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## E-LEARNING- AN EMERGING FRONTIER IN INDIA –A BRIEF REVIEW

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**“together we can and we will make a difference”**

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### ABSTRACT

Electronic learning (or e-Learning or eLearning or computer based learning or digital learning) is a type of education where the medium of instruction is computer technology. No in-person interaction may take place in some instances. E-learning is used interchangeably in a wide variety of contexts. So, it is a type of learning that is facilitated by technology or by instructional practice that makes effective use of technology. E-learning occurs across all learning areas and domains. It encompasses the application of a wide spectrum of practices including: blended and virtual learning.

Digital learning today is where smart phones were a decade ago. Adoption is taking hold, and the technology has proven its value along some dimensions. We are on the frontier. We can see new possibilities in front of us still more possibilities are beyond our imagination. A decade from now, capabilities we currently think of as emerging and others that we can barely imagine will be as ubiquitous as the smart phone is today.

**Keywords:** E-learning, computer, technology etc.

### INTRODUCTION

E-learning can be CD-ROM-based, Network-based, and Intranet-based or Internet-based. It can include text, video, audio, animation and virtual environments [4]. It can be a very rich learning experience that can even surpass the level of training you might experience in a crowded classroom. It's self-paced, hands-on learning. The quality of the electronic-based training, as in every form of training, is in its content and its delivery.[1,3] E-learning can suffer from many of the same pitfalls as classroom training, such as boring slides, monotonous speech, and little opportunity for interaction. The beauty of e-learning, however, is that new software allows the creation of very effective learning environments that can engulf you in the material. [9]

A digital learning strategy may include any of or a combination of any of the following:[15,18]

- adaptive learning
- badging and gamification
- blended learning
- classroom technologies
- e-textbooks
- learning analytics
- learning objects

- mobile learning
- personalized learning
- online learning (or e-learning)
- open educational resources (OERs)
- technology-enhanced teaching and learning
- virtual reality

E- Learning is "learning facilitated by technology that gives students some element of control over time, place, path and/or pace." [7,8,9]

- **Time:** Learning is no longer restricted to the school day or the school year. The Internet and a proliferation of Internet access devices have given students the ability to learn anytime.
- **Place:** Learning is no longer restricted within the walls of a classroom. The Internet and a proliferation of Internet access devices have given students the ability to learn anywhere and everywhere.
- **Path:** Learning is no longer restricted to the pedagogy used by the teacher. Interactive and adaptive software allows students to learn in their own style, making learning personal and engaging. New learning technologies provide real time data that gives teachers the information they need to adjust instruction to meet the unique needs of each student.

- **Pace:** Learning is no longer restricted to the pace of an entire classroom of students. Interactive and adaptive software allows students to learn at their own pace, spending more or less time on lessons or subjects to achieve the same level of learning.

E- learning is more than just providing students with a laptop. E- learning requires a combination of technology, digital content and instruction.[7,8]

- **Technology:** Technology is the mechanism that delivers content. It facilitates how students receive content. It includes Internet access and hardware, which can be any Internet access device – from a desktop to a laptop to an I- Pad to a smartphone. Technology is the tool, not the instruction.

- **Digital Content:** Digital content is the high quality academic material which is delivered through technology. It is *what* students learn. It ranges from new engaging, interactive and adaptive software to classic literature to video lectures to games. It isn't simply a PDF of text or a PowerPoint presentation.

- **Instruction:** Educators are essential to digital learning. Technology may change the role of the teacher but it will never eliminate the need for a teacher. With digital learning, teachers will be able to provide the personalized guidance and assistance to ensure students learn and stay on track – throughout the year and year after year – to graduate from high school. Teachers may be the guide on the side, not the sage on the stage.

E- learning technologies can enable students to grasp concepts more quickly and fully, to connect theory and application more adeptly, and to engage in learning more readily, while also improving instructional techniques, leveraging instructor time, and facilitating the widespread sharing of knowledge. Digital technologies will enable this in new and better ways and create possibilities beyond the limits of our current imagination

#### **Proven benefits to learners and educators [2,5]**

Even in the current, nascent period, digital technologies have already proven benefits to learners and educators.

