1. Introduction to E - Learning

Objectives:

After studying this chapter, you will be able to

1.0   Understand the importance of e-learning and its future scope

1.1   Define e-learning

1.2   List the need for e-learning

1.3   Explore other definitions of e-learning

1.4   Know different terminology used synonymous to e-learning

1.5   List the features unique to e-learning

1.6   List the reasons for preferring e-learning

1.7   List the advantages and disadvantages of e-learning

1.8   Explore the different instructional modes in e-learning

1.0   Introduction

For more than thousands of years, human beings have come together to learn and share knowledge. Until now, it was necessary for us to come together at the same time and place. But today, the technologies of the Internet have eliminated that requirement. The advent of Internet in the business and social spectrum the world over has transformed the whole process of learning. Soon anybody will be able to learn anything anywhere at any time, thanks to a new development called e-learning. Although classroom –based education faces no direct threat from the new ways of acquiring and imparting learning, the e-learning space is becoming wider and increasingly vital with every passing day.

1.1   What is e-learning?

1. Learning, which uses electronic media by utilizing all the facilities of information technology, is referred to as e-learning
2. e-learning is the use of information and computer technologies to create learning experiences.
3. e-learning delivers instruction anytime, at any place and in any combination desired by the learner.

1.2   Need for e-learning

The world has undergone a transition from the Industrial Age to the Information Age to the present Knowledge Age. In the Knowledge Age, wherein the economy is knowledge-based, continuous learning will decide the success or failure of every organization and individual. E-learning marks the zenith of the evolution of learning. Socio-economic changes in the world have been causing drastic changes in the way people look at education and training as we have progressed from agriculturist mode of economy to the information age, education and training have transformed themselves to answer the needs of the day. Today people want to learn just in time. Gone are the days when after the stipulated years of education an individual was consider to be fit for the job. The process of formal learning stopped after one started working. Today, people have a lifelong learning cycle. One has to keep learning to cope with changes in technology and in the way business is transacted. Organization is finding it difficult to retain skilled employees, as the movement of people has become a reality in every business. People have to learn quickly, at their own business, without having to assemble at the venue of the training and remain competitive. In the walk of all these changes, the Internet has played the role of a bridge between learners and learning. e-learning seems to be the panacea for all the learning issues faced by individuals as well as organization.

E-learning shifts the focus from the "brick and mortal" paradigm to the "brick and portal" paradigm. The change in paradigm has also shifted the focus from teaching to learning.

The growth in e-learning has been fueled by growth in importance of **lifelong learning.** Relevant features of these movements are;

- the need to update knowledge and skills
- the need to retrain, as jobs-for-life
- the need to maintain currency in the face of excluding information on the internet.

1.3   Definitions

Definition of e-learning abounding on the web each has a different emphasis some focus on the content, some on the communication, some on the technology. One of the early definitions for e-learning is ASTD's (American Society for Training & Development), who define it as covering a wide set of application and processes, such as web based learning, computer-based learning, virtual classrooms and digital collaboration. ASTD even includes the delivery of content via audio and videotape, satellite broadcast interactive TV and CD-ROM.

Other definitions confine e-learning to the use of the Internet; for example:

> "*e-learning refers to the use of internet technologies to deliver a board array of solutions that enhance knowledge and performance. It is based on three fundamental criteria*
> 1. *It is a networked.*
> 2. *It is delivered to the end–user via a computer using standard internet technology.*
> 3. *It focuses on the broadcast view of learning.*"

Many definitions highlight the 'location' of the learning: e.g. the use of network technologies to create, foster, deliver and facilitate learning, anytime and anywhere.

"The delivery of a learning, training or education program by electronic mean". E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material. (Derek Stockley 2003)

A simple yet comprehensive definition has been produced by the Open and Distance Learning Quality Council of the UK. It recognizes the distinction between the content of learning and the process:

"E-learning is the effective learning process created by combining digitally delivered content with (learning) support and services."

1.4   Terminology

E-Learning can be a confusing topic in part because of the alphabet soup of acronyms, technology related buzzwords, overlapping definitions, variety of delivery options, and the converging histories of the two disciplines of technology and training. In the current marketplace, what most people really mean when they use the term e-learning (and its multiple synonyms) is **Web-based training**.

