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From the Postal Medium to Electronic Media: A Historical Overview of the Development of Distance Learning in Higher Education with a Focus on Correspondence Study and Electronic Delivery Methods

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ABSTRACT

FROM THE POSTAL MEDIUM TO ELECTRONIC MEDIA: A HISTORICAL
OVERVIEW OF THE DEVELOPMENT OF DISTANCE LEARNING IN
HIGHER EDUCATION WITH A FOCUS ON CORRESPONDENCE
STUDY AND ELECTRONIC DELIVERY METHODS

by

Robson Marinho

Chair: Paul Brantley

ABSTRACT OF GRADUATE STUDENT RESEARCH

Thesis

Andrews University

School of Education

Title: FROM THE POSTAL MEDIUM TO ELECTRONIC MEDIA:
A HISTORICAL OVERVIEW OF THE DEVELOPMENT OF DISTANCE
LEARNING IN HIGHER EDUCATION WITH A FOCUS ON
CORRESPONDENCE STUDY AND ELECTRONIC DELIVERY
METHODS

Name of researcher: Robson Marinho

Name and degree of faculty chair: Paul Brantley, Ph.D.

Date completed: July 2001

Purpose of the Study

The purpose of this study was to overview the development of distance learning in higher education both in the United States and around the world, stressing the relationship between correspondence study and electronic delivery methods as a basis for understanding and fostering different distance-learning methodologies.

Significance of the Study

The significance of this study resides in the fact that the current technological revolution is challenging all traditional forms of higher education and pointing to distance learning as the great phenomenon of today's educational world. If distance education has played a secondary role in higher education so far, it is now in the center of the arena (Ehrmann, 1999).

Methodology

This study explored three main sources of information: Written historical documents such as books and journal articles, bulletins and brochures of some specific institutions, and an online search on the Web site of each mega-university around the world, stressing the historical background that shaped their structure.

Findings and Conclusions

In this study I came to three basic conclusions: First, I concluded that there is a close relationship between the selection of instructional delivery systems and the university's tradition. Second, although correspondence is not the main instructional media in distance education today, it is still widely used to support electronic media, and still constitutes the main media in some of the mega-universities. Finally, the study found that the struggle for credibility is not easier now than it was before. There is still strong prejudice to face.

Andrews University

School of Education

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A Thesis

Presented in Partial Fulfillment

of the Requirements for the Degree

Master of Arts

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June 2001

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July 25, 2001
Date approved

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CHAPTER 1

INTRODUCTION AND BACKGROUND

The journey from the postal medium to electronic media in distance education has been a long way. In fact, it is not complete yet, as it is still under construction. That means, distance education is still trying to integrate correspondence study with all forms of electronic media, especially the use of the Internet and electronic mail. Along the way, many forms of delivery methods and media devices have been used to supplement correspondence study, but their application has not always been as effective as expected. The reasons vary, as we will explore later in this study.

In order to better understand the framework for distance learning today, this study overviews the historical background of distance education and examines the relationship between correspondence study and different forms of instructional media and technology. It pays particular attention to the main delivery systems for distance education, both in traditional universities in the United States and in the mega-universities around the world.

Importance of the Study

The importance and relevance of this topic resides in the fact that the current technological revolution is challenging all traditional forms of higher education and pointing to distance learning as the great phenomenon of today's educational world. If distance education has played a secondary role in higher education so far, it is now at the center of the arena (Ehrmann, 1999). The voices of many scholars worldwide are claiming

that distance learning is the cyber-revolution that will change education. Ehrmann (1999) refers to three major educational revolutions in the history of the world. The first one began over 2,500 years ago, when learners moved from simple oral exchange to reading and writing. The second one was the campus revolution, when scholars and students built and organized shared facilities. Now, as he says, "We are in the middle of a third revolution, a transformation made possible by computing, video, and telecommunications" (p. 43).

According to Gladieux (2000), "The sensational new phenomenon is on-line learning. The 'virtual university' has arrived, and management pundit Peter Drucker has predicted that the residential university campus will be defunct within 30 years" (p. 3). Although quoting Drucker, Gladieux is not as assertive. He thinks that the next 30 years will be the trial-and-error process period. Yet Gladieux points out the three powerful forces that are fueling a global market for distance learning: "The first is exploding demand. Human intellectual capital is the acknowledged coin of the realm in the increasingly globalized economy. Worldwide demand for education and training will continue to grow on into the new millennium" (p. 3). According to him, the other two fueling forces are the "lure for profit," because education now is a big business, and the speed of innovation. "The World Wide Web shatters barriers of time and space in ways unimagined only a few years ago" (p. 4). Whether or not these scholars have the right perspective, the future will demonstrate. The recent history of distance education does not seem to be a good predictor of such a fast change, as it has been a long and slow process.

Statement of the Problem

There has been a tendency by some enthusiastic scholars to overestimate the role of electronic media in distance education and minimize the contribution of correspondence

study in the past. However, as Noble (1998) states, the rhetoric of the correspondence education movement a century ago was almost identical to that of the current distance-education movement, which was, anytime, anywhere, accessible to anyone. This study looks back to the history of distance education to see how correspondence related to electronic media in the past and how it is in the present. Simply stated, the problem is: What is the relationship between correspondence study and electronic media in distance education? Have electronic media replaced the postal media or is there room for both in today's world?

Research Questions

To guide this discussion, the following research questions will be considered:

1. Have electronic media replaced correspondence as an instructional method in distance education?
2. What history says about the relationship between correspondence study and electronic media and their contribution to distance education?
3. Which institutions have played a major role in developing distance education in the United States?
4. What main instructional delivery media are used in each of the mega-universities around the world?

The next few pages seek to respond to those questions and their implications.

Purpose of the Study

As an overview, this study is not a complete documentation of the history of distance learning, but rather an examination of the relationship between the correspondence study and the different forms of electronic instructional media. As the technological

revolution is a relatively recent phenomenon, this study concentrates neither on the merit of such a revolution nor on its short history. Instead, the purpose of this study is to overview the development of distance learning in higher education both in the United States and around the world. Rather than exploring the technological revolution, the main purpose is to present the historical background of distance education, stressing the role of correspondence study and electronic delivery methods as a basis for understanding and fostering different distance-learning strategies.

Scope and Limitations of the Study

This study has two major limitations. The first chapter draws the history of distance education in the United States from its beginning in the 19th century to the present and as it has been recorded by different authors and historians. It does not examine the role played by many colleges and other minor institutions, but it is limited to those universities that played a major role in the development of distance education, with a few examples of some small universities.

The second chapter outlines the development of the mega-universities around the world with special attention to the instructional media and delivery systems used. It is not a full history of distance education in the whole world, as it is limited to the experience of the 11 mega-universities of the world. Therefore, there is no chronological examination of the beginning of distance education in the world, but a short overview at the history of some major institutions.

Definition of Terms

Before we enter the discussion, it is important to define the main terminology to be used. Heinich, Molenda, Russell, and Smaldino (1999) present a glossary of terms related

to distance learning and instructional strategies, and, as a basic criterion, the terms used in this study correspond to the meaning presented in that glossary (pp. 401-411). Some of the technical terms used in this study are described below:

Medium: A means of communication. Derived from the Latin *medium* ("between"), the term refers to anything that carries information between a source and a receiver. Plural: *media*.

Method: A procedure of instruction selected to help learners achieve their objective or to internalize a message.

Computer-assisted instruction (CAI): Instruction delivered directly to learners by allowing them to interact with lessons programmed into the computer system.

Multimedia: Sequential or simultaneous use of a variety of media formats in a given presentation or self study program.

Online instruction: Method of instruction connected to or installed in a computer.

Instructional technology: A complex integrated process involving people, procedures, ideas, devices, and organization, for analyzing problems, and devising, implementing, evaluating, and managing solutions to those problems in situations in which learning is purposive and controlled.

Postal medium: Generic term used to refer to correspondence study. Since the beginning of the century, the terms "correspondence study" and "home study" were the official terminology used. In 1968, the term "independent study" was introduced by the National University Extension Association (NUEA), according to Watkins and Wright (1991, p. 113).

Distance learning/education – “Any instructional situation in which the learner is separated in time or space from the point of origination, characterized by limited access to the teacher and other learners” (Heinich et al., 1999, p. 404).

As Giltrow (1989) informs us, the expression “distance education was used in a 1903 magazine article. It reappeared in the early 1970s, and by the 1980s the term had become the generic name for education at a distance, including home study, correspondence education, open learning, telecourses, and teleconferencing” (p. 7). On the other hand, the term “open university” refers to the universities that offer post-secondary degrees mostly at a distance, while “mega-university” is the term used for the open universities that have achieved an enrollment of 100,000 students or more (Daniel, 1997, p. 14).

For the purpose of this thesis, the terms “distance education” and “distance learning” are used alternatively in this broad sense, meaning any form of education at a distance. With this in mind, we will start our journey back to the 19th century by taking a quick look at some institutions that played a relevant role in distance education in the United States.

