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CHAPTER 2

DISTANCE EDUCATION AND THE EVOLUTION OF ONLINE LEARNING IN THE UNITED STATES

Hope E. Kentnor

ABSTRACT

Online education is no longer a trend. Rather, it is mainstream. In the fall of 2012, 69% of chief academic leaders indicated online learning was critical to their long-term strategy and of the 20.6 million students enrolled in higher education, 6.7 million were enrolled in an online course (Allen & Seaman, 2013; United States Department of Education, 2013). As developments in educational technology continue to advance, the ways in which we deliver and receive knowledge in both the traditional and online classrooms will further evolve. It is necessary to investigate and understand the progression and advancements in educational technology and the variety of methods used to deliver knowledge to improve the quality of education we provide today and motivate, inspire, and educate the students of the 21st century. This paper explores the evolution of distance education beginning with correspondence and the use of parcel post, to radio, then to television, and finally to online education.

Distance education is defined as a method of teaching where the student and teacher are physically separated. It can utilize a combination of technologies, including correspondence, audio, video, computer, and the Internet (Roffe, 2004). Today's version of distance education is online education, which uses computers and the Internet as the delivery mechanism with at least 80% of the course content delivered online (Allen & Seaman, 2011; Shelton & Saltsman, 2005).

Online education is no longer a trend, but mainstream. Of the 18.2 million students enrolled in higher education in the fall of 2007, 3.9 million (21.4%) were enrolled in at least one online course (Allen & Seaman, 2008; United States Department of Education, 2013). By fall 2010, the number of higher education students had risen to 21 million, and 6.1 million of those (29.0%) were enrolled in an online course (Allen & Seaman, 2011; United States Department of Education, 2013). This represents an 18.8% average increase in the number of students enrolled in online education during that time period. Between 2010 and 2012, the growth rate leveled out somewhat, showing an average annual growth of roughly 4.9%. Still, as of fall 2012, of 20.6 million higher education students, 6.7 million (32.5%) enrolled in online courses (Allen & Seaman, 2013; United States Department of Education, 2013). That represents a staggering one-third of higher education students enrolled in online courses. With enrollments in online courses still growing and the realization that they are here to stay, educational institutions are challenged to meet the demand while continuing to provide quality education. Indeed, more than two-thirds (69.1%) of chief academic leaders indicate that online learning is critical to an academic institution's long-term strategy (Allen & Seaman, 2013).

However, distance education is not a new way of teaching. It can be traced back to as early as the 18th century. Its evolution and progression over the last 300 years run parallel with innovations in communications technology, and distance learning continues to grow in popularity. Distance education was common beginning in the late 1800s, but its rapid growth began in the late 1990s with the advance of the online technical revolution. It is far from a new phenomenon, but it continues to reach new heights as the developments in technology advance. This article details the evolution of distance education beginning with correspondence and the use of parcel post, to radio, then to television, and finally to online education. While there is a growing body of research on online education, the field's evolution has unsettled earlier findings and posed new areas of investigation. It is necessary to investigate and understand the progression and advancements in educational technology and the variety of methods used to deliver knowledge in order to improve the quality of education we provide today.

CORRESPONDENCE: PARCEL POST

Correspondence education is a form of distance education given that the teacher and students are physically separated. It is defined as “a method of providing education for nonresident students, primarily adults, who receive lessons and exercises through the mail, or some other device, and, upon completion, return them for analysis, criticism, and grading” (Encyclopedia Britannica, 2012). The primary objective of distance education is to create educational opportunities for the under-represented and for those without access to a traditional educational institution (Jonasson, 2001). The earliest known reference to correspondence education was on March 20, 1728, when Caleb Phillips placed an advertisement in the *Boston Gazette* offering shorthand lessons for any “Person in the Country desirous to Learn this Art, may be having several Lessons sent Weekly to them, be as perfectly as those that live in Boston” (Phillips, 1728). Many argue that since there is no record of two-way communication, this cannot be formally recognized as distance education (Verduin & Clark, 1991). However, the premise and intent are apparent in the advertisement—to teach shorthand by way of the Postal Service.