E-Learning is really nothing more than using some form of technology to deliver training and other educational materials.

Many terms have been used to define e-learning in the past. For example **web-based training**, **computer-based training** or **web-based learning**, and **online learning** are a few synonymous terms that have over the last few years been labeled as e-learning. Each of this implies a "just-in-time" instructional and learning approach.

E-Learning is the latest, in vogue, all-inclusive term for training delivered by a number of means. In the past, these have included the use of mainframe computers, floppy diskettes, multimedia CD-ROMs, and interactive videodisks. Most recently, Web technology (both Internet and Intranet delivery) has become preferred delivery options. In the near future, e-learning will also include training delivered on PDA's (e.g., Palm Pilots) and even via wireless devices like your cell phone. This new, mobile form of education is called, predictably enough, **m-learning**.

Other Terms Associated with e-Learning

Understanding what is and what isn't e-learning can be confusing due to the wealth of different terms that exist to define the same thing. Most people prefer the word learning to training ("dogs are trained, people learn") and use **technology-based *learning*** (TBL) or "e-learning" instead of **technology-based training** (TBT).

Other commonly used terms include **computer-based training** (CBT), **computer-based learning** (CBL), **computer-based instruction** (CBI), **computer-based education** (CBE), **Web-based training** (WBT), **Internet-based training** (IBT), **Intranet-based training** (also IBT), and any number of others. Some of these, like Web-based training, can be seen as specific subsections of e-learning while others, notably computer-based training, are less specific. Other confusion arises from technical definitions that differ from their popular use. For example, the terms CBT, CBI, and CBL are sometimes used generically to refer to all types of e-learning, but are commonly used to describe older disk-based training.

A term beginning with the word computer frequently, but not always, refers to interactive tutorials that are distributed on floppy diskettes. The term multimedia training is usually used to describe training delivered via CD-ROM. This rule of thumb is complicated by the fact that advances in Internet technology make it possible for network-based training to now deliver audio and video elements as well.

Browser-based training is the term used to describe courseware that requires a Web browser to access, but may in fact be running from the Internet or CD-ROM. In fact, some training programs will pull content from both a Web site as well as a CD-ROM. These courses are sometimes called **hybrids**, or hybrid-CD-ROMs.

Distance learning, or **distance education**, are other commonly used terms. They accurately describe most types of e-learning, but are most often used to describe instructor-led, web-based education -- for either corporate training or college classes.

To further complicate matters, some theorists divide e-learning into three distinct branches: **Computer-aided instruction** (CAI), **computer-managed instruction** (CMI), and **computer-supported learning resources** (CSLR). The first term, CAI, encompasses the portion of a given e-learning product that provides the instruction, such as the tutorials, simulations, and exercises. The second term, CMI, refers to the testing, record keeping, and study guidance functions of an e-learning product. The last term, CSLR, encompasses the communication, database, and performance support aspects of e-learning. Although these distinctions can prove useful in academic research and discussion, it is enough for most of us to know that they exist and that they all refer to parts of the greater whole, e-learning.

Finally, when it comes to course and student management, the newest descriptor is Learning Mangement System (LMS). LMS are typically web-based programs that are used to enroll students, assign and launch courses, and track student progress and test scores. A close cousin to the LMS is the LCMS which stands for Learning **Content** Managemet System. An LCMS manages chunks of Reusable Learning Objects, known as RLO's.

1.5   Features unique to e-learning:

E--learning promises to provide a single experience that accommodates the three distinct learning styles of auditory learners, visual learners, and kinesthetic learners. Other unique opportunities created by the advent and development of e-learning are more efficient training of

a globally dispersed audience; and reduced publishing and distribution costs as Web-based training becomes a standard.

E-learning has the greatest advantage of offering the latest, particularly in fast-developing fields such as computer software. Unlike the textbooks, the online material can be updated frequently. The learner has the choice as to what information he wants to look at.

E-learning also offers individualized instruction, which print media cannot provide, and instructor-led courses allow clumsily and at great cost. In conjunction with assessing needs, e-learning can target specific needs. And by using learning style tests, e-learning can locate and target individual learning preferences.

