ADAPTATION OF DIGITAL LEARNING MODE IN EDUCATION INSTITUTIONS – PRESENT STATUS, CHALLENGES AND ROAD AHEAD: A CASE OF INDIA

Dr Himanshu Rastogi
Associate Professor, Amity University Uttar Pradesh,
Lucknow Campus.
Email: drhrastogi@gmail.com

Abstract: *Education plays important role in overall development of individuals thereby contributing immensely to the overall development of a nation. Education globally is one of the important sectors to witness revolutionary changes in recent times. This happens primarily because of digital revolution taken place across the globe. The typical Indian classroom was once characterized by students sitting through hour-long session, teacher used to discuss the things without any visual presentation. Now, thanks to digital technology, it is making life easier for both students and educators. Digital education is fun learning for all cadres and particularly effective for child learning as the innovative audio-video feature boosts the cognitive elements in a child's brain. Schools are increasingly adopting digital teaching solutions in their academic and trying to make the classroom environment more inclusive and participatory. In India, from last few years there has been a considerable rise in Digital and Live Virtual Classrooms at different levels of learning. With evolution of technologies such as cloud, virtual data centres and virtualization there is huge potential for technology to be integrated with the Education Industry. The purpose of this research is to give overview of digital education, components of digital education, benefits of digital education in India, the future scope, and possible challenges of an Indian society for moving towards digital education.*

Keywords: *Digital Education, Cloud Computing, Virtualization, Digital Technology.*

1. INTRODUCTION

Education is the base to generate and retain the knowledge and its resources. It not only leads us towards a better lifestyle but also promote the happiness in life. Hence, with the development of Indian economy and society, Indian education is also being change. If we look into the ancient Indian education, there was a gurukul system where students were taught in the natural environment i.e., under the tree, in the Vedic Era, and the students remain under the strict control and observation of the guru. Later on, there was a change in the education system, students were taught in the classroom with the help of black board and refereeing the textbooks to the students for further studies. With the globalization of Indian economy in 1991 and the revolution of Information technology, the teaching and learning method changed from black board to smart board connecting with the LCD projectors. Now students are not taught by chalk and talk, they are taught by PPT and talk, along with audio recording and video clippings. With the pandemic of Covid-19, we are exemplary moving towards digitalization of our education system. We are replacing the tradition books with the e- book. In the same manner assignment is being converted into the e-assignment etc. During the pandemic of COVID-19 teacher taught relations has also been changed, there are being taught via websites and with the help of various applications. Really the digitalization of education has made it very easy to search the various information within a second with the help of a click. It makes the end user i.e. student to fulfil their thrust of knowledge.

2. OBJECTIVES OF PAPER

- To understand the emerging trends in education sector.
- To know about the concept and elements of learning and digital learning.
- To understand the benefits of digitalization of education to various stake holders.
- To know about the challenges for digital learning.
- To suggest measures for enhancing digital learning.

3. REVIEW OF LITERATURE

Jinal Jani and Garish Tere (2015). Digital India programme introduced by government of India is important for the development of digital education in the country. Digital India drive is a project initiated by Government of India for creation of digital empowered society across the country. It will help in mobilizing the capability of information technology across government departments and helps in delivering the different governments programs and services. Digital India will help in creating job, providing high speed internet and digital locker system and so forth. Digital India has three important components namely digital infrastructures creation, digital delivering services and resources and digital education.

Shikha Dua et al., (2015). They have discussed the different issues, trends, and challenges of digital education in India and suggested the empowering Innovative classroom model for learning. The future trend of digital education includes digitalized classroom, video-based learning, and game-based learning and so forth. They have pointed out different challenges of digital education India and suggested measures to overcome these challenges. Constant reforms required in schools and teacher for the development of digital education in India.

Jayesh M. Patel (2017). There are many web-based tools which can be used in the classroom for digital education like twitter, Glogster, Prezi, Diigo, Dropbox, and Moodle. Teachers and students are interested in web based digital learning but because of lack of knowledge they are not initiating the same. Web based tools will make the learning interesting and students will get motivated which normal classroom cannot do. Currently the teacher centric approaches are making learning boring even for interesting chapters, use of digital technology makes even boring content interesting and joyful. The concept of child cantered approach will be fulfilled only with the help of digital technology.

