

The use and misuse of technology in education: A schematic review

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ABSTRACT

Technology is a divine blessing. It's perhaps the second greatest blessing from God after life itself. It gave birth to the arts, the sciences, and whole civilizations. That much is undeniable: technology has altered our way of life. It has changed how we think about living in many ways. Without a question, technology is essential in every facet of modern life. Technology has allowed for the automation of hitherto laborious processes. Furthermore, contemporary technology has made it easier and more efficient to carry out many difficult and vital procedures. The improvement in quality of life is largely attributable to technological advancements. The educational system has been reshaped by technological advancements. No one can deny that classroom use of technology is on the rise. In reality, the introduction of computers into classrooms has made both teaching and learning simpler. Learning and instructing are more fun now that we can utilize technology. The 21st century is often thought of as the technological age. These days, technology is crucial to how we live.

Keywords: Education technology, Teaching, Modern technology

INTRODUCTION

Technology's role in the classroom has been a heated subject ever since it was realized that computers might be used to transform teaching machines. The media often covers topics such as the impact of the

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new technologies on the mental and physical health of young people, the role of technology in shaping our society, and the benefits and drawbacks of easy and instantaneous internet access for the education and learning. Therefore, it is essential to reflect on the previous fifty years of knowledge on the impact of new technology on schooling.

The major strategy used to analyze the influence of technology on teaching & learning in classrooms has been to examine the correlation between the amount or consistency of the technology accessible or experienced by students at their universities and student performance on a range of standardized testing measures. Students' test results increased somewhat when they used computers in the classroom, according to a long-term study conducted in United States. When new technologies are introduced, schools and teachers stop completing their usual activities. When instructors use technology on their own initiative, they frequently do so as part of an inquiry process in order to replace or displace a problematic practice; when technology is adopted for its own sake, it displaces or replaces alternative teaching & learning practices that could have been as effective.

As a consequence, we need an ecological viewpoint on dissemination, according to which the spread of technology is defended on the basis of its proportional benefits. It may replace inefficient methods and be easily included into a learner's accessible resources as part of a more positive or productive learning mindset. Overall, it's harder than ever before to quantify the impact. The quick pace of technological change, along with the proliferation of new ideas and the wide diversity of ways they might be used in different classroom settings, exponentially increases the difficulty of the task at hand. The focus has to shift from the tools themselves to the methods by which they are used, from studies of their general impact to investigations of how specific new tools alter classroom dynamics and individual students' educational journeys.

There are four main ways in which technology is used in the classroom: as a component of curriculum, as a method of delivering teaching, as a support for teachers, and as a means of improving the quality of education overall. Technology has allowed the classroom to transform from the passive and reactive environment to an engaging and proactive one. In both the business world and the academic world, education is crucial. Education and training are employed to facilitate behavioral change in the former. The latter kind of schooling actively encourages inquisitiveness in its pupils. Regardless, pupils benefit from the usage of technology since it facilitates deeper conceptualization and memory retention.

MODERN GLOBAL LEARNING ENVIRONMENT

Knowledge sharing is now simple, practical, and efficient. This indicates that the use of technology in any area of life, including education, tends to make our brains more efficient. These days, it's impossible to imagine living without such a convenient technology, which has permeated every aspect of society. In today's classrooms, engineering may be used to:

The teacher's traditional position as "dispenser of information" has given way to that of "organizer of knowledge" in today's global learning environment, where he need simply guide the active scholars who

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are actively engaged in utilizing the e-learning material. The Intranet provides the facilitator with access to the e-learning system, and the laboratories have been outfitted with long-lasting hypermedia projectors and PCs. Instructors should not be micromanaging their classes and should instead encourage student collaboration and decision-making.

Teachers need to make sure that students construct their own knowledge and abilities in response to given material and learning activities, rather than having it spoon-fed to them. Teachers should consider how their pupils could benefit from these kinds of learning opportunities. As a result, students who previously learned information and acquired skills by passively absorbing the material offered in classrooms and on television now need to shift their focus to actively producing their own knowledge via the application of information gained through formal education, the media, and life experiences. Higher-order cognitive abilities such as problem solving as well as critical thinking should be prioritized.

