DISTANCE EDUCATION AS A METHOD OF TRAINING SYSTEMS UNIVERSITIES

Umanetz Vladimir, Ph.D.

Abstract:
Progress in information technology has enabled new educational delivery methods such as distance learning and e-learning. As an outcome of this, many universities and colleges have entered this new e-learning world in a major way. For this reason the need for pedagogical and technical knowledge to teach using the Internet has emerged, and this knowledge is slowly becoming a core competence for many teachers. Given the proliferation of electronic mediated teaching, haverila and barkhi2009. This paper sheds some lights on the importance of distance learning to societies, universities, organizations and to individuals. The paper also discusses some of the important distance learning methods that are being used by educators, trainers and practitioners.

Introduction:
Distance education, or distance learning, is a field of education that focuses on the pedagogy and andragogy, technology, and instructional systems design that aim to deliver education to students who are not physically "on site". According to the U.S. Department of Agriculture, “is a process to create and provide access to learning when the source of information and the learners are separated by time and distance, or both.” In other words, distance learning is the process of creating an educational experience of equal qualitative value for the learner to best suit their needs outside the classroom. Rather than attending courses in person, teachers and students may communicate at times of their own choosing by exchanging printed or electronic media, or through technology that allows them to communicate in real time and through other online ways. Distance education courses that require a physical on-site presence for any reason including the taking of examinations is considered to be a hybrid or blended course of study. This emerging technology is becoming widely used in universities and institutions around the globe. With the recent trend of technological advance, distance learning is becoming more recognized for its potential in providing individualized attention and communication with students internationally (wikipedia).
Distance education takes place when a teacher and student(s) are separated by physical distance, and technology (i.e., voice, video, data, and print), often in concert with face-to-face communication, is used to bridge the instructional gap. Distance education programs can provide those disadvantaged by limited time, distance or physical disability with the opportunity to continue or complete their education at home or at their places of employment (Willis, B, AT.H.E, 1993).

Distance Learning Effectiveness:
Progress in information technology has enabled new educational delivery methods such as distance learning and e-learning. As an outcome of this,

many universities and colleges have entered this new e-learning world in a major way. For this reason the need for pedagogical and technical knowledge to teach using the Internet has emerged, and this knowledge is slowly becoming a core competence for many teachers. Given the proliferation of electronic mediated teaching, the essential question here is that how and to what extent are e-learning and the information technology changing the dynamics of teaching and learning?

Some researchers have predicted that the traditional classroom will disappear. E-learning has entered the education as well as the corporate world in a major way and it also complements the traditional delivery methods. It has facilitated the traditionally difficult educational paradigms such as adult learning or distance learning (Haverila and Barkhi, 2009).

Many educators ask if distant students learn as much as students receiving traditional face-to-face instruction. Research comparing distance education to traditional face-to-face instruction indicates that teaching and studying at a distance can be as effective as traditional instruction, when the method and technologies used are appropriate to the instructional tasks, there is student-to-student interaction, and when there is timely teacher-to- student feedback (see Moore & Thompson, 1990; Verduin & Clark, 1991 – in Willis, B, AT.H.E, 1993).

E-learning and Pedagogy

Haverila and Barkhi shed some light on E-learning and pedagogy. They said that E-learning can be viewed as an alternative to the face-to-face teaching method or as a complement to it. E-learning usually allows the student a greater choice as well as responsibility for their own learning.

E-learning can change the methods of learning and has the promise to overcome the barriers of time, distance, and economics. E-learning can be viewed as "*disruptive technology*" and as a new paradigm for learning. Disruptive technologies look at problems in completely new and creative ways. E-learning challenges the traditional ways of teaching and learning, enables new alliances between various educational and commercial entities, and presents new ways of solving old problems. For example, the role of teachers is likely to change from importers of knowledge to facilitators of knowledge gaining process.

E-learning differs from traditional delivery methods based on two important dimensions: time and place.

Although the instructors may elect to use either or both of these communication modes, the proximity and time constraints can necessitate e-learning. The preference for asynchronous approach reflects the trend in e-learning programs. The decision between synchronous and asynchronous mode of communication has significant impact on how interaction occurs. Some view the knowledge constructed by learners through social interaction with others, focusing on the importance of interaction.