Isaac Pitman, recognized as the pioneer of distance education, began teaching shorthand by correspondence in 1840 in Bath, England (Verduin & Clark, 1991). Pitman mailed postcards to students and instructed them to transcribe passages from the Bible into shorthand and to return them, by post, for correction (Verduin & Clark, 1991). Just three years later, in 1843, the Phonographic Correspondence Society was founded, a precursor to Sir Isaac Pitman’s Correspondence College. Thirty years later, in 1873, Anna Eliot Ticknor founded the Society to Encourage Studies at Home in Boston, Massachusetts, which was based on the correspondence school model. Less than a year later, Illinois Wesleyan College became the first academic institution to offer degree programs “in absentia” (Emmerson, 2004, p. 2). By the 1870s, the foundation for correspondence education was laid, and it was on the brink of taking off.

The Chautauqua Movement of the 1870s is responsible for the onset and acceptance of correspondence education for adults (Harting & Erthal, 2005). In 1874, Lewis Miller and John Heyl Vincent heralded the movement in New York State as a training program for Sunday school teachers during the summer. Gradually, the program expanded to include general education and the arts, with supplemental readings and studies to be completed at home and through correspondence. Several “chautauquas” developed across the country as assemblies and seminars of learning. Although known for their summer gatherings, they offered four-year programs of reading through correspondence, and participants earned certificates of study. In 1878, John Heyl Vincent established the Chautauqua Literary and Scientific Circle in Chautauqua, New York, the first adult education program and correspondence school in the country (Cincinnati Daily Gazette, 1878; Scott, 1999). Chautauqua University, formed in 1883, introduced extension and corre-

spondence courses, as well as summer terms, until it closed its doors in 1892 due to lack of resources (Harting & Erthal, 2005).

That same year, William Harper Rainey, using Chautauqua University's model, offered college-level correspondence courses at the University of Chicago (Scott, 1999). The correspondence division at the University of Chicago was quite successful in terms of enrollment, enrolling 3,000 students in 350 courses with 125 instructors (Rumble, 1986).

The need for correspondence education continued to gain strength in the late 1800s and early 1900s as the desire for a college degree grew along with, for many, increased barriers (familial obligations, financial, geographic, etc.) to attending a traditional university (Verduin & Clark, 1991). With the need to provide equal access to educational opportunities at the fore, correspondence education took a new turn. Along with the growing demand for and popularity of correspondence education, there was increased concern regarding the quality of the education provided by these programs. In 1915, the National University Extension Association formed in an effort to "develop and advance ideals, methods, and standards in continuing education and university extensions" (National University Extension Association, n. d.). Whether it was to educate students for degrees, update professional knowledge and skills, or to train new soldiers, the goal of correspondence education was to provide a quality education and enable any and all to expand their intellect and knowledge.

RADIO

Distance education took another turn in 1894 when Guglielmo Marconi invented the spark transmitter and obtained the first patent for a radio device (Omaha World Herald, 1897; Buckland & Dye, 1991). It was not long before distance educators sought to explore new communication technologies as a means to reach more learners. In 1906, the University of Wisconsin-Extension was founded as a distance-teaching unit. In 1919, University of Wisconsin professors began an amateur wireless station later known as WHA, the first federally licensed radio station dedicated to educational broadcasting (Engel, 1936). In 1922, seventy-three other educational institutions received regular broadcast licenses, yet only half of those with such licenses had stations on the air (Wood & Wylie, 1977). By the end of the 1920s, 176 educational institutions had broadcast licenses.

The early 1920s are seen as the beginning of educational broadcasting. Very quickly, colleges and universities went beyond transmitting educational matter and entered the social broadcasting of sporting events, concerts, dramas, and college lectures (Buckland & Dye, 1991). Despite the growth in radio broadcasting, there was no governing law which regulated land-based public broadcasting stations. The Radio Act of 1912 sought to address this by requiring the licensing of all station operators and transmitting apparatuses for interstate or foreign

commerce (Department of Commerce, 1914). However, the Radio Act did not reference radio broadcasting; therefore, by 1922, the plethora of new radio stations continued and quickly exhausted the limited number of frequencies available for radio transmission. Herbert Hoover, then Secretary of Commerce, was therefore forced to deny licensing requests (Verduin & Clark, 1991). In 1923, a federal appeals court ruled that Hoover was required to issue broadcast licenses to anyone who applied, and this resulted in a dramatic increase in the number of radio stations and, as a consequence, greater interference on broadcasting channels (Hoover v. Intercity Radio CO., 1923). Congress subsequently passed the Radio Act of 1927, which attempted to regulate the broadcasting industry and placed the decision-making powers in the hands of an independent agency, the Federal Radio Commission (United States Congress, 1927).