Methodology

This study is an overview employing the historical research methodology. Fraenkel and Wallen (2000) compare historical with qualitative research in that there is “no manipulation of variables like there is in experimental research, but more particularly, it is unique in that it focuses primarily on the past” (p. 573). Based on those authors, this study located relevant sources of historical information and then interpreted this information as it relates to the problem or question that originated the study.

Data Collection

The data collection is based on print media and Web search. Basically, this study explores three main sources of information, which are:

1. Written historical documents such as books and journal articles about the development of correspondence study and instructional media in the United States
2. Bulletins and brochures of some specific institutions describing the relevant experience of such institutions
3. An online search on the Web site of each mega-university around the world, regarding the historical background that shaped the structure of the mega-universities, and looking for the most updated information about the use of different instructional media and delivery methods in those institutions

Findings and Conclusions

Based on the information provided by the data analysis, I drew conclusions about the relationship between correspondence study and electronic media. The conclusions point to the influence of the historical background on the choice of instructional delivery media in distance education by different institutions. Basically, I came to three main conclusions: First, I concluded that there is a close relationship between the selection of instructional delivery media and the university's tradition. Second, although correspondence is not the main instructional media in distance education today, it is still widely used to support electronic media, and still constitutes the main media in some of the mega-universities. Finally, the study found that the struggle for credibility is not easier now than it was before. There is still strong prejudice to deal with.

CHAPTER 2

THE DEVELOPMENT OF DISTANCE EDUCATION IN THE UNITED STATES

It is very difficult to trace a single time line for the development of correspondence education in the United States because different events happened in different places at different times. Therefore, instead of tracing a sequence of events, I stress major forces and events in correspondence education as performed by different institutions.

The roots of American distance education rest on the European model, or, more specifically, on the British model, which started in 1857 when Oxford and Cambridge organized an off-campus study through a system of lectures. According to Watkins and Wright (1991), James Stuart proposed a traveling circuit of lecturing professors and “initiated several features that came to be associated with university extension and ultimately with correspondence study: a ‘printed syllabus,’ written work and local examinations” (p. 2). In the United States, a group of pioneers followed this British model, originating distance education in this country, as shown below.

Pioneer Institutions in Correspondence Study

The very beginning of correspondence study in the United States is due to a woman. As Garrison and Shale (1990) point out, in 1873, inspired by the English “Society for the Encouragement of Home Study,” Anna Eliot Ticknor established a similar correspondence system for women in Boston, Massachusetts, known as the Society to

Encourage Studies at Home. This pioneer institution “enrolled over 7,000 women in its university-level correspondence courses over a period of 24 years, discontinuing its operation in 1897 following Anna Ticknor’s death” (p. 9). So, women have the merit of being the founders of distance learning in the United States.

Chautauqua Institute

Almost at the same time, one of the most prominent pioneer institutions was the Chautauqua Institute, “which became the first publicly announced American correspondence system” (Garrison & Shale, 1990, p. 8). Started as a summer assembly to provide training for the improvement of Sunday School Teaching, this institute combined religious instruction and secular education. According to Watkins and Wright (1991), thousands flocked to these institutes, but relatively few finished the 4-year reading program and earned certificates. However, “from 1883 to 1891, the Chautauqua College of Liberal Arts, directed by William Rayney Harper, professor of Hebrew at Yale University, was authorized by the State of New York to grant academic degrees to students who successfully completed work at the summer institutes and by correspondence during the year” (pp. 3-4).

The importance of the Chautauqua Institute is not limited to the field of distance education, but it also had a significant influence on the history of higher education, since William Harper, one of its main administrators, later became the founder of the University of Chicago, as we will see below. It is very interesting to see how different educational events are connected to each other in an exchange of influence. Although distance learning is not a major topic in American higher education, it is important to emphasize that distance learning really made a contribution to the overall history of higher education in this

country. And not only to the field of education, but also, according to Richard Ely, professor of political economy at Johns Hopkins University, one could not "understand the history of this country and the forces which have been shaping it for the last half century without some comprehension of that splendid institution [the Chautauqua]" (Watkins & Wright, 1991, p. 5).

Illinois Wesleyan University

While William Harper was still working at the Chautauqua Institute, the Illinois Wesleyan University started offering correspondence courses to nonresident students in 1887, and made two major contributions to the field of distance education: First, it was the first American university to offer a series of correspondence courses, thus establishing the official beginning of distance learning in higher education in the United States. The second contribution is that, as a university, Wesleyan was able to offer bachelor's, master's, and doctoral degrees by correspondence, raising distance learning to the level of a graduate educational methodology, even before the turn of the 19th century.

Unfortunately, Wesleyan was also the first university to face the prejudice against distance learning. Although the university enrolled 750 students in correspondence courses between 1881 and 1890, and had 478 students only in the year of 1900, Watkins and Wright (1991) say that "members of the Wesleyan board and educators across the country felt that this program was not of 'sufficiently high standard of excellence . . . despite safeguards of academic quality and integrity—and recommended that it be terminated by 1906" (p. 5).

University of Chicago

It is a paradox that Illinois Wesleyan University closed its distance-learning program right when correspondence study was growing in the United States and was being adopted by many other universities. Actually, the golden time of correspondence studies was just beginning at that time, with the foundation of the University of Chicago by William Harper in 1892. At the beginning of the 20th century, the University of Chicago had the most successful program in correspondence education. According to Noble (1999), "by the teens and twenties of this century it had become a craze comparable to today's mania for online distance education. The first entrant into the field was the newly founded University of Chicago whose first president William Rainey Harper was an early enthusiast for distance education" (p. 1). Coming from Yale, Harper had a large background in correspondence instruction from his experience at the Chautauqua organization in New York State, and he made the Home Study Department one of the founding pillars of the new university. Therefore, the University of Chicago was somehow a legacy of the Chautauqua institute to higher education.

At Chicago, leaders of distance learning were so excited about the correspondence program that sometimes they exaggerated its value. According to Noble (1999), Hervey F. Mallory, head of the University of Chicago Home Study Department, insisted that "correspondence study provided an education better than anything possible in 'the crowded classroom of the ordinary American University'" (p. 1). And he adds the pretentious prediction of President Harper: "The day is coming, when the work done by correspondence will be greater in amount than that done in the classroom of our academies and colleges, when the students who shall recite by correspondence will far outnumber those who make oral presentations."

Following the lead of Chicago, other institutions soon joined the ranks of the movement, especially the state universities of Wisconsin, Nebraska, Minnesota, Kansas, Oregon, Texas, Missouri, Colorado, Pennsylvania, Indiana, and California (Noble, 1999). Some institutions, however, have played a relevant role in leading distance education in the United States during certain periods of time. Those institutions will be the focus of the next section.

Leading Institutions in Correspondence Study

University of Wisconsin

A very successful program in correspondence study in the beginning of the twentieth century was performed by the University of Wisconsin. In fact, by the second decade of the 20th century, Wisconsin was the nation's leader in extension and correspondence study. Some different dates are given by different authors. Watkins and Wright (1991) say that "the first steps toward establishing the university extension at the University of Wisconsin were taken in 1895, when the regents established the 'short course' and the state legislature founded farmer's institutes" (p. 10), and had a later resurgence when the president decided to give administrative support to the department, attracted to the income of \$800,000 a year that successful commercial correspondence schools were making with their 35,000 students annually. Garrison and Shale (1990) affirm that the university "first proposed correspondence study in its 1889-1890 catalogue as a function of university extension" (p. 13). According to them, in 1896, a correspondence system was announced that included 63 courses that earned credits toward bachelor's, master's, and doctor's degrees. They also inform that, after a period of a lack of financial support and credibility, the new elected president Charles Van Hise announced the

reemergence of correspondence instruction in 1906. Noble (1999) comments that the Regents authorized correspondence courses at Wisconsin as early as 1891, a year before the University of Chicago, but he agrees that it was not until 1906 that an actual correspondence department was established as part of Wisconsin's famous Extension program.

The University of Wisconsin impacted the history of distance education in two main ways: First, it was the first institution to publish texts specifically for correspondence study, instead of just adapting classroom lectures, as was usual. From 1912 to 1919, the Correspondence Study Department published 32 texts for the extension program. Second, Wisconsin made a relevant contribution to the field of professional education by creating a separate instructional staff for vocational correspondence courses, even facing the opposition of some university leaders who promoted only cultural courses and blamed Louis Reber, the director of the Extension Division, by having a commercial approach to correspondence study. In fact, "nearly half of the 1,200 enrollments in 1908 were in vocational courses" (Watkins & Wright, 1991, p. 18).

Columbia University

Another institution that made an important contribution was Columbia University with its non-credit utilitarian courses. Columbia did not join the correspondence movement until 1919, but quickly became a leader in the field with revenues matched only by the University of Chicago at that time. According to Noble (1999), Columbia owed its success to "unusually ambitious programs aimed at a national and international market and an aggressive promotional effort that rivaled that of the commercial schools. . . . In full flower

by the mid-twenties, the Columbia correspondence program was providing instruction to students in every state and fifty foreign countries" (p. 1).