Internet link and round the clock property

- Over the last decade, the value of the internet has increased dramatically. No one can ever again deny its crucial role in education worldwide. The internet is like the approval for pupils despite the chance of deception and disadvantage. The internet is now embedded in almost every product we use. The Internet is practically in every aspect of our lives, from television to exclusive video games to our phones. Internet access provides a wealth of conveniences for educators; for example, they have greater access to a global network of teachers and other resources that may be utilized to improve their teaching and their students' learning.

Using optical device and optic

- The pleasure of reading the news is diminished in comparison to that of seeing a visual. Great scientific usage also includes the use of optical devices and oculars to the process of acquisition. The best universities and colleges all around the world depend on elaborate PowerPoint presentations and other projects to keep their classes interesting and engaging. Optical devices and other scientific applications in the classroom have the potential to increase engagement and alter students' motivation. Teachers prefer engaging pictures and items that make them think to just reading text. When it comes to really using what you've learned, the education process moves along quickly, too.

Online grade through the usage of application

- Online grading has become a very visible procedure. Many people might benefit academically and professionally by attending an online course. The best companies provide exceptional online programming via the utilization of several platforms and the internet. As more people learn about and embrace this idea, its popularity will only grow. Online degree programs are becoming more popular across the globe, particularly among working students who need a more adaptable reading schedule. Teaching using technology and its benefits.

Value of technology in teaching

- In the content wars, technology plays a multifaceted role, serving as both a source of information and a means of imparting knowledge, as well as a source of supplementary

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material and a means of enhancing general knowledge. The evolution of content from receptive to hostile to competitive has been facilitated by the use of scientific knowledge. In both corporate and international contexts, education is essential. In the latter, a person is helped to change their behavior via training or preparation. In the latter, teaching is centered on arousing pupils' natural interest. Regardless, engineering's utilization may improve students' conceptualization and retention.

IMPACT OF ICT ON EDUCATION

Information and communication technology (ICT) has the potential to broaden participation in and enhance the quality of education. The widespread use of ICT has had far-reaching effects on the educational system, particularly in the areas of knowledge acquisition and retention for educators and students alike.

- Active learning: Exam data collection, analysis, and reporting are all being digitized with the use of ICT technologies, making them accessible to students and faculty alike. Learning using ICT is more interesting than traditional methods like memorizing or drilling since students can choose their own pace and apply what they're learning to real-world scenarios.
- Collaborative and Cooperative learning: Regardless of physical proximity, ICT facilitates communication and collaboration between students and instructors. Students benefit from the increased communication and global understanding that result from engaging with peers from a variety of cultural backgrounds. There is a more engaged contact between students and instructors, and there is greater collaboration among learners inside and outside the classroom when ICT is used, according to the research.
- Creative Learning: In order to generate a physical product or accomplish a specific pedagogical goal, ICT encourages manipulation of the existing information and the creation of one's own knowledge.
- Integrative learning: By removing the synthetic boundary between theory and practice, ICT encourages an integrated approach to teaching & learning, in contrast to the conventional classroom, where attention is placed on a single component at a time.
- Evaluative learning: The learning process is focused on the learner and they get helpful feedback via a variety of interactive elements while using ICT. Instead, than relying on memory and the rote learning, students may use ICT to explore and learn in novel ways, supported by the constructivist theories of learning.

NEGATIVE IMPACT OF TECHNOLOGY ON EDUCATION

DECLINING WRITING SKILLS

- Young people nowadays have terrible writing abilities because they spend so much time on texting and other forms of internet shorthand.
- Children nowadays are so reliant on electronic means of communication that they have abandoned efforts to improve their writing abilities.

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- They have no idea how to write in cursive or how to spell common words correctly.

1 Increasing Incidents Of Cheating

- a. Modern innovations such as graphical calculators, high-tech gadgets, and small cameras have given dishonest students a leg up on the competition.
- b. Students may more easily copy and paste calculations and take notes without being seen on the graphing calculators.

2 Lack Of Focus

- a. Many college students now regularly engage in the habit of sending and receiving SMS messages. It's not uncommon to see a student fiddling with their iPhone when they're in class, in the car, or wherever else they may have some free time.
- b. A loss of attention and focus in schoolwork and, to a lesser degree, extracurricular activities has come from students' constant access to the internet.

