DIGITAL TECHNOLOGIES IN EDUCATION SECTOR

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ABSTRACT

Digital technology has transformed the way education is delivered and has become increasingly important in modern education. Digital technology provides students with easy access to vast amounts of information, making it easier for them to research and learn about various subjects. This access to information also allows for more personalized learning experiences that cater to individual student needs and interests. It offers various multimedia tools, such as videos, simulations, and interactive learning activities that can enhance the learning experience and engage students in a more meaningful way. It enables collaboration among students, allowing them to work on group projects, share resources, and communicate with each other in real-time, regardless of their physical location. It can be used to create and administer assessments, as well as to provide feedback to students in a more efficient and timely manner. This helps teachers to better understand student progress and adjust their teaching accordingly. It can streamline administrative tasks, such as grading, attendance tracking, and record-keeping, allowing teachers to focus more on teaching and interacting with students. Digital Technology has the potential to transform education and improve the quality of learning experiences for students. It provides opportunities for more personalized and collaborative learning, while also making the assessment and feedback process more efficient and effective. The present article highlights the importance of Digital Technology and its impact on education.

Keywords: Digital Technology, Education, Students, Learning, Challenges, online education,

INTRODUCTION

The educational sector has seen a tremendous transformation thanks to digital technology. It has changed conventional approaches to education and learning and offered fresh ideas for both. Online learning has been made easier, and individualized learning experiences are now possible thanks to digital technology. The effect of digital technology on education and its many advantages will be discussed in this paper.

The accessibility and availability of educational resources have undergone a revolution thanks to digital technology. Students and teachers may access instructional resources at any time and from any location thanks to digital devices like cell phones, laptops, and tablets. Online libraries, academic journals, e-books, research papers, and other resources have all been made available by the internet. Moreover, educational websites like Khan Academy, Coursera, and edX provide free online courses, increasing accessibility and affordability of education.

Additionally, interactive learning tools like simulations, games, and multimedia information are now possible thanks to digital technology. These tools give students a more immersive and hands-on learning experience, which improves their comprehension and memory of the material. For instance, virtual reality simulations let students examine ideas like chemical structures, planetary systems, and historical sites that are otherwise impossible to visualise.

Online education has expanded and grown in popularity over the past several years thanks to digital technologies. Students can access education in a flexible and accessible way through online learning, learning at their own speed from any location in the world. Working professionals can also learn new skills and knowledge through online courses without interfering with their daily schedules.

Massive Open Online Courses (MOOCs), which allow free access to courses offered by prominent universities and educational institutions, have also emerged as a result of online learning. Regardless of their financial or geographic limitations, more people can now access high-quality education thanks to MOOCs.

Moreover, personalized learning has been made possible by digital technology, where academic material is customizedto each student's needs, interests, and learning preferences. Using digital technology, personalized learning offers adaptive learning, which modifies the pacing and level of challenge of instructional material to fit students' skill levels. In order to give

students with individualized learning opportunities, adaptive learning uses data analytics and machine learning algorithms to determine students' strengths and shortcomings.

Gamification, or the presentation of instructional content as games, tests, and puzzles, has also been made possible by digital technology. Gamification creates a fun and dynamic learning environment that encourages students to absorb information. In order to track students' progress and give feedback, gamification also gives teachers the tools they need to decide on teaching methods and learning objectives.

Digital technology in education has many advantages, but it also has certain drawbacks. The digital gap, which prevents all pupils from having access to computers and the internet, is one of the biggest problems. Students who have access to digital technology have an edge over those who do not because of this divide, which in turn causes disparities in educational prospects.

In the classroom, where kids are readily sidetracked by social media, gaming, and other non-educational content, digital technology can also be a distraction. This diversion can interfere with learning and lower the standard of instruction.

The privacy and security of student data and personal information might be jeopardized by the use of digital technology. Educational institutions must put in place strong security measures to preserve the personal data of students. Digital technology has revolutionized education and given rise to creative approaches to both teaching and learning. It has facilitated online learning, improved access to educational resources, and offered tailored learning opportunities. It also presents a number of difficulties, including the digital divide, classroom distractions, and privacy and security issues. To deliver a high-quality education thatequips students for the digital age, educational institutions must address these issues and take advantage of digital technology's advantages.

Types of Digital Educational Technology:

The way that students learn and engage with the subject has been revolutionized by digital technology, which has had a significant impact on education. Digital technology is employed in education in a variety of ways, each with special advantages and uses. We'll talk about some of the most popular categories of digital technology utilized in education in this post.

