EDUCATIONAL TECHNOLOGY IN TEACHING COMMUNITY: REVIEWING THE DIMENSION OF INTEGRATING ED-TECH TOOLS AND IDEAS IN CLASSROOMS

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ABSTRACT

Particularly in light of the COVID-19 epidemic, technology is a catalyst for changing teaching and learning, not just a tool for providing information. This essay aims to examine the three ways that personalization, relevance, and skill development might affect the teaching profession. This research is a qualitative research and library research. The capacity of educators to adapt learning experiences to the needs, interests, and preferences of each student is referred to as personalization. By giving users access to data, material, and the cloud, technology may enable personalization and allow teachers to track student progress, differentiate their lessons, and give feedback. Technology can enable students to take control of their education and choose their own speed and direction. Relevance is the relationship between what students are learning and their personal objectives, ambitions, and aspirations. By establishing blended learning settings that include online and offline activities, real-world challenges, and realistic assignments, technology may increase relevance. Students may engage with classmates and professionals, access materials outside of the classroom, and apply what they have learned in many circumstances with the use of technology. The development of students' skills includes preparing them for the workforce and culture of the twenty-first century. By introducing kids to contemporary technology tools and abilities including coding, programming, physical computing, and computational thinking, technology may promote skill development. Through maker education and STEAM (science, technology, engineering, arts, and mathematics) education, technology can also encourage students to develop their problem-solving, critical thinking, collaborative, and creative skills.

INTRODUCTION

The job of a classroom teacher is not an easy one. The majority of individuals who are not involved in education generally believe that instructors spend the majority of their time in the classroom instructing students, but in reality, teachers are also in charge of a variety of duties that have nothing to do with classroom instruction. Teachers are supposed to be managers, psychologists, counselors, custodians, community "ambassadors," and entertainers, in addition to preparing and carrying out teaching. If becoming a teacher sounds absurd or nearly impossible, it probably is. It's simple to comprehend why a teacher would experience frustration and disillusionment (Biernacki & Waldorf, 1981). The majority of educators go into their careers hoping to inspire a love of learning in their charges. Unfortunately, the extra requirements in the classroom take up a lot of time and are very disruptive. We regard technology as a liberator for educators, aiding in regaining the value and significance of the unique classroom teacher. Two events needed to place for this to happen.

The perspective of the classroom must first change to make the environment learner-centered. Students and instructors must work together and cooperate with technology in order to create a "community" that nurtures, promotes, and supports the learning process. This article is more concerned with instructional technology than technology in education. There is a difference. It's natural to conceive of educational technology in terms of the number of computers or videocassette recorders, and multimedia projectors in a classroom and how they may be used to enhance more traditional classroom activities, but this could be a false and sometimes damaging viewpoint. In addition to putting an incorrect focus on hardware, it fails to include other potentially beneficial "idea" technologies that arise from the application of one or more knowledge bases, such as learning theory. Educational technology is using ideas from many sources to provide the best possible learning environments for students. Educational technologists also consider how a classroom could change or adapt as a result of the usage of computers in the classroom. Because of this integration, the curriculum and environment might also need to alter to take advantage of any opportunities that the technology may present. This review article serves four objectives. It will first look at some distinct stages of technology adoption (Blonder & Sakhnini, 2012). It'll then go through some of the more conventional functions that technology has performed in the classroom. Third, it'll look at what a classroom may look like when instructional technology is taken into consideration. Fourth, it will offer a few concrete instances that use modern educational ideas. In light of current classroom dynamics and potential future school reforms, this article may attempt to outline ways in which educational technology may be helpful to instructors, especially in a developing nation.

Information and communication technologies (ICTs) are used in educational technology to improve the teaching and learning processes in a variety of educational contexts. In addition to enhancing access, quality, and equality of education, educational technology may offer new and creative ways to help educators, students, and the learning process in general. This article will go through some of the advantages and difficulties of educational technology in the teaching profession in the context of a developing country from the global south. Having access to data, materials, and the cloud allows educators to effectively personalize learning, which is one advantage of educational technology (Bonanno & Kommers, 2008). Teachers may create and deliver lessons that cater to the various requirements and preferences of their students using digital tools and resources. They can also keep track of their progress and provide them with timely feedback. By combining online and offline activities, multimedia, and group projects, educational technology may assist instructors in developing blended learning environments that make learning relevant to students' lives and interests.