1.4. APPLICATION OF TECHNOLOGY IN HIGHER EDUCATION

The ways in which today's students and educators utilize technological tools for learning include

- Internet Connectivity: The proliferation of digital learning resources such as courses, textbooks, libraries, and scholarly articles has increased the Internet's importance in the classroom. Students and instructors alike have found a newfound appreciation for the convenience of having internet-connected mobile devices at their disposal because to the proliferation of tablets, smartphones, laptops, etc.
- The Use of Collaboration Tools: Students utilize online collaboration environments like Google Collaborate notebooks, JIRA, Microsoft SharePoint, and social networks to share and discuss course materials and information. In academic group projects specifically, this helps to increase production. Each learner benefits from and shares in the knowledge and experience of the others.
- Use of Research Tools and Repositories: Student learning and success may be improved by exposure to and usage of digital libraries & repositories maintained by educational institutions. Online learning materials created by subject matter experts are readily available to students worldwide. The student will find this helpful while completing assignments and researching research at the school. Google Scholar and Elsevier Science are two such examples. In addition, professors might collaborate by distributing and incorporating a body of research produced by their colleagues.

LITERATURE REVIEW

(Ghaemian, 2021) The impact of digital technology on modern life cannot be overstated. Instead of debating whether or not to include them into classroom instruction, educators must now consider how best to employ and integrate certain technologies within a wide range of settings. In this analytical piece, we look at how new technologies are changing education. This research looks at the challenges teachers experience as they try to adjust to the new realities brought on by technological advancements in

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education. The research's ultimate goal is to inform decisions about future investments in the educational technology.

(Maslin, 2021) Using contemporary equipment, technology, and tools has been shown to boost students' learning and involvement, according to recent insights into how precisely modern students of today choose to utilize technology and how does it affect their learning. When technology is included, they find it to be lot more engaging and fuller of exciting opportunities. As a result, sharing information is simple, quick, and efficient. This suggests that use of technology in any area of life, including schooling, has the effect of speeding up mental processes. These days, not even institutions and colleges can escape the pervasive reliance and dependency on such a convenience-enhancing invention.

(Harris et al., 2020) Students in fourth grade from the Central Illinois Title 1 primary school participated in this quantitative study. This research aimed to find out whether students' academic performance improved after being provided with one-to-one computing resources (1:1 from here on out). The second purpose of this research was to find out whether and how 1:1 technology affects student motivation. Students' participation in "Pearson envision Math series Topic Tests", scores from Discovery Education Assessment, and attendance records were utilized to compile this data.

(Lidolf & Pasco, 2020) Research in the relatively new topic of "educational technology professional development" (ETPD) for teachers prompted this study's authors to compile a comprehensive literature review for the benefit of both academics and practitioners in the field. ETPD for teachers is centered on making sure that technology is being used in the classroom in a way that is pedagogically sound. Based on a thorough literature review that uncovered 35 papers, we know that professors may boost their ETPD by taking one of three possible stances: faculty-as-learner, faculty-as-designer, or faculty-as-researcher. These findings may provide useful information to stakeholders & policymakers on important indicators of faculty members' ETPD based on the empirical research, which may assist advance a long-term, widespread reform of education.

(Qurat-ul-Ain, 2019) Learning strategies, instructional methods, research fields, workplaces, and information and knowledge consumption have all seen significant shifts as a direct result of technological advancements. In the 21st century, universities and institutions have increasingly adopted a more technical approach to teaching computer science to their pupils. Teachers may more easily meet the global mandate for the use of technology-based teaching & learning tools in place of more conventional approaches if they are provided with the means to do so. The importance of incorporating technology resources into various pedagogical models is well acknowledged by scholars. However, the state-of-the-art shows that there is no all-encompassing research that compares and contrasts the many technical resources (such as PCs, video games, mobile phones, and multimedia) used in the classroom. This paper offers a thorough analysis of several of the most widely used instructional approaches (group work, problem-based, active learning, inductive) and technological resources (information and communication technology, cognitive-based instruction, video games, mobile devices, online courses, flipped classrooms, massive open online courses, and multimedia).

