International Journal in Management and Social Science
Volume 7 Issue 6,June 2019 ISSN: 2321-1784 Impact Factor: 6.319
Journal Homepage: http://ijmr.net.in, Email:irjmss@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal

A STUDY ON THE IMPACT OF DIGITAL TECHNOLOGY ON THE QUALITY OF EDUCATION

Kumara.v

Assistant Professor

St Joseph's College of Teacher Education MC Road Mandya -571401

Abstract:

The integration of digital technology in education has transformed traditional teaching and learning methods, reshaping the landscape of contemporary education. This study aims to explore and analyze the multifaceted impact of digital technology on the quality of education across various educational levels. Through a comprehensive literature review, empirical data collection, and in-depth analysis, this research investigates the implications of digital technology on pedagogical approaches, student engagement, and overall learning outcomes. The study employs a mixed-methods research design, combining quantitative surveys and qualitative interviews to gather insights from educators, students, and administrators. Quantitative data will be analyzed using statistical tools to measure the correlation between the use of digital technology and academic performance, while qualitative data will provide a nuanced understanding of the experiences and perceptions of key stakeholders. Key focal points of the research include the influence of digital tools on personalized learning, collaborative environments, and the development of critical thinking skills. Additionally, the study examines challenges associated with the implementation of digital technology, such as issues of accessibility, equity, and the need for effective teacher training.

Keywords*:* Digital Technology, Education

Introduction:

In recent decades, the rapid evolution of digital technology has permeated nearly every aspect of our daily lives, fundamentally transforming the way we communicate, work, and access information. One of the areas profoundly affected by this digital revolution is education. The integration of digital technology in educational settings has sparked a significant shift in teaching and learning methodologies, giving rise to both excitement and concerns regarding its impact on the quality of education.

The advent of digital technology in education has brought forth a myriad of tools and platforms, ranging from interactive learning software to online collaboration tools, virtual classrooms, and educational apps. These innovations promise to enhance the educational experience by providing personalized learning opportunities, fostering collaboration, and expanding access to information. However, as the educational landscape undergoes this digital transformation, it is essential to critically examine the implications of these changes on the quality of education.

This study aims to investigate the multifaceted impact of digital technology on the quality of education across various educational levels and contexts. By exploring the benefits and challenges associated with the integration of digital tools, the research seeks to provide a comprehensive understanding of how technology is influencing educational outcomes and the overall learning experience.

Digital Technology and Education

Since the early days of computer technology, when it was recognised that it had the capability to transform teaching machines, the relevance of technology in education has become a matter of intense interest. Today, conversations on the impact that technology has had on our society, the implications of having quick and easy access to material on the internet for educational and learning purposes, and the impact that new technologies have had on the mental and physical well-being of young people are frequently debated in the media. As a consequence of this, it is essential to conduct a comprehensive understanding of the impact that new technologies have

had on the field of education over the course of the previous half-century. The quantity or consistency of technology that is available or encountered at students' universities has been connected with the accomplishment of students across a number of assessed programme results. This has been the major way that has been used to measure the impact that technology has on teaching and learning in classrooms. A study that was conducted over a period of time in the United States revealed that there was only a little correlation between the use of computers in the classroom and the improvement of students' test results. Whenever new technology is implemented, schools and teachers refrain from engaging in any other activities. When instructors deploy technology on their own, it is typically done as part of an inquiry process, and it replaces or displaces some problematic practice. On the other hand, when it is introduced for its own sake, it displaces or replaces other practicing methods of teaching and learning that could have been as effective. Consequently, there is a requirement for an ecological view on adoption, which is a perspective in which the adoption of technology is justified on a relative basis. As a component of a more constructive or productive learning sense, it has the potential to supplant less successful techniques and may be effectively included into the resources that are accessible to a student in order to aid their learning. In general, it is more difficult than it has ever been to effectively measure the effect. In addition to the quick pace of technological transformation, the problem is made significantly more difficult by the proliferation of innovations and the myriad of ways in which they may be implemented in a wide range of educational settings. It is necessary to shift the focus from technology to pedagogies of usage, and from research on the broad effects of emerging technologies to the specific changes that these technologies bring about in the context of teaching and learning settings and experiences with a variety of students.

Electronic and Digital Era

The introduction of wireless electronic communication, which occurred more than a century ago, marked the beginning of the electronic era. Some of the most significant uses of this technology are the transmission of telegraph messages and the radio transmitter. across the use of radio waves, the messages were transmitted across the air in a silent manner. Through the years that

have passed since then, the utilisation of technology has progressed from radio to records to movies to television to computers to CDs, CD ROMs, and the Internet.

It was very helpful to have this technology in order to communicate quick urgent messages and to keep people aware of the most recent news from both the local and worldwide communities. This has evolved into a type of instruction that is not formal yet incredibly effective.