Indiana University

Indiana University has been offering university-based correspondence courses since the beginning of the 20th century, as shown by many documents of the Indiana University Archives. Back in 1912, on April 30, the *Indiana Daily Student*, a newspaper for Indiana University at Bloomington (IUB), records the inauguration of distance learning at IUB in the following words:

Beginning with next fall, a new department will be installed at Indiana University for Extension work. Professor Charles will have charge of it. This is a field that has received a great deal of notice in the past few years and it is developing very rapidly. Many other universities have very strong extension departments. The University of Wisconsin is a notable example, as is also the University of Chicago, which has an enrollment of about three thousand students in its correspondence school alone. (p. 1)

After a short exposition of the objectives of the extension department, the same newspaper explains how the new department was structured at IUB: "University extension work is divided into several different lines of work. The most important of these are correspondence study, instruction by lectures in the cities, assistance in debating and public discussion by furnishing bibliographies and small libraries" (p. 1). The publication also informs that the university had already been doing some correspondence work, and, at that time, four departments were already offering informal correspondence courses, actually since 1909. The number of courses and enrollments were: "Seven courses offered in the English department, twelve in History, and five in German. Fifty students are taking work in History, and about one hundred in English" (p. 1). The other department was Philosophy, but the article does not mention the numbers.

Another extension program was the offering of high-school courses by correspondence. According to the *Catalogue* of 1923, by that year Indiana University was offering "a complete four-years' high school course by correspondence" (p. 9). Later in the 1930s, the extension division was considered a strong activity of the university, and a newspaper dated from April 12 of 1932 refers to extension activities even prior to the official foundation of the department in 1912. The document says: "From its humble origin of a few classes held off the campus in 1897, the Indiana University Extension division has expanded to a well-organized unit of the university, consisting of a teaching service with classes in 34 cities and a public welfare service of seven departments" (*Indiana Daily Student*, 1932, p. 2).

The *Indiana Daily Student* also published the story of a student who was the first to earn a degree from the University Extension in 1977. The text of the newspaper says that a student was awarded the Associate of General Studies degree in August of 1977, the first ever given by the university.

University of California at Berkeley

Noble (1999) stresses the contribution of the University of California at Berkeley. According to him, "Berkeley's correspondence courses were meant to be the academic equivalent of resident courses, taught by university faculty and supervised by academic departments, and the university pledged to 'place each student in direct personal contact with his instructor'" (p. 1). However, for economic reasons, the program moved to expand enrollment by attending the greatest demand, which was for vocational courses for people in business and industry, which resulted in relaxing admissions standards. Consequently, the contribution of Berkeley was limited by economic considerations.

Many other universities have developed correspondence study in one way or another, but those described above were the major contributors in the area of correspondence study. Nevertheless, correspondence is only one side of the story. The other side is the contribution of electronic media to the field of distance education. The next section addresses this topic.

The Development of Electronic Instructional Media

The journey of distance education across time has been an adventure of experiencing new delivery methods. Along all the way, the postal medium and electronic media have been partners in some way, sometimes successfully and sometimes not so effectively. As Giltrow (1989) says, "Distance education is one of the most successful but unheralded educational approaches of the last 100 years. If there is any common theme, it has been diversity of forms and audiences plus evolving uses of technology" (p. 7). He argues that, historically, the different forms of distance education are characterized by the extent of educational media used. As he says, "one branch (home study, correspondence education) originated with print-oriented correspondence courses. The second, later branch (open learning, telecourses, teleconferencing) grew from educational broadcasting, both radio and television, and audiovisual education of the 1950s" (p. 7).

Since the beginning of the century, different forms of technology have been present in the distance-learning activity. Dusen (1997) mentions the use of visual aids for instruction. According to him, "support for the integration of visual instructional materials into the curriculum date back at least to 1928 with the publication of Anna Dorris' Visual Instruction in the Public School. . . . An audiovisual instructional movement flourished in the late 1940s . . . and the 1950s saw significant economic commitment by the federal

government and by a private foundation to the development of educational television” (p. 3).

Instructional Radio

One of the pioneer electronic medium in distance education was the so-called instructional radio. Garrison and Shale (1990) point out that, William Lighty, director of Correspondence Instruction of the University of Wisconsin, “pioneered educational radio with the establishment of the first university radio station, WHA, the ‘School of the Air.’ In 1920, the University of Wisconsin had one of the three experimental radio stations in the United States involved in testing radio’s effectiveness as a public broadcast medium” (p. 16). In fact, Lighty became the first WHA Program Director with the intention to eventually supplement correspondence study and other extension activities with educational radio programming. Garrison and Shale (1990) also mention the contribution of other institutions like the University of Iowa, California State University, Florida State University, Indiana State University, Nebraska State University, and the Massachusetts Division of University Extension, all early pioneers in combining correspondence instruction with educational radio programming.

Approximately 20 educational radio stations were broadcasting in the AM band during the 1930s and early 1940s. Affiliated with state universities, many of them won awards for high-quality programming. Compared with the commercial station, their audiences were small, but their broadcasts covered approximately half the American people. By 1956, most educational stations belonged to the National Association of Educational Broadcasters (NAEB) located at the University of Illinois-Urbana and supported by the W. K. Kellogg Foundation and the Ford Foundation’s Fund for Adult

Education (Garrison & Shale, 1990, p. 17). However, despite the large contribution of the radio to distance learning, it did not develop as expected. Watkins and Wright (1991) state that "a number of colleges and universities in the United States offered credit courses via radio during the 1920s and 1930s, but by 1940 radio was no longer used extensively" (p. 136). Therefore, educational radio did not evolve into a powerful distance-learning media as expected.

Instructional Video and Television

As radio lost its attraction as an educational medium, a new revolutionary invention appeared that promised a complete transformation of the educational system, and particularly of distance education. As a new electronic media, television was envisioned by some educators as prefiguring the new future of education. At the beginning, it was not accessible for most institutions. In fact, between 1948 and 1952, 108 television stations were broadcasting in the United States, but only one of them, the WOI-TV in Ames, Iowa, was owned by an educational institution, the Iowa State College. Although belonging to a college, however, it was not exclusively educational. As Garrison and Shale (1990) say, "because it was the only station serving a large population in Iowa, WOI-TV carried commercial network entertainment in addition to its own educational programming" (pp. 17-18).

In a short time, television became a popular media in the United States, and step by step, educational institutions started using it. In 1952, there were 2,053 television channels in the United States, of which a total of 242 were reserved for educational groups. In the subsequent years, educational institutions started developing distance-education programs based on the use of television. For example, in 1959, "the 'Continental Classroom was

broadcast by the University of California supplemented by correspondence study. Physics and Chemistry courses were instructed through television broadcasts aided with course syllabi that were sold to persons interested in studying the courses for credit" (Garrison & Shale, 1990, p. 18).

The use of television in distance education was parallel to its use in the classroom. Noel and Helmke (1968) published an interesting report describing the way closed-circuit television systems were used in California public schools. As they say, "At the close of the 1966-67 school year, 108,286 students were counted as receiving instruction in California public schools via closed circuit television systems of all sizes and configurations" (p. 3). They also report the arrival of videotape recorders as one of the most exciting technical developments affecting television during those years. A few years earlier, all the programs had to go on air live, but in 1963 portable models of videotape came on the market. Writing in 1968, they said: "At the present time, it is estimated that approximately 135 of the portable television tape machines are being used in the closed-circuit TV systems of California" (p. 3). The use of videotapes in distance learning became generalized in a few years. Prior to the mid-1970s, video materials supporting independent learning courses were delivered to students primarily through broadcast television, frequently using university-based public TV outlets.

The innovation of the following decade was cable television in distance learning. A report of Penn State University informs us when they started using cable: "In the late 1970s and early 1980s cable television came into use as a delivery medium for independent study course programming. . . . The PENARAMA Network was founded in 1977 at Penn State to make educational programming more readily available to cable TV subscribers

throughout Pennsylvania" (Penn State Archives, 1977-1991, cited in Garrison & Shale, 1990, p. 59). PENNARAMA continued into the 1990s.

An interesting point to address is the quality of production of video-based courses. At the beginning, it had a poor communication appeal. As Giltrow (1989) says, "the basic black and white telecourses of the 1950s and the 1960s were usually the work of a single faculty member given released time to prepare a study guide and adapt existing classroom lectures into 30 live television programs of 30 or 45 minutes each. A producer and sometimes a graphic artist assisted and encouraged the teacher who had probably never been on television before" (p. 12). As they developed, however, television courses became more sophisticated. Giltrow (1989) informs us that, in 1975, teams from San Diego State University and Miami-Dade Community College prepared a package of instructional materials for credit students. Strong publicity, novelty, and the high quality of the production persuaded some 420 institutions and 40,000 credit students to participate in the experiment. Watkins and Wright (1991) mention the Mind Extension University (MEU), the Education Network based in Denver, Colorado, that was founded in 1987 as a consortium of higher education institutions to make telecourses and quality educational programming available nationally using cable and satellite delivery. In 1991, 18 institutions used MEU to deliver video course material for independent study courses.