- **Mobile Devices:** Because of the accessibility of mobile devices like smartphones and tablets, students can access course materials at any time and from any location. Mobile devices can be used to access online learning resources, watch educational films, and download educational apps. Instructors can communicate with students and exchange educational resources via mobile devices. Students can benefit from an individualised and tailored learning experience through mobile devices, allowing them to learn at their own pace and according to their own preferences.

- **Smartboards:** Also known as interactive whiteboards, smartboards give teachers the ability to interactively and engagingly impart knowledge to their students. Instructors can project photos, movies, and other multimedia information on smartboards. Students' ability to follow along and comprehend the subject is facilitated by their ability to annotateand draw on the board. Students may work together to solve problems and share ideas thanks to smartboards, which promote active learning.

- **Massive Open Online Courses (MOOCs):** MOOCs are online courses that are accessible from any location in the world and are free to take. MOOCs can be taken at the student's own pace and are frequently free or inexpensive. Students may get access to top-notch educational resources from renowned universities and subject-matter experts through MOOCs. Additionally, they provide a flexible learning environment that enables students to accommodate their education around other obligations.

- **With the use of virtual reality (VR) technology**, students can interact with a simulated environment that feels real. VR can be utilised in the classroom to design immersive, memorable learning experiences. For instance, students can learn about complex subjects in a fun and engaging way by using VR to explore historical sites, carry out virtual science projects, or learn about hard themes. Virtual reality (VR) can give students a hands-on educational experience that is challenging to reproduce in the real world.

- **Artificial intelligence (AI):** AI can be applied in the classroom to tailor each student's educational experience. AI may review student data to pinpoint areas where a student needs additional assistance and offer specialised criticism and direction. Additionally, AI can offer personalized learning experiences that are adapted to each student's unique learning preferences and speed.

- **Gamification** is the use of game design ideas in situations other than games, such as education. By including elements like competition, rewards, and feedback, gamification can make learning more motivating and engaging. For instance, teachers can employ educational games to engage pupils in fun and interactive math or science lessons. Gamification can also provide pupils a sense of accomplishment and development, which will motivate them to keep learning.

- **Asynchronous learning platforms:** These tools help students access course content and finish assignments on their own timetable and at their own pace. Students may benefit from an adaptable and personalised learning experience through asynchronous learning that is tailored to their unique needs and preferences.

Below are the key differences between traditional or the old system.

Direct interaction between teacher and student	Lack of dynamism
Stress on important part of the syllabus	Learning is limited to syllabus, teacher and subject
Reading on related areas which are not part of the syllabus	It makes student exam oriented
Extra preparations for the student with low understanding level	It does not equip student for practical application of knowledge
Guru- Shishya parampara system allowed shishya to observe, experience and learn from his /her guru 24 x 7	It is not cost effective. Traditional education has become very costly.
	Resources like books/teachers have limitations. If books/teachers are inadequate learning will stop

Advantages of Digital Technology in Education

Education is no exception to how crucial digital technology has become to our daily lives. Technology has had a tremendous impact on education today and has changed the way we learn. We shall analyze the advantages of digital technology in education in this essay, providing a number of sources to substantiate our claims.
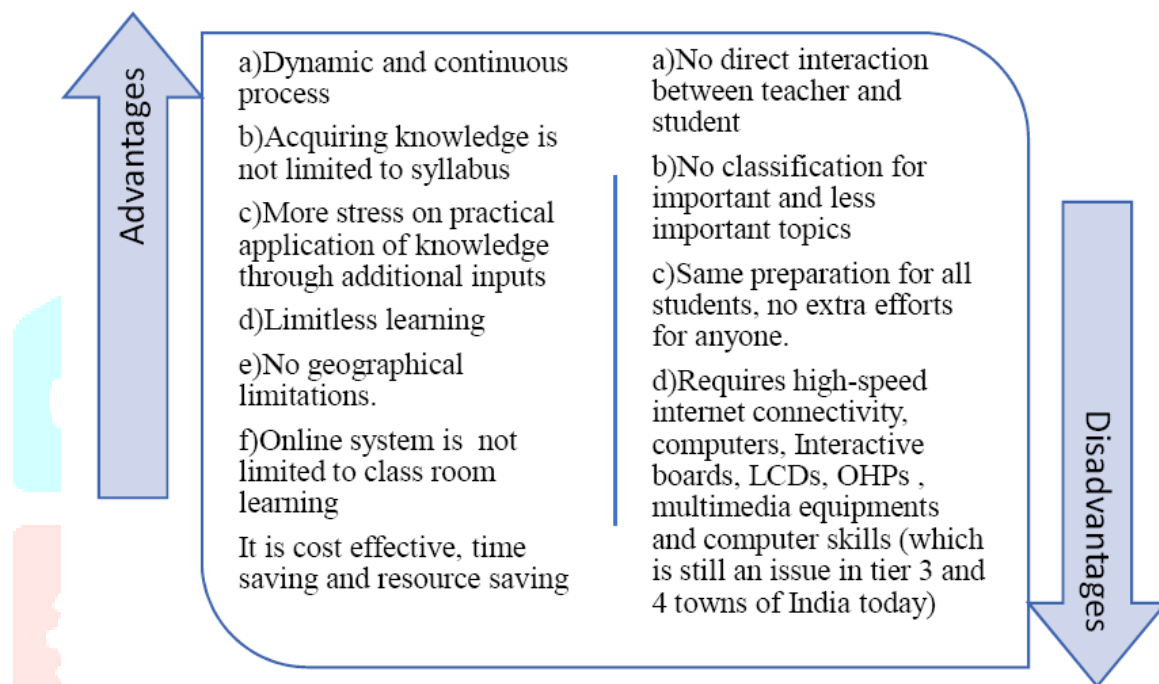
Students are able to learn at their own pace thanks to digital technology, which is one of its most important advantages in education. Nearly all apps, according to Janelle Cox, support personalized training, allowing students to study in accordance with their skills and requirements. Students' academic performance is enhanced and their understanding of ideas is increased thanks to this individualized learning experience. Also, thanks to digital technology, learning is now more dynamic and entertaining, which helps pupils comprehend difficult subjects.