An entirely new technology was developed as a result of the conversion of analogue signals to digital signals. This new technology was able to eliminate transmission faults and accomplish the same work in a more efficient manner. More than half a century has passed since the introduction of digital technology, which has experienced widespread adoption in the realm of computers and other electronic devices. Beginning in the early 1960s, teaching professionals and computer scientists started using computers for instructional reasons. On account of its low-level connection with people, it was initially utilised as a reading and typing text to offer instructions on how to operate the computer. Subsequently, it was utilised to solve various problems that required a significant amount of time. On the other hand, the fast proliferation of computers in homes, businesses, and educational institutions became possible as a result of the development of microcomputers that were accessible to the general public and that integrated text, graphics, and colour. In the late 1960s, computers were first brought to Sri Lanka, and at the same time, the University of Colombo began teaching students about computing as part of their normal curriculum. Learning about computers began with an understanding of how computers function, progressed to the programming of computers to carry out certain tasks, and culminated in the use of computers in day-to-day affairs. The manipulation of text and numbers was the first step in the evolution of computers, which eventually led to interaction through text, graphics, voice, and pointing devices. Another step forward was the fact that it was possible to network a large number of computers in order to share information and resources. Because of all of these advancements, the price of a computer has been steadily and significantly decreasing over the past few years. The introduction of these coursewares, together with improvements in the integration of text, images, and colour, resulted in the creation of educational materials that were

more effective. In terms of encouraging non-technical people to use computers, the things that had the largest influence were the graphical capabilities and the ability to utilise the mouse on par with the keyboard. An impact has already been made on society as a result of the development of the Internet from a small group of academics and government officials exchanging textual material into a global resource. Millions of people use the Internet for a variety of activities, including shopping, banking, researching, participating in forums, exchanging and sharing information, accessing digital libraries, and, of course, e-learning. Everything that we do has been and will continue to be transformed as a result of this.

Types of Digital Educational Technology:

Digital technology has had a huge influence on education, and as a result, it has revolutionised the method in which students learn and interact with the subject matter. Digital technology is utilised in the field of education in a number of different ways, each of which has its own set of benefits and applications. For the purpose of this, we will discuss some of the most often used types of digital technology that are utilised in educational settings.

Mobile Devices: Students are able to access course materials whenever they want and from wherever they are since mobile devices such as smart phones and tablets are readily available. Accessing online learning materials, watching instructional films, and downloading educational applications are all possible actions that may be taken using mobile devices. Through the use of mobile devices, teachers are able to interact with their pupils and share available instructional resources. Through the use of mobile devices, students have the opportunity to benefit from an individualised and customised learning experience. This gives them the freedom to learn at their own speed and according to their own preferences.

Smart boards, which are often referred to as interactive whiteboards, provide educators with the opportunity to convey knowledge to their pupils in a manner that is both dynamic and attention-grabbing. The use of smart boards allows teachers to present multimedia content such as photographs, videos, and other types of media. The ability of students to comment and draw on

the board increases the likelihood that they will be able to follow along with the lesson and grasp the material. Through the use of smartboards, which encourage active learning, students are able to collaborate on the resolution of issues and the exchange of ideas.

The term "Massive Open Online Courses" (MOOCs) refers to online classes that are available to students from any location in the globe and are completely free to participate in. MOOCs are often offered at no cost or at a very low cost, and they allow students to learn at their own speed. MOOCs provide students with the opportunity to have access to high-quality educational resources that have been developed by prominent institutions and subject-matter experts. In addition to this, they provide a flexible learning environment that enables students to adjust their education around other responsibilities that they have.

Students have the opportunity to engage with a simulated world that has the sensation of being real thanks to the technology known as virtual reality (VR). Learning experiences that are engaging and memorable may be created with the use of virtual reality (VR) in the classroom. For example, kids may learn about difficult topics in a way that is both interesting and engaging by utilising virtual reality (VR) to tour historical locations, conduct out virtual scientific projects, or learn about issues that are difficult to understand. Students have the opportunity to participate in a hands-on educational experience that is difficult to replicate in the real world through the use of virtual reality (VR).

The application of artificial intelligence (AI) in the classroom allows for the customisation of the educational experience for each individual learner. An artificial intelligence system might examine student data to identify specific areas in which a student requires further assistance and provide individualised feedback and guidance. Additionally, artificial intelligence has the ability to provide personalised learning experiences that are tailored to the specific learning preferences and pace of each individual learner.

The term "gamification" refers to the application of game design concepts to contexts that are not games, such as educational settings. Through the use of components such as competition, prizes,

and feedback, gamification has the potential to make learning more intriguing and compelling. When it comes to engaging students in enjoyable and interactive math or science classes, for instance, teachers can use educational games to accomplish this. An further benefit of gamification is that it may provide students a feeling of success and progress, which will encourage them to continue their education.