#### **Digital learning technologies help students:**

- **Learn more efficiently:** Digital assessments offer students rapid feedback on their understanding, allowing both students and instructors (who can access this information) to concentrate their efforts on where further understanding is most needed. Adaptive hinting, which provides guidance to incorrect responses, corrects misperceptions immediately and helps students to figure out problems real-time.

- **Learn more fully:** Rapid assessment, simulations, visualizations, games, annotation technology, and videos with multiple instructors provide a richer learning environment toward a fuller understanding of concepts. Annotation technologies, discussion boards, and online support provide additional forums for discussion, debate, conjecture, and edification.

- **Learn with mastery:** The ability to pace learning to one's preference, to review material, and to be assessed on a section before moving to another leads to mastery learning.

- **Learn the best way:** Active engagement, hands-on experiences, discussions and flipped classrooms allow students to experience learning that applies best practices and directly employs current theories of learning.

- **Learn anytime, anywhere:** Asynchronous classrooms allow students to "go to school" where and when they are most ready to learn. This helps graduate student's access advanced information needed for their thesis research when they need it. It gives flexibility to undergraduates to study abroad or pursue an internship. And, it allows lifelong learners to continue to pursue an education, while meeting work and family commitments. Digital learning makes education more accessible and affordable to students on campus and also worldwide.

#### **Digital learning technologies help instructors:**

- **Leverage time better:** Digital learning provides quick feedback to instructors on where students are struggling, allowing teachers to provide additional instruction and answers to common questions, either online or in person. Automation eases or eliminates routine grading, freeing course teams to spend more face-to-face time with students.

- **Spread knowledge widely:** Digital platforms allow instructors to reach more students, often by orders of magnitude than via on-campus courses. Instructors can disseminate new ideas more quickly, touching more people and impacting more lives.

- **Engage a worldwide audience:** Digital platforms allow instructors to meld worldwide participants into campus teaching, creating global conversations resulting in richer teaching experiences, from architecture and entrepreneurship, to climate change and innovation, and beyond.

- **Build learning modules quickly:** Digital learning empowers instructors to build courses using the best content previously developed by other

instructors and colleagues, whether within the same department, or even at other institutions. This “digital abstraction” for modular learning content is the real meaning behind the “digital” of digital learning.

- **Improve instructional techniques:** Through evidence-based research, instructors can measure how people learn most effectively and respond with scientifically grounded strategies for educating students.

#### **Future Possibilities[14]**

We are excited about the implications of digital learning. Early results show benefits to students and to faculty, and students really like the immediate feedback that digital learning enables.

To raise new questions, a new possibility, to regard old problems from a new angle, requires imagination and marks real advance in science. --Albert Einstein

We can envision and are actively developing further improvements to digital learning technologies: richer assessments, more nuanced feedback, customized pathways, increased modularity, more sophisticated simulations, enhanced peer interaction, and many other possibilities. Still more exciting are those advances that we have yet to imagine, and that will revolutionize teaching and learning.

One thing is certain: change is upon us. We choose to meet this challenge directly, to seize the opportunities it presents, to build a better way to learn and - by doing so to create a better future for students and instructors at MIT and beyond.

#### **E-Learning: Potentials, Barriers and Innovation [11,13,18]**

There are many different approaches which aim to define e-learning. The concept is also often criticized, and many authors try to replace it with alternative concepts. Other authors simply list possible learning arrangements, which are understood as forms of e-learning. In this paper an analytical, but perhaps not fully comprehensive, definition of e-learning is applied. E-Learning describes a group of learning arrangements, which are characterized by the use of modern information and communication technologies in particular personal computers (or other/newer electronic end user devices) and the Internet.

There are, of course, some e-learning arrangements, which do not necessarily require the Internet, for instance the so-called computer based learning, where learners use specially designed learning software without connection to the Internet. However, Internet connection is crucial, when

discussing the benefits and potentials of e-learning in general terms and more particularly in the context of rural development.

#### **Hurdles for E-learning in India**

Followings are major hurdles for e learning in India

1. Students are usually economically backward and cannot afford personal computer and the present infrastructure lacks an easy access to computing facilities.
2. Even if the end user facility is provided, the Bandwidth in rural areas or even towns is extremely scarce and it is a usual experience in small Indian cities and towns that a file of even a few MBs takes a substantial time to download. Typically, the video lectures available publicly run into a few MBs and require an efficient adaptive streaming strategy.
3. The students usually communicate in their local languages and can understand bits or pieces of English and cannot completely catch the flow of the video lectures that are being downloaded.