Synchronous, such as chat and conferencing requires the "physical" or "virtual" presence of participants at the same time. This has the benefit that collaboration is done in real time and delays of communication are avoided. Asynchronous, such as email, blogs, and threaded discussions have the advantage of allowing the students to access the learning resources any time. Asynchronous mode of communication is useful when parties have to

communicate and share information (i.e. intermediate software progress modules) because in between of the interaction sessions, it is important to reflect and discover. Asynchronous interaction is also beneficial when students are geographically dispersed and it is difficult to assemble them at the same time. Reflection can reinforce and enhance learning. Reflection is a form of mental processing – a form of thinking – which we use to fulfil a purpose or to achieve some anticipated outcome. It is applied to relatively complicated or unstructured ideas for which there is no obvious solution; the equivocatility resulting from no "single" obvious solution to a software design project requires additional processing of knowledge and understanding and possibly display of emotions. Group reflection is an extremely important part of helping students retain what they learn, provide feedback on their performance, and guide them on how to improve their performance on the next group situation (Haverila and Barkhi, 2009).

Delivery of distance learning:

A wide range of technological options are available to the distance educator. They fall into four major categories:

Voice - Instructional audio tools include the interactive technologies of telephone, audioconferencing and short-wave radio. Passive (i.e., one-way) audio tools include tapes and radio.Video - Instructional video tools include still images such as slides, pre-produced moving images (e.g., film, videotape), and real-time moving images combined with audioconferencing (one-way or two-way video with two-way audio).Data - Computers send and receive information electronically. For this reason, the term "data" is used to describe this broad category of instructional tools. Computer applications for distance education are varied and include:

Computer-assisted instruction (CAI) - uses the computer as a self-contained teaching machine to present individual lessons.

- Computer-managed instruction (CMI) - uses the computer to organize instruction and track student records and progress. The instruction itself need not be delivered via a computer, although CAI is often combined with CMI.
- Computer-mediated education (CME) - describes computer applications that facilitate the delivery of instruction. Examples include electronic mail, fax, real-time computer conferencing, and World-Wide Web applications.

Print - is a foundational element of distance education programs and the basis from which all other delivery systems have evolved. Various print formats are available including: textbooks, study guides, workbooks, course syllabi and case studies (Willis, B, AT.H.E, 1993). Another source puts technologies used in delivering distance education as follows:

The types of available technologies used in distance education are divided into two groups: synchronous and asynchronous. Synchronous technology is a mode of online delivery where all participants are "present" at the same time requiring a timetable to be organized. Web Conferencing is an example of synchronous technology. Asynchronous technology is a mode of online delivery where participants access course materials on their own schedule. Students are not required to be together at the same time. Message board forums, e-mail and recorded video are examples of asynchronous technology.

Synchronous technologies

- Web based VoIP
- Telephone
- Videoconferencing
- Web Conferencing

Asynchronous technologies

- Audiocassette
- E-mail
- Message Board Forums
- Print Materials[15]
- Voice Mail/fax
- Videocassette/DVD ent Systems

There are also Learning Managem or Learning Content Management Systems which can be used for both Synchronous and Asynchronous learning. (LMS is not so much a learning tool as a framework for an instructor to better administer the classroom) (wikipedia).

Distance Education Clearinghouse provided the following delivery methods:

Videoconference

A videoconference is a two-way interactive event where video and audio is simultaneously transmitted to individuals at sites in different locations. A videoconference can be 'point to point' which connects just two sites together, or it can be 'multipoint' where individuals located at many sites can see and hear those at all of the other sites. These virtual classrooms and meetings can take place across the campus or across the world. Videoconferencing is not limited to a single technology, as bridging services allow ISDN, ATM, and/or IP to join together for a single event. IP Videoconferencing (VOIP) requires the use of Internet and a computer which has been specifically set-up for videoconferencing. Satellite delivery is also a form of videoconferencing, but it is not two-way video, in that the program is downlinked to participating locations.