Access to education has also improved because of digital technology. Students can access educational resources at any time and from anywhere with the aid of digital technology. Students who reside in remote places or those who are unable to attend regular classes for a variety of reasons may particularly benefit from this. By lowering the price of textbooks and other educational materials, digital technology has also increased access to a quality education. Samplius claims that the use of technology has improved and simplified the teaching and learning processes for both teachers and students.

Teachers now have it simpler to deliver knowledge thanks to digital technologies. Teachers can develop interesting and interactive learning resources that aid students in better comprehending complex subjects with the use of digital technology. Teachers now find it simpler than ever to evaluate their pupils' development thanks to digital technologies. For instance, teachers can use digital technology to design online tests and assessments that enable them to pinpoint the areas where their pupils need additional assistance.

Digital technology has also increased collaboration in the classroom. Students can collaborate with their peers and teachers at any time and from any location with the aid of digital technologies. Students' ability to solve problems and exercise critical thought is enhanced by this collaborative learning opportunity. Aplustopper claims that the best illustration of how technology has improved education is how smart courses have been used inside of classrooms by schools.

There are numerous advantages to using digital technology in education. The way we learn has been revolutionized by digital technology, becoming more individualized, available, affordable, engaging, interactive, collaborative, and joyful. Students can learn at their own speed, access learning resources from anywhere and at any time, collaborate with peers and teachers, and hone their critical thinking and problem-solving abilities with the aid of digital technology. Also, teachers may now more easily convey knowledge and gauge their pupils' development thanks to digital technology. To prepare children for the future, it is crucial to integrate digital technology into the classroom.

Advantages

a) Dynamic and continuous process

b) Acquiring knowledge is not limited to syllabus

c) More stress on practical application of knowledge through additional inputs

d) Limitless learning

e) No geographical limitations.

f) Online system is not limited to class room learning

It is cost effective, time saving and resource saving

Disadvantages

a) No direct interaction between teacher and student

b) No classification for important and less important topics

c) Same preparation for all students, no extra efforts for anyone.

d) Requires high-speed internet connectivity, computers, Interactive boards, LCDs, OHPs , multimedia equipments and computer skills (which is still an issue in tier 3 and 4 towns of India today)

Application of online techniques in various parts of education

The new phase of learning has begun and involves various advanced techniques and methods like:

1. Online self-paced or timed courses
2. Online examinations
3. Digital textbooks
4. Animation
5. Videos and films and PowerPoint presentations
6. Use of multimedia equipment like interactive boards, LCDs, Laptop and advanced

Brief description is given below for important technologies in use.

1. Online courses – They are used language or get trained in some specific course, or even to learn through distance learning. Online courses are developed by experts. Unmatched proficiency in their specific field and can give you the experience of real by designing their own online course.

2. Online examinations – Examination process is convenient for both teachers and students.

3. Digital textbooks – Digital textbooks provide a interactive interface in which the students have access to multimedia content such as videos, interactive presentations, and hyperlinks.

4. Learning through animations – This is typically used for educating children between years old. Learning through pictures, diagrams, through colors is more effective.

5. Videos and films and power point presentations are used for student of any age group. Management films, motivational films, are examples of this method.

