Distance learning is a term in wide use today. Educators also refer to it as distance education and, in some settings, distributed education. For the purposes of this entry, distance learning is defined as the communication over distance between teacher and student mediated by print or some form of technology designed to bridge the separation between teacher and student in space or time. Advances in information and communication technology are changing the manner in which instructors have traditionally conducted distance learning, and these changes are providing many transformational possibilities for all levels of education. With the development of many online tools and the easing of prices for handheld computers and audio/video players, students are increasingly able to shift their distance learning experience not only beyond temporal necessities, but also into new physical environments. Research libraries with access to full-text documents are as available to students as are lectures and symposia either streamed live or delivered asynchronously. Educators could argue the case that advances in information and communication technologies may make distance learning even more interactive than face-to-face teaching and far less distant than once considered.

After an examination of the origins of distance learning and a review of its basic features, this entry examines some of the effects on pedagogy of course management systems and other telecommunications tools that are transforming the nature of schooling, lifelong learning, and communities of learners.

Origins and Evolution of Distance Learning

Distance learning has been available in one form or another for hundreds of years. One of the earliest examples of distance learning occurred in England in the 1840s. The Pitman Company offered training in shorthand through a series of lessons mailed to students across the country. In hindsight, this was very much a one-way, noninteractive approach to distance learning.

Until recently, public interest in distance learning was especially high only where there was a widely distributed student population. One of the more famous modern examples of distance learning took place in Australia. Beginning in 1951, the School of the Air officially opened to broadcast, by radio, lessons to the children of the Outback. Beginning with one-way transmissions, coordinators soon added a question period to follow the broadcasts. Interactivity, even in the beginning stages of technology-enhanced distance learning, was highly valued.

Today, many institutions of higher education, both public and private, are making use of distance
learning to broaden the reach and scope of their particular curricula. Of course, it is very important that students who participate in distance learning are self-motivated and able to work independently, but teachers also have a particularly vital role to play in the process of distance learning and its overall evolution.

**Basic Features of Distance Learning**

Distance learning and distance education programs are experiencing a boom of sorts with the advent of the Internet and the ability to transmit increasingly large audio and video files over increasingly available and accessible bandwidth. A proper examination of distance learning must begin by determining how distance learning differs from face-to-face learning. In fact, many research studies focusing on the efficacy of distance learning compare it with face-to-face learning. For that reason, researchers view many of the tools and affordances of modern distance learning as supplements to or extensions of traditional or face-to-face learning experiences.

One of the most basic features of traditional or face-to-face learning for the student is the ability to listen to and interact with the instructor. Distance learning, using a variety of tools and technological affordances, can replicate the primary experience of listening to an instructor using audio files downloaded and played on a computer or portable listening device. Advances to this technology also enable students to view the instructor and available visual aids on convenient handheld devices. The availability of such files leads to another feature of distance learning, the ability to shift the learning experience out of classroom into a different time and place. This distribution of the learning experience is known variously as “phase shifted learning,” “asynchronous learning,” and “any place any time learning.”

**Transactional Contact**

Another important and essential element easily accomplished in face-to-face instruction is transactional contact, or the ability of the instructor to interact with the student. With the advent of several software tools, instructors can shift their transactional contact with students beyond the classroom. Instructors accomplish this in two different ways.

In one way, the instructors retain the ability to speak and even see the student over distance in real time. Instructors accomplish this interactivity relatively inexpensively with a simple web camera working in concert with instant messaging software. There is available to instructors a range of sophisticated video conference systems that transmit video and audio over the Internet. These systems make use of an Internet networking protocol widely referred to as “Video over IP.” An earlier version of this protocol, which is still in use, makes use of ISDN or Internet Subscriber Digital Networks to allow for two-way video conferencing.

The other way of maintaining close transactional contact between the instructor and the student is asynchronously using software-driven quizzes and reviews of instructional material that provide automated feedback to the student. Instructors can provide this feedback in varying intervals, for example, after the submission of responses to a series of questions or upon the submission of a response to a single question. Variations of this technique are gaining greater use within distance learning environments. One example is to provide the conditional release of assignments so that before students can progress to the next stage or segmented element of learning, they must demonstrate, in some manner, a degree of understanding the material. The ability to automate this mastery learning technique is a tool that is causing some instructors to revamp the pedagogical
structure of their courses.