Additional Videoconferencing Information

- H.323 Videoconferencing
  H.323 is a standard for supporting audio/video conferencing over IP (Internet Protocol). This section contains links to forums and discussion lists, technical information and support issues.
- Videoconference Directories
  When you need to locate a videoconference site to connect with, or if you wish to list your site as a place for others to connect to, these directories identify public videoconference rooms for rent or use.

Web Conference

Webconferencing is the combination of using a web browser for visuals and an audioconference for discussion. Students and instructors can show and receive graphics, draw, type, demonstrate web sites, share documents and use web chat. Basic technology needs are a computer, a web browser, an Internet connection, and a telephone. To participate in a web conference, you simply dial in to the telephone conference call, and point your browser to the pre-assigned web site. Only those who log-in can share the content and

communicate with each other. All program visuals are available to all participants at the same time. You can communicate, collaborate, and receive real-time feedback. Participants connect from offices, homes, meeting rooms or anywhere else with access to the Internet and a phone line.

--From Instructional Communications Systems, University of Wisconsin-Extension, information on the WisLine Web Web Conferencing service.

Online

Online courses, also often referred to as web courses, are usually defined as courses which are offered over the Internet. Basic technology needs are a computer, a web browser and an Internet connection. Program and course providers will identify the specific technology needs of a specific course (e.g., some courses may require the use of a certain browser version or type of computer). Some, but not all, online courses are offered at 'anytime and anyplace'. This means you and are not limited to traditional semester start and end dates and you can take the course from any location (home, office, etc.) with the proper connections. Other courses may have scheduled meeting times where students and/or instrutors are online at the same time. Many terms are used when referring to online distance education programs and courses. These include: 'e-learning', 'web-based training (WBT)' or 'Internet courses'. Also there are products (called Course Management Systems or CMS) used to design an online course. Example brand names of such products include 'WebCT', 'Blackboard' and 'Desire2Learn'.

Print

Print-based courses, or 'correspondence courses' are perhaps the oldest delivery method for distance education courses, having been available to students and learners for well over 100 years. Print courses are usually delivered via the mail, but some also have email or fax options to enhance communication between student and instructor. The more traditional print courses are provided entirely on paper. Although obviously not 'print', correspondence courses can also be offered via tape, CD, or DVD. These differ from online courses because the need for an Internet connection is eliminated.

Audioconference

Audio is often thought of as the most important part of any kind of teleconference. Audioconferencing is sometimes considered a conference call, but with many optional features available and an almost limitless number of individuals being able to simultaneously participate in the same event. Basic technology needs is simply a telephone. Audioconferencing is an easy, economical way to bring many people together to meet, learn, and teach.

Blended Learning

Blending Learning can be described as the use of more than one delivery

method in a single course. For example, the instructor of an online course may wish to have students meet once a week via an audioconference to discuss the last assignment together; or a videoconference can be combined with multiple media: text and graphics can be transmitted with a document camera; computer graphics, web sites, and videotapes can be transmitted and viewed by all students. Blending different technologies together in one course often provides a more dynamic learning environment and allows for different options and expressions of educational materials. Links to many resources and articles are available on the Blended Learning section of the Distance Education Clearinghouse web site.

Technology Selection

The Distance Education Clearinghouse provides a list of tips, suggestions, and other information to use when trying to determine which distance education delivery method is most appropriate for your instructional needs. Visit our Technology Selection section for details. Students may wish to look at selected resources in our Student Readiness section to help determine the delivery method which best suits your style of learning (Distance Education Clearinghouse).