SWOT analysis

SWOT analysis for online education in India is tabled below:

Strengths
- Time and location independent
- Impartiality
- Exposure to Global standard of education
- Access to all irrespective of circumstances

Weakness
- Absence of teacher
- Access to unsupportive information
- High cost of infrastructure
- Unsuitable for practical courses like Medical, aeronautical, agriculture, engineering,
- Students' assessment and feedback is limited

Opportunities:
- Enrolment of more number of students in a session
- Graduation / higher studies without disturbing the Work-life Balance
- Time saving and cost efficient
- Education to all categories of pupils
- Access to variety of training materials, journals, books, library, webinars

Threats:
- Threat to uniqueness and consistency
- High cost in implantation and maintenance
- Security and authorization issues

Scope and Limitation: If we were to define scope of Digitalization in India today, it is expected to pervade almost each and every area of education. It will be wide spread; right from primary education to higher studies and onto research field as well. It will also be pervasive in all other fields like health, transport, travel tourism, insurance, banking, finance etc. It will be consumer centric and will be made extremely convenient. Though or human interaction would not be available, accuracy and repeatability will be enhanced through automation capabilities embedded within.

Conclusion & future of online education

Based on the figures made available in KPMG's report and Quora, it is evident that future of digital market and online education system in India is extremely bright. There is huge scope for implementation. Digitalization in education ,insurance, financial services, agriculture, and other sectors of economy are going to open many opportunities for service providers. These figures, give us an overview of the growth potential which India has for online education.

Increase in number of users of online education systems, increasing cost of traditional education, increase in number of internet users, estimated increase in number of open earnings and distant learning courses by 2021 and percentage of ambitious young population with low income. Population between age group 15 to 25 is target market for online education.

Challenges Faced by Digital Technology in Education:

　　　　Digital technology has the potential to completely transform the way education is provided in India, but there are a number of obstacles that must be overcome in order to reap its benefits. The following is a discussion of some of the major obstacles to digital technology education in India.

　　　　India is a nation with a significant digital divide. Access to digital technology is either scarce or nonexistent in many places. As a result, students in these regions have a disadvantage when it comes to receiving an education in digital technology.

- **Lack of infrastructure:** It's possible that there isn't enough infrastructure to sustain the usage of digital technology, even in places where it's accessible. This encompasses elements like consistent electricity, internet access, and suitable hardware and software.
- **Training for teachers:** Many Indian teachers lack the knowledge and training necessary to effectively use digital technology in the classroom. They may find it challenging to use technology in their instruction as a result.
- **Content availability:** Although there is a wealth of instructional material online, many of it may not be pertinent or suitable for Indian pupils. More locally created content that adheres to Indian curricula and educational norms is required.
- **Cost:** Although deploying digital technology in schools may come at a substantial initial cost, in the long run, it has the potential to be cost-effective. Many schools may find this to be a challenge, especially those in disadvantaged communities.
- **Security and privacy concerns:** Concerns about security and privacy are brought up by the usage of digital technology in education. It is important to make sure that student information is secure and that using technology does not jeopardize the safety or wellbeing of students.

It will need a coordinated effort by educators, decision-makers, and technology businesses to address these issues. These obstacles might be overcome by working together to build a more equal and efficient digital technology education system in India.

Digital technologies given below will impact economy of the country and improve the performance of online education. It will also increase market depth and will bring more revenue to the country.

1. Big Data: Users create digital footprints via interaction of the platform, which are captured by system to map their profiles and suggest them proper course and material.
2. Data Analytics: Mapping academic/professional background and drive purchase behaviour.
3. Wearable devices: New mode of content consumption.
4. Virtual Reality: Virtual labs can be setup perform experiments.
5. Machine Learning: A detailed feedback given to each student with level of accuracy, grasping power, time spent on different concepts, historical
performance.
6. Artificial Intelligence: Providing profile based customized course suggestions to prospective students. Help students to make informed choice on course content, type of course, type of evaluation and course duration.

CONCLUSION

Digital technology provides students with easy access to vast amounts of information, making it easier for them to research and learn about various subjects. This access to information also allows for more personalized learning experiences that cater to individual student needs and interests. Digital technology offers various multimedia tools, such as videos, simulations, and interactive learning activities that can enhance the learning experience and engage students in a more meaningful way. Digital technology allows for more flexibility in terms of where and when students can learn, making education more accessible

topeople who may not have had access to it otherwise. This is especially important during times of crisis, such as the COVID-19 pandemic, when many schools have had to switch to online learning. digital technology has the potential to transform education and improve the quality of learning experiences for students. It provides opportunities for more personalized and collaborative learning, while also making the assessment and feedback process more efficient and effective. Additionally, it offers flexibility and accessibility, making education more accessible to a wider range of students.

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