Despite the improvement of quality and production, television did not revolutionize education, at least as expected. According to Giltrow (1989), "the use of television in distance education throughout the world has remained limited in relation to its educational potential. In 1982 only 2 of 14 open universities established utilized more than five hours of television broadcasting a week" (p. 18). Watkins and Wright (1991) suggest that the

reason for the small impact of the electronic media is the cost of the media. According to them,

With twenty-five years' hindsight, it appears that correspondence education did not develop quite like the electronic enthusiasts within the field anticipated. Significant efforts to reach distance learners through extensive utilization of electronic media were begun during the 1960s and 1970s. They often fell far short, however, of their lofty goals. (p. 139)

During the 1970s and 1980s numerous efforts were made to enhance correspondence study with electronic media. It included the telephone, television, radio in the earlier years, audiocassettes, and videocassettes. As Watkins and Wright (1991) say, "Rather quickly, however, doubts about the net effect of such efforts begun to emerge" (p. 143).

Computer-based Instruction and Internet

After television, the greatest new hope of distance education was the power of computers and Internet. Like television, many voices are predicting that it will transform education. According to Kennedy (1995), "no one has been able to forecast the exact influence of past technological changes on higher education—witness all the mistaken pronouncements about what television was going to do—but few doubt that the power of the Information Age will radically revise how we do our work" (p. 11). Kennedy predicts that the information age makes distance learning a more realistic alternative to our traditional approaches.

In fact, Giltrow (1989) suggests that the modern equivalent of the 1883 Correspondence University may be the Electronic University Networks, which was started in San Francisco in 1983. "EUN offers courses published on floppy disks for home computers through a network of over 30 colleges and universities. Electronic mail and

online data search techniques augment the postal service . . . in supporting computer assisted instruction” (p. 9). A combination of all available technologies is used to enhance the effectiveness of online education. Moreover, as an instructional tool, most of the programs now employ toll-free telephone numbers encouraging communication between student and instructor. Several programs use FAX machines to transmit course lessons.

Recently, many large and small institutions have implemented different forms of online education. The next two sections address the particular experience of two private universities, one large, one small.

The Experience of University of Phoenix

Despite its recent origin, online technologies have already had extensive use in distance education. An example is the University of Phoenix (UOP). In his autobiography, John Sperling (2000), the founder of UOP, refers to online distance education as the most important educational development of UOP, starting in 1991. He measures the success of what he calls the online campus by a course completion rate of 98%, a graduation rate of 65%, and an enrollment of 8,500 students in 2000. He describes the online graduation in the following words: “Each August, several hundred graduates travel to San Francisco with their families to attend a ceremony where they meet their classmates and instructors for the first time. The two days are filled with warmth, fellowship, and emotion as the graduates affirm friendships that are usually closer than those formed on campus” (p. 167).

The Experience of Andrews University

Andrews University is a private denominational institution with an enrollment of around 3,000 students. In 1994 the university started a distance-based graduate degree program in Educational Leadership. According to the *Andrews University Bulletin* (2000-

2001), the Leadership program presents a new concept in graduate education. It is an interdisciplinary collaborative program with degrees offered and faculty participating from the School of Education, the School of Business, and the Theological Seminary. It is designed "to provide an innovative and highly flexible program allowing self-motivated mid-career leaders to pursue a doctoral degree" (p. 187).

In this program students are required to attend only a 4-day annual meeting on campus, while during the year they take distance courses through Internet and fulfill 20 competencies related to leadership and research in their professional occupations. The main instructional media is the electronic mail and Internet, which are used for delivering instructional material, communication with faculty, as well as registration and administrative matters. During the year, students meet periodically with their regional group and a visiting professor, as a kind of remote classroom. Those regional groups intend to promote student interaction as a supporting structure for the learning experience. Students must complete a total of 75 semester credits, plus 16 credits of dissertation. Currently, the program enrolls around 120 students in the Doctor of Philosophy program.

Accredited degrees by distance, which were a major goal only a few years ago, have become a reality. Like Phoenix and Andrews, many institutions across the nation are promoting the development of degree programs totally deliverable through independent study. The issue of an online degree has been discussed for several years. In 1977, according to Watkins and Wright (1991), the Committee on Institutional Cooperation (CIC) initiated a unique independent study project, a consortium of 11 institutions (the Big Ten universities and the University of Chicago). As the authors say, the committee "received a \$486,000 grant from the Carnegie Corporation to cooperatively develop 24 upper-division correspondence courses. . . . It was envisioned that CIC courses would, for the first time,

make it possible for students to earn baccalaureate degrees from major universities entirely through correspondence" and electronic mail (p. 61). The next section discusses the quality of online distance-education degrees.

Correspondence and Electronic Media: The Quality Issue

At this point of the discussion, it is interesting to mention the debate regarding the quality and credibility of distance-education programs and degrees. Like any innovation or new methodology, distance learning has faced continuing resistance and opposition to achieve credibility in the academic setting. Having been in the educational arena for more than a century, distance education is still considered as a secondary educational approach by traditional higher education institutions. Watkins and Wright (1991) declare that a negative attitude toward distance education has endured and prevailed within the American university. As they point out, the main causes of opposition are traditional academic suspicion and resistance to change, intellectual elitism, and the stereotype that quality equals proximity.

The same authors refer to the researcher Gayle Childs, of the University of Nebraska, who cited 37 studies comparing the achievements of students in correspondence courses with those enrolled in other course formats, including television and programmed learning, and concluded that "students in correspondence courses either matched or slightly exceeded the achievements of students taking the same courses via different formats" (Watkins & Wright, 1991, p. 121). According to those authors, this conclusion is reinforced by "current research that confirms that correspondence study, as well as telecommunications-based distance education, is as effective as conventional education. . . .

The research does not indicate a clear advantage for one form of media or any combination of media over any other" (p. 145).

From the above statements, it seems clear that distance education is not yet so welcome in the traditional academic environment. Why? How do some authors interpret this historical opposition to distance education and the slow development of this methodology? Although there is not a categorical response for those questions, the next section presents the point of view of a few authors.

Correspondence and Electronic Media: A Common Challenge

Different scholars have different interpretations for the challenges and difficulties faced by distance education along the years. Gilbert (1996) refers to technology and distance education as a "slow revolution." He says that he has always believed that "the next 18 to 24 months would bring revolutionary change," and, as he says, he is "still waiting for those widespread, dramatic improvements" (p. 10). According to him, distance education is an old idea that is attracting new attention as powerful forms of telecommunication such as video, electronic mail, and the World Wide Web make it an attractive option. His interpretation, however, is that "no form of distance education or any other *widely applicable* educational use of information technology has yet proved so much more effective and/or less expensive than 'traditional' forms of teaching and learning as to become a complete replacement for them" (p. 12). With this way of thinking, Gilbert reaffirms the same "old" argument that distance education is a secondary teaching method that has not yet proven its real effectiveness.

Giltrow (1989) holds a different perspective. According to him, distance education programs in the USA were slow to embrace instructional technologists—and vice-versa. Perhaps because of the correspondence, broadcasting,

and adult education origins of many distance education programs, instructional technologists were not often recruited for them until instructional design was adopted in the early 1970s. (p. 30)

Therefore, he places the reason for the slow development of distance education on the lack of recruitment of prepared professionals.

A different point of view is held by Watkins and Wright (1991), who give a pedagogical approach to their interpretation. They refer to some studies according to which "critics of video-based courses have accused them of fostering the 'trivialization of instruction,' of promoting the homogenization of instruction, and of infringing the role of the faculty" (p. 143). Using the same approach, they mention other scholars who have noted that students do not actively engage in the learning process when the teaching is presented via television. Also, "programmed instruction has been accused of oversimplifying content matters and, when used in conjunction with computers, of being restricted to drill exercises, or to simulations that do not convey the full complexity of the content" (p. 143).

A very different and even unusual interpretation is given by Sir John Daniel (1997), Vice-Chancellor of the Open University in England. Analyzing from an outside perspective, in a speech to the AAHE National Conference, he criticized the American system of higher education for having inverted priorities in education. A part of his speech summarizes his critique:

Focusing on individual learning offers more than remote group teaching. Take flexibility [sic]. The focus on the individual gives students flexibility over where and when they study. . . . The great contribution of the United States to the advancement of humankind has been to stress the importance of the individual. Why, in distance education, are you so fixated on the collectivity in the classroom? My hypothesis is that U. S. Higher education values teaching more than learning. You may have other hypothesis. Perhaps it's the pressure from the big telecom operators who wants to sell you lots of bandwidth. You can't expect them to vote for targeting individuals at home,

just as you can't expect landlords who rent apartments to students near the campus to vote for any kind of distance education. (p. 16)

According to Daniel (1997), that is why distance education is much more developed around the world than in the United States. Whether or not Daniel's perspective is correct, it is a fact that distance education has developed more outside of than inside the United States. However, there are signs that the context is shifting in the United States. The Association of Governing Boards of Universities and Colleges (1997) makes a financial approach to the growth of distance education. According to this document, federal funding is a crucial factor for the development of distance learning, and new governmental policies are now favoring this field. The document reports that "the Clinton administration has proposed a \$366 million investment in information technology research for the fiscal year 2000, a 28 percent increase. Roughly 60 percent of the funding will go toward university-based research" (p. 20). Perhaps in a few years the expected revolution in distance education may occur in the United States, bringing new advancements for higher education as a whole.