According to a report by Google and KPMG, the online education market in India at the end of December 2016 was $247 million and it will reach $1.96 billion by 2021. Also India's online education market is the second largest market after US. The findings of the report also states that the paid user base for online education services will also grow at least by six times i.e. approximately 9.6 million users by 2021.

4.   RESEARCH METHODOLOGY

The focus of this research paper is to give a complete picture of digitalized education and the benefit of digital education in India. The study is based on the secondary data which is collected from the research paper, literature reviews, books, magazines, journals, and websites, etc. without conducting any empirical work. Also experiences drawn from personal observations during the last five years as academician has been taken into account.

5.   EMERGING TRENDS IN EDUCATION SECTOR

5.1. Growing trend towards digitalized classroom (Flipped Classrooms)
A complete revolution in the way we learn today has been brought by technology. Teachers teaching in the classroom can capture the students and the full strength in the class by digital screens, thus facilitating each child to get the same base content and input from the teachers. This feature of digital era has increased the student engagement as it combines various instructional styles. Each student gets in contact to world-class education, which is not easy to impart by the traditional white chalk and black board teaching. This new learning is more interesting, personalized, and enjoyable. With this technological inclusion in the school teaching the students feel studying as enjoyable, easy, competent and above all interesting. The aim of a teacher however should be to create such an atmosphere which makes every student want to study.

5.2. Video based learning
Video-based learning as a part of digital marketing has geared up in Indian education sector and has made education engaging, entertaining, and exploring. It enables learning with a pedigree of learning out of leisure with creativity, fun and entertainment on cards via the wonderful Apps, podcasts, videos, interactive software, e books and online interactive electronic boards. Children are excited and operative with interest to manage the showcase via their intelligence, exploring the weak techno skills of teachers and assist them in public with pride and honour and recognition.

5.3. Massive open online course (MOOCS)
A massive open online course (MOOC) is an online course aimed at unlimited participation and open access via the web. India is considered to be the biggest market for MOOCs in the world after the USA. Since the population of India is huge, massive open online course (MOOC) are said to gateways for a lot of Indians in terms of bringing an educational revolution. Online distant learning programs give a great opportunity to avail high quality learning with the help of internet connectivity.

5.4. K12 Sector- Game based learning
K-12 School is a terminology used as Kindergarten through XII grade. Various start-up companies have been the contributor for this sector. Today the world is of Y-generation people who are acquainted with the technological developments taking around them, and they are also surrounded with the required skills and abilities. K-12

creates the game-based learning environment, which enables the learner to easily get the word of education in India and give us a better self-trained Y generation.

5.5. Google Classroom

It is a free web service available for schools to help in drafting, mass distribution of assignments and notes and grading them in a paperless form. In this classroom teacher may post study materials which may be reviewed by the student at home in the free time. It also makes learning very easy and streamlined because file may be easily shared between teachers and students as well as student may post their queries relating to the lecture and get the reply not only from the teacher but also from the students.

5.6. E-Pathshala

This is a portal launched by the HRD and NCERT in November 2015 to generate a gigantic educational reserve of various videos, audios, textbooks, periodicals and various types of printed and non-printed for teachers, parents, researchers, students and educators which is available on Android, Windows platforms etc. it allows the students and teachers to download them to read offline in their mobile/laptop as per the capacity of their instrument.

5.7. BYJU's

It is a leading Edutech startups in India. It is a combination of gamification techniques which engage the Math and Science students specially to learn with fun. In this technology or app, teachers use a combination of various mediums, tools, and interactive formats to teach the concept to the student in the most personalized manner.

6. UNDERSTANDING THE CONCEPT OF LEARNING

Learning is the process of acquiring new understanding, knowledge, behaviours, skills, values, and preferences. The ability to learn is possessed by humans, animals, and some machines; there is also evidence for some kind of learning in certain plants.

6.1. Learning factors
    6.1.1. _**External factors**_: External factors mainly explain Heredity, Status of students (Physical and home conditions), and Physical environment.
    6.1.2. _**Internal factors:**_ Internal factors mainly explain goals or purposes, motivational behaviour, interest, attention, drill or practice, aptitude, emotional conditions, learning activities, testing, and guidance.

