Distance Learning and Early Educational Theories and Technologies

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Abstract:
Students and institutions embrace distance learning with good reason. Universities benefit by adding students without having to construct classrooms and housing, and students reap the advantages of being able to work where and when they choose. Public school systems offer specialty courses such as small-enrollment languages and Advanced Placement classes without having to set up multiple classrooms. In addition, homeschooled students gain access to centralized instruction. Now a day's the concept of distance learning explores more facilities for the opportunity of getting education at home. This review indicates that how distance learning developed day to day in the era of education.

Keywords: *Distance learning, Early education, E-learning*

1. Introduction

Distance learning, also called distance education, e-learning, and online learning, form of education in which the main elements include physical separation of teachers and students during instruction and the use of various technologies to facilitate student-teacher and student-student communication. Distance learning traditionally has focused on non-traditional students, such as full-time workers, military personnel, and nonresidents or individuals in remote regions who are unable to attend classroom lectures. However, distance learning has become an established part of the educational world, with trends pointing to ongoing growth. In U.S. higher education alone, more than 5.6 million university students were enrolled in at least one online course in the autumn of 2009, up from 1.6 million in 2002.

An increasing number of universities provide distance learning opportunities. A pioneer in the field is the University of Phoenix, which was founded in Arizona in 1976 and by the first decade of the 21st century had become the largest private school in the world, with more than 400,000 enrolled students. It was one of the earliest adopters of distance learning technology, although many of its students spend some time in classrooms on one of its dozens of campuses in the United States, Canada, and Puerto Rico. A precise figure for the international enrollment in distance learning is unavailable, but the enrollment at two of the largest public universities that heavily utilize distance learning methods gives some indication: in the early 21st century the Indira Gandhi National Open University, headquartered in New Delhi, had an enrollment in excess of 1.5 million students, and the China Central Radio and TV University, headquartered in Beijing, had more than 500,000 students.

2. Characteristics of Distance Learning

Various terms have been used to describe the phenomenon of distance learning. Strictly speaking, distance learning (the student's activity) and distance teaching (the teacher's activity)

together make up distance education. Common variations include e-learning or online learning, used when the Internet is the medium; virtual learning, which usually refers to courses taken outside a classroom by primary- or secondary-school pupils (and also typically using the Internet); correspondence education, the long-standing method in which individual instruction is conducted by mail; and open learning, the system common in Europe for learning through the "open" university.

Four characteristics distinguish distance learning. First, distance learning is by definition carried out through institutions; it is not self-study or a non-academic learning environment. The institutions may or may not offer traditional classroom-based instruction as well, but they are eligible for accreditation by the same agencies as those employing traditional methods.

Second, geographic separation is inherent in distance learning, and time may also separate students and teachers. Accessibility and convenience are important advantages of this mode of education. Well-designed programs can also bridge intellectual, cultural, and social differences between students.

Third, interactive telecommunications connect individuals within a learning group and with the teacher. Most often, electronic communications, such as e-mail, are used, but traditional forms of communication, such as the postal system, may also play a role. Whatever the medium, interaction is essential to distance education, as it is to any education. The connections of learners, teachers, and instructional resources become less dependent on physical proximity as communications systems become more sophisticated and widely available; consequently, the Internet, cell phones, and e-mail have contributed to the rapid growth in distance learning.

Finally, distance education, like any education, establishes a learning group, sometimes called a learning community, which is composed of students, a teacher, and instructional resources-i.e., the books, audio, video, and graphic displays that allow the student to access the content of instruction. Social networking on the Internet promotes the idea of community building. On sites such as Face book and You Tube, users construct profiles, identify members ("friends") with whom they share a connection, and build new communities of like-minded persons. In the distance learning setting, such networking can enable students' connections with each other and thereby reduce their sense of isolation.

3. Early History of Distance Learning

3.1 Correspondence Schools in the 19th Century

Geographical isolation from schools and dispersed religious congregations spurred the development of religious correspondence education in the United States in the 19th century. For example, the Chautauqua Lake Sunday School Assembly in western New York State began in 1874 as a program for training Sunday school teachers and church workers. From its religious origins, the program gradually expanded to include a nondenominational course of directed home reading and correspondence study. Its success led to the founding of many similar schools throughout the United States in the Chautauqua movement.

It was the demand by industry, government, and the military for vocational training, however, which pushed distance learning to new levels. In Europe, mail-order courses had been established by the middle of the 19th century, when the Society of Modern Languages in Berlin offered correspondence courses in French, German, and English. In the United States, companies such as Strayer's Business College of Baltimore City (now Strayer University), which was

founded in Maryland in 1892 and included mail-order correspondence courses, were opened to serve the needs of business employers, especially in the training of women for secretarial duties. Most nonreligious mail-order correspondence courses emphasized instruction in spelling, grammar, business letter composition, and bookkeeping, but others taught everything from developing esoteric mental powers to operating a beauty salon. The clear leader in correspondence course instruction in American higher education at the end of the 19th century was the University of Chicago, where William Rainey Harper employed methods that he had used as director of the Chautauqua educational system for several years starting in 1883.

