



## E-Learning: Development and Its Implementation in Education

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### Abstract

E-learning systems are widely used from academia to industry. The usage of e-learning systems raises new research contexts. Multiple collaborative learning systems were implemented to improve people interaction, communication, coordinating activities, socializing, and learning. E-learning systems play a significant role in the learning activities. This paper presents a critical literature review on e-learning systems. With the arrival of web technology, distance learning by electronic means is becoming popular. E-learning is different from conventional face-to-face classroom teaching. It is a new way of teaching and learning. This paper highlights ways to make E-Learning a success. Intentional use of electronic media and Information and Communication Technologies (ICT) in the teaching and learning process (Naidu 2006) is referred to as e-learning, where e denotes electronic. It can also be described by many other terms including online learning, virtual learning, distributed learning, network and web-based learning. E-learning includes all educational activities carried out by individuals/groups working online/offline and synchronously/asynchronously through network/standalone computers and electronic devices.

**Keywords:** Education Technology, E-learning, online learning, computer devices, Internet

### INTRODUCTION

E-learning has many interpretations but in short, it stands for learning by electronic means. This means learning not directly from lecture notes, books or face-to-face from the teacher but through electronic means. Common forms are computer-based training and web-based lessons or online lessons. With the advent of advanced technology, lessons may be taken anytime anywhere. These lessons can be made more interesting using multimedia i.e. combination of text, graphics, sound and animation. Lessons can be delivered to the learner via various means e.g. PC, PDA, mobile phone and TV. E-learning can be further categorized into formal lessons, which are structured, and informal means e.g. discussions, e-mail etc. The much talked about life-long learning through E-Learning includes both types of learning to help solve performance problems. The Internet has become one of the vital ways to make available resources for research and learning for both teachers and students to share and acquire information (Richard and Haya 2009). Technology-based e-learning encompasses the use of the internet and other important technologies to produce learning materials, teach learners, and also regulate courses in an organization (Fry, 2001). There has been extensive debate about a common definition of the term e-learning. Existing definitions according to Dublin (2003) tend to reveal the specialization and interest of the researchers. E-learning as a concept covers a range of applications, learning methods and processes (Rossi, 2009).

### Benefits of E-learning

Whether you are a teacher looking to engage your students in a more interactive way, or a corporate trainer hired by a large company to design training curricula, e-learning packs a punch when it comes to benefits that make the creation and delivery processes easier and hassle-free. Important benefits are outlined below:

- **No Boundaries, No Restrictions:** Along with locational restrictions, time is one of the issues that learners and teachers both have to face in learning. In the case of face-to-face learning, the location limits attendance to a group of learners who can participate in the area, and in the case of time, it limits the crowd to those who can attend at a specific time. E-learning, on the other hand, facilitates learning without having to organize when and where everyone interested in a course can be present.
- **More Fun:** Designing a course in a way that makes it interactive and fun through the



use of multimedia or the more recently developed methods of gasification (further discussed in later chapters) enhances not only your engagement factor but also the relative lifetime of the course material in question.

