E-Learning: A Revolution in Indian Education Sector

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Abstract - Over the past few years E-learning has come out to be a great challenge in the area of educational technology. However, many technologies in this field have not been able to create a much influential impact. But, at this time I am of the belief that it will certainly bring about a revolution in the Indian education sector. This paper explains the concept of e-learning and also tries to identify the types of e-learning. It also aims at studying the advantages and disadvantages of e-learning along with the necessary pre-requisites for its successful implementation. This paper also reflects upon the idea of blended learning so that the best of both online and traditional learning can be collaborated to reap maximum benefits. In this research paper an attempt has been made to study the present state and future of online education in India.

Key Words - Asynchronous training , E-learning, Internet, Indian education, Synchronous training, Online education, Virtual classroom.

I.   INTRODUCTION

Today, each and every part of our society is changing dramatically and is being touched by technology. Another very vital part of our society i.e. education has also been tapped by the latest inventions and discoveries with the emergence of the concept of E-learning.

E-learning is usually referred to as learning where electronic gadgets are utilized to access educational curriculum outside of a traditional classroom. In most of the cases, it refers to a course, program or degree delivered completely online. E-learning can also be defined as a combination of learning services and technology to provide high values[1].

E -learning is any technologically mediated learning using computers whether from a distance or in face to face classroom setting (computer assisted learning), it is a shift from traditional education or training to ICT-based personalized, flexible, individual, self-organized, collaborative learning based on a community of learners, teachers, facilitators, experts.

E–learning can also be defined "as acquisition of knowledge and skill using electronic technologies such as computer and Internet based courseware and local and wide area networks" [2].

This term was first introduced in 1995. At that time it was calles as "Internet based Training". Then it became "Web-based Training" , then "Online Learning" and finally E-learning.

E-Learning is basically an approach to instruction and learning that utilizes information and communication technologies to communicate and collaborate in an educational environment. It also encompasses includes technological expertise that supplements traditional classroom training with web-based components and learning environments so that the educational process can be experienced online [3].

E-learning sector is expected to grow rapidly at a CAGR of 17.4 per cent between 2013 and 2018. To put things in perspective the market in India is predicted to grow more than twice as fast as the global average of 7.9 per cent [4].

India is a young country on the move. More than half of the country's population is under 25 years of age and every year 10 million people join the workforce. India already has one of the largest education systems in the world. The country has 1.4 million schools, 35,500 colleges, and 600 universities. Right to Education is the primary right of every citizen of India.

Internet penetration and availability of low cost mobile devices has brought about a revolution in the education sector in India. Moreover technology has the potential to multiply it's reach. Therefore E-learning has become one of the most prominent and effective tool for the growth of educational sector in India.

II.   LITERATURE REVIEW

One of the operational definition of e-learning as given by f Laurillard's (2006) states that e-learning is the use of any of the new technologies or applications in the service of learning or learner support [5]. Another way of defining E-learning is making use of a computer to deliver part, or all of a course whether it's in a school, college, part of training or a full distance learning course. E-Learning is basically making use of electronic technologies to gain access to educational curriculum outside of a traditional classroom. In most cases, it refers to a course, program or degree delivered completely [6]. E-learning can also be described as learning that is delivered online, via the internet, ranging from Distance Education, to computerized electronic

learning, online learning, internet learning and many others forms [6]. E- Learning means delivery of education with the aid of any electronic media such as networks (internet, intranet and extranet), TV, satellite and radio broadcast, audio/video tapes and cassettes, CDs and DVDs etc. As such E- Learning can be used to describe in-classroom or out of classroom learning [7]. E- Learning applications and processes include Web-based learning (WBL), computer-based learning (CBL), virtual education opportunities and digital collaboration [7].

OBJECTIVES OF THE STUDY

Following are some of the objectives of the study:
- To understand the concept of E-learning.
- To study the types of E-learning.
- To examine the benefits and advantages of E-learning.
- To identify the limitations and disadvantages of E-learning.
- To identify the prerequisites for successful implementation of E-learning.
- To recognize the benefits of traditional learning and reflect upon the idea of blended learning.
- To reflect upon the current state and future of E-learning in India.

III.   RESEARCH METHODOLOGY

This research paper is conceptual and exploratory in nature. In order to meet the objectives mentioned in the paper a thorough study of secondary data was done. For this purpose various books, periodicals, journals and other such published material related to E-learning was referred.

CURRENT STATE OF E-LEARNING IN INDIA - ROLE OF GOVERNMENT AND CORPORATES

Digital India campaign is likely to benefit education by bringing in contemporary classroom learning together with live instructions, video content delivery, student to- student interactions via videoconferencing, remote test administration, up-to-date materials, self-learning etc.