**Distributed Learning Materials**

One of the basic elements of distance learning that technology has enhanced recently is the ability for instructors to distribute reading materials for courses quickly and efficiently as electronic documents accessible across computing platforms. Many instructors use the ubiquitous portable document format also known as PDF, which requires a free software reader. The instructor creates these documents, gathers them from online sources, or scans them directly from a primary source.

It is not only documents that can be distributed in this manner, but also spreadsheet files, still photographic images, software programs, and even movies. Such a wealth of resources, commercially available and user created, allows for the possibility of increased opportunities for reinforcement or for the reteaching of concepts. Resources such as these are known as Learning Objects. Many distance learning projects may store them in what is known as a Learning Object Repository (LOR) and make them available to other institutions and professors so they do not need to reproduce work that another colleague has already done.

**Modification of Pedagogy**

Such a wide availability of tools and resources also allows the instructor to guide the student to the pedagogical experience and learning environment that is most suited to the learning style of the student. Such an explicit design of the learning experience, one that the instructor can tailor directly to the learning style of the student, is a great challenge to instructional design experts and still the goal of many creative instructors.

In addition to modifying instruction to learning styles, the latest technological affordances improve instructors’ ability to present materials to accommodate physical impairments or disabilities. For example, students may use text-reading software to read and review class materials, and students with visual impairments can use adaptive technologies to increase or improve the visual presentation of materials using the adaptive technologies of their choice.

**Course Management Systems**

With so many tools available to instructors, an essential element of distance learning has become the Course Management System, sometimes known as CMS, or a Learning Management System, or LMS. These management systems make available to instructors a variety of tools they may opt to use to make the distance learning experience uniquely tailored to the course content. The potential tools and affordances, of course, can be broken down along various continua, such as content rich versus content poor or synchronous versus asynchronous.

**Discussion Lists**

Discussion lists are primarily asynchronous, text-based opportunities for students to respond to questions and discussion topics and to interact with each other in the familiar environment of their e-mail program of choice. Innovations in this area are allowing students to leave video or audio messages for each other and their instructor.

**Threaded Discussions**

Commonly known as discussion boards, threaded discussions are web based, and the instructor can set the degree to which students may respond by limiting length of response or the number of responses.
One benefit of the threaded discussion is that instructors can populate the discussions with small groups of students and change those groupings as needed.

**Chat**
Chat, sometimes known as the Internet Relay Chat (IRC), allows multiple participants in the course to enter a text-based environment to correspond with each other and the instructor. An unfortunate drawback of this tool is that students sometimes have difficulty following multiple conversations simultaneously. For this reason, many course management systems allow students to color code their text to make it more easily recognizable by others in the conversation. Some course management systems allow the use of images or avatars to represent the speaker in a conversation.

**Internal Communication**
Course Management Systems sometimes employ their own e-mail services that are accessible only when the students log on to the course. Also widely available are tools for instant messaging or paging another individual in the class when students log on to the system. Recent iterations of this tool allow the posting of video messages.

**Presentation Tools**
Instructors who employ visual slide presentations in their face-to-face teaching can post the presentation in its entirety to the online course. They can also use many available tools to capture their speech and include their narration with the presentation or post their narration as an enhanced podcast that students may review asynchronously. Using other widely available tools, instructors may also capture a sequence of keystrokes to illustrate a technique or the steps necessary to operate a software program. They may also use an electronic white board enabling the instructor to interact with graphical elements in the course using a digital marker.

**Digital Content**
Distance learning also enables students to participate in the creation of learning objects that the instructor can share with the class or other colleagues. One of these techniques is to create a repository of digital objects for analysis and critique by other students in the course. Depending upon the nature of the digital objects, such as images, movies, software, and Web pages, there are several systems by which students may access these objects. For example, students may create a glossary for use by fellow students. Students may also make use of a tool known as a wiki, which will allow classmates the opportunity to edit a living document as the knowledge base is refined, improved upon, or corrected.

Instructors also may make use of the repository of digital teaching tools created by their peers in the field. Instructors add these digital tools to the digital repository and tag them with key words, sometimes known as metatags, which allow the repository to store and retrieve the objects with ease. The rise of this method of exchanging digital teaching tools has led to the development of standards for the industry. The Sharable Content Object Reference Model (SCORM) is the standard for tracking records in learning management systems. The benefit of having this sort of repository is that the users, both students and instructors, can go to the database, or repository, to view or download tools.