Asynchronous learning platforms are instructional technologies that enable students to access the content of their courses and complete assignments according to their own schedules and at their own pace. Through asynchronous learning that is adapted to the specific requirements and preferences of each individual student, students may be able to benefit from a learning experience that is both flexible and individualised.

Advantages of Digital Technology

The significance of digital technology in our everyday lives has reached a point where education is no longer an exception. In today's world, technology has had a significant influence on education and has altered the method in which we acquire knowledge. In this article, we will examine the benefits that digital technology brings to the field of education, and we will include a variety of references to back up our statements. Among the many benefits that digital technology brings to the educational system, one of the most significant advantages is that it allows students to learn at their own speed. According to Janelle Cox, almost all applications provide personalised training, which enables students to learn in a manner that is tailored to their own abilities and needs. This individualised learning experience helps students improve their academic performance and increases their grasp of concepts, both of which are beneficial to the students. Additionally, as a result of the proliferation of digital technology, education has become more interactive and interesting, which assists students in comprehending challenging topics. Through the use of digital technology, access to educational opportunities has also been increased. Students have the ability to access educational resources whenever they want and from wherever they are because to the advancements in digital technology. Those students who live in isolated areas or who are unable to attend regular sessions for a number of reasons may

benefit from this in a particularly significant way. Through the reduction in the cost of textbooks and other educational resources, digital technology has also contributed to an increase in the availability of high-quality educational opportunities. According to Samplius, the use of technology has resulted in the enhancement and simplification of the teaching and learning processes for both the academic staff and the students. Because of digital technology, it is now more easier for educators to impart their expertise to their students. Through the utilisation of digital technology, educators have the ability to create engaging and interactive educational tools that assist students in better grasping difficult topics. As a result of the proliferation of digital technology, educators today have an easier time than ever before assessing the progress of their students. As an illustration, educators may make use of digital technology to develop online examinations and evaluations that provide them with the ability to identify the specific areas in which their students want further assistance. There has also been an increase in collaboration in the classroom as a result of digital technologies. With the assistance of modern technology, students are able to work together with their classmates and professors at any time and from any location. Through participation in this collaborative learning experience, students are able to improve their problem-solving skills and their capacity for critical thinking. According to Aplustopper, the most compelling example of how technology has contributed to the enhancement of education is the implementation of smart courses by educational institutions inside the confines of classrooms. The implementation of digital technology in educational settings comes with a plethora of benefits. The advent of digital technology has brought about a change in the way we acquire knowledge, making it more individualised, accessible, inexpensive, engaging, interactive, collaborative, and joyous. With the help of digital technology, students are able to learn at their own pace, access learning resources from any location and at any time, collaborate with their classmates and professors, and refine their talents to think critically and solve problems. In addition, since the advent of digital technology, educators are now able to more quickly impart information to their students and evaluate their progress. The implementation of digital technology in educational settings is very necessary in order to adequately educate pupils for the future.

Challenges Faced by Digital Technology in Education:

In spite of the fact that digital technology has the potential to fundamentally revolutionise the way in which education is delivered in India, there are a number of challenges that need to be conquered before the benefits of this technology can be realised. A summary of some of the most significant challenges that digital technology education faces in India is presented in the following paragraphs. India is a country that has a big gap in terms of internet access. There are several locations where access to digital technology is either extremely limited or nonexistent. Students who live in these areas are at a disadvantage when it comes to acquiring an education in digital technology because of the circumstances described above.

- A lack of infrastructure: Even in locations where digital technology is readily available, it is likely that there is not enough infrastructure to support the continued use of digital technology that is now available. Among the components that fall under this category are reliable connectivity to the internet, consistent energy, and appropriate hardware and software.
- Provision of training for educators: A significant number of educators in India do not possess the expertise and training required to make effective use of digital technology in the classroom. As a consequence of this, they can discover that incorporating technology into their teaching is difficult.
- The availability of content: Despite the fact that there is a vast amount of educational content available online, it is possible that much of it is not relevant or appropriate for students in India. A greater amount of information that is produced locally and is in accordance with Indian educational standards and curriculum is necessary.
- Despite the fact that using digital technology in educational institutions could incur a significant initial expense, there is a possibility that it will prove to be cost-effective in the long term. This may be a difficult for a great number of schools, particularly those located in economically challenged neighborhoods.

- Concerns regarding security and privacy: The use of digital technology in educational settings raises concerns regarding the protection of personal information and online privacy. In order to ensure that students' information is protected and that the use of technology does not put their safety or welfare in jeopardy, it is essential to take the necessary precautions required. Educators, those in charge of making decisions, and corporations involved in technology will need to work together in order to effectively address these concerns. As a result of collaborative efforts, it may be possible to overcome these challenges and establish a digital technology education system in India that is more equitable and effective.