While the development of distance education in the United States has been a slow revolution, some countries of the world have experienced a real explosion in this area. The next chapter summarizes the development of the mega-universities around the world and addresses the use of both correspondence study and electronic media in those institutions.

CHAPTER 3

THE DEVELOPMENT OF DISTANCE EDUCATION AROUND THE WORLD: THE MEGA-UNIVERSITIES

Sir John Daniel (1997) analyzes the success of distance education around the world from different perspectives, the first of which is technology. He refers to the mega-universities, which “owe their success to technology. They owe it, however, to new applications of technology rather than to applications of new technology.” In other words, he says, “the key technology for the mega-university is not any particular device. It is the increasingly organized body of knowledge called distance education” (pp. 14-15). As a brief description, Table I shows the development of distance education in the world by presenting a historical and statistical summary about the mega-universities.

Print Medium Versus Electronic Media in Distance Education

Another reason for the success of the mega-universities is their cost-effectiveness. According to Daniel (1997), there are 3,500 colleges and universities in the United States enrolling 14 million students, with an annual expenditure on higher education of around \$175 billion. That is an average cost of \$12,500 per student. In Britain, there are 182 higher education institutions, 1.6 million students, and an annual expenditure of some \$16 billion. That is around \$10,000 per student, which is still a high cost.

Grouping together, the 11 mega-universities enroll around 2.8 million students. As Daniel (1997) says, “Their budgets aggregate to a bit less than \$1 billion—that’s under \$350 per student. So there is more than an order of magnitude difference compared to either the

Table 1. Distance Education and the Mega-Universities.

Country	Institution	Founded	Student	Part-time faculty	Full-time faculty
China	China TV University System	1979	690,000	13,000	18,000
France	Centre National d'Enseign a Distance	1939	400,00	7,000	1,700
India	Indira Ghandhi Nat Open University	1985	430,832	17,991	245
Indonesia	Universitas Terbuka	1984	397,543	5,000	791
Iran	Payame Noor University	1987	186,000	5,185	99
Korea	Korea National Open University	1982	210,578	3,187	849
S. Africa	University of South Africa	1873	130,000	1,964	1,348
Spain	Univ. Nacional de Educ a Distancia	1972	133,651	3,600	1,000
Thailand	Sukhothai Thamm Open University	1978	216,800	4,000	1,827
Turkey	Anadolu University	1982	577,804	680	579
U. Kingd	The Open University	1969	200,000	7,376	3,000

Note. From *Mega Universities and Knowledge Media* (pp. 30-31), by J. S. Daniel, 1999, London: Kogan Page. Copyright 1996 by John S. Daniel. Adapted with permission.

Number of students per year (over 8 years)

Figure 1. Cost of teaching technologies per student.

Note. From *Technology, Open Learning and Distance Education*, by A. W. Bates, 1997, London: Routledge.

U.S. or UK per student costs. That is a powerful response to the crisis of cost," he says (p. 14). Figure 1 shows a comparison of costs between print medium and electronic media.

The low cost for distance education in the mega-universities is due to a combination of various instructional media and different applications of technology. Bates (1995) provides an assessment of the strengths and weaknesses of different media in distance education. According to him, "there are significant instructional and operational differences between different technologies" (p. 15). Table 2 shows a comparison of different instructional media.

Table 2. Strengths and Weaknesses of Different Media.

Media	Access	Cost per student		Teaching Presentation	Social Interaction	Organiz ation	Speed
		Large #	Small #				
Print	Good	Good	Average	Average	Poor	Poor	Poor
Radio	Good	Good	Poor	Poor	Poor	Average	Good
Audiocassette	Good	Good	Average	Average	Poor	Good	Average
Broadcast TV	Average	Poor	Poor	Good	Poor	Poor	Poor
Videocassette	Good	Average	Poor	Good	Poor	Average	Poor
Computer BL	Average	Poor	Poor	Average	Poor	Poor	Poor
Multimedia	Poor	Poor	Poor	Good	Poor	Poor	Poor
Audio confere.	Good	Poor	Good	Poor	Good	Good	Good
Live inter TV	Poor	Poor	Poor	Poor	Average	Average	Good
Video confere	Poor	Poor	Average	Poor	Average	Average	Good
Comp confere	Average	Averag	Good	Poor	Good	Good	Good

Note. From *Technology, Open Learning and Distance Education* (p. 16), by A. W. Bates, 1997, London: Routledge. Copyright 1995 by A. W. (Tony) Bates.

The boldface rows in Table 2 stress the comparison between the strong and weak points of print media and computer-based learning (CBL) and computer conferencing. Both (CBL) and print media have poor performance on social interaction, organization, and

speed of communication, for example, but they have an average performance on teaching presentation. On the other hand, print media show a better performance on accessibility and low costs, while computer conferencing seems better for social interactions, organization and speed of delivery. This comparison makes clear that there is not such a thing as a perfect instructional medium, and that is why Bates (1997) recommends a combined use of different media.

With this general information about the relationship between different instructional media, it is easier to understand and appreciate the different instructional delivery systems used by each mega-university. The next sections address those institutions, organized by geographic area, considering their historical background, academic programs, and main instructional media used.

Asian Mega-Universities

China Central Radio and Television University

Created in 1979, the China Central Radio and Television University (CCRTVU) is currently the world's biggest learning system (Daniel, 1999, p. 166). It is located in Beijing under the direct supervision of the State Education Commission. Up to 1996, 2,953,000 students had been enrolled in degree courses with the TV University system, from whom 2,127,000 have graduated. The current total number of undergraduates enrolled is 690,000.

Academic programs and institutions. According to the Open University Institutions and Courses Databases (1998), the TV University centers mainly offer 2- or 3-year specialized college degree courses to train applied professional personnel who meet the requirements of socialist construction. "In 1996, the TV University system altogether offered 529 specialties covering 55 disciplines in nine fields. Since its establishment, the

CCRTVU has offered 350 courses in 59 specialties from 22 disciplines covering the six fields of natural science, engineering, humanities, economics and management, agriculture and medical science" (Open University Databases, 1998, p. 1).

The university includes the China TV Teachers College; the Central Radio and TV Specialized Secondary School; the China Liaoyuan Radio and TV School, which offers practical agricultural courses; the Distance Education Research and Information Institute; the Library; the Press; the Publishing House for Audio-Visual Materials; China TVU Education Magazine House; and academic faculties, teaching management departments and administrative offices.

CCRTVU promotes the production of printed course material, associated radio and television broadcasts, and develops and schedules national examinations. It also trains teachers, technicians, and administrative staff. The provincial TV University centers produce course materials including radio and television programs for those courses that are of interest locally or regionally. They also enroll students, keep student records, issue degrees, diplomas, certificates, and provide counseling service. Branch schools administer all aspects of teaching and learning activities such as scheduling of TV programs, tutorials, laboratory work, tests, and examinations.

Main delivery system. China Central Radio and Television University offers multi-media university courses through radio, TV, print, audio-visual materials, and computer software. Its main delivery system consists of remote classrooms implemented as an educational center in most professional companies. According to Daniel (1999), China Central Radio and Television University is unique among the mega-universities in adopting the remote-classroom approach to distance education, unlike the other 10 mega-

universities, which originated in the correspondence tradition. The remote classroom has the following basic characteristics:

1. 3 TV lectures per day via satellite
2. Additional face-to-face lectures by guest speakers for groups of 20 students
3. 6.5 hours a day from Monday to Saturday at work, where students get paid to study.

General instructional structure. Besides the main delivery system, China Central Radio and Television University maintains the following general instructional structure:

1. 4 TV channels giving 70 transmission hours a day
2. 44 Provincial TV university centers
3. 690 branch schools at city level
4. 1,600 study centers at the county or company level
5. 13,000 teaching classes
6. 30,000 tutorial groups.

According to Daniel (1999), CCRTVU is only one of the three large distance-education systems in China, the other being the correspondence university system and the self-study university examination system.

Korea National Open University

Korea National Open University was created in 1972 with the name of Korea Air and Correspondence University. According to Daniel (1999), it was a branch of Seoul National University offering a 2-year junior college program. "By 1981, when it became an independent university, it had evolved into a five-year university. In 1992 it began to align itself on the four-year program that had become standard in Korean universities" (p. 180).