These regulatory issues affecting radio, coupled with the economic turmoil present at the start of the Great Depression in 1929, significantly impacted educational institutions and educational radio broadcasting. By that time, of the 176 radio stations at educational institutions, only thirty-five had survived (Buckland & Dye, 1991 as cited in Gibson, 1961). Just to keep functioning, some institutions began a “school of the air” program, offering daily science, literature, history, and music programming. The first of such programs, the Ohio School of the Air program, was developed by the Ohio State Department of Education in the fall of 1928 (Duff, 1929; Holy, 1949). Also in 1928, the National Broadcasting Company (NBC) started the Radio Corporation of America (RCA) Educational Hour, also called “The Music Appreciation Hour,” to introduce symphony orchestra and music to children. The Columbia Broadcasting System (CBS) followed in 1930 with the American School of the Air (Johnson, 1936; Wood & Wylie, 1977). On May 11, 1930, in an effort to promote radio broadcasting as a teaching medium, the Rockefeller Foundation and the Carnegie Foundation organized and funded the National Advisory Council for Radio in Education (NACRE) (Buckland & Dye, 1991; New York Public Library, n. d). The year 1930 also saw the founding of the Institute for Education by Radio (IER) in Columbus, Ohio, where radio was used extensively in the classroom. The IER concentrated on techniques used in educational broadcasting.

It became evident that there was a growing need for a national organization in Washington that would be dedicated to using radio for educational broadcasting and also would coordinate efforts on the part of the institutions and stations. On December 30, 1930, the National Committee on Education by Radio (NCER) was formed,

...to secure to the people of the United States the use of radio for educational purposes by protecting the rights of educational broadcasting, by promoting and coordinating experiments in the use of radio in school and adult education, by maintaining a Service Bureau to assist educational stations in securing licenses and in other technical procedures, by exchange of information through weekly bulletin, by en-

couragement of research in education by radio, and by serving as a clearinghouse for research. (National Committee on Education by Radio, 1931, p. 1)

Radio was the new communication technology of the 1920s; however, its use in education was more popular in Europe and in other countries around the world than in the United States. This was especially the case in nations where radio was more reliable than the postal service or where literacy rates were lower. Greville Rumble (1986) noted that, "In Latin America, radio broadcasting organizations were among the pioneers of distance education, and this is reflected in the structure of many current systems where there is less emphasis on print and individual correspondence tuition, and more on locally organized listening groups" (p. 9). Radio was, and in some countries still is, the ideal instrument for informing and educating the masses. It was inexpensive and immediate, its content could be changed quickly, and it could reach a large number of people. The distance education innovation that began in the 1700s continued to grow as new technologies emerged. It was not long after radio broadcasting was introduced that the ability to "see" an instructor on a television screen, from a distance, became a marvel.

TELEVISION

The foresight to use visual technology in education came long before such capability existed; yet surprisingly, once implemented, it did not gain strength in education as many had anticipated (Verduin & Clark, 1991). In an interview with Frederick Smith (1913), Thomas Edison said, "Books will be obsolete in the public schools. Scholars will be instructed through the eye. It is possible to teach every branch of human knowledge with motion picture. Our school system will be completely changed inside of ten years" (p. 24). Edison further stated,

We have been studying and reproducing the life of the fly, mosquito, silk weaving moth, brown moth, gypsy moth, butterflies, scale and other various insects, as well as chemical crystallizations. It proves conclusively the worth of motion pictures in chemistry, physics and other branches of study, making scientific truths difficult to understand through textbooks, plain and clear to children. (p. 24)

Thus, the evolution of visual media as a medium for education was conceived before the use of its audio counterpart (radio) in education. Although the science was developed as early as the late 1800s, commercial television did not become part of the public domain until April 9, 1927, when Secretary of Commerce Herbert Hoover and Bell Laboratories held the first long-distance live video and voice transmission. Hoover said, "Today, we have, in a sense, the transmission of sight for the first time in the world's history. Human genius has now destroyed the impediment of distance in a new respect, and in a manner hitherto unknown" (Cleveland Plain Dealer, 1927; Federal Communications Commission, n. d., p.

1). Despite the availability of the technology, the first use of television broadcasting for education did not originate until between 1932 and 1937 at the University of Iowa (Koenig & Hill, 1967). Even this was only an experiment into the use of television for educational purposes. Educational television (ETV) is defined as “a medium which disseminates programs devoted to information, instruction, cultural or public affairs, and entertainment” (Koenig & Hill, 1967, p. xv). The widespread use of audio-visual media in military training demonstrated its effectiveness in education; thus, the use of video in the classroom became prevalent. However, this still did not lead to the use of television for distance education (Verduin & Clark, 1991).