4. Early Educational Theories and Technologies

4.1 Behaviourism and Constructivism

During the first half of the 20th century, the use of educational technology in the United States was heavily influenced by two developing schools of educational philosophy. Behaviourism, led by the American psychologist John B. Watson and later by B.F. Skinner, discounted all subjective mental phenomena (e.g., emotions and mental images) in favour of objective and measurable behaviour. The constructive approach arose from ideas on progressive education advanced by the American philosopher John Dewey and others, who emphasized the education of the "whole child" to achieve intellectual, physical, and emotional growth and argued that learning is best accomplished by having children perform tasks rather than memorize facts. Constructivism, whose leading figure was the French developmental psychologist Jean Piaget, asserted that learning arises from building mental models based on experience. These theories led to different techniques for the use of media in the classroom, with behaviourism concentrating on altering student behaviour and constructivism focusing on process- and experience-based learning.

5. Technological Aides to Education

One of the first technological aides to education was the lantern slide (e.g., the Linnebach lantern), which was used in the 19th century in chautauqua classes and lyceum schools for adults and in traveling public-lecture tent shows throughout the world to project images on any convenient surface; such visual aids proved particularly useful in educating semiliterate audiences. By the start of the 20th century, learning theories had begun concentrating on visual approaches to instruction, in contrast to the oral recitationpractices that still dominated traditional classrooms.

The first significant technological innovation was made by the American inventor Thomas Edison, who devised the tinfoil phonograph in 1877. This device made possible the first language laboratories (facilities equipped with audio or audiovisual devices for use in language learning). After World War I, university-owned radio stations became commonplace in the United States, with more than 200 such stations broadcasting recorded educational programs by 1936.

Edison was also one of the first to produce films for the classroom. Many colleges and universities experimented with educational film production before World War I, and training films were used extensively during the war to educate a diverse and often illiterate population of soldiers in a range of topics from fighting technique to personal hygiene. Improvements in filmmaking, in particular the ability to produce "talkies," were put to use just before and during World War II for technical training and propaganda purposes. While the most artistically acclaimed propaganda production may have been Triumph of the Will (1935), one of a series of films made by Leni Riefenstahl during the 1930s for the German Nazi government, similar films

were produced by all the major belligerents. In the United States the army commissioned Hollywood film director Frank Capra to produce seven films, the widely acclaimed series Why We Fight (1942–45), in order to educate American soldiers on what was at stake.

Instructional television courses began to be developed in the 1950s, first at the University of Iowa. By the 1970s community colleges all across the United States had created courses for broadcast on local television stations. Various experiments in computer-based education also began in the 1950s, such as programmed or computer-assisted instruction, in which computers are used to present learning materials consisting of text, audio, and video and to evaluate students' progress. Much of the early research was conducted at IBM, where the latest theories in cognitive science were incorporated in the application of educational technology. The next major advancement in educational technology came with the linking of computers through the Internet, which enabled the development of modern distance learning.

6. Modern Distance Learning

6.1 Web-based Courses

By the beginning of the 21st century, more than half of all two-year and four-year degree-granting institutions of higher education in the United States offered distance education courses, primarily through the Internet. With more than 100,000 different online courses to choose from, about one-quarter of American students took at least one such course each term. Common target populations for distance learning include professionals seeking recertification, workers updating employment skills, individuals with disabilities, and active military personnel.

Although the theoretical trend beginning in the 1990s seemed to be toward a stronger reliance on video, audio, and other multimedia, in practice most successful programs have predominately utilized electronic texts and simple text-based communications. The reasons for this are partly practical individual instructors often bear the burden of producing their own multimedia—but also reflect an evolving understanding of the central benefits of distance learning. It is now seen as a way of facilitating communication between teachers and students, as well as between students, by removing the time constraints associated with sharing information in traditional classrooms or during instructors' office hours. Similarly, self-paced software educational systems, though still used for certain narrow types of training, have limited flexibility in responding and adapting to individual students, who typically demand some interaction with other humans in formal educational settings.

Modern distance learning courses employ Web-based course-management systems that incorporate digital reading materials, podcasts (recorded sessions for electronic listening or viewing at the student's leisure), e-mail, threaded (linked) discussion forums, chat rooms, and test-taking functionality in virtual (computer-simulated) classrooms. Both proprietary and open-source systems are common. Although most systems are generally asynchronous, allowing students access to most features whenever they wish, synchronous technologies, involving live video, audio, and shared access to electronic documents at scheduled times, are also used. Shared social spaces in the form of blogs, wikis (Web sites that can be modified by all classroom participants), and collaboratively edited documents are also used in educational settings, but to a lesser degree than similar spaces available on the Internet for socializing.