The ability of educational technology to provide students with the knowledge, abilities, and skills necessary for the workplace of the twenty-first century is another advantage. ICTs may be used by students to access, produce, and share knowledge as well as to improve their communication, creative, problem-solving, and critical thinking abilities. In addition, educational technology may expose students to possibilities and problems found in the real world, including those related to computational thinking, physical computing, programming, and coding, all of which are necessary skills for many industries and positions in the digital economy (Bressler & Bodzin, 2013). However, the teaching community is also faced with some difficulties with educational technology. The absence of proper infrastructure, resources, and support for ICT integration in education is one of the difficulties. Many schools and classrooms lack dependable internet access, enough devices, digital curriculum and material, technical support, and opportunities for teacher professional development. These elements may hinder the use of educational technology effectively and widen the digital gap between students and instructors.

The requirement for pedagogical reform and innovation in teaching methods is another hurdle for educational technology. To support student-centered learning using ICTs, educators must take on new roles and approaches, such as becoming mentors, coaches, co-learners, and designers. The use of digital formative and summative assessments as well as data will help educators better connect their assessment practices with the learning outcomes and skills that are supported by educational technology (Clark et al., 2011). In conclusion, educational technology may be extremely useful in developing fresh, creative ways to enhance teaching and learning across a range of educational contexts. To ensure the efficient and fair use of ICTs in education, several additional issues must be resolved. Therefore, to fully realize the potential of educational technology for enhancing educational quality and outcomes, the teaching community needs to work with other stakeholders, including policymakers, researchers, parents, and industry partners. Moreover, the purpose of study is to examine the three ways that personalization, relevance, and skill development might affect the teaching profession.

RESEARCH METHOD

This research is a qualitative research and library research that uses books and other literature as the main object (*Introduction to Literature Reviews*, 2021). The type of research used is qualitative, research that produces information in the form of notes and descriptive data contained in the text under study (Creswell & Creswell, 2017). With qualitative research, it is necessary to conduct descriptive analysis. The descriptive analysis method provides a clear, objective, systematic, analytical and critical description of educational technology in the teaching community: reviewing the dimension of integrating ed-tech tools and ideas in classrooms. A qualitative approach based on the initial steps taken by collecting the required data, then classification and description.

RESULT AND DISCUSSION

An example of a classroom embracing technology

Incorrectly, new teaching approaches are sometimes linked with educational technology. Technology, by definition, is the application of previously acquired information to useful ends. Technology uses evolving knowledge (whether about a kitchen or a classroom) to adapt and improve the system to which the knowledge applies (such as a kitchen's microwave oven or instructional computers). While innovations merely reflect change for its own sake with this difference in mind, it is straightforward to argue that educators should embrace instructional technology rather than just oppose pure innovation. Unfortunately, the history of educational technology does not lend credence to this assumption (Davis et al., 1989; De Bie & Lipman, 2012). The educational system has scarcely altered at all over the last 50 years, despite the fact that there have been several technical and inventive improvements in education. Few people would argue that dentists and doctors from 50 years ago would be competent to practice with current technology. Despite this, the bulk of the innovations and technologies from this period have been abandoned, thus most classrooms today would feel fairly at home for a teacher from 50 years ago. It is difficult to explain why educational theories and technologies have fallen out of favor so quickly over the last 50 years. Has the educational system reached a stage of growth where there is no more room for advancement in terms of educational technology? Have all innovations in educational technology truly been nothing more than passing trends that educators have rightfully criticized as unneeded and irrelevant? Not in both circumstances, educators believe that these issues should be taken into account to comprehend the conventional and modern functions of educational technology (Dib & Adamo-Villani, 2014). In order to better understand the patterns of adoption by instructors after being initially exposed to educational technology, we shall utilize a straightforward model. Understanding these historical adoption trends may help us predict which technologies will be embraced or abandoned in the future. Understanding adoption patterns in education has been the subject of several attempts To better appreciate both traditional and modern usage of technology in education, the researchers describe one such approach in this section in a

condensed manner (Erkoç et al., 2015). Five steps or phases make up the model: Familiarisation, Utilisation, Integration, Reorientation, and Evolution. Any educational technology's full potential can only be realized when educators move through all five phases; otherwise, the technology is probably going to be misapplied or thrown away. While modern perspectives hold the promise of advancing to the Evolution phase, the traditional role of technology in education is inevitably restricted to the first three phases.