6.2. Learning Styles
Every individual is unique in the world. Everyone processes information at their own pace and in their own way; researchers have discovered there are several types of learning styles or categories that everyone falls into.
    6.2.1. _**Visual:**_ suggests name beat learning way is visual learning. Visual learners are those that learn image or cue to help them process the information. Visual learners have a good spatial sense and sense of direction. Visual learners have good colour balance and Are good at using maps and rarely get lost.
    6.2.2. _**Auditory:**_ Auditory learning is a unique type of learning style, but it is used to classify those who respond primarily to sound. Aural learners find that certain music invokes strong emotions and have a good sense of pitch or rhythm.
    6.2.3. _**Linguistic:**_ Linguistic learners learn best both under verbal instruction and writing. These learners are typically those that go into public speaking, writing, journalism, and debating. Linguistic learners enjoying reading and writing.
    6.2.4. _**Physical:**_ A physical learner likes getting their hands dirty. They learn the best way of going through the motions of what they are learning. Physical learners enjoy sports and exercise along with outdoor activities and working with their hands.
    6.2.5. _**Logical (Mathematical):**_ Logical thinkers mostly pursuing mathematicians, engineers, or sciences. Because they have a unique way of learning. Logical learners Classify and group information together to better understand it.
    6.2.6. _**Interpersonal (Social):**_ Interpersonal learners are natural group workers. Social learners prefer to socialize after work or class and enjoy playing group sports.

7. UNDERSTANDING THE CONCEPT OF DIGITAL LEARNING

Digital learning may be a sort of learning combination of context and method by electronic elements. It's associated by technology. It encompasses the appliance of a good spectrum of practices including and virtual learning. Sometimes digital Learning is confused with online learning or e-learning, digital learning encompasses the afore mentioned concepts.

7.1. *Digital learning initiators*

Adaptive learning and Blended learning; Classroom technologies and E-textbooks; Learning analytics and Learning objects; Mobile learning: e.g. Mobile Phones, Laptops, Computers, iPads., personalized learning; E-learning or online learning and Open educational resources (OERs);Technology-enhanced teaching and learning

7.2. Benefits of Digital Education

7.2.1. Benefits for Academic Purpose

School and college can easily manage their activity with the help of digitalized technology; some of the benefits related to the academics are given below.

- Time and money of the institute can be saved as the teachers prepare the lecture before coming to the classroom and store the presentation in the storage devices such as pen drive which will also help to share the data with the students too.
- With the help of digitalized devices such as a computer, desktop, and internet, teachers can conduct the online exam and can-do evaluation immediately by using Google forms and alike applications which are used by the teachers to conduct online exam.
- The result can also be displayed online with the help of the digital devices, there are many apps to provide the facility to display the result directly after the exam, teachers don't need to check the paper as the answer are already stored in the system.
- With the help of digital devices such as a computer, laptop, and the use of the internet the information can be shared with the students and the knowledge can be transformed easily from teachers to students very quickly.
- Today's due to the digital devices such as smartphone and due to the various sources of communication the teacher, parents, and students are connected easily, notices and information can easily be shared between teachers, parents and the students.

7.2.2. Benefit to the students

In the digital world of education, all the content taught in the classroom with the help of the multimedia slides created through use of PowerPoint presentation create interest among the students and attract them towards study and create enthusiasm among the students. The learning becomes full of fun for them and helps to memorize the concept easily with the help of the audio-video teaching contents; some of the benefits of the students are given below:

- As the teachers share the timetable, assignment and the other event with the help of the mail, WhatsApp group which can be easily viewed by the students by sitting home, even if due to any reason if student could not attend the class even then to he gets all the update of the class and institution concerned.
- The students can prepare the project online with the help of material and literature available online.
- Students don't have to depend on teachers only to clear concepts as they can clear the concept by using YouTube and other teaching aids which can easily search with the help of the Internet.
- Today lots of digital learning material is available on the web such as digital textbooks, digital libraries and, many more which will help the students a lot for the academic purpose. Today students don't need to depend on the physical library or to invest money in purchase textbook.
- Due to the smart devices and others electronic medium of communication medium it has become easy to be in touch with teachers easily and clear the doubt on the spot.

7.2.3. Benefit to teachers

Digital education has also helped the teachers a lot, it helps them in making teaching interaction among students very effective. Some of the benefits for the teachers are given below:

- Digitalization of education can help teachers to explain difficult content easily to the student with the help of audio-video, animation, and graphics.