Even as the previous government tried to bridge the digital divide, Modi's masterstroke offered a lot of positivity for the Indian education market which is estimated to be worth Rs 5.9 trillion in 2014-15 against Rs. 3.33 trillion in 2011-12 [8].

Almost half the population of India is below the age of 25. The penetration of internet and mobile devices is expected to reach 250 million soon and is expected to give a tough competition to US and second only to China. As a result India has a huge market for e-learning.

The Indian corporate sector that is having a strong hold on tech world such as Intel, Qualcomm and Tata are also making enormous strides in this direction. For e.g.

Intel recently launched **'Digital Skills for India'** initiative under which it introduced Digital Skills Training Application that is comprised of modules on Digital Literacy, Financial Inclusion, Healthcare and Cleanliness in five Indian languages [9].

Qualcomm has launched **Play 'n' Learn** program for school children between the age group of 5-8. It is providing 3G tablets under the Qualcomm wireless reach initiative [9].

Similarly, **Samsung** recently started with a **Smart Learning Initiative** to provide interactive study materials to students [9].

Tata is also expanding its school education solution, 'Classedg' [9].

Reliance has picked up over 38.5 per cent stake in digital education company, Extra marks Education Private Limited, through its subsidiary, Infotel Broadband Services Limited [9].

Government owned enterprise **BSNL** has tied up with Grey cell 18 Media Private Limited, to launch its online education service 'Topper Education' [9].

Other noteworthy names in this segment include the likes of **Data Wind, Merit nation, and Class teacher** [9]**.**

Even some of the **e-commerce players** have expressed their willingness in this segment.

It is quite evident that if e-learning/education market takes root in the country, it will definitely improve the education scenario which urgently needs a complete overhaul.

Even the government is in strong support of e-learning and the **Department of Electronics and Information Technology (Deity)** has been actively developing tools and technologies to promote it.

IV.   TYPES OF E - LEARNING

1. Synchronous training: means "at the same time," involves interaction of participants with an instructor via the web in real time.

a. Virtual classroom: Virtual classroom duplicates the features of a real classroom online. Participants interact with each other and instructors online with the help of instant messaging, chat, audio and video conferencing etc.

2. Asynchronous training: which means "not at the same time," allows the participants to complete the web based training at his own pace, without live interaction with the instructor [10].

a. Embedded learning: Embedded learning is information that is accessible on a self-help basis, 24/7. It can be delivered to the place of work, or to mobile learners. Electronic performance support system (EPSS) is a type of

embedded learning. Its advantage is that it offers learners the information they need whenever they need it [11].

b. Courses: The obvious advantage of a self-paced course is convenience. Participants can get the training they need at any time. This can include just- in- time training where a learner gets exactly the training he or she needs to perform a task.

3. Discussion groups: A discussion group is a gathering of conversations that occur over time. They are also called as message boards, bulletin boards and discussion forums. Discussion groups can be used to support a group of participants taking the same class or can be used to support participants performing related tasks. A discussion group is a very competent way to supply expert answers to a large group of people. A single answer to a common question can help many learners at the same time.

4. Blended learning: Most companies prefer to use a mix of both synchronous and asynchronous e-learning methods according to their requirement.

PRECONDITIONS TO MAKE E-LEARNING MORE EFFECTIVE

Following are the pre-requisites for improving the effectiveness of E-learning programmes:

- Provision of hardware facilities like computer systems. Availability of hardware (particularly computers).
- Availability of faster internet connectivity/improved bandwidth.
- Superior software.
- Suitable policies favoring e-learning.
- Availability of technical support for e-learning.
- Reduced prices for connectivity.
- Provision of reliable electricity.
- Suitable content in a variety of languages.
- Rising awareness about the significance of e-learning.
- Better training for teachers in e-learning at all levels.

BENEFITS OF E-LEARNING

E-learning is a flexible platform where it removes the barriers such as age, place, qualification, customs, and values of a person. E-learning gave a new dimension in today's education system to improve the quality of knowledge [12]. E-learning offers following benefits to the learners and instructors:

- E-learning is vital for education as it can improve the quality of the learning experience, and extend the reach of every lecturer and instructor.
- It can help in removing barriers to achievement, by providing new and creative ways of motivating and engaging people.

