand the concepts being taught in class in a better way.

Attending a foreign university is now easy for students and they may have easy access to a foreign educational institution from the comfort of your own home and at your own pace. A second degree or other credentials may be obtained online at any time by anybody.

Proper record keeping

Information technology has made it possible to retain accurate records in education, unlike in the past, when records were kept manually and there were numerous cases of lost files.

LIMITATIONS OF TECHNOLOGY IN EDUCATION

1: Access to inappropriate content:

To put it simply, pornographic and violent content may be accessed and watched with the press of a button thanks to modern technology.

2:A disconnected Youth: Individuals are hooked to their screens almost continuously as a consequence of the detrimental influence of technology.

3: Cyber bullying Trap: No good can come of giving children unfettered access to anonymous profiles and an infinite number of methods to contact them. Cyberbullying is a growing problem among today's kids. There is no end in sight to the tyrannical bullying. The students who participate cannot be tracked or disciplined in any manner.

4: Inevitable Cheating: It may seem that having ready access to information is beneficial, yet this might have a negative impact on test performance. Cell phones have made cheating easier than ever before. Students are distracted due to technology. While attending classes, students are found busy in chatting using mobile phones and playing videos. Teachers cannot make them stop using mobiles and laptops at higher level because students can make excuse of searching learning materials. When they are distracted by anything other than their teacher or schoolwork, the focus shifts away from them and onto what they are doing.

Student Engagement

70 years ago, Ralph Tyler's research on the relationship between time spent studying and learning inspired an interest in student participation (Axelson & Flick, 2010). Since Pace (1980; 1984) and Astin (1984) published their seminal works on how effort level and quality influence student learning, as well as numerous other studies on the factors influencing student involvement in the classroom and individually, there has been a great deal of progress and expansion in the study of student involvement (Bakker, Sanz Vergel, & Kuntze, 2015). The National Survey of Student Engagement (NSSE), which is likely the most well-known resource on student engagement, may be used to gauge students' participation in various educational activities (Kuh, 2009). The NSSE, for example, has been utilised in multiple studies that have linked student involvement to higher grades, persistence, and graduation rates (McClenney, Marti, & Adkins, 2012).

The findings of these research have been significant in persuading academic institutions that student involvement is an essential component of the educational process. Participation by students is on the rise, but exactly what it means remains a mystery. There are numerous categories of student engagement based on psychological, economical, and cultural perspectives (Wimpenny & Savin-Baden, 2013). There are two methods to describe student involvement, according to definitions. Students' attitudes, feelings, and behaviours toward learning are considered to be a reflection of their level of engagement. Individual psychological condition of a student that includes their emotions, cognition, and behavioural patterns (Kahu, 2013). Students' "quality of effort and involvement in productive learning activities (Krause) has been proposed as a measure of their engagement, according to this perspective (Kuh, 2009). Student engagement involves both students and institutions, according to various standards. "In order to enhance the student experience, both students and their institutions must put in the time, effort, and suitable resources necessary to accomplish this goal (Trowler, 2010). The National Centre for Student Engagement (NSSE) defines student engagement as "the ability of an educational institution to mobilise its resources and organise its curriculum in order to encourage students to

participate in activities linked to student learning."Time and effort students devote to academic pursuits and other activities with a clear educational goal in mind.

Students' participation is increasingly being seen as a multifaceted psychological process that involves both the students themselves and the institutions in which they attend. Student interest, connection with professors and peers, as well as information processing that is important to students, are all indicators of student engagement that may be used to measure participation in these three-part methods to participation (Kahu, 2013). To find out whether technology has an effect on student engagement, researchers conduct a literature review. Involvement by students may fall into one of three categories (Guimard et al., 2015). Our research findings are organised and presented in accordance with a framework (behavioral, emotional, and cognitive). There are a variety of ways students may become involved, and the typology is useful since it spans a broad range of different ways students might get involved.

In addition to the fact that this typology is student-centred, it excludes aspects such as faculty behaviour, curriculum design, and campus climate (Coates, 2008). Variables like these are useful in assessing student engagement, but they aren't reliable indicators of actual student involvement. Our study of existing research, models, and assessments on student participation was guided by the typology, which helped us better understand how different types of student involvement—behavioral, emotional, and cognitive—are conceptualised.