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(Islam Sarker et al., 2019) Since technology is always evolving, it is inevitable that it will be included into the educational process. Every single instructional approach relies heavily on the use of technological resources. Despite the widespread use of digital tools in today's classrooms, educators still struggle to maximize their potential for fostering student growth. The study's overarching goal is to investigate and highlight current relevant literature dealing with the issue of how to incorporate digital technology into educational settings. Our search yielded 43 relevant papers that matched our inclusion criteria and looked at four different forms of integrated digital learning: mobile learning, electronic learning, digital learning, & ubiquitous learning. The research also finds that lectures, tutorials, & laboratory work are the most common forms of instruction for technological subjects. One strategy to improve educational results for both students and teachers is to make use of technological tools in the classroom. Our analysis of these research shows that there is widespread agreement that some methods have the potential to significantly enhance students' academic performance. By analyzing these claims, we seek to provide teachers and policymakers with a fresh perspective on how to improve student learning.

(Deepak Pralhad Raverkar, 2019) God has a knack for developing new technologies. It's perhaps the greatest gift from God, second only to the gift of life itself. It's the big cheese of teaching, art, and study. The way we live has been dehumanized by technology. It has forced many parts of life into an unnatural position. Without a shadow of a doubt, technology is an integral part of every aspect of human existence. Now that we have technology, we can automate a number of procedures involving the limbs. Modern technology allows for the easy and inefficient replacement of much decomposable and crucial cognition. The use of the technology has denatured life and reshaped it in several positive ways. There has been a sea shift in education because of technological advancements. Universities may not want to ignore the benefits of expertise. The arrival of processors in education has made it easier for Communicate to disseminate information and for educate to absorb it. The advancement of teaching and learning is a direct result of the usage of technology.

(Fessakis, 2017) Education's importance as a tool for shaping society has been shown throughout history. Communities that are well organized and provide high-quality education take advantage of this reality by doing the same. Systems of education use methodologies for teaching competence in addition to collecting, evaluating, disseminating, and generating information and ideas. The potential for various pedagogical approaches are influenced by developments in information, knowledge, and communication technologies. The education system has been slow to take advantage of the numerous benefits brought about by the rapid pace of technological progress. The primary goals of this article are to provide an overview of some of the efforts being made to employ technology advancements in education; to explain and clarify important socioeconomic factors that necessitate the education reform; and to discuss the main technical developments that promise the right reform feasibility.

(Delgado et al., 2015) Furthermore, technology has started to revolutionize education, impacting both students' and teachers' ability to learn and use digital technological instructional practices in the classroom. The efficacy of technology in classroom has been the subject of many studies, as have the

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challenges of implementing it. Other topics covered in these articles include the anticipated financial outlay required to properly fund educational technology. This article provides a critical overview of the evolution of the technology integration in schools, the resources and funding dedicated to fully integrating technology into the classroom, and the contradictory findings regarding the efficacy of using the technology in education.

(Stošić, 2015) Due to the prevalence of ICTs, educational technology is more vital than ever in the classroom. They understand the value of educational technology thanks to distant learning apps, the Internet, instructors, and students. The issue is whether schools and instructors are prepared to employ technology in the classroom and if they understand the advantages of doing so. Our goal with this article is to provide a high-level overview of the role that technology plays in the classroom today.

(Valentín et al., 2013) This study reports on a literature review that looked at the most up-to-date studies on TEL. The emphasis of the desk study is on European projects in the field of ICT that were funded by the FP6 and FP7 programs. It focuses on tools that improve on established learning paradigms while also facilitating the development of novel ones. This strategy makes use of tried and true technologies that have previously been widely implemented. Firstly, documents were gathered from CORDIS and the other institutions relevant to the TEL research; secondly, relevant terms were identified in these documents and a thesaurus was developed; and thirdly, the quantitative analysis of every single occurrence was performed. Many of the discovered tools are associated with recommendation & learning analytics, as well as the domains of the interactive multimedia and the Human-computer interaction. By tracking the progress of genuine R&D initiatives across Europe, this research provides a comprehensive overview of the present condition of these domains. This study will serve as a foundation for future studies examining the development of the industry and its relevance to the classroom.

(Morgan, 2013) The educational system is only one area where fresh ground has been broken as a result of technological progress. There has been a shift away from more conventional methods of instruction and toward more digital ones since technology was first introduced into the classroom. The focus of this analysis is on the use of technology in the higher education, especially as a teaching and learning tool for the students. Since students in this age group are considered adults and had extensive experience studying after completing elementary and secondary school, a greater emphasis was placed on postsecondary schools. In addition to emphasizing the benefits, the study also emphasizes the difficulties of using technology in the classroom. The study continues by addressing the challenges faced by universities when using technological solutions to improve education. As a result of this literature, educational institutions will be better equipped to weigh the benefits and drawbacks of using technology in the classroom, as well as explore other methods of instructing and regulating this technology.