The internet is the first mass medium that is interactive. As the concept catches on, e-learning is bound to offer courses other than computer and management as well.

It allows you to meet different people through email, discussion board, chat room and the like. This compensates for the physical classroom interaction to a large extent.

Additionally, asynchronous e-learning is self-paced. Advanced learners are allowed to speed through or bypass instruction that is redundant while novices slow their own progress through content, eliminating frustration with themselves, their fellow learners, and the course.

Anyone with knowledge on a particular subject can offer a course to a global audience; this means, the standard of the teacher is difficult to assess. Sometimes the course may be substandard. So the leaner should exercise his/her discretion before enrolling in a course.

In these ways, e-learning is inclusive of a maximum number of participants with a maximum range of learning styles, preferences, and needs.

Collaborative Learning

All collaborative learning theory contends that human interaction is a vital ingredient to learning. Consideration of this is particularly crucial when designing e-learning, realizing the potential for the medium to isolate learners. With well-delivered synchronous distance education, and technology like message boards, chats, e-mail, and tele-conferencing, this potential drawback is reduced. However, e-learning detractors still argue that the magical classroom bond between teacher and student, and among the students themselves, cannot be replicated through communications technology.

1.6   Reasons for preferring e-learning:

1. **Availability:** e-learning can be available 24 hours a day, 365 days a year.

2. **Affinity:** People desire to use new technology as it becomes available.

3. **Efficiency:** People can often-complete tasks more efficiently if aided by technology.

4. **Reinforcement:** When people use technology to complete a task correctly on a regular basis, they will probably use the same technology again in a similar situation.

5. **Immediate feedback:** When technology is used to complete a task, there is usually immediate feedback (instantaneous response).

6. **Involvement:** The learning must require the learner to do more than just read page after page; requesting frequent responses and interaction keeps learners engaged. A picture or short video can say a lot more than words and also hold learner's attention. Being allowed to pick the module you want and in what sequence is a nice and needed options.

7. **Appeal:** Technology can be more appealing if it is robust and has color, graphics (even 3D), animations, hyperlinks, voice recognition etc.

8. **Reduced cost:** Technology enabled transactions are generally cheaper than people enabled transactions.

9. **Easy to find:** People are becoming more familiar with Internet technologies. Courses or leaning objects can be made readily accessible. Many applications are building robust help functions, which provide the need for formal instructions.

10. **Less training time:** Effective e-learning solutions can reduce classroom instruction time by as much as two-thirds.

11. **Greater & faster impact:** if we have to train 1000 trainees through normal class room based training and if each trainee has to be trained for 30 hours every year, this will be an enormous task. If we had equivalent web-based learning solutions the entire population of trainees could complete the training in as little as four weeks or even in a lesser time.

1.7 Advantages and Disadvantages of E-learning

Advantages of e-Learning to the Trainer or Organization

Some of the most outstanding advantages to the trainer or organization are:

- **Reduced overall cost** is the single most influential factor in adopting e-learning. The elimination of costs associated with instructor's salaries, meeting room rentals, and student travel, lodging, and meals are directly quantifiable. The reduction of time spent away from the job by employees may be the most positive offshoot.
- **Learning times reduced,** an average of 40 to 60 percent, as found by Brandon Hall (Web-based Training Cookbook, 1997, p. 108).
- **Increased retention** and application to the job averages an increase of 25 percent over traditional methods, according to an independent study by J.D. Fletcher (Multimedia Review, Spring 1991, pp.33-42).

- **Consistent delivery** of content is possible with asynchronous, self-paced e-learning.
- **Expert knowledge** is communicated, but more importantly captured, with good e-learning and knowledge management systems.
- **Proof of completion and certification,** essential elements of training initiatives, can be automated.

Advantages to the Learner

Along with the increased retention, reduced learning time, and other aforementioned benefits to students, particular advantages of e-learning include:

- **On-demand availability** enables students to complete training conveniently at off-hours or from home.
- **Self-pacing** for slow or quick learners reduces stress and increases satisfaction.
- **Interactivity** engages users, pushing them rather than pulling them through training.
- **Confidence** that refresher or quick reference materials are available reduces burden of responsibility of mastery.