In 1994 it adopted the name of Korea National Open University. The total enrollment in 2000 was 210,578 students.

Academic programs. The university offers 18 bachelor-degree programs in the major fields of Arts (Korean, English, Chinese, Japanese, French), Law, Public Administration, Economics, Science, Business Administration, Trade, Agriculture, Home Economics, Computer Science, Applied Statistics, Health Hygiene, Education, and Early Childhood Education. Qualification for admission is limited by law to high-school graduates or those who have an equivalent qualification. It also admits students who have completed 2 years at a junior college or university.

Main delivery system. Korea National Open University employs different instructional media and is currently developing an advanced project of technology, which makes it one of the top distance-education institutions in the world, according to the Korea National Open University Databases (2000). Its advanced delivery system could be summarized into two basic media:

1. Extensive use of television, video conferencing, and computer-mediated communication
2. Interaction through a nation-wide computer network and multimedia databases.

General instructional structure. Along with these advanced instructional media, the university has the following instructional structure:

1. Printed materials (correspondence textbooks)
2. Television—10 hours a day
3. Courses of 40 hours of TV and radio, plus 8 hours of classroom lectures

4. 14 centers linked by a video-conferencing system
5. Satellite broadcast lectures
6. Audio and video cassettes
7. Newspaper supplements with up-to-date information
8. Required attendance of a 5-day classroom session
9. Self-organized study group sessions at cooperating institutions
10. 12 regional study centers
11. 31 local study centers.

Indira Gandhi National Open University—India

In only 11 years Indira Gandhi National Open University (IGNOU) has achieved remarkable success in a complex environment, says Daniel (1999). According to him, "India's tradition of higher distance education goes back to 1962, when the University of Delhi created a School of Correspondence Courses. . . . By 1980, 20 universities were offering such courses as a sideline to their campus operations" (p. 172). A few years later, in 1982, an Open University was created in the state of Andhra Pradesh, and the national government established IGNOU in 1985. It started to offer degree programs in 1987. In March 1998, the total number of students was 430,832 with an estimated annual intake of 95,000. Overseas enrollments are accepted from Bangladesh, Ghana, Mauritius, St. Kitts and Nevis, Papua New Guinea, Pakistan, Solomon Islands, Seychelles, Guyana, Sri Lanka, St. Vincent, Tanzania, Tonga, Trinidad and Tobago, Antigua, Zimbabwe, and Gambia.

Academic programs. The University offers a wide range of subjects and programs ranging from certificate to diploma, and from undergraduate to postgraduate studies. The subject areas covered are social sciences, humanities, sciences, management, education,

engineering and technology, health, and computer and information sciences. The University expects a student to complete the Bachelor's-degree program in a minimum period of 3 years. However, students may pace their studies according to their convenience and take up to 8 years from the date of registration. There are 39 programs and 487 courses offered. The University Library has 59,265 books on various disciplines, 511 journals, 692 audio and 695 video programs, and a number of other print materials (Indira Gandhi National Open University Databases, 1998).

Main delivery system. The University employs a combination of various media, which include printed correspondence texts, audiocassettes, radio via satellite, videocassettes, and television via satellite. Its most common media, however, is still print media and correspondence.

General instructional structure. The instructional structure of Indira Gandhi National Open University includes:

1. Radio broadcasting with no access to national coverage
2. TV via satellite with 30 minutes a week of selected programs in national coverage
3. Face-to-face tutoring and counseling
4. 268 study centers at the city level, as 79% of students come from urban areas
(These study centers are located in existing educational institutions and normally function on holidays, Sundays, and in the evenings on working days.)
5. 17 regional centers all over the country linked to IGNOU through OPENET, a wide-area educational network for voice, data, and images (It is a teleconference facility.)
6. 80 work centers to support administrative work.

Universitas Terbuka–Indonesia

In the native language, “Terbuka” means open, or open learning. Universitas Terbuka (UT) was created in 1984, by a presidential decree as one of the 45 state universities, the first one in distance teaching. However, it was only in 1992 that UT acquired full status within Indonesia’s higher education system. According to Daniel (1999), in 1984 the university began its teaching activities “with a cohort of 60,000 students and a full-time staff of 200” (p. 175). By the end of January 1997, the number of students had reached 397,543. The total number of graduates until 1997 was 207,976.

Academic programs. UT provides academic opportunity for students who are unable to attend the conventional higher education institutions. An UT degree is equal in academic standards to that of any Indonesian state university. The faculty prepares its own courses. There are more than 700 courses in different areas such as Teacher Education, Economics, Public Administration, Business Administration, Government and Political Science, Distance Education, Media Production, Economics and Development Study, Management, English Language, Communication, Library Science, Applied Statistics, Agriculture, Fishery, Animal Husbandry, and Environmental Management.

The university is open to everyone who possesses a senior secondary-school diploma. Students do not have to take any test or face any interview to enroll in any program, except in Teacher Education. Registration forms are available at post offices and mailed to the local administrative center.

Main delivery system. The most used delivery system, according to the Universitas Terbuka web site (1997), is a self-contained study pack, which includes lesson

modules, audiocassettes, references, practical exercises, guidelines, textbooks, and science kits. Print is still the basic media, responsible for 96% of all instructional material.

General instructional structure. The self-contained student pack is complemented by the following instructional structure:

1. Radio and television broadcasts to enhance learning
2. 32 distance learning centers, which support study groups, tutorials and student activities
3. A final examination at the end, and students are allowed to take it twice
4. Biennial sports competition and cultural events.

Sukhothai Thammathirat Open University (STOU)–Thailand

Sukhothai Thammathirat Open University (STOU) was formally founded in 1978, and in 1995 it won the Commonwealth of Learning Joint Award of Excellence, in the institutional category, at the 17th World Conference of the International Council for Distance Education (ICDE). According to Daniel (1999), this “confirmed the common view that STOU is the most successful of the larger mega-universities’ (p. 188). Daniel refers to the abilities of its founding Rector, Dr. Wichit Srisa-an, as one of the reasons for the success of the University. The total enrollment in 1998 was 216,800 students. The University receives approximately 80,000 to 90,000 students each year.

Academic programs. Sukhothai Thammathirat Open University offers distance-education programs at different levels. Basically it offers 27 certificate programs, 65 bachelor’s-degree programs, and eight master’s-degree programs with a total of 609 courses (Sukhothai Thammathirat Open Universities web site, 1998). Each certificate and

bachelor's-degree course is worth six credits, and the master's-degree course is worth five credits. At present, there are 11 schools: Liberal Arts, Educational Studies, Management Science, Law, Health Science, Economics, Home Economics, Political Science, Agricultural Extensions and Cooperatives, Communication Arts, and School of Science and Technology.

Main delivery system. The distance-teaching system employs integrated multimedia consisting of printed materials, radio and television broadcast, audiocassettes, videocassettes, computer-assisted instruction lessons, face-to-face tutoring, and other techniques.

General instructional structure. The integrated multimedia system uses the following instructional structure:

1. Radio broadcasting of 150 programs a week, each program being 20 minutes long
2. 1,100 TV programs a year, in the form of 3 daily slots
3. 7 regional study centers
4. 80 local study centers
5. 65 special study centers for Health Sciences
6. 7 centers for agricultural extensions and cooperatives
7. 7 graduate educational resource centers
8. 78 metropolitan and provincial public libraries
9. 10 centers of academic and development services.

Registration can be made in person, by mail, or by a telebanking system. Currently, the University does not accept applicants from abroad.

European Mega-Universities

Centre National d'Enseignement a Distance-France

The Centre National d'Enseignement a Distance (CNED) was created in 1939 as a small correspondence school for children driven away from the school by the war, and worked that way for at least 40 years, using printed paper by mail as its only medium. Daniel (1999) refers to CNED as "the largest distance teaching institution in Europe and a veteran amongst the mega-universities" (p. 169).

Today it is no longer only a primary and secondary school. In fact, its students and trainees are mostly adults (80%) who register for courses at higher education level, generally with a lifelong training approach, seeking personal development, and professional and social promotion. Out of the 80% adults registered at the CNED, 56 % are in full-time employment.

The CNED's 400,000 students are mostly located in France but more than 37,000 live abroad, in more than 200 countries. Those who meet the entrance qualifications required for the chosen studies can register from anywhere.

Academic programs. With a wide curricular diversity, CNED offers a variety of levels from preschool to higher education, including vocational training and further education. The courses amount to 500 complete training programs and 3,600 modules. At the higher education level the CNED prepares its students for qualification, certification, and diplomas, in collaboration with more than 50 universities, which provide the scientific expertise and deliver the diplomas, while the CNED provides the distance-learning engineering.

According to the Centre National d'Enseignement a Distance web site(2000), the school for distance education integrates the headquarters complex, along with the guidance and registration center, and an audiovisual center with advanced video production and post-production facilities, enabling direct satellite transmissions.