**Issues Related to Distance Learning**
In some institutes of higher education, much has been made of the increasing absenteeism of students because of professors and instructors being able to distribute their lectures in digital format. Some
instructors see this loss of students in a physical building as anathema to their understanding and perception of themselves as teachers. With so much of the face-to-face classroom experience enhanced by myriad ways of gaining feedback from the class, from laughter to subtle signs of discomfort, the instructor loses the opportunity, in some respects, to modify the presentation of concepts to his or her students. For example, an instructor who is speaking about a social networking site on the Internet as a tool for research may have his or her lecture interrupted by a comment from a student who may be aware of a similar site that the professor could then include in future lectures or use to forward his or her own research agenda.

Assessment and Shifting Strategies

One of the most common features of any sort of educational interaction is the ability of the instructor to perform either summative or formative evaluation to determine whether students have understood the concepts of the course. In a face-to-face teaching environment, instructors conduct performance evaluations informally or through assigned projects, whereas summative evaluations are usually the domain of the pencil-and-paper test for examination.

In the online distance learning environment, one of the earliest implementation issues to arise reflected the difficulties of assessing work done by students beyond the scrutiny and gaze of the instructor. Responses to the difficulty of determining whether the students’ work is their own have gone in two directions. One way of reducing the possibility that students might share answers is for instructors to provide limited timed testing situations whereby students have only one opportunity to answer questions.

Such tools and techniques to restrict the possibility that students will do summative evaluations in concert with their classmates have their place. However, other instructors have taken a different and potentially transformative approach in response to this problem. That approach has been to change the nature of the assignments students are doing in class. The changes have used many of the tools and affordances of the distance learning environment and course management system employed. Responses to the issues related to assessing learning have led to a major shift in pedagogical models.

Collaborative Teams

One of these transformational changes in pedagogy has been the development of collaborative teams in which students work on a project together online and evaluate each other’s contributions to the sum total of the project. The overarching concept behind this approach is that in order to accomplish the project, as a team, members needed a full conceptual grasp of the core concepts. Students would then demonstrate this understanding of the concepts through methods incorporating higher-level thinking skills. Simple restatement of basic facts, which may have been a standard feature in a face-to-face classroom, is a technique that instructors are replacing with project-based activities involving synthesis of new material, evaluation of the work of others, and activities typically associated with complicated thinking tasks.

The Role of Community in Distance Learning

In distance learning, two opposing pedagogical perspectives have had an impact on instructional design: symbol processing and situated cognition. With symbol processing, the teacher transforms abstract ideas into concrete images that he or she presents to the learner via some sort of medium such as television, radio, or the Internet. The job of the learner is to perceive, decode, and store the
information from the concrete images.

With situated cognition, the student interacts with both the problem and the construction of a solution to the problem. Students engage in a process of inquiry and draw conclusions from that process. Instructional designers develop presentations that enable learners to construct new knowledge by interacting with the instruction.

In some respects, distance learning recreates the teacher–student interaction of a face-to-face classroom, but it does so through either synchronous or asynchronous means. Although generally considered primarily asynchronous with the occasional synchronous interactions through a variety of technological means, recent studies have suggested that one of the better models for distance education includes some face-to-face teaching and direct interaction with students. Instructors can effectively place this face-to-face interaction at the beginning of the course or spread it throughout. The physical interaction with students allows the online instructor an opportunity for rich feedback and encourages a more robust learning community.

Virtual learning communities, facilitated by the instructor, increase interactivity between teacher and student and encourage students to interact with each other and with the course content in the online environment. In the case where many thousands of miles separate students, instructors can use inexpensive technological tools to encourage the sense of a learning community.

**Lifelong Learning and Distance Education**

Although the traditional perception of distance learners is that of the university student or adults engaged in lifelong learning, there are many interesting forms of distance education occurring at the elementary and middle school levels of education. Mostly these are in the form of enrichment activities or telecommunication projects involving the entire class. There are many online sources for projects such as these if teachers were to express an interest in participating. Some projects make use of televised instructional sources, whereas others are entirely text based through electronic mail or through the Internet. Recently, students at this stage in their education have participated as data gatherers in a larger network of students, sometimes global in nature, engaged in discovery projects.