Disadvantages to the Trainer or Organization

E-learning is not, however, the be all and end all to every training need. It does have limitations, among them:

- **Up-front investment** required of an e-learning solution is larger due to development costs. Budgets and cash flows will need to be negotiated.
- **Technology issues** that play a factor include whether the existing technology infrastructure can accomplish the training goals, whether additional tech expenditures can be justified, and whether compatibility of all software and hardware can be achieved.
- **Inappropriate content** for e-learning may exist according to some experts, though are limited in number. Even the acquisition of skills that involve complex physical/motor or emotional components (for example, juggling or mediation) can be augmented with e-learning.
- **Cultural acceptance** is an issue in organizations where student demographics and psychographics may predispose them against using computers at all, let alone for e-learning.

Disadvantages to the Learner

The ways in which e-learning may not excel over other training include:

- **Technology issues** of the learners are most commonly technophobia and unavailability of required technologies.
- **Portability** of training has become strength of e-learning with the proliferation of network linking points, notebook computers, PDAs, and mobile phones, but still does not rival that of printed workbooks or reference material.

- **Reduced** social and cultural interaction can be a drawback. The impersonality, suppression of communication mechanisms such as body language, and elimination of peer-to-peer learning that are part of this potential disadvantage are lessening with advances in communications technologies.

Do the Benefits Outweigh the Drawbacks?

The pro's and con's of e-learning vary depending on program goals, target audience and organizational infrastructure and culture. But it is unarguable that e-learning is rapidly growing as form of training delivery and most are finding that the clear benefits to e-learning will guarantee it a role in their overall learning strategy.

1.8   E-learning Modes

Just as there are many names for e-learning itself (e.g., online learning, web-based training, technology-based learning, etc.), there are many names for *types* of e-learning. For an analogy, consider how you might categorize a movie. Is it a blockbuster or an independent film, a psychological thriller or a comedy, a family film or an adult film, a short film or a long film, a good film or a bad film? It may be all, some, or none of these things. In this way, e-learning products are often segmented dependent on some sampling of their characteristics.

A number of fundamental modes of training or instructional models make up the backbone of valid and valuable training. While these can be used as guides no matter what type of technology is chosen, the specific strengths and weaknesses of a particular training mode should be considered in order to maximize learner benefits.

Tutorials

Tutorials are one of the most ancient and commonly used modes of education. A good tutorial presents information and guidance, makes sure the learner has an opportunity to understand the instruction, and only then continues on to new information. Many tutorials basically consist of a linear presentation of content. When implemented poorly, a tutorial can become what is derisively referred to as "an electronic page-turner," or if web-based, a "scroller." This type of program presents content directly without giving the learner any more opportunity to interact other than to call for the next screen. When implemented properly, using the classic principles of instructional systems design, guided tutorials can be engaging and effective. The key to useful tutorials in e-learning are interactions that establish pace, clarify content, provide for practice and instill confidence.

Branching can greatly enhance the effectiveness of a tutorial, allowing it to operate in the way that a skilled teacher does. A question posed following an instructional moment can determine if the student has mastered the content. If mastery is not achieved, one branch is followed and another approach is provided to eliminate confusion. Only after mastery is achieved is the branch containing the next piece of information followed.

Simulations

Simulations are often used to recreate lifelike job situations. Realism is the key to successful simulations but not every element of a simulation has to be realistic in order for it to be instructionally valid. While hearing a telephone ring in the background of an office simulation adds to the depth of the user experience, being able to answer that phone and talk with a customer adds value to the user's learning experience.

The best example of a simulation is the complex flight simulator employed by pilots. More commonly encountered simulations are the scenarios deployed in training classrooms as role-playing exercises within the group.

Current technology enables students to interact with on-screen participants in non-linear, discovery-learning scenarios. Sales calls, customer service scenarios, computer repairs, surgery, and the full responsibility of running a business can all be simulated. Simulations of software functionality are particularly prolific and have well documented learner benefits. Cutting-edge programs now exist using virtual reality that enable students wearing goggles and sensor gloves to actually be immersed in a digitally created environment. The challenge to the trainer is to isolate the elements of a situation that can be controlled and must be mastered by the learner in reality and put the learner in control of these elements in the simulation. All the realism in the world cannot make a simulation a valuable learning tool without the elements of guidance, remediation, or feedback.