Familiarization

An individual's initial exposure to and experience with a technology tool are the focus of the familiarization phase. In-service training programs on the "how to's" of a technology, such as word processing, spreadsheets, assertive discipline, cooperative learning, motivating tactics, etc. is a typical illustration of familiarisation. The teacher just becomes comfortable with the technology during this stage. The teacher's expertise with and advancement in technology also comes to an end after the session (Souchleris et al., 2023). Only the memory of the encounter is left. The teacher may speak about the event and the concepts it illustrates, even in a somewhat authoritative manner, but nothing further happens. This stage marks both the beginning and the conclusion of a lot of innovative teaching practices. In the contemporary educational system, technology is essential to teachers' cooperation and professional growth (Fishbein & Ajzen, 1977). Teachers may interact and cooperate with their peers and students while using a variety of technology tools and platforms to improve their knowledge, skills, and pedagogy. The following are some instances of technology that can help with community and familiarization among teachers:

1) Online courses and webinars that provide instructors the chance to gain fresh information, approaches, and techniques from authorities and professionals in their disciplines.
2) Social media and online discussion boards that let educators connect with one another and exchange experiences, obstacles, and best practises.
3) Digital portfolios and blogs that give educators a platform to share their work, reflect on their methods, and get input from peers and mentors.
4) Learning management systems and online classrooms that give teachers access to a range of materials, exercises, and assessments that can aid in their instruction and the learning of their students.
5) Real-time connections and interaction between instructors and their coworkers, administrators, and other stakeholders are made possible through video conferencing and online meetings.
6) The digital gap and certain instructors' and students' lack of access to trustworthy and reasonably priced technology, particularly in rural and isolated locations.
7) The requirement for continual instruction and assistance for educators to utilize technology proficiently and incorporate it into their pedagogy and curriculum.
8) The possibility of internet disinformation, privacy violations, and cyberbullying that might endanger kids' and instructors' reputations and welfare.

9) The potential loss of the personal touch and connection that are crucial for developing rapport and trust between teachers and students.

As a result, it is crucial for instructors to be aware of the advantages and difficulties of technology and to utilize it sensibly and responsibly to promote community and familiarity. The human aspect that makes teaching a fulfilling and meaningful vocation cannot be replaced by technology, despite the fact that it may be a potent instrument for boosting teacher professionalism and cooperation.

Utilization

Teachers use the technology or innovation in the classroom during the Utilisation phase, in contrast (Giannakos, 2013). A social studies instructor using roleplay scenarios they learnt at a workshop or graduate course could be an example. It is clear that instructors who complete this phase have advanced past Familiarisation, but there is a risk that they may become overly content with their restricted use of technology. The mentality of "At least I gave it a try" will probably obstruct any sustained and long-term acceptance of the technology. Since they haven't committed to it, teachers who only advance to this stage are likely to abandon the technology at the first sign of trouble. Most instructors who utilize modern instructional media, including computers, have probably reached this stage of adoption the most. Nearly no one would notice if the technology were removed on a Monday (Glover, 2013). The importance of educational technology in the teaching profession is on the rise. Educators today have more resources than ever to engage students, improve learning, and aid in the acquisition of new skills and information thanks to technological innovations. Education technology is changing how we teach and learn, from virtual reality and artificial intelligence to online learning platforms and multimedia materials (Goodman, 1961). The potential of educational technology to offer personalized learning experiences is one of its main benefits. Educators may monitor the development of individual students and customize the learning environment to suit their unique requirements and learning preferences by utilizing data analytics and other technologies (Goodwyn et al., 1997). This enhances educational outcomes while also promoting a more diverse and equal learning environment. The ability of instructional technology to aid people across borders is another advantage. Teachers can connect with students who might not have access to traditional classrooms or who are living in distant or underprivileged locations by using online learning platforms and video conferencing capabilities. This can help bridge the achievement gap and give students who might not otherwise have access to educational possibilities (Hall, 1996). Educational technology may raise the quality of instruction in addition to enhancing access to education (Hanus & Fox, 2015). Learning may be made more interesting and successful by using multimedia tools like simulations, games, and films. Through immersive learning experiences that simulate real-world environments and scenarios, virtual and augmented reality technologies can help students apply their knowledge in real-world contexts. However, there may be some negative effects of technological advancements in education. The potential for technical glitches and malfunctions, which might impair learning and reduce the efficacy of educational technology, is one of the main worries (Kapp, 2012). A concern of over-reliance on technology is that it might prevent the growth of

critical thinking abilities and vital human-to-human relationships. Another issue is the chance that instructional technology could make current disparities worse. While it can open doors for students who would otherwise be shut out of the educational system, technology can also widen the divide between those who have access to it and those who do not. It is crucial that educators and decision-makers be aware of these possible hazards and take action to reduce them (Ketelhut & Schifter, 2011). Despite these difficulties, educational technology has had an overwhelmingly positive overall effect on the teaching profession. It is possible that educational technology will become increasingly more crucial to the teaching and learning process as technology develops and progresses. Educators can reach more students, deliver more effective learning experiences, and support more inclusive and equitable education for everyone by utilizing technology.