CONCLUSION

Students now have better access to large amounts of information thanks to digital technology, which makes it simpler for them to do research and acquire knowledge on a variety of topics for their studies. This access to information also makes it possible to create more personalised learning experiences that are tailored to the specific requirements and interests of each individual student. There are many different multimedia tools that may be made available by digital technology. These tools include movies, simulations, and interactive learning exercises. These technologies have the potential to improve the learning experience and engage students in a more meaningful way. The advent of digital technology has made it possible for students to have greater flexibility in terms of where and when they may learn. This has contributed to the accessibility of education to those who might not have had access to it otherwise. This is of utmost significance at times of crisis. The use of digital technology has the potential to revolutionise the educational system and enhance the overall quality of the educational experiences that students have. In addition to making the process of evaluating and providing feedback more efficient and effective, it also offers chances for learning that is more personalised and collaborative inside the classroom. In addition to this, it provides flexibility and accessibility, which makes education more available to a greater variety of pupils.

References

[1] Pradip N. Thomas and Robyn Andrews (2016) "Digital India: Understanding Information, Communication and Social Change" Cambridge University Press.

[2] Ravi Shankar Prasad (2016), "Digital India: Power to Empower" Penguin Random House India.

[3] Jyotsna Singh and Sanjaya Mishra (2017), "Handbook of Digital Technology in Education Springer India.

[4] Markos Zachariadis and Robert H. Webster (2016), "Digital Transformation: A Primer for Policymakers" Sage Publications India.

[5] Shantanu Guha Ray (2016). "Digital Nation: India's Internet Revolution and How It's Changing the World" Hachette India.

[6] Armand Doucet and Koen Timmers (2015). The Digital Future of Education: Reimagining Our Schools for the Age of Artificial Intelligence" SAGE Publications India.

[7] Bayraktar, S. (2000). A meta-analysis on the effectiveness of computer-assisted instruction in science education. Journal of Research on Technology in Education, 34.2: 173-189.

[8] Blok, H., Oostdam, R., Otter, M. E., & Overmaat, M. (2002). Computer-assisted instruction in support of beginning reading instruction: A review. Review of Educational Research, 72.1: 101-130. Cheung,

[9] C., & Slavin, R. E. (2011). The effectiveness of educational technology applications for enhancing mathematics achievement in K-12 classrooms: A meta-analysis. Johns Hopkins University: Best Evidence Encyclopedia, Center for Data-Driven Reform in Education.

[10] Khalili, A., & Shashaani, L. (1994). The Effectiveness Of Computer Applications : A Meta-Analysis. Journal of Research on Computing in Education, 27.1: 48-62.

[11] Lei, J. (2009). Digital natives as preservice teachers: What technology preparation is needed?. Journal of Computing in Teacher Education, 25(3), 87-97.

[12] Li, Q., & Ma, X. (2010). A meta-analysis of the effects of computer technology on school students' mathematics learning. Educational Psychology Review, 22.3: 215-243.

[13] Liao, Y. (2005). Effects of computer-assisted instruction on students' achievement in Taiwan: A meta-analysis Computers & Education 48: 216–233.

[14] Lou, Y., Abrami, P. C., & d' Apollonia, S. (2001). Small Group and Individual Learning with Technology: A Meta-Analysis. Review of Educational Research, 71.3: 449-521.

[15] Luckin, R. (2008) The learner centric ecology of resources: A framework for using technology to scaffold learning Computers & Education 50: 449–462.

[16] Moran, J., Ferdig, R. E., Pearson, P. D., Wardrop, J., & Blomeyer, R. L. (2008). Technology and reading performance in the middle-school grades: A meta-analysis with recommendations for policy and practice. Journal of Literacy Research, 40.1: 6-58.

[17] Ryan, A. W. (1991). Meta-analysis of achievement effects of microcomputer applications in elementary schools. Educational Administration Quarterly, 27.2: 161-184.

[18] Sandy-Hanson, A. E. (2006). A meta-analysis of the impact of computer technology versus traditional instruction on students (Doctoral dissertation, Howard University, Washington DC.) ProQuest Dissertations and Theses Somekh, B. (2007) Pedagogy and Learning with ICT: Researching the Art of Innovation, London:

[19] Routledge. Van den Beemt, A., Akkerman, S., & Simons, P. R. J. (2011). Patterns of interactive media use among contemporary youth. Journal of Computer Assisted Learning, 27(2), 103-118.

[20] Weaver, G.C. (2000) An examination of the National Educational Longitudinal Study Database to Probe the Correlation Between Computer Use in School and Improvement in Test Scores. Journal of Science and Technology 9.2: 121-133.

[21] Zhao, Y. & Frank, K.A. (2003) Factors Affecting Technology Uses in Schools: An Ecological Perspective American Educational Research Journal 40: 807.