#### **Potentials of E-Learning**

The application of modern technological devices in particular personal computers, and thus with progressing technological development mobile phones, media players, game consoles and tablet PCs offers two major advantages for education and teaching.

Firstly, it allows a scope of different media (text, pictures, graphs, audio files, movies) to present learning content to the students. Secondly, in connection with standard or special software the students may actively use such content, modify it and therefore create new content. Internet connection allows easy access to a huge amount of information, both for teachers and learners, and it provides the infrastructure for various forms of communication at a distance via email, online chatting, as well as audio and video conferencing. Web applications that facilitate interactive information sharing, social networking, collaboration and user-centred software. Thus, the advantages of e-learning are seen in the potential to overcome existing barriers

**Time barriers-:** Reducing the time it takes to access learning materials; solving time conflicts through a synchronic communication, using technologies to change the flow of time (time lapse, slow-motion).

**Spatial barriers-:** The connection of learning communities and learning objects independent from their location. Contact of or between experts in distant

locations. Study locations without travelling. The application of techniques and experimentation in virtual spaces.

**Analog digital barriers-** Combining any text, audio, video and animation. Animating learning content, exploring and modifying learning objects, understanding, practicing and constructing without changing the device.

**Norm barriers-** Being a parent, employment or physical handicaps are no barriers to participate in training courses. Shifting role of learners from pure consumers to active co producers of learning content.

Such potentials have formed the basis for great enthusiasm about the future of e-learning, particularly at the beginning of this decade. Undeniably, there is has been a steady increase in the use of e-learning in various contexts. However, the adaptation of e-learning has been moderate at least in comparison to early expectations, and differs between regions and industries, early enthusiasm has been replaced by greater, yet still optimistic realism. Realism offers a better understanding of e-learning didactics as well as practicalities that are connected with the e-learning designs.

A number of benefits can be obtained through the use of E-learning:

- Increase in conceptual understanding through the use of interactivity and animation and through the use of audio and visuals Lower-cost
- Ease of distribution
- Ease of updating
- Learners can learn at one's own pace and time.

### **The Adaptation of e-Learning [18]**

The diffusion of innovations, such as e-learning, is always a complex communicative process. The rate of adaptation - that is the relative speed with which an innovation adopted by members of a social system- is determined by many groups of variables, such as the perceived attributes of an innovation, the type of innovation decision (optional, collective, authority), the communication channels through which the innovation is communicated (e.g. mass media, interpersonal), the nature of the social system (e.g. norms, degree of interconnectedness) and the extent of change agents' promotion efforts those aspects is far beyond the scope of this report. Respecting this, only a few selected aspects of this process are discussed in the following passages with regard to e-learning, ones which are particularly relevant as far as rural areas are concerned.

### **Relative Advantage**

Relative advantage is the degree to which an innovation is perceived as being better than the idea it supersedes.

In economic terms relative advantage can be expressed as the relation of benefits and costs.

The initial costs of e-learning for the learner are:

1. Hardware and software costs;
2. Costs and possibility of (broadband) Internet access;
3. Learning costs to use computers/ adaptation to learning platforms, etc.;
4. Costs of learning (Course fees, opportunity costs, etc.).

E-learning providers are also confronted with considerable costs that impede the adaption process, such as:

Costs of producing software, multimedia content and managing learning platforms are substantial. A major issue is the often-limited recyclability of learning objects and learning scenarios; then if learner groups are small, return on investment may be insufficient.

**Training of trainers:** e-learning requires special pedagogical and technical skills. Markets of e-learning also suffer from transaction costs and biases. Further, providers are also confronted with the problem of free riders . It is difficult to prevent the free use of teaching modules or teaching content. Providing teaching contents for diffuse user groups, such as small enterprises, is thus a problem of collective action (Laschewski, 2009).