True simulations and simulation-based drill and practice exercises have in common the ability to reveal a learner's actions and reactions in a realistic, protected environment where time and distance are collapsed. In sales call simulations learners can try out various sales approaches without the jeopardy of awkward social situations.

Electronic Performance Support Systems

Electronic performance support systems (EPSSs) are created to give an individual the tool they need to perform a required task at the time they need it. A performance support system is in a way the opposite of a tutorial. Where a tutorial instructs the learner and then requires that the learner perform, a performance support system requires the learner to determine when they need assistance and then ask for the required guidance. The most ubiquitous example of a performance support system is the "Help" feature built into Microsoft's Office applications. A simple example of a non-e-learning performance support tool is an inventory checklist created for a grocery clerk.

A growing consensus in the industry is that e-learning should include imbedded support systems that provide instant guidance at the time and place of need. With the advent of Web-based training and the emergence of the hyperlink paradigm, the convergence of e-learning and electronic performance support systems is almost complete. Web-based tutorials can be completed independently as learning exercises for new users and yet be delivered as just-in-time chunks of information and interactive tools at the desktop.

The challenge of creating useful performance support systems obviously consists of determining what tools are needed by a population and providing those tools. In the context of e-

learning, the further challenge is creating systems that allow an individual needing a tool to recognize that such a tool exists and then be able to use that tool.

Instructional Games

The inclusion of games has often been a hitch in getting management to agree to e-learning initiatives. Many learning theories contend, though, that games are essential to the learning exhibited by children and can be usefully extended into the realm of adult learning. Games can have great value, possibly greater value than any other mode of instruction, in reducing learner tension and increasing learner engagement. The reluctance toward employing games to teach is becoming less apparent as supervisors are educated in learning theory and many who have experience in gaming for educational purpose move into management roles.

Games in the style of TV game shows have long been used in the classroom to provide a fun and effective method for reinforcement and self-assessment. Instructional games are equally effective using the latest computer technologies. Games can run the gamut from simple speed and accuracy typing exercises to complex business simulators where a student might run an entire factory. Instructional games can also replicate classic, arcade, and game show styles such as tic-tac-toe, auto racing, and Jeopardy(TM).

The defining characteristic of instructional games is a set of goals or a competitor to provide motivation in addition to the learning. For maximum success, the motivational element of the game should run parallel to the overall motivation for the training. The game should have has instructional value aligned with the objectives of the overall course. There is little merit to using games as a reward for completing learning objectives exterior to the games themselves.

Tests, Record Keeping, and Guidance

Automated assessments are another commonly used facet of e-learning. When companies first adopt e-learning initiatives, testing and record-keeping systems are often accepted earlier than programs that integrate multiple training modes, due to their ease of implementation and their quickly recognizable returns.

Online tests can be used for self-assessment purposes, or can be computer graded and reported back to central administration. The explosion of enterprise wide networks now provides the power to assess thousands of individuals and track their progress against specific job competencies throughout their life within an organization. The latest and most sophisticated technology-based tests are tightly linked to learning objectives, which in turn can help create a completely personalized curriculum.

Combining the Modes

Maximum learner benefit can be typically achieved by combining several training modes in one project. The merit of each mode varies with training goals and some modes are ill suited to meet some needs. A solid and frequent model is to use tutorials to teach basic knowledge and concepts, use simulations for reinforcement and application of the knowledge (leading to skills),

test or certify the comprehension, and finally provide an on-the-job performance support tool to aid in recall and application.

SUMMARY

In this Chapter you have learnt the definitions of e-learning, different terminologies, need and the unique features of e-learning.

- Regardless of the definition you chose to use, designers, developers, and implementers make or break the instructional courses and tools. E-learning is simply a medium for delivering learning and like any other medium, it has its advantages and disadvantages.
- E-learning covers a wide array of activities from supported learning, to blended or hybrid learning (the combination of traditional and e-learning practices), to learning that occurs 100% online.
- E-learning can offer different modes of education – tutorials, simulations, Instructional games, electronic performance support systems, collaborative learning and combination of these modes.

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