At the secondary school level, rural classrooms and small school districts are making use of distance education courses to help students take advanced placement courses that their school district is not able to offer because of limited enrollment or funding. Educators can also offer these opportunities for taking courses outside the core curriculum in areas such as vocational education or foreign language to students who are not able to attend school because of a disability or because they have chosen to be homeschooled.

One concern that some educators have recently raised is that the boom in distance education may disenfranchise students lacking the skills of self-motivation and discipline. The availability of technological tools enabling the growth of distance learning does not ensure that instructors are well trained either in the development of online courses or in their delivery. Although a high level of interactivity with students can overcome deficiencies in some online courses, some states have considered mandating that at least one online course be required for graduation. In this way, students will gain familiarity with distance education methods and delivery systems, a method of teaching they will undoubtedly encounter in their lives beyond high school.

**Digital Literacy**

https://search.credoreference.com/content/topic/distance_learning
Although television and the Internet can motivate students and stimulate an interest in learning, exciting visuals may serve to focus students’ attention more on the form than on the message and underlying meaning. This concern has led to much discussion about the necessity of developing a new kind of literacy in which students are able to distinguish between fact and persuasion, between valid information and propaganda, and between reliable sources and biased opinion. Educators have begun calling this phenomenon digital literacy or Internet literacy.

Advantages and Disadvantages
There appear to be as many advantages to distance learning as there are disadvantages for each of the stakeholders involved. For students, distance learning renders distance from training centers less relevant. Distance learning has flexibility, accessibility, the ability to create a self-paced learning environment, and less wasted time. That said, there is a loss of direct interaction with the instructor and classmates, a potential loss of immediate feedback, the risk of a higher rate of failure, no access to a physical library, and the potential limitations of the student’s own computer system.

For the instructors, there is the possibility of a larger audience, less classroom repetition, more time available to upgrade the course, and the acquisition of a new teaching experience. However, distance learning changes the dynamics of the classroom environment, there is no visual contact with students, it is sometimes difficult to evaluate students’ work, and there is a huge workload at the beginning of the course.

For the institution, there is no need for a physical building, there is potential for international clientele, and the possibility of additional income streams. However, the institution may be in a position to have to reevaluate how it grants credits, it may have to redefine the role of the professor’s duties, and it may have to define the rules and procedures for online courses. Additionally, the institution must police an increasingly complex environment regarding copyright and digital rights management.

Distance Learning 2.0
Distance learning is turning a huge corner as scholars and nonscholars alike are using newly emerging social networking tools. In the most recent versions of distance learning, instruction held within classrooms is gradually shifting toward classes conducted virtually, within a computer-mediated communication environment. What is happening now is a steady shift toward learning beyond the classroom in ways that we might excuse the most forward of thinkers for not envisioning.

Sometimes referred to as e-Learning 2.0 or the read/write web, with social networking tools requiring almost no specialized software such as blogs, wikis, and podcasting, the nature of distance learning is transforming. It is moving from the formal model of the instructor in charge of a curriculum to that of an informal gathering of like-minded researchers, both professional and amateur, communicating with each other through direct dialogue or through a trail of references. Using any of a large range of tools, students, classes, or even whole departments can add tags to articles found online and store these tags as links to the articles in such a way that they can share their finds with their larger community of scholars.

The use of interactive blogs creates a social network that moves beyond the very concept of what a course is and can move learning to a place beyond the classroom and even beyond the structured curriculum. Even within a structured curriculum, online blogging tools, with their capability of allowing comments, will enable outside experts to add comments and insights to transform and increase the
potential for enrichment to the distance learning environment. Such tools support increased feedback from instructors, but there is even greater potential for the development of community-centered instruction. Such tools move education from theoretical notions about social cognition and the development of communities of practice to concrete experiences for teachers to create online learning communities.

Of course, the educational interactions do not simply occur without planning on the part of the instructor. Despite the increased participation by all but the most reluctant students to participate in class discussions in an online setting, there is still a need to set guidelines and provide educational leadership and facilitation.

The tool known as a wiki enables many users to add to a base of knowledge drawn from their own research and investigations into a topic. Instructors can add a line or two of information with a link to an outside reference source that students can then modify and inform with many other additional sources. This knowledge construction is more actively engaging than other, more passive forms of pedagogy. With the advent of new online tools, such wikis are becoming commonplace classroom tools in the distance learning environment.

See also
Learning Communities; Lifelong Learning; Media Literacy

Further Readings

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