At school level, in addition to being the distance-education provider for the Ministry of Education, the CNED also offers home packages for subjects that are not taught in school, and support courses or summer courses.

Besides its Campus Electronique (see below), the CNED's current developments include: Le Ecole de formation aux metiers de l'enseignement a distance', which is a university-level center for the training of staff in professional skills for distance education (created in 1997). The CNED's staff also welcomes delegations from other educational institutions from France or from abroad, which are developing distance education and looking for methodology and "savoir-faire" in that field.

Main delivery system. CNED developed the "Campus Electronique" as an open platform of information and pedagogical services on the Internet. Its services include reception and information, assessment and guidance, telelearning, a resource center, forums, and access to networks. The services are accessible from anywhere and at any time through the Internet and via digital satellite. The new digital satellite program merges with the Campus Electronique providing a whole coherent set of digital tools and facilities for building courses and pedagogical strategies (Centre National d'Enseignement a Distance web site, 2000).

General instructional structure. The Campus Eletronique utilizes basically the following instructional media:

1. *La Cinquieme*--The new French educational TV network, which is a digital satellite interactive television, a channel dedicated to education and training
2. Video transmissions of lectures and debates to 500 reception points, which are mostly secondary schools and colleges
3. Video-conferencing
4. Computerized telephone system that can handle over 10,000 calls a day
5. Videotext, through the Minitel system, can reach 10 million homes and carries a database of CNED's programs and courses (Minitel can also be used as an email and bulletin board system by students and teachers.)
6. Extensive use of fax machines, printed materials, audiocassettes, and CD-ROM.

CNED has partnerships with institutions and local authorities for the development of local sites where its students can have access to networks, specific technical tools, multimedia equipment, and take part in interactive television programs, where face-to-face pedagogical activities can be organized. It offers services including tutoring and counseling, communication between peers, lectures, debates, and seminars.

Open University--United Kingdom

Many observers refer to the Open University as the pioneer of modern distance education at university level, although some other mega-universities have a longer history. Daniel (1999) reports that at the Open University "inaugural ceremony in 1969, its first Chancellor expressed the aims of the university as being 'open as to people, open as to places, open as to methods, and, finally, open as to ideas'" (p. 193). He also reports that in 1971, Margaret Thatcher, the incoming Secretary of State for Education, had to defend the

infant university against politicians who tried to kill the project at birth. She argued that the Open University had the potential to bring down the costs of higher education.

In 1998, the University had over 200,000 students and customers. It also sold over 50,000 packs of learning materials. Nearly 210,000 students have graduated with a bachelor's degree.

Academic programs. Open University offers three types of programs: undergraduate, graduate, and other areas of continuing education. A wide range of free-standing self-study packs is available, many covering professional updating, some on topics of general interest such as career development, the environment, art, and music.

The Open University's Business School is one of the largest providers of management training in Europe. Courses can lead to a professional certificate, professional diploma, or MBA. The OU is a major provider of courses and study packs for people working in education. Qualifications include certificates and diplomas and an MA in Education. Two major developments are in languages and law. French, German, and Spanish courses are available. A Qualifying Law degree is available through collaboration with the College of Law.

The normal minimum entrance requirement for postgraduates is identical to that which applies in UK conventional universities, and the Open University's higher graduation rate helps its reputation (around 31%). According to Daniel (1999), it produces 4% of all United Kingdom graduates. More than one adult in four knows someone who is studying or has studied at the Open University.

Main delivery system. Although the printed materials form the core of the University's teaching, the following instructional media integrate the basic delivery system:

1. BBC Radio broadcasts 152 hours of program a year (Daniel, 1999, p. 194)
2. BBC TV transmits 706 hours of program a year.

General instructional structure. The Open University offers a wide variety of courses, and their respective learning materials are similarly varied. Its basic instructional structure includes:

1. Computer and use of the Internet, which is required for most courses
2. Audiocassettes and videocassettes
3. CD-ROM and slides
4. Field trips, summer school, and weekend or day schools
5. Tutorial and counseling in the University's 290 plus study centers
6. *Sesame*, a student newspaper
7. Social activities, clubs, and societies.

The Open University became famous for applying technology and media to distance education and intends to be one of the leaders in the field.

Universidad Nacional de Educacion a Distancia—Spain

Universidad Nacional de Educacion a Distancia (UNED) was created by the government in 1972 as the only national university in Spain. Basically the founders had three groups of students in mind: those unable to begin or complete higher education, those living in remote areas, and those ambitious for more qualifications (Daniel, 1999, p. 186). It forms part of the Spanish higher education structure and shares many characteristics in common with the other Spanish universities, including the same syllabi. The total enrollment in 1994 was 133,651 students.

Academic programs. The University is located in Madrid and has study centers throughout Spain and overseas. Courses are offered at undergraduate, postgraduate, and continuing-education levels. UNED now offers 600 courses in 16 degree programs, and a further 180 continuing-education courses. Completion rates are as good as those in the conventional universities, and over 2,000 students were taking doctoral courses in 1996 (Daniel, 1999, p. 186).

Students buy the whole package of study materials in study centers in Spain and abroad or in selected bookstores. Fees are common to all universities. Applicants to undergraduate courses are required to have successfully completed the UNED direct access program, a preparatory admission course for applicants age 25 years or older lacking university entrance qualifications. No academic qualifications are required for admission to the Open Distance Education Program, which is offered in the continuing-education area.

Main delivery system. Specially prepared printed course materials *called unidades didácticas* comprise the principal teaching medium, which is supported by modern technology.

General instructional structure. Although used in small scale, there is a basic instructional structure that supports printed media at UNED. This structure is outlined below:

1. Audio and videocassettes
2. Extensive use of radio
3. Computer technology
4. Television

5. Videoconferencing service extended to 15 study centers
6. Telephone tutoring
7. Face-to-face tutoring and counseling at 60 study centers
8. 21 study sub-centers
9. Nine support centers established in several European and Latin American countries.

Anadolu University-Turkey

Anadolu University is the only dual-mode institution of the mega-universities. In other words, it uses distance education along with conventional methods at its campus at Eikisehir. It was founded in 1982, and the already-existing academies of Economics and Commercial Sciences, founded in 1958, and Engineering and Architecture founded in 1970, were reorganized and united as Anadolu University.

The origin of distance education in Turkey goes back to 1970, when the Ministry of Education set up an experimental teacher's training college dedicated to the use of educational technology. By 1975 it was becoming the structure for the future open university (Daniel, 1999). In 2000, the total enrollment in degree programs was 577,804 students.

Academic programs. According to the Open Universities Databases (2000), after the reorganization in 1982, the Open Education Faculty (OEF) was set up to offer BA degrees, using distance-education techniques, in Economics and Business Administration. However, over the years the faculty has developed associate degrees and certificate programs in different fields. Teacher training and upgrading programs, training programs for Tourism and Hotel Management, and Home Economics are among the programs

offered. In 1992 certificate programs for Health Education, Social Sciences, and support programs for high-school students were added to the list. The Open Faculty also runs degree programs for Turkish nationals in Western Europe.

The University offers undergraduate degrees in the fields of Economics and Administrative Sciences, Engineering and Architecture, Medicine, Pharmacology, Education, Fine Arts, and Communication Sciences (Cinema and Television, Advertising and Public Relations Printing and Publishing, Educational Communication and Planning). In addition to these undergraduate programs, there are four graduate schools for postgraduate studies in the University.

In 1986 the University began a different program of higher education for elementary-school teachers who were graduates of 2-year programs. The program is a 2-year higher education program, which roughly equals a junior college education with some additional courses.

Main delivery system. Anadolu University combines a strong educational technology with printed media, which is still the most important medium, supported by television and radio programs broadcast by the Turkish radio and television.

General instructional structure. This is the basic structure of instructional media at Anadolu University:

1. 1,200 hours of state television transmitting 2,500 TV programs a year
2. 300 new programs made every year, mostly in the form of panel discussion
3. Videocassettes available in the video education centers
4. Part-time lecturers act in 50 local study centers

5. 27 computer support centers with 30 computers each (This is crucial because only 7% of students have computers at home.)

6. A student newspaper called *Anadolu*.

The TV programs are sequenced to match the progression in the textbooks. In addition to television programs, radio programs are used for foreign language courses (Anadolu University web site, 2000)

Mega-Universities in Africa and Middle East

University of South Africa

As the largest university in South Africa, University of South Africa (UNISA) is the oldest of all the world's 11 mega universities. It was founded in 1873 as the University of the Cape of Good Hope. In 1916 it was renamed the University of South Africa and moved to Pretoria.

In 1946, UNISA became the pioneer of distance education at the undergraduate level, when it was the first university in the world to provide distance education to off-campus students. It also assumed the guardianship of the Black university colleges until they became independent (Daniel, 1999, p. 182). In addition to the extraordinary growth in student numbers, UNISA has also achieved international recognition of its academic qualifications. In 1999, the University enrolled a total of 130,000 students.