Integration

The phase that "breaks through" is integration. This happens when a teacher knowingly decides to assign specific functions and responsibilities to the technology, making it impossible for the instructor to carry out the lesson as intended if the technology is abruptly withdrawn or becomes unavailable. The book and its descendants, such as worksheets and other handouts, are the most evident technology that has advanced to this stage of use in education (Lee & Hammer, 2011). Without the assistance of such print-based technology, the majority of instructors could not perform. The chalkboard is another illustration, which some people would find humorous. Without it, most teachers would have a very difficult time imparting knowledge. Therefore, the most important quality or feature of this stage is the technology's "expendability". Even though for many people integration marks the culmination of the adoption model, it really only marks the start of comprehending educational technology. If they continue to advance in their adoption pattern, some instructors experience the start of a professional "metamorphosis" during the Integration phase.

Reorientation

During the Reorientation phase, teachers must reconsider and reinterpret the function and goal of the classroom (Lim & Ong, 2012). There are a lot of characteristics that set it apart, the most important of which is perhaps the fact that the focus in the classroom is now more on the students' learning than the teacher's teaching. A teacher who has reached the Reorientation phase of their career does not regard the delivery of content (i.e., the teaching "acts" of managing, motivating, or explaining) to constitute good teaching. The role of the instructor is to create an atmosphere in which students may build and shape their own knowledge with support and facilitation from others. In this phase, students become the subjects and replace the object of instruction (McGonigal, 2011). Teachers are open to using technologies that aid in the development of knowledge during the Reorientation phase and are not worried about being "replaced" by technology. These teachers are more likely to use technology in their lectures than "experts," since they don't feel the need to be. They concentrate on how technology helps students interact with the subject matter. It wouldn't be uncommon for kids to be more technologically savvy than their teachers. Consider a history teacher who discovers that students prefer to create HyperCard stacks instead of traditional term

papers. If the instructor has a reoriented vision of education that is student-centered, they will underline (and assess) how effectively the student has evolved into a researcher and explorer thanks to the accessibility of the computer tool. The student's level of engagement with the material will be the teacher's main concern, not how effectively the stack is "programmed." It makes no difference if the teacher uses HyperCard with more or less technical proficiency than the student. Along with the student, the teacher also gains knowledge of history and HyperCard. Of course, the teacher's more extensive expertise is a vital tool and mentor for the learner (Mumtaz, 2000). A teacher in the Reorientation phase would encourage and expect students to appropriate the technology in ways that could not be predicted, rather than seeing it as something that must be mastered beforehand and delivered to pupils in a controlled and methodical fashion.

Evolution

The last stage, Evolution, serves as a reminder that the educational system must keep changing and adapting in order to continue to be successful (Oblinger, 2004). There will never be a perfect answer or resolution, and trying to find one is a sign that one is missing the purpose. To adapt to the challenge and opportunity presented by new insights into how people learn, the learning environment in the classroom has to be continually changed. As was previously said, the Evolution phase is marked by educational technology that complies with the definition of educational technology, which is the right application of basic knowledge for some practical purpose.

Technology's traditional role in Education

Educators separate educational technology into two basic categories: "product technologies" and "idea technologies." 1) Hardware, or machine-oriented, technologies, such as the diversity of audio-visual equipment, both conventional (such as film strips, movies, and audiocassette players/recorders) and modern technologies, like the multimedia projectors, AR, VR gears and 3D Printers are most usually associated with educational technology. Idea technologies, in contrast, lack such concrete forms. Of course, product technologies often represent or utilize concept technologies. For instance, simulations are mostly thought technologies. Simulations aim to provide individuals with experiences of things and ideas that aren't often conceivable (like time travel), likely (like riding on the space shuttle), or desirable (like the greenhouse effect) under regular circumstances. A product, like computer software, is required to bring the concept of a simulation to life. In this sense, the product aids or facilitates the notion (Piaget, 1962). Henry Ford's assembly line is a prime illustration of the difference between product and concept technologies. The assembly line notion is a technological innovation that revolutionized American manufacturing. However, the factories, workstations, and conveyor belts seen in vintage photos represent the product technology that supported the initial concept. It is important to differentiate between product technologies and concept technologies since the majority of past efforts to employ technology in education have focused on product technologies, such as teaching aids, instructional television and films, and, most recently, computer applications. The value and purpose of these product technologies thus lay in the way they supported the established practices and viewpoints of classroom

