

# Distance Learning Concepts and Technologies

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## DISTANCE LEARNING: DEFINITIONS

The rapid growth of information technology has opened up the possibilities of corporate learning and a completely new dimension to the progress in education and training. Educational and training programs that were once delivered only through a face-to-face setting can now be done electronically due to the advancement of technologies. As a result, the advent of distance learning has enabled not just flexible learning which is independent of time and space, but also significantly reduced the cost in acquiring necessary educational or professional training. Distance learning through virtual classroom is thus being considered by many to be the next revolution in the marketplace, with an estimated potential growth of \$23.7 billion worldwide in 2006, according to a study conducted by the International Data Corporation (Downes, 2003). This article aims to provide an overview of the concepts and technologies of distance learning, and discuss the critical factors that determine the successful implementation of a distance learning system.

Before going into further details of the distance learning concepts, it is necessary to look at some of the definitions of distance learning that have been proposed by various parties. Waller and Wilson (2001) from the Open and Distance Learning Quality Council in the UK defined distance learning as “the effective learning process created by combining digitally delivered content with (learning) support and services.” This brief but concise definition shows that distance learning is in digital form. In a more lengthy definition, Broadbent (2002) refers distance learning to training, education, coaching, and information that are delivered digitally, be it synchronous or asynchronous, through a network via the Internet, CD-ROM, satellite, and even supported by the telephone. From this extended definition, we see that distance learning can be synchronous where the learning process is carried out in real-time led by instructor, or asynchronous, where the learners can self-pace their progress. Zhang, Zhao, Zhou, and Nunamaker (2004, p. 76) in their paper described dis-

tance learning as “technology-based learning in which learning materials are delivered electronically to remote learners via a computer network.” This definition reiterates that there is a shift of trend from the old-fashioned classroom learning to the more mobile learning where the remote learners everywhere can learn.

As distance learning is still a relatively new discipline, the term tends to evolve from time to time based on the technological advancements. As such, the above mentioned definitions are by no means definitive but suggestive. Generally, the emergence of distance learning concepts a decade ago can be reasoned from two factors: the needs of corporations and the availability of technological advances (Faherty, 2002; Urdan & Weggen, 2000). From the corporation aspect, one must cope with the fact that knowledge plays an important role in delivering immediate skills and just-in-time information the industries need nowadays. As knowledge becomes obsolete swiftly, it is essential for corporations to find a cost-effective way of delivering state-of-the-art training to their workers. From the technological aspect, global network access has become widely available with an increased Internet bandwidth, a broad selection of available software packages, and a wide range of standardized distance learning products. This has made it possible for everybody with a computer and an Internet connection to learn in a way that is most convenient and comfortable. Learners are able to customize their learning activities based on their own styles and needs, and decide for themselves when to study in the midst of busy schedules.

Nevertheless, many corporations still hold doubts towards the effectiveness of distance learning. Deficiencies in support, content, quality of teaching, cultural, and motivational problems are some of the main concerns that have been raised (Rosenberg, 2001). For individuals, especially the older generations, the fear of technology is something to overcome (Nisar, 2002). This somehow confines the prospect of distance learning to a limited number of age groups. Meanwhile, the flexibility of self-paced learning also leads to the possibility of spending less time in study

when workload in other areas increases, which could be quite detrimental to the learning process.

Although some obstacles do exist in the adoption and implementation of distance learning, the benefits of it can be tremendous if the design and delivery are well catered for. A few core elements which are deemed to be essential for successful implementation of distance learning systems have thus been identified. The following section describes these core elements.

## **CORE ELEMENTS OF DISTANCE LEARNING**

Distance learning through the Internet has been a much talked about revolution in recent years. Whether it is simply another method of delivering training or a major strategic initiative that will notably aid the industry and academia, depends strongly on the design of its core elements. Based on a basic structure for distance learning proposed by Broadbent (2002), the following elements have been derived as critical to the success of distance learning:

- The learner
- The content
- The technology
- The instructor
- The environment

Many people believe that the learner should be the center of all efforts in a distance learning system. However, it is undeniable that content of distance learning is as important since the aim of distance learning

is to transfer knowledge to the learner, based on the content. In order to transfer content to a specific group of learners effectively, the technology that supports the distance learning system plays a critical role. Different sorts of audio or visual realization of the content rely on different kinds of technologies to do the job. As such, the content and technology are very much inseparable.

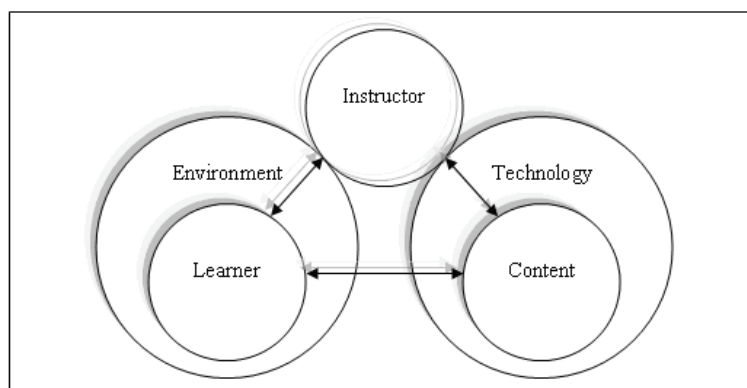
Equally indivisible are the learner and the environment. Different learners from different backgrounds, cultures, and workplace learn differently. In order for the learners to learn effectively, the delivery of distance learning should be able to accommodate the different environments the learners live in.

Last but not the least, the instructor sits as a mediator in between the learner and the content as well as the environment the learner comes from and the technology used for delivering the content. The role of the instructor is, on one hand, to validate the content and ensure that the technology available is sufficient for transferring the content to the learner, and on the other hand, to support the learner and ensure that the needs and expectations of the learner are met based on the environment. The correlation of the five core elements in distance learning is depicted in Figure 1.

## **TECHNOLOGIES IN DISTANCE LEARNING**

In its broadest terms, technology could basically mean everything. A search on the Web shows that technology could be a study, a process, an application, a mechanism, a technique, a computer, a projector, and a CD-ROM, to

*Figure 1. Core elements in distance learning*



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