- **Cost Effective:** This is directed to both learners and teachers, but there is a good chance that whatever your role you had to pay exorbitant amounts of money at some point to acquire updated versions of textbooks for school or college. While textbooks often become obsolete after a certain period, the need to constantly acquire new editions is not present in e-learning.
- **It Just Fits:** As companies and organizations adopt technologies to improve the efficiency of day-to-day operations, the use of the Internet becomes a necessity. As multinational corporations expand across the globe, the chances of working with people from other countries increase, and training all those parties together is an issue that e-learning successfully addresses. And that is a great advantage of online learning!
- **Let's blend all of that and apply it in a real-life scenario:** To enhance the credibility of course material, oftentimes a professor will summon a field specialist to give a lecture relevant to the topic at hand. In the traditional model of education, the professor would have to extend an invitation to said expert and incur the costs of his flight, stay and training.
- **With e-learning:** With e-learning, the professor can host a guest lecture without having to spend much money. It can be done virtually, with cameras for both the lecturer and the students, and with the use of microphones to facilitate the same level of interaction that would be possible if the lecturer were physically present in the room. The added benefit comes in when we can replay the lecture and gain even more out of it. Students who missed out can view the recording, or students who attended can watch it again to further their understanding.
- **Concerns that arise with E-learning:** Even given all the benefits of e-learning, one cannot deny there are some drawbacks. A good example of a disadvantage of online learning is that practical skills are somewhat harder to pick up from online resources. For example, although building a wooden table is something you can easily share information about, record videos of and explain, the practical experience is essential. Pottery and car engineering are examples of skills that require hands-on experience.
- **Isolation:** Though e-learning offers ease, flexibility and the ability to remotely access a classroom in the student's own time, learners may feel a sense of isolation. This is because learning online is a solo act for the most part, which may give the learner the feeling that they are acting completely alone. As technology progresses and e-learning benefits from the advancements being made, learners can now engage more actively with professors or other students using tools such as video conferencing, social media, and discussion forums amongst others.
- **Health-Related Concerns:** E-learning requires the use of a computer and other such devices; this means that eyestrain, bad posture, and other physical problems may affect the learner. When running an online course, it is a good practice to send out guidelines about correct sitting posture, desk height, and recommendations for regular breaks.
- **Learning Online in Practice:** Universities already embrace the power of e-learning to deliver content to students all over the world, even for free. At a time in which universities are under great pressure to deliver education, combining technology with education is integral to coming up with a final product that will empower the educational institution, set it apart, and allow it to grow its student base worldwide. Harvard and MIT are just two of the most well-known universities that have launched programs focused on offering classes online for free. Harvard videotapes its lectures



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and puts them online, so even its own student body can view and review them in case they missed a lecture or need to review a section.

- **Best practices of Online Training:** Online learning can offer a wide range of benefits. However, the knowledge that a student can acquire this way depends not only on the course material that is offered but also on the practices used to provide them with this information. Here are just a few of the best practices of online training which help to better facilitate the e-learning process:
- **A supportive Community:** Teachers and e-learning establishments should encourage a strong sense of community among their online students. This will enable students to interact with one another and the instructors, as well as with the resources provided, making for an enhanced educational experience!
- **Clear expectations:** Students should be aware of what they will be receiving from the virtual class instruction, and both parties should know the preferred method of communication and delivery of the core curriculum. For example, a teacher may prefer to email assignments to students, while another might choose to deliver them via the e-learning site instead. Also, it's best to have clear expectations about how long each item of coursework should take to complete.
- **Effective usage of Available Resources:** To get the most out of the online learning experience both the teacher and the student should take full advantage of the vast number of resources that are available online. Hundreds of online services offer access to information, with Wikipedia being a prominent example. Instructors should seize the opportunity to enhance their content with online material or redirect students to additional web resources.
- **Multiple Delivery Options:** E-Learning makes it easy for you to deliver training to your workforce through a variety of deployment options over the Internet, intranet and CD ROM.
- **Just-in-Time Training:** E-learning is easily accessible to employees and students. There is no waiting for classes. It can be used just before doing a task at the place of work. This has been described in Part Three of the paper.
- **Administrative Control and Reporting:** With learning management software, administrators can quickly and easily access detailed reports to verify student progress, quantify training investments, and plan effectively for the future.
- **Engaging and Effective:** Benefit from the powerful combination of audio, animation and software simulations that produce highly engaging multimedia training. Courses today use realistic simulations, hands-on exercises, and role-playing scenarios to help employees "learn while doing".
- **Assessment:** Student assessment can be a powerful and helpful aid in the learning process. With many E-Learning products, pre-assessments are available to determine which topics students are already familiar with so that they can focus on key areas where they need help. This reduces the frustration of training on familiar content, and the amount of time spent training is condensed by as much as 50%! Students can also ask quizzes throughout the training process to test their understanding.
- **Increased Productivity:** Training is a proven benefit and incentive to employees, allowing them to advance their skills and careers. Employees who have the skills to successfully do their jobs will be more motivated, effective, and productive.
- **Lower Cost:** E-learning is available at a fraction of the cost of classroom learning and is provided right to students' desktops, eliminating the need for travel and expense.