6.2 Web-based Services

Alongside the growth in modern institutional distance learning has come Web-based or facilitated personal educational services, including e-tutoring, e-mentoring, and research

assistance. In addition, there are many educational assistance companies that help parents choose and contact local tutors for their children while the companies handle the contracts. The use of distance learning programs and tutoring services has increased particularly among parents who homeschooled their children. Many universities have some online tutoring services for remedial help with reading, writing, and basic mathematics, and some even have online mentoring programs to help doctoral candidates through the dissertation process. Finally, many Web-based personal-assistant companies offer a range of services for adults seeking continuing education or professional development.

6.3 Open Universities

One of the most prominent types of educational institutions that make use of distance learning is the Open University, which is open in the sense that it admits nearly any adult. Since the mid-20th century the Open University movement has gained momentum around the world, reflecting a desire for greater access to higher education by various constituencies, including non-traditional students, such as the disabled, military personnel, and prison inmates.

The origin of the movement can be traced to the University of London, which began offering degrees to external students in 1836. This paved the way for the growth of private correspondence colleges that prepared students for the University of London's examinations and enabled them to study independently for a degree without formally enrolling in the university. In 1946 the University of South Africa, headquartered in Pretoria, began offering correspondence courses, and in 1951 it was reconstituted to provide degree courses for external students only. A proposal in Britain for a "University of the Air" gained support in the early 1960s, which led to the founding of the Open University in 1971 in the so-called new town of Milton Keynes. By the end of the 1970s the university had 25,000 students, and it has since grown to annual enrollments in the hundreds of thousands. Open universities have spread across the world and are characterized as "mega-universities" because their enrollments may exceed hundreds of thousands, or even millions, of students in countries such as India, China, and Israel.

As one of the most successful non-traditional institutions with a research component, the Open University is a major contributor to both the administrative and the pedagogical literature in the field of open universities. The university relies heavily on prepared materials and a tutor system. The printed text was originally the principal teaching medium in most Open University courses, but this changed somewhat with the advent of the Internet and computers, which enabled written assignments and materials to be distributed via the Web. For each course, the student is assigned a local tutor, who normally makes contact by telephone, mail, or e-mail to help with queries related to the academic materials. Students may also attend local face-to-face classes run by their tutor, and they may choose to form self-help groups with other students. Tutor-graded assignments and discussion sessions are the core aspects of this educational model. The tutors and interactions between individual students are meant to compensate for the lack of face-to-face lectures in the Open University. To emphasize the tutorial and individualized-learning aspects of its method, the Open University prefers to describe it as "supported open learning" rather than distance learning.

7. Academic Issues and Future Directions

From the start, correspondence courses acquired a poor academic reputation, especially those provided by for-profit entities. As early as 1926, as a study commissioned by the Carnegie Corporation found, there was widespread fraud among correspondence schools in the United States, and there were no adequate standards to protect the public. While the situation was later

improved by the introduction of accrediting agencies that set standards for the delivery of distance learning programs, there has always been concern about the quality of the learning experience and the verification of student work. Additionally, the introduction of distance learning in traditional institutions raised fears that technology will someday completely eliminate real classrooms and human instructors.

Because many distance learning programs are offered by for-profit institutions, distance learning has become associated with the commercialization of higher education. Generally, critics of this trend point to the potential exploitation of students who do not qualify for admission to traditional colleges and universities, the temptation in for-profit schools to lower academic standards in order to increase revenue, and a corporate administrative approach that emphasizes "market models" in educational curricula, or the designing of courses and curricula to appeal to a larger demographic in order to generate more institutional revenue-all of which point to a lowering of academic standards.

Distance learning, whether at for-profit or traditional universities, utilizes two basic economic models designed to reduce labour costs. The first model involves the substitution of labour with capital, whereas the second is based on the replacement of faculty with cheaper labour. Proponents of the first model have argued that distance learning offers economies of scale by reducing personnel costs after an initial capital investment for such things as Web servers, electronic texts and multimedia supplements, and Internet programs for interacting with students. However, many institutions that have implemented distance learning programs through traditional faculty and administrative structures have found that ongoing expenses associated with the programs may actually make them more expensive for the institution than traditional courses. The second basic approach, a labour-for-labour model, is to divide the faculty role into the functions of preparation, presentation, and assessment and to assign some of the functions to less-expensive workers. Open universities typically do this by forming committees to design courses and hiring part-time tutors to help struggling students and to grade papers, leaving the actual classroom instruction duties, if any, to the professors. These distance learning models suggest that the largest change in education will come in altered roles for faculty and vastly different student experiences.

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