- It enables and inspires learners with all types of abilities to attain their educational potential.
- Another benefit of E-learning is that it can support learning by offering differentiated learning, particularly for those who need support in literacy, numeracy and information communication technology.
- It also offers a variety of tools to enable teachers and learners to be innovative, creative and resourceful in all learning activities.
- It enables teachers as well as learners to customize digital learning resources to suit pace and level, appropriate to any learning style and ability.
- E-learning creates on-line communities of practice so as to bring learners, teachers, specialist communities, experts, practitioners and interest groups together to share ideas and experiences.
- E-learning provides individualized learning experiences for all types of learners, including those who are disadvantaged, disabled, exceptionally gifted, have special curriculum or learning needs or who are remote or away from their usual place of learning.
- E-learning facilitates wider participation and fairer access to further and higher education by creating opportunities so that the learner can choose a course according to his or her needs.
- It also facilitates personalized learning support through information, advice, and guidance services.
- E-learning provides virtual learning worlds where learners can take part in active and creative learning with others through simulations, role-play, remote control of real-world tools and devices, online master classes, or collaboration with other education providers.

ADVANTAGES OF E-LEARNING

Following points cover the advantages of E-learning courses:

- Through E- learning the learner can access the course content as well as learning material 24x7.
- A learner develops stronger understanding of the course because it makes use of multimedia, quizzes etc.
- The trainer has the option of replay if something is missed.
- It helps in saving time as well as training cost.
- E- Learning enables the students to improve their performance.
- E- Learning enables trainee and trainer to interact online.
- Learners have the option of selecting learning materials so that they can meet their level of knowledge and interest.

- It helps in developing knowledge of internet.
- With the help of E-learning learners can develop computers skills that will help them throughout their lives and careers.
- It provides more flexibility to a student to do his coursework and manage his work schedule as well as family life rather than needing to attend a 9:00am class every week.
- It also enables students to speed up their course. Instead of having to attend classes for 16 weeks, students can enroll in 8-week online courses and spend half the time earning the credits in that subject.
- E-learning allows access to more colleges. A student can take a specialty program at a college thousands of miles away without the inconvenience of actually going there regularly and attending classes.
- Students have the benefit of saving their commuting time on a daily basis just to attend classes and need not get stuck in traffic jams etc.

DISADVANTAGES OF E-LEARNING

Even though E-learning has many advantages, it is equally important to note that there are few disadvantages also. Some of them are as follows:

- E-learning requires consistent motivation on part of the learner. Unmotivated learners or those with poor study habits may fall behind.
- Lack of familiar structure and routine may take some time in getting used to it.
- It is quite possible that students may feel isolated because they miss social interaction.
- Trainer may not always be available on demand of the learner.
- At times slow or unreliable internet connections can act as a limiting factor.
- Managing learning software can be challenging at times.
- It is quite difficult to simulate some traditional hands-on courses.
- Tech-savvy students will always be having advantage over non-technical students.
- At times the instructor may have lack of knowledge and experience to manage virtual teacher-student interaction.
- Asynchronous communication hinders fast exchange of question.

LIMITATIONS OF E-LEARNING

Following concerns act as limiting factors to E-learning:

- **Computer literacy and access to equipment:** One of the major limitations of E-learning that the trainer as well as student should be computer literate. He/she should have access to computer equipment.
- **E-Learning is not suitable for all topics:** Topics that require physical exertion and practice, such as sports and public speaking, are not covered in e-learning. However, e-learning can be a used alongside traditional education for teaching background and technical information in some subjects.
- **Learners' motivation can be a limitation to E-learning:** A student who studies on E-learning program should be self-motivated and disciplined so as to concentrate on his study.

BENEFITS OF TRADITIONAL LEARNING OVER E-LEARNING

- Traditional learning classes have been found to be more suitable for young children, teenagers, and young adolescents who are yet to join the workforce. This is because regularly attending the classes will help them to interact with other individuals of their own age, be more disciplined, follow a regular schedule, and improve their physical fitness and mental alertness.
- Classroom or traditional learning gives an opportunity to the students and teachers to know each other in a better manner. This further helps the teachers to know the students and evaluate their strengths and weaknesses better. Teachers can also act as mentors, and guide students in their career possibilities.
- In most of the cases books and classroom notes are very useful for studying and passing the exams. Having an understanding of the question and answer pattern, along with relevant suggestions provided by experienced teachers, learners can find it more helpful to learn than when using generalized online notes and suggestions available on the internet.
- In classroom learning there is a continuous interaction between students and teachers. This helps the students to get rid of their examination fears, which can rarely happen with online learning.
- Moreover, interaction with good teachers helps as a great source of motivation to students to achieve higher marks and to progress in their careers.

V. THE "BLENDED LEARNING" MODEL

Even though online courses have become extremely popular and more and more institutes and companies are offering such courses, a large number of people are still vary of such methods due to some misconceptions.

On the other hand traditional classroom training is fighting back and trying to adopt newer means of retaining learners' interest due to the rising popularity of online courses;

As always there are two sides of a coin. For some individuals, online training is more appropriate, while for others classroom training is the preferred delivery method.

So, in order to get the best of both worlds the concept of **"blended learning"** is increasingly becoming popular.