#### Barriers to Implementing E-Learning

- If E-Learning is to live up to its expectations one must overcome of its Technological,



Social and Pedagogical barriers, including the change of mindset required. These restraints must be overcome before implementing E-Learning

- *Technological aspect:* E-learning requires a reasonable technological infrastructure. Wherever this is lacking, E-Learning cannot happen smoothly. The initial capital outlay for setting up the infrastructure for E-Learning can be high, including setting up of servers, PCs and the Internet at a reasonable access speed of at least 56K. For synchronous or asynchronous learning events, the necessary tools are required.
- *Social aspect:* Learners tend to feel isolated. Trainers are worried that they will lose their jobs. Learners and trainers need to pick up skills for On-line learning and training. Pedagogical aspect: It is imperative to Familiarize Learners and Trainers with new ways of learning because education will become more learner-directed than instructor-directed. Learners need to discipline themselves and learn a new way of learning, gathering information, getting resources, and sharing knowledge & experience with others.
- *Mindset aspect:* E-learning requires a total change of mindset. In any organization that wants to implement E-Learning, strong support from senior management is extremely important. Major stakeholders may become the greatest limitations to eLearning implementation if they are not ready for it.
- Technology issues of learners are usually technophobia/unavailability of needed technologies. The portability of training is e-learning's strength due to the proliferation of network linking points, notebook computers, PDAs, and mobile phones.

### Technology Plan for Effective E-Learning

In the past, most technology planning simply referred to deciding the quantity, and brands of computers and software to be purchased as well as deciding the budget for such purchases. Today, as educational technology matures, technology planning goes beyond the acquisition of hardware- and software. A good technology plan would help us to answer the following questions:

- what are the educational objectives that technology will help achieve?
- what are we teaching now that we can teach better with technology?
- what can we teach with technology that we could not teach before?

### What is the future of e-learning?

E-learning is here to stay. As computer ownership grows across the globe e-learning becomes increasingly viable and accessible. Internet connection speeds are increasing, and with that, opportunities for more multimedia training methods arise. With the immense improvement of mobile networks in the past few years and the increase in telecommuting, taking all the awesome features of e-learning on the road is a reality with smartphones and other portable devices. Technologies such as social media are also transforming education constantly. Learning is expensive, takes a long time and the results can vary. E-learning has been trying for years now to complement the way we learn to make it more effective and measurable. The result now is that several tools help create interactive courses, standardize the learning process and/or inject informal elements into otherwise formal learning processes. Several e-learning trends can give us a clear view of how the future of e-learning and learning tools will be shaped: Micro-learning focuses on the design of micro-learning activities through micro-steps in digital media environments, which already is a daily reality for today's knowledge workers. These activities can be incorporated into a learner's daily routines. Unlike "traditional" e-learning approaches, micro-learning often tends towards push technology through push media, which reduces the cognitive load on the learners. Therefore, the selection of micro-learning objects and the pace and timing of micro-learning activities are important for didactical designs. Micro-learning is an important paradigm shift that avoids the need to have separate learning sessions



since the learning process is embedded in the daily routine of the end-user. It is also perfectly suited for mobile devices where long courses can be overkill. Gamification is the use of game thinking and game mechanics in a non-game context to engage users and solve problems. Personalized Learning is the tailoring of pedagogy, curriculum and learning environments to meet the needs and aspirations of individual learners. Personalization is broader than just individualization or differentiation in that it affords the learner a degree of choice about what is learned, when it is learned and how it is learned. This may not indicate unlimited choice since learners will still have targets to be met. However, it may provide learners the opportunity to learn in ways that suit their learning styles and multiple intelligences.

## CONCLUSION

E-learning involves the use of digital tools for teaching and learning. It makes use of technological tools to enable learners to study anytime and anywhere. It involves the training, and delivery of knowledge and motivates students to interact with each other, as well as exchange and respect different points of view. It eases communication and improves the relationships that sustain learning. Despite some challenges discussed, the literature has sought to explain the role of e-learning and how eLearning has made a strong impact on teaching and learning. Its adoption in some institutions has increased faculty and learners' access to information and has provided a rich environment for collaboration among students which has improved academic standards. The overall literature which explains the advantages and disadvantages of e-learning suggests the need for its implementation in higher education for faculty, administrators, and students to enjoy the full benefits that come with its adoption and implementation.

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