Types of distance education courses:

- Correspondence conducted through regular mail
- Internet conducted either synchronously or asynchronously
- Telecourse/Broadcast, in which content is delivered via radio or television
- CD-ROM, in which the student interacts with computer content stored on a CD-ROM
- PocketPC/Mobile Learning where the student accesses course content stored on a mobile device or through a wireless server
- Integrated distance learning, the integration of live, in-group instruction or interaction with a distance learning curriculum
- Distance Education has traversed four to five 'generations' of technology in its history. These are print, audio/video broadcasting, audio/video teleconferencing, computer aided instruction, e-learning/ online-learning, computer broadcasting/webcasting etc. Yet the radio remains a very viable form, especially in the developing nations, because of its reach. Australian children in extremely remote areas have been participating in the "School of the air" since the 1940s using 2 way radio. In India the FM Channel is very popular and is being used by universities, to broadcast educational programs of variety on areas such as teacher education, rural development, programs in agriculture for farmers, science education, creative writing, mass communication, in addition to traditional courses in liberal arts, science and business administration. The increasing popularity of mp3 players, PDAs and Smart Phone has provided an additional medium for the distribution of distance education content, and some professors now allow students to listen or even watch video of a course as a Podcast. Some colleges have been working with the U.S. military to distribute entire course content on a PDA to deployed personnel (wikipedia).

Strengths and Weaknesses of Online Learning Environment

Koh and Hill discuss strength and weaknesses of online learning. They argued that researchers have found that learners perceive flexibility and convenience as strengths of online learning environments (see, for example, Song, Singleton, Hill, & Koh, 2004). In such environments students can spend time on class projects on their own terms, namely, without having to be physically there. Through bulletin boards, chat rooms, electronic mail, and white boards, students can communicate with their instructor and with each other at any time. This is also a strength of online group work, where flexibility and convenience enable contact with group members anywhere, anytime.

Other researchers suggest that students in an online learning environment can develop critical thinking skills as well as reflection skills. Conrad and Donaldson (2004) argue that collaborative activities in online learning environments that involved student idea sharing and other forms of interaction trigger deeper processing of content. Palloff and Pratt (2005) also point out that group work in online learning environments promotes transformative learning by developing critical thinking skills and by encouraging reflection. The asynchronous environment allows students to read messages, reflect on them, and write carefully about their ideas over time (Petrides, 2002; Vonderwell, 2003). As a result, students may receive more thoughtful and in-depth comments from their classmates than what might occur in a synchronous context.

While learners have provided insights into the benefits of online classes, several weaknesses have also been reported. One of these is lack of a sense of community (Song, et al., 2004; Vonderwell, 2003). Online learning participants indicated a lack of connection with faculty and other learners, stating that this reduced sense of connection had a negative impact on their overall class experience. A lack of connection can also have a negative impact on group work in online environments. However, it should also be noted that a similar lack of connection is also routine in traditional classroom courses.

Another weakness reported in the literature is difficulty with communication. In Vonderwell's (2003) study, some students worried about communication problems they might encounter since they did not see each other face-to-face. These included delayed response and unfamiliarity with classmates. Kim, Liu, and Bonk (2005) reported that the difficulty of communication was one of the key barriers among peers because of learners' time zone differences and the absence of face-to-face meetings. Difficulty with communication can be particularly challenging for groups working online, where delays and not having a sense of knowing the group members can have a clear impact on group performance (koh and Hill, 2009).

Conclusion:

Distance education provides major benefits to at least three main markets or categories, such as:

- Expanding access: Distance education can reach underserved populations of students who cannot attend a school that offers the educational services they desire, perhaps because they live too far away.

- Emerging market opportunities: Distance education fuels the public's need for lifelong learning in education by providing access to learners not in the traditional k-12 age group.
- Adapting to new technology and environments: Educational institutions may adopt distance education as a means to adapt to the rapid changes in technology being used in education today (wikipedia).

References:

1. Wikipedia
2. Willis, B. (1993). Distance education: A practical guide. Englewood Cliffs, NJ: Educational Technology Publications
AT.H.E. Journal Technological Horizons in Education@ Volume 26, Number 4, November 1998
3. Haverila, Matti, Barkhi, Reza, 2009, The Influence of Experience, Ability and Interest on e-learning Effectiveness, European Journal of Open, distance and E-learning.
4. Koh, Myung Hwa and Hill, Janette R., 2009, Student Perceptions of Group Work in an Online Course: Benefits and Challenges, The Journal of Distance Education, Vol 23, No 2.
5. Distance Education Clearinghouse, University of Wisconsin-Extension, its partners and other UW institutions.