In this concept, curriculum is designed to implement both traditional, in-person learning and online learning. Its implementation can vary greatly, depending on the subject and instructor. One of the example may be where instructors are required to meet only once in a week for lectures, while assigning projects or other activities for students to complete online according to their own time. As a result of this students will be able to receive some of the positives from face-to-face social learning while still allowing for scheduling flexibility.

Another example would be a program that offers some courses on campus and others online. The idea here is that certain courses involve material that is conducive to online learning, while other lessons can only be taught in a physical classroom or lab.

FUTURE OF E- LEARNING IN INDIA

With the rapid growth in economy and globalization, education in India is no longer just a teacher talking to a bunch of students in a classroom. In India there are more than 370 million internet users and hundreds of local as well as global business leaders are willing to invest in the area of online education. In fact, the e-learning market in the country is estimated to be worth more than $3 billion.
At present India is the third largest online market for education in the world. This enables people to take better advantage of the resources available online.

According to a report titled as **"Online Education in India: 2021",** which is based on a comprehensive market research conducted by **KPMG**, along with a primary research and combined with insights from **Google** search following are some of the important findings [13] :

- Online education in India is expected to become a $ 1.96 billion industry by 2021.

- The report finds that from 1.6 million paid users in 2016, the same may grow by 6 times in 2021 and expected to reach about 9.6 million users.

- According to report, in last two years, online searches have grown by double and searches from mobile devices have seen a three times growth.

- Out of total education searches, 44% are now coming from the top 6 metros and education content consumption on YouTube has seen a 4 times growth in last one year.

- Highlighting the segment wise growth in the online education space, the report highlights that reskilling and online certification is currently the largest. In 2016, it was valued at USD 93 million, and is expected to grow at a CAGR of 38% to reach 463 million by 2021.

- As per the report, the primary and secondary education category has the largest addressable audience with a student base of around 260 million when compared to the other categories. Owing to this, the primary and secondary supplementary education segment was the second largest category in 2016, and will grow at a CAGR of 60% to reach $773 million, making it the largest category in 2021.

- The online education segment is set to become a multi-billion dollar opportunity in India. There are many factors driving this growth including: the perceived convenience, increased reach and personalization offered by online channels.

- It is also interesting to note, that high growth in education search queries is now coming in from Tier 2 and 3 cities such as Patna, Guwahati, Aligarh and Kota – which points to the opportunities that growing penetration of smart phones and improving quality of internet have opened up.

- Another revelation is that there are several **evolving trends** in the Indian online education segment that are contributing to the growth opportunities ahead. **These include**: emergence of hybrid learning channels, continuous need for working professionals to learn new skills as well as emergence of technologies such as big data and artificial intelligence that is enabling online education vendors to design customized content. At the same time, it will be critical for players to deliver differentiated offerings for consumers to see continued value in online education channels.

- According to KPMG report, online higher education in India is at an early stage of development and has witnessed emergence of different private universities offering UG and PG e-learning courses to students. However, as compared to graduation and diploma courses, the demand for online higher education is dominated by post-graduation courses such as MBA and MCA.

- According to the report, tier 1 cities have higher adoption of different types of PG courses such as MBA, MCA, M. Tech, and B. Ed/ M. Ed. However, in tier 2 cities there is a high demand for only those courses that can offer lucrative job opportunities to students such as MBA and MCA.

According to a recent analysis of Coursera, the world's largest online education provider 1.3 million users are from India out of 18 million registered learners. Increasing

interest in flexible, career-relevant online courses has resulted in a considerable rise in new registrations in India of 70% over the past 12 months. **As per the survey India is the third largest market for online learning after US and China.**

VI. CONCLUSION

26% of India's total population is still illiterate and e-learning can prove helpful to reduce the illiteracy as the advancement in technology and communication has made teaching and training possible anywhere, anytime[14].

It is quite evident that E-learning is emerging as the future of education in India. With E-learning the scope of education has become far wider. It is no longer restricted to the prescribed curriculum only. Till now we used to talk about boundary less organizations but now we can also think about borderless education. Online learning will enable learners to get access to a world class learning experience just at the click of a button. This was simply not possible with traditional education due to financial and other physical restraints. Students suffering from physical and mental disabilities can also take advantage of this opportunity by enrolling themselves in online courses so as to continue their education and build their careers.

It can be concluded that E-learning is one of the massively growing field in Indian educational and training system. Even though both, traditional learning and e-learning have their own relative advantages and disadvantages so the best option is to harvest the benefits of the two and adopt a blended learning model so that we can improve the knowledge of students as well as the quality of education.

Moreover the scope of E-learning can also be explored in the field of medicine, banking, engineering, communication etc. so as to build a learner centric platform and open up more career opportunities for students.

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