- Internet is a huge source of information; teachers can collect a variety of information easily within a second from the web which can help teachers to prepare the topic for lectures - even complicated topics can easily be understood by teachers as well as students.
- The digital technology will help the teachers to explain the difficult content easily and effectively.
- A teacher can communicate with the parents online or share the information related to the institute or the students easily with the help of the mail or what's app group.

7.2.4. The benefit to parents

In today's world, it is very difficult for parents to visit school and college due to the busy schedule, and since in today's time where both parents are working couple thus there is less possibility for them to visit the school every now and then. Digital education helps the parents to view the details of their children by sitting at the house or office. They can communicate with teachers and, they can view their children result online. Some of the benefits of the parents are given below:

- So many of the schools and colleges are using online tools that help the parents to view their child attendance record, result, progress in class and timetable online, so it is the biggest advantage for the parents that without visiting the school the parents are getting all update.
- Most of the teachers share the assignments, homework with the parents in WhatsApp group or through emails. Today many schools and colleges have their own software for dispersing updates to parents.
- Parents can pay fees with the help of the online payment facility.

8. CHALLENGES IN ONLINE EDUCATION

8.1. Insufficient digital infrastructure

Although Government of India is taking initiative to develop digital infrastructure, but a lot need to be done in this direction. High speed internet and stable power supply are the biggest problem. India stands 89th worldwide on internet speed and stability. According to the report of World Economic Forum, only 15 percent of the households have access to the Internet, and mobile broadband remains accessible to very few i.e. only 5.5 subscriptions for every 100 people. Further, currently reach of broadband is just about 600 corridors, largely in and around the top 50 to 100 Indian cities, leaving rural areas with poor connectivity. 5G networks technology is the requirement of today's which will increase the speed of downloading the data.

8.2. Limited Social interaction

Since online education can be accessed at home or any other convenient place, there is very limited direct interaction with the teacher and other people doing the course. According to Dhirendra Kumar (2010), especially those courses which are self-paced, there is very less discussion among the peers. Most of the discussion takes place through e mail, chat room or discussion groups. There isn't any campus atmosphere to improve social interaction. So you are not able to develop any social links which do help in the career growth.

8.3. Credibility of online degrees under scanner

Although industry has started recognizing online degrees, there are still a lot of fraudulent and non-accredited degrees being offered online. The number of scam operators is rising who are offering fake certificated which does not have any credentials. These scams not only losses the credibility of the online certificates but also the faith of prospective employer in online programs.

8.4. Shortage of trained teachers

A major obstacle in the use of digital education in rural area is the lack of knowledge and skills. There is a shortage of teachers, formally trained on digital technology. In some of the academic institution in rural areas, schoolteacher and college professors are not interested in using digital tools for conducting classes. They feel that a lot of information is explained to the students at one go through the digital medium and they prefer traditional teaching methods of chalk and blackboard. In rural areas, primary teachers and senior teachers are reluctant to get trained and adopt digital technologies for digital education in school because they are in view that these disruptive technologies are out to replace them permanently.

8.5. Language and content related Challenge

Languages is one of the main barriers for the development of digital education in India, there are several different languages in different state have been spoken all across country, pushing all the digital content in all these regional languages some time becomes difficult for the agencies.

8.6. Insufficient funds

Digital education involves effective and efficient usage of appropriate and latest hardware and software technology available in the market. In developing countries like India, digital technology implementation into education systems is a difficult task as it requires huge funds and infrastructure. Through Digital India programme, the government has promised availability of funds for technology implementation but lack or insufficiency of finances leads to redundant and obsolete infrastructure and equipment's in rural schools.

9. SUGGESTIONS FOR PROMOTION OF DIGITAL LEARNING

Digital learning has plenty of advantages for teachers, students and administrates. Teaching and learning can take place whenever and wherever it is most convenient for everyone. At the same time there are certain challenges too of online and digitalized learning. An attempt is being made towards improving Digital learning and for being able to produce more fruitful results in terms of knowledge and learning sharing following should be the focus areas for times to come in near future.