### **Complexity**

Many studies have revealed the issue of pedagogy and e-learning didactics as critical. E-learning does not simply mean to replacing or replicating traditional classroom learning. Research on effects of multimedia has been characterised by inconsistent findings; this is because of the myriad of contingent factors that have been shown to moderate multimedia effects. Research in the field cognitivism stresses the importance of cognitive processes and individual learner characteristic. A major constrain of multimedia learning is seen in the limited capacity of the working memory. For instance, is obvious that too a large extent e-learning success is dependent on the users experience with learning platforms and previous knowledge. For learners with little experience a tight user control might be useful. However, a tight user control of more experienced learners may become an impediment for the learning success. Also, research

on how people process audio-visual information has highlighted many complexities “with half the studies showing that redundant audio and video channels improve retention of information and half showing redundancy impedes retention” To cope with such contingencies Hede (2002) has suggested an integrated model that comprises the following elements:

1. Multimedia input (visual input, auditory input, learner control);
2. Cognitive processing (attention, working memory);
3. Learner dynamics (motivation, cognitive engagement, learner style);
4. Knowledge and learning (intelligence, reflection, long-term storage, learning).

Without going into detail it becomes apparent that this model suggests that e-learning providers only have a limited influence on multimedia learning success. E-Learning providers have to include learners’ characteristics into the design of the learning platform and the selection of media content. The production of compelling multimedia material requires specific technical, but also pedagogical skills, which is often not achieved. In practice, “e-learning materials remain essentially text based. As such they do not provide a compelling learning environment is often dull and inappropriate for learners”.

Despite its potential to give concrete recommendations for design principles for e-learning and the use of specific media elements, cognitive theories of learning have been criticised on many grounds

Firstly, cognitive theories tend to ignore learner’s motivation or treat it as given. Secondly, cognitive theories focus on memorising more or less given informational facts. In e-learning practice this is connected with a focus on presenting material.

Based on this “social theory of learning” Wenger proposed four dimensions of educational design:

1. **Participation and reification:** how much to reify learning, its subject and its object.
2. **The designed and the emergent:** the relationship between teaching and learning is not one of simple cause and effect.
3. **The local and the global:** educational experiences are connected to other experiences.
4. **Identification and negotiability:** there are multiple perspectives on what an educational design is

about; its effect on learning depends on inventing identities of participation .

## OBJECTIVE OF THE STUDY

The main objective of this study are to make E-learning more beneficial for India especially for rural areas. For this the following factor must be kept in mind

- E learning lecture should be more understandable.
- E learning material should be Open source so that everybody can access it
- Use of audio and visuals
- Ease of distribution

E-learning has become a great teaching tool in this current technological society. As more and more contents are developed they will become more effective with proper multilingual support. In this Paper we have seen importance of E-learning and proposed Methodology for E-learning with regional language. This Research has a lot of scope for future development. Features like ability to capture videos for making presentation, Support for many different languages templates for presentation, video transition effects and many more such functionalities can be implemented in the later versions of the software.

## CONCLUSION

### E-learning in India

With a population in the learning age group of 18-32 of roughly 350 million, the country's educational infrastructure like schools, colleges, labs and even roads leading to schools have hardly kept up. Yet there is a far bigger problem that affects the quality of education in our country. Teaching as a profession is a choice of few young men and women. As a result there is an acute shortage of good teachers in our country. Often inexperienced, not so competent teachers are employed many a times with poor quality of teaching. In India, a majority of population lives in non-urban setup where the educational infrastructure and resources are usually meagre and scanty. There has been a phenomenal rise in the number of engineering colleges in India over the past decade or so. E-learning techniques like video lectures can be very beneficial for students in rural educational institutions as they can provide the students the exposure to the best education in the world. Many institutes have opened their web servers for free lecture-on-demand for several courses.

**E-learning- An emerging frontier**

Think back 10 years ago, smart phones were gaining traction, as phone, email and calendaring technology were beginning to converge, eliminating the need for paper address books and enabling new connectivity. GPS devices and digital cameras were emerging but still cumbersome, rudimentary, distinct instruments. I- Pods had a firm foothold, and were beginning to miniaturize and incorporate tertiary features. Access to the internet still required a computer. Siri, Twitter, Snap chat, Fit bit, Face time, and NFC payments were, at best, fantastical musings of the average consumer, and often the stuff of science fiction

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