instructors. Many of these established practices were built on behavioral models that focused on the transmission and delivery of planned content (Pivec & Pivec, 2011). The "student as bucket" metaphor, which focuses on "pouring knowledge into students' minds through the development and delivery of carefully planned and managed teaching," is exemplified by these techniques. Learning is said to result from receiving information. We believe that this method of teaching and learning has to be significantly outpaced by contemporary notions of educational technology. Even if few do, as was previously established, teachers who embrace technology without considering the belief system into which these tools and ideas are introduced are unavoidably limited to the third level of integration.

The hand-held graphing calculator could be taken as an illustration of a product technology that has reached the adoption integration phase. In the classroom, math teachers in secondary schools often use graphing calculators. Many manufacturers on the market use clear liquid crystal displays (LCDs) so that the calculator can be mounted on an overhead projector. The use of these calculators easily passes the test of expendability for many instructors since doing without them would seriously disrupt their lessons. They wouldn't be able to convey the same information if they suddenly switched back to the static medium of the overhead or blackboard. It can easily be analyzed how much the instructor's lesson has altered as a consequence of the graphing calculator to determine if the teacher is going to enter the Reorientation phase. If the calculator allows them to focus on the students' conceptual understanding of the mathematical function, perhaps because the calculator can draw a graph using real-time animation, the teacher has begun to rethink and reflect on how product and idea technologies can help a student's learning. The instructor would feel satisfied with how technology was used to empower pupils to comprehend and use mathematical concepts. The Reorientation phase is about to begin for this teacher. Such a teacher would probably try to give the kids access to the technology so they can start creating mathematics using the calculator. The teacher's adoption of the technology, on the other hand, is likely to end with integration if the teacher's instructional strategies are essentially unchanged from those used prior to the introduction of the graphing calculator because nothing has been altered or improved besides the mode of delivery. Although the calculator's product technology has been included in this scenario, the basic concept technology of "present, practice, and test" has not altered and is still in place. By giving teachers additional tools and resources to improve the learning experience for students, educational technology has changed the teaching profession. Teachers may provide individualized learning experiences that are tailored to the particular requirements and learning preferences of their students by integrating technology into the classroom. This makes it possible for all students to get the resources and assistance they need to achieve and promotes a more inclusive and fair learning environment. One of the main benefits of educational technology is that it may give students who might not otherwise have had the chance to pursue it access to education (Su & Cheng, 2015; Y.-T. C. Yang, 2012). Students may now interact with instructors and classmates from all around the world thanks to online learning platforms and video conferencing capabilities. For children in isolated or underprivileged places who would not have had access

to conventional educational settings, this has opened up new avenues. The capacity of educational technology to improve instruction quality is another advantage. Learning may be made more interesting and successful by using multimedia tools like simulations, games, and films (Yang et al., 2012). This may increase student retention rates and motivate them to participate more actively in their own education. Despite these advantages, there are some drawbacks to using technology in education. One of the main worries is the potential for technological problems and malfunctions, which might interfere with the learning process and reduce the efficiency of educational technology. Additionally, there is a danger of over-reliance on technology, which may prevent the growth of critical thinking abilities and important human-to-human interactions. It's crucial for educators to use educational technology as a tool rather than as a replacement for conventional teaching techniques in order to solve these issues. This entails integrating technology into lesson planning in a way that complements rather than supplants direct communication and critical thinking among students. It also entails offering sufficient technical assistance and resources to make sure that instructors and students can properly use technology.

CONCLUSION

Technology uses evolving knowledge (whether about a kitchen or a classroom) to adapt and improve the system to which the knowledge applies (such as a kitchen's microwave oven or instructional computers). While innovations merely reflect change for its own sake with this difference in mind, it is straightforward to argue that educators should embrace instructional technology rather than just oppose pure innovation. Teachers may provide individualized learning experiences that are tailored to the particular requirements and learning preferences of their students by integrating technology into the classroom. This makes it possible for all students to get the resources and assistance they need to achieve and promotes a more inclusive and fair learning environment. By introducing kids to contemporary technology tools and abilities including coding, programming, physical computing, and computational thinking, technology may promote skill development. Through maker education and STEAM (science, technology, engineering, arts, and mathematics) education, technology can also encourage students to develop their problem-solving, critical thinking, collaborative, and creative skills.

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