- Modern educational technology is less effective when learning objectives are unclear and the focus of the technology use is diffused. The schools need to convene a technology planning team comprising administrators, teachers, technology coordinators, students, parents, and representatives of the community (community-wide involvement) to determine the educational goals for students and types of technology that will support efforts to meet the goals. The team should also develop a vision of how technology can improve teaching and learning.
- Students cannot be expected to benefit from technology if their teachers are neither familiar nor comfortable with it. Many teachers fall behind their students when it comes to modern technology skills and competences, thus making it difficult to interest, motivate and engage children in conventional lessons. They need to have experience with the technology. Hence it is important to provide professional development to teachers to help them not only to learn how to use new technology, but also how to provide meaningful instruction and activities using technology in the classroom.
- Longer class periods and more allowance for team teaching should be built in the daily schedule. Students may need more than a daily 30- or 40-minute period to find, explore and synthesize material. Thus, more time should be built into daily schedule allowing teachers time to collaborate and work with their students.
- With a potentially powerful effect of media and the growing empirical evidence for negative impact of technology on students, parents should take care to limit exposure to detrimental technology. They should keep a vigil on what content their wards are reading and viewing in the name of online education.
- The government of India should develop network connectivity and electricity in rural or disadvantaged areas for all the students to attend their classes properly.
- The government should be supplying free Wi-Fi for backward areas and also give fund for those parents which are not able to afford a smart phone for their child to taking the online education.

10. CONCLUSION

Digital learning and digitalized classrooms are considered as the vital element in promoting and improving the traditional methods of teaching and learning. So, all schools and universities focus on it, and try to attract more virtual students. So, they apply the most user-friendly software and technology with skillful teachers and engineers to fulfill this aim. In fact, digital classes transform the education process, and cause universal interactivity between teacher and learners as well as among learners themselves, all around the world. This global interactivity causes mutual understanding between teacher and learner, and among the learners. It also causes more adjustability of materials and methods, which are used in the process of education. So different educational organizations enter a competitive situation for promoting their materials and methods and the result is the improvement of learning and educational process.

Digitalization has no doubt changed our education system, but we cannot say that it has diminished the value of our old-time classroom learning. The best part of digitalization of education in the 21st century is that it is combined with the aspects of both classroom learning and online learning methods. This way the digitization of education in a blended manner can help us to reap the benefits of education in modern era along with protecting or social and moral values and heritage.

11. REFERENCES

1. Kaur, N. (2019). Higher education: Challenges, trends and issues in digitalization. Higher education.
2. Srivastava, P. (2019). The Impact of Digital Technology on Secondary Education. Journal of HR, Organizational Behaviour& Entrepreneurship Development, 2(3), 23-27.
3. N. V. Dneprovskaya, T. A. Bayaskalanova, V. L. Ruposov and I. V. Shevtsova, "Study of Digitization of Russian Higher Education as Basis for Smart Education, " 2018 IEEE International Conference "Quality Management, Transport and Information Security, Information Technologies" (IT&QM&IS), St. Petersburg, 2018, pp. 607-611.
4. Kaur, R., & Singla, S. K. (2019). Performance measurement of higher educational institutions: an empirical study using student's perception. Journal of Management (JOM, 6 (2), 50–57. Retrieved from http://www. iaeme. com/JOM/index. asp50http://www. iaeme. com/JOM/issues. asp.
5. Tian, T., DeMara, R. F., & Gao, S. (2019). Efficacy and perceptions of assessment digitization within a large-enrollment mechanical and aerospace engineering course. Computer Applications in Engineering Education, 27(2), 419-429.
6. https://www.financialexpress.com/jobs/why-e-learning-has-a-promising-future-inindia/19204/
7. https://www.vccircle.com/the-present-and-future-of-indias-online-education-industry
8. https://economictimes.indiatimes.com/articleshow/63000198.cms?utm_source=contentofi nterest&utm_medium=text&utm_campaign=cppst
9. https://www.researchgate.net/publication/320038196_An_Overview_of_MOOC_in_India
10. https://www.class-central.com/report/mooc-stats-2017/
11. https://www.studyread.com/scope-of-online-education/
12. https://www.encyclopedia.com/finance/finance-and-accounting-magazines/onlineeducation   8. https://swayam.gov.in/about
13. https://timesofindia.indiatimes.com/business/india-business/number-indian-internetusers-will-reach-500-million-by-june-2018-iamai-says/articleshow/62998642.cms
14. https://dazeinfo.com/2018/05/07/smartphone-users-in-india-2018-2022-growth/
15. http://www.indiaeducation.net/online-education/articles/advantages-and-disadvantagesof-distance-learning.html