Nelson Mandela, past president of South Africa, is a UNISA graduate and studied in jail. He has been one of the main supporters of the University.

Academic programs. In comparison with other mega-universities, UNISA offers a very wide range of courses at the undergraduate and postgraduate level. It offers degrees from undergraduate to doctoral level in six main areas: Economic and Management

Sciences, Arts, Education, Law, Science, and Theology and Religious Studies. The University also offers a variety of diploma and certificate programs. In 1999 there were about 3,727 master's students and 552 doctoral students.

With its main campus in Pretoria, one of South Africa's biggest cities, the University also has regional facilities in Durban, Cape Town, and Petersburg, as most of its students live in other cities or in rural areas.

Main delivery system. The basic teaching method at UNISA is the communication between an academic member of the university who teaches a course to students distributed all over the country, primarily by printed study guides and tutorial letters supplemented by audiovisual aids, videocassettes, and radio broadcasts (University of South Africa web site, 1999).

General instructional structure. According to Daniel (1999), courses are heavily print-oriented because it is believed that this is the medium most accessible to students. In 1996, there were 62 course teams engaged in designing new courses. Currently the university is conducting tentative experiments with new technologies for the purpose of getting closer to its students. The basic instructional structure includes:

1. Group discussion classes, with lecturers, organized in various study centers
2. Face-to-face support
3. Satellite centers
4. Tutorial support program
5. Alliances with private institutions and a student counseling service
6. Academic staff required to be in their office from 8 a.m. to 1:30 p.m. each working day, so that students can contact them

7. UNISA's library, with more than 1.6 million items, including 9,000 periodicals accessible through a sophisticated computerized catalogue.

UNISA's tutorial program is designed to support undergraduate students, mostly first- and second-year students, through highly interactive face-to-face tutorial sessions led by experienced and qualified tutors. Written examinations are arranged at centers selected by the University all over South Africa.

Payame Noor University-Iran

Payame Noor University (PNU) began with the creation of a correspondence faculty at Aburaihan Birooni University in 1971. It was discontinued in 1980, when Iran's cultural revolution temporarily closed all Iranian universities. After the revolution, Iran's universities were restructured and Payame Noor University was established in 1987, as the unique autonomous single-mode distance teaching state university. PNU is under the Ministry of Science, Research and Technology, and it is the only university in Iran that teaches at a distance. As the largest state university in the country, its degrees are fully recognized by other national and international institutions and organizations, and it accounts for 27% of all Iranian university students (Daniel, 1999, p. 178).

In the 2000 academic year there were approximately 186,000 students enrolled in degree programs at PNU.

Academic programs. PNU offers four main types of degree programs: Formal Degree Programs, General Degree Programs, Equivalent Degree Programs, and External Degree Programs. Formal Degree Programs can lead to either an associate degree or a bachelor's degree. There are no master's or doctoral degree programs available.

According to the Payame Noor University web site (2000), the university offers degrees in several different areas. It offers an associate degree in Environmental Health, Library Sciences, and Primary Education. The bachelor's degree is offered in Accountancy, Applied Physics, Biology, Business Administration, Chemistry, Computer Engineering (Software), Education, English Translation, General Psychology, Geography, Geology, Islamic Theology, Mathematics, Persian Language and Literature, Physical Education, Public Administration, Social Sciences, and Statistics.

The General Degree Programs are offered at the bachelor's degree level in 10 fields of study, and the Equivalent Degree Programs are exclusively for employees in the public and private sectors. The degrees awarded to this category of students will be recognized as the equivalent of Formal Degrees only by the sectors in which the employees work. The Center of External Degree Programs is planning to offer different degrees for Iranian people residing abroad as well as people of other nationalities. The language of instruction is Persian.

Main delivery system. Courses are mainly based on self-study texts supported by video and audiotapes, and printed material accounts for 90% of study time. PNU is proud of its Printing and Publishing Center, which has already produced over 800 titles (Daniel, 1999, p. 179).

General instructional structure. The instructional structure includes the following:

1. 3 to 6 face-to-face class meetings required during each semester, with a total of 16 hours per course
2. 167 local study centers and units all over the country

3. Laboratory activities and fieldwork trips arranged for a few science courses.

Payame Noor University is increasingly active in international distance-education circles, and has study centers in Afghanistan, Azerbaijan, and the United Arabs Emirates. The University is developing an international data network.

CHAPTER 4

FINDINGS AND CONCLUSIONS

After considering this overview of the history of distance education, I concluded that there is not a specific route from the postal media to the electronic media, but both media have shared together the same long journey in distance education. In the United States, print media and correspondence study seem to have dominated distance education at the beginning, supported by primitive forms of electronic media, while now, electronic media dominate the field supported by printed media. Around the world, both print and electronic media seem to play an equally important role today

As Bates (1997) says, "Learners are not a homogeneous mass, but vary a great deal in terms of background, age, experience, and preferred learning styles. Decision makers should therefore try to ensure that all four media (print, audio, television, computers) are available for teaching purposes, in one technological form or another" (p. 13).

Because of their different nature, I will group my conclusions about the development of distance education in two separate sections: The American experience and the world experience.

Conclusions From the American Experience

There seems to be no doubt that the technological revolution will accelerate the development of distance education. However, the history of distance education in the United States seems to point out to at least three points of crucial relevance. First, I

concluded that the struggle for credibility is not easier now than before. There is still prejudice to face and it still takes time. The revolution may be faster now, but I think it is a process that still requires time. As Admiral Crowe, American ambassador in London, says: "The United States will always do the right thing—after having exhausted all other possibilities" (as cited in Daniel, 1999, p. 16).

Second, based on this historical overview, I do not believe that online education will ever totally replace traditional education, as some enthusiastic scholars have predicted. I do conclude that there is a place for both traditional and distance education in the academic setting, and I believe that both methodologies can benefit each other. In fact, I think they need each other for an exchange of experiences to promote mutual development. As Heinich et al. (1999) say, "In the future there must be a balance between the old and the new. The 'old' media will be with us well into the twenty-first century. . . . It seems that digital and print format will coexist, with each performing the role they do best" (p. 348).

Finally, there is no such thing as a final destination on distance education. That means that new challenges will come to accommodate different pedagogical and instructional design issues, as well as to incorporate new technological advancements. In brief, I do not think distance education is in competition with traditional education at all. However, based on the world experience, I do conclude that distance education does deserve a legitimate place in higher education in the United States, with full credibility and acknowledgment.

Conclusions From the World Experience

It was a very exciting experience to travel around the world through the Internet and get general information about some basic differences and similarities between one

particular mega-university and the others. I had the feeling that I was experiencing almost "locally" such a big cultural diversity, along with the challenges and constraints faced by each of those universities.

After this short overview, I came to the conclusion that the reason why each mega-university uses a delivery system as its main instructional media is strongly related to the historical background of that university in each particular country. For instance, China, as the most populous country in the world, developed the idea of implementing remote classrooms in the workplace as an effective means of reaching 690,000 students. Korea has a tradition of manufacturing advanced technology at low cost, so the Korean mega-university is investing mostly in television and multimedia. The University of South Africa, as the oldest mega-university born in the correspondence tradition, remains linked to the tradition of exploring mostly print media as the easiest way of providing distance education at low cost, as most of their students are low-income people. The United Kingdom Open University, supported by a strong national economics, has been using radio, television, and satellite for a long time and is a pioneer in the use of computers and modern technology. The French mega-university explores instructional telephone and fax, based on the successful telephone system developed in that country.

The Turkish mega-university, as a dual-mode institution, faces the same problem as the American dual-mode institutions, that is, there is more financial and administrative support for the conventional programs than for the distance-education ones. As Daniel (1999) says, "Although AU [Anadolu University] has more that 40 students at a distance for each one on campus, the focus in AU publications and discussions is largely on the campus operations." And he asks, "Is this an unavoidable weakness of the dual mode approach?" (p. 193). The result is that Anadolu University still struggles to develop its

strong project of educational technology. While it has shown considerable interest in multimedia technologies, "print media remains by far the most important teaching medium" (Daniel, 1999, p. 193), as the financial support is not enough to develop educational technology as intended.

The same can be verified regarding all the other mega-universities. The Indian mega-university remains rooted in the correspondence tradition. The Indonesian one is trying to follow the Asian tradition of high technology and multimedia, but is struggling with the high costs of technology. The Iranian mega-university, based on the correspondence tradition, has developed a strong system of printing and publications, and so on.

Therefore, my basic conclusion is that there is a strong relationship between the selection of instructional delivery systems and the university's tradition. However, besides this conclusion, there is also an interesting lesson to be learned: The tradition and the constraints may determine the media, but it does not impede the achievements of distance education. Regardless of the type of delivery system, each mega-university is finding its own peculiar way of delivering distance teaching and educating its people. The basic question is not whether or not to deliver distance education, but rather, 'how' to do that. And each mega-university responded at its own convenience. Should American distance education learn the lesson? Perhaps this is a good topic for further research.

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