Influence of Technology on Student Engagement

Based on the frequency with which they have appeared in the literature over the preceding five years, we included web conferencing, blogs, wikis, and social networking sites in our study. Constructivist education emphasises active discovery of information via reflection on one's experience in one's surroundings, links between new and old knowledge, and social interaction made possible by all of these technological advancements (Boghossian, 2006; Clements, 2015). There is another commonality between the vast majority of technological advancements: they are all primarily designed to improve human relationships and foster teamwork. Examining the impact of educational innovations like video lectures and podcasts on student engagement. Consequently, these technologies were left out. Like previous technologies we've studied, students are passive consumers of information from an expert in informational technology (Boghossian, 2006). It's possible that a shift in higher education from instructor-centered, behaviourist strategies to student-centered, constructivist approaches may be to blame for this lack of understanding of how information technology impacts student engagement.

Web-Conferencing

Users may engage in a virtual conference room at the same time to discuss a certain topic. Each software application is unique, but many share common features such as audio, video, or instant messaging for real-time communication, screen sharing, white boards, and digital pens for presentations, polls, and quizzing to gauge understanding or solicit feedback, and breakout rooms for small groups to work together (Wilson, 2012). Web-conferencing software, which most closely matches the classroom in this literature study, allows students and teachers to hear and see each other in real time. Thus, lectures may be delivered, course topic discussed, and questions and answers exchanged (Francescucci & Foster, 2013). It has been found that studies on online conferencing software employ various features such as screen-sharing, instant messaging, polling and break-out rooms, such as Adobe Connect or Cisco WebEx.

Web-conferencing software was also included into most courses on a voluntary basis by most research (Evans, 2014). Current web-conferencing research covers all three types of student engagement. When it comes to online conferencing and behavioural participation, researchers have discovered conflicting outcomes. Study of blended courses with frequent web-conferencing sessions and traditional classroom instruction showed no significant differences in students' involvement. Students were more engaged in the blended course than in the face-to-face course (Francescucci & Foster, 2013). There may be additional options for class engagement via the use of communication channels that aren't generally accessible in a conventional, face-to-face class even if web conferencing doesn't boost attendance, particularly if voluntary, these data show that web conferencing (e.g., instant messaging, anonymous polling). One of the most researched behavioural indicators is online conferencing and engagement. Research has shown that students use web-conferencing software to engage with their classmates and professors, sharing resources and expressing their opinions and ideas through polls, instant messaging, and break-out rooms (Leslie, Beverley, & Sian, 2015).

Despite the fact that there is less research on web-conferencing and cognitive participation, the ones that do exist are more reliable. According to research, students who participated in web-conferencing showed critical reflection and improved learning through interactions with others, higher-order thinking (for example, problem solving, synthesis and evaluation) in response to difficult assignments, and a greater interest in learning when using polling features (Armstrong & Thornton, 2012). One study has looked at how web-conferencing affects students' emotional participation, but the findings are encouraging: students who utilised web-conferencing were more engaged than those who didn't (Francescucci & Foster, 2013). One possible reason for the positive effects in terms of cognitive and emotional involvement may be the web-conferencing software's many characteristics that stimulate active learning. Group problem-solving in real time is made possible by whiteboards and breakout

rooms. The effectiveness of different web-conferencing features will need to be further investigated in order to determine which ones have the most influence on student involvement.

Blogs

It is possible for readers (or subscribers) of a weblog (also known as a blog) to add additional comments or responses to the postings they have read by visiting the weblog's archive of previously published entries. A post in a blog may include text, hyperlinks, images, audio or video files; it can also be published online using a blogging platform that notifies readers when new content has been added. Blogs may be informal and personal, or they can be more professional and focused on a certain topic, like politics or education (Coghlan et al., 2007). It's becoming increasingly usual for LMSs to offer blogging functionality, and many of these tools are now free. As a means of expressing and discussing their perspectives on a wide range of academic issues, blogs have become popular among students and educators alike (Garrity, Jones, VanderZwan, de la Rocha, & Epstein, 2014).