(Rajendran, 1995) This article provides a synopsis of how technology has changed the world, focusing on how it has impacted schools. Without a question, technology is mankind's greatest creation, forever altering how we live our lives. The COVID epidemic has coincided with a surge in the use of the technology in classrooms. Just as there are advantages and disadvantages to everything else in the world,

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so too does technology. The good and bad effects of technology on schools are briefly discussed in this article. Technology ushered in the 21st century.

CONCLUSION

Positive results are regularly found in research on how computers and developing technologies affect education. In addition to the challenges of synthesizing information from different methodologies, the growing variation of the emerging platforms and complexity of the contexts and the environments wherein testing has been performed make it hard to define clear and precise consequences for the instructional practice. Minor but persistent favorable associations between access to and usage of technology in the classroom and student achievement have been found in the research. A causal link cannot be inferred from this investigation. Better performing schools and educators are likely to make better use of information and communication technology (ICT) and new technologies. whether we can figure out when and how it works best, we can see whether we can use that information to improve learning in other contexts.

REFERENCES

- Deepak Pralhad Raverkar. (2019). Impact of Modern Technology on the Economy. SWorld-Ger Conference Proceedings, gec20-01, 72–76. <https://doi.org/10.30890/2709-1783.2022-20-01-001>
- Delgado, A. J., Wardlow, L., McKnight, K., & O'Malley, K. (2015). Educational technology: A review of the integration, resources, and effectiveness of technology in K-12 classrooms. *Journal of Information Technology Education: Research*, 14(2015), 397–416. <https://doi.org/10.28945/2298>
- Fessakis, G. (2017). Information Technology and Educational Research Information Technology and Educational Research. April 1998.
- Ghaemian, F. (2021). A Study on the Use and Impact of Digital Technology in Education: A Review. *International Journal of Creative Research Thoughts*, 9(8), 2320–2882. www.ijcrt.org
- Harris, J. L., Al-Bataineh, M. T., & Al-Bataineh, A. (2020). One to One Technology and its Effect on Student Academic Achievement and Motivation. *Contemporary Educational Technology*, 7(4), 368–381. <https://doi.org/10.30935/cedtech/6182>
- Islam Sarker, M. N., Wu, M., Cao, Q., Alam, G. M. M., & Li, D. (2019). Leveraging Digital Technology for Better Learning and Education: A Systematic Literature Review. *International Journal of Information and Education Technology*, 9(7), 453–461. <https://doi.org/10.18178/ijiet.2019.9.7.1246>
- Lidolf, S., & Pasco, D. (2020). Educational Technology Professional Development in Higher Education: A Systematic Literature Review of Empirical Research. *Frontiers in Education*, 5(May). <https://doi.org/10.3389/educ.2020.00035>

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Maslin, N. M. (2021). Impact of Modern Technology. *HF Communications*, 3, 165–182. <https://doi.org/10.1201/b12574-14>

Morgan, J. (2013). The impact of technology on teaching and learning. *Universitas* 21, January, 513–517. <http://www.formatex.info/ict/book/513-517.pdf>

Qurat-ul-Ain. (2019). A review of technological tools in teaching and learning computer science. *Eurasia Journal of Mathematics, Science and Technology Education*, 15(11). <https://doi.org/10.29333/ejmste/109611>

Rajendran, M. (1995). The impact of technology on education. *Journal of Chemical Education*, 73(8), 669. <https://doi.org/10.1021/ed072p669>

Stošić, L. (2015). The importance of educational technology in teaching. *International Journal of Cognitive Research in Science, Engineering and Education*, 3(1), 111–114. <https://doi.org/10.23947/2334-8496-2015-3-1-111-114>

Valentín, L.-F., Carrasco, A., Konya, K., & Burgos, D. (2013). Emerging Technologies Landscape on Education. A review. *International Journal of Interactive Multimedia and Artificial Intelligence*, 2(3), 55. <https://doi.org/10.9781/ijimai.2013.238>