Numerous indicators of behaviour and mood have been shown to be consistently positive in research conducted on blogs. As reported by students in two recent studies (Hour, 2012), blogs promote communication among students as well as the exchange of ideas and information. In addition, students' blog entries demonstrate that they build on one other's ideas and provide their own interpretations of the course content (Britt & Paulus, 2016). Students benefit emotionally from blogs because they can express their views and feelings about their education on a public platform, and because blogs promote an optimistic view of education (Dos & Demir, 2013; Chu et al., 2012; Yang & Chang, 2012). Dos and Demir (2013), for example, found that students expressed their prejudices and worries about certain course topics in their blog entries. Broomfield (1996) also found that blogging with commenting options enabled led to greater positive feelings about course content and peers than lonely blogging without commenting capabilities (Yang and Chang, 2012).

Cognitive involvement and blogging research are not well-defined concepts. Students' blog entries show very little evidence of higher-order thinking in some studies but indicate active learning, problem solving and reflection (Chawinga, 2017). Because of the way the blog's instructions are written, there's a chance the outcomes may be wildly different each time you use them (Tiernan, 2014). Only if explicitly instructed, pupils are not expected to demonstrate or engage in extensive material processing. Because many studies did not include assignment information, it is hard to determine whether the wording of blog assignments resulted to contradictory results. Student engagement scores in other technologies may be negatively affected by the lack of clarity or the necessity for low-level reasoning (Pagani, 2008). The cognitive engagement of blog activities may be harmed if they are overly vague or require just low-level thinking.

Wikis

A wiki page may be edited by several persons at the same time (Nakamaru, 2011). An important feature of wikis is that students in educational settings use them for group work and to keep track of modifications using an intricate versioning mechanism (Roussinos & Jimoyiannis, 2013). Wiki studies are almost exclusively concerned with how people behave when they participate; cognitive participation is much less prevalent and there are no studies on how people feel when they participate. There are conflicting results in the field of behavioural engagement research. Studies reveal that students stay active in wikis for just few weeks after the course begins, while others show that students gradually become less engaged over time (Nakamaru, 2011) (Roussinos & Jimoyiannis, 2013). Unlike previous studies, this one relies on grading to arrive at its conclusions, which might account for the disparities. It is possible that students may require greater incentive and motivation to use the wikis when participation is restricted (Nakamaru, 2011).

A lack of agreement exists on the usefulness of wikis in encouraging cooperation. Some studies have indicated that wikis are effective for group networking, group cooperation, and teamwork. A tiny fraction of pupils was observed to participate in wiki activity (Miller, Norris, & Bookstaver, 2012). The second study's findings were a surprise due to issues with the wiki assignments' design. This link may have hindered students from taking use of the momentum they built up through wiki activities outside of the classroom, according to the authors (Miller et al., 2012). However, research on cognitive engagement is scarce but more consistent than research on behavioural involvement, suggesting that wikis promote high levels of knowledge construction (i.e. evaluation of arguments, integration of multiple viewpoints, new understanding course topics (Hewege & Perera, 2013) and are useful for reflection, reinforcing course content, and applying academic skills (Hewege & Perera, 2013) (Miller et al., 2012). However, there is mixed support for the use of wikis to improve behavioural engagement, such as making wiki assignments mandatory and making frequent mention of wikis in class. Validation and expansion on findings are needed in addition to investigating the impact of wikis on emotional participation and if they may be utilised to increase cognitive engagement as well.

CONCLUSION

Technological advances have given education a new meaning, and our educational system has undergone a radical transformation as a consequence. To prepare children for a lifetime of learning, we must use creative teaching strategies that gradually incorporate technology into their everyday lives. It is commonly accepted that a well-rounded education is essential to personal success. It prepares students for a world that is always

changing by putting them on a path of lifelong learning. Education may help people widen their horizons, open up to new ideas and opportunities, and have a positive impact on their own life and the lives of others around them. In a world where geographic boundaries are becoming more blurred, students need to be able to communicate their knowledge in dynamic, engaging ways.

Even in highly competitive economies, where once-local industries now compete on a global scale, education plays a crucial role. Today's children must be able to use all of the resources at their disposal in order to become tomorrow's leaders in science, technology, healthcare, the arts, and other professions. As educators, we must seize the moment and challenge ourselves as well as our students, administrators, and lawmakers throughout the country to ensure that all teachers can make full use of the cutting-edge resources at their disposal. Therefore, it can be stated that technology is blessing for our world and all nations are using it. No progress can be imagined without it. It has revolutionized the field of education. And it is worth-mentioning to say that the use of technology is the need of this era owing to different crisis when students are unable to attend classes face to face.

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