The pioneers of educational television, and those who recognized the potential of educational television early on, were the University of Iowa, Iowa State University, Kansas State University, the University of Michigan, and American University (Koenig & Hill, 1967). Although the technology and the use of video as a teaching medium continued to evolve, the use of television for distance education still faced many barriers. In 1948, the Federal Communications Commission (FCC) issued a freeze on granting new television licenses in order to resolve interference and allocation issues that arose from the rush of license applications. By 1950, educational institutions had begun to recognize the potential of television as a medium for teaching and learning, but they were “not organized as a unified educational body” and were unable to influence the FCC’s decision regarding educational television frequencies (Koenig & Hill, 1967, p. 5). Finally, in 1952, the FCC answered educators’ requests to reserve television channels for the exclusive use of education in the *Sixth Report and Order* (Federal Communications Commission, 1952). Pursuant to the report, a total of 242 channels were reserved initially, with 632 channels reserved by 1966. Of the stations on the air in 1966, one-third were licensed to state and local educational systems, another third to colleges and universities, and a final third to community organizations (Koenig & Hill, 1967). Following recommendations by the Carnegie Commission on Educational Television, the Public Broadcasting Act of 1967 established the Corporation for Public Broadcasting (CPB). The CPB’s mission was “to encourage the growth and development of public radio and television broadcasting, including the use of such media for instructional, educational, and cultural purposes” (Buck, 1971; United States Congress, 1967, p. 1).

In the late 1960s and early 1970s, the use of radio and television in education continued to grow, but not in terms of distance education. Educators were using the television in the classroom as a tool to demonstrate and explain concepts, and families were tuning in at home to educational broadcasts (i.e. cable television, Public Broadcasting Service, and National Public Radio). However, the use of television for distance education, whereby an instructor and student interacted asynchronously, waned (Verduin & Clark, 1991). At the time, television courses for distance education were poorly produced, and perhaps this was a reason for the low viewership. These television courses usually involved the instructor sim-

ply reading notes, making it difficult to keep viewers' attention. By the mid to late 1970s, however, this changed. The British Broadcasting Company (BBC) began to set a standard for American television course developers to follow (Verduin & Clark, 1991). At the same time, the use of computers as a medium for delivering education was implemented, but educators were not yet willing to embrace the new technology.

ONLINE: INTERNET

Online education is defined as a form of distance education that uses computers and the Internet as the delivery mechanism, with at least 80% of the course content delivered online (Allen & Seaman, 2008; Shelton & Saltsman, 2005). The use of computers to educate arose in the corporate arena during the 1980s as companies used computer-based programs to train new employees (Rudestam & Schoenholtz-Read, 2002). Online educational programs emerged in 1989, when the University of Phoenix began using CompuServe, one of the first consumer online services (The University of Phoenix, n. d.). Shortly thereafter, in 1991, the World Wide Web (Web) was unveiled, and the University of Phoenix became one of the first to offer online education programs through the Internet. Although a for-profit institution, the University of Phoenix's move toward the online educational marketplace prompted many reputable institutions and not-for-profit colleges and universities to follow suit (Carlson & Carnevale, 2001). The Alfred P. Sloan Foundation (Foundation), a respectable philanthropic, not-for-profit grant-making institution, developed the Asynchronous Learning Networks (ALN) in 1992 to explore educational alternatives for those unable to attend traditional classes in the classroom (Alfred P. Sloan Foundation, n. d.). As online education continued to grow, the Foundation also began funding institutions that offered online programs in an effort to improve the quality of online education. The vision and effectiveness for this new medium of distance education was apparent, so it was only a matter of time before academia entered the market.

Universities and colleges began experimenting in online courses in the early to mid-1990s. However, the rapid growth of online education in traditional nonprofit institutions did not start until 1998 (Arenson, 1998). In October of 1998, New York University (NYU), already operating one of the largest continuing education schools in the country, was the first large nonprofit university to create a for-profit online education subsidiary, NYU Online. Western Governors University, a college founded and supported by nineteen state governors, was founded that same fall in order to make education more accessible (Western Governors University, 2015). The California Virtual University, a consortium of almost 100 universities and colleges in California with nearly 1,600 online courses, opened in November of 1998 (Arenson, 1998). Several other institutions opened for-profit subsidiaries at about the same time, but many unfortunately did not survive. Even NYU

Online, which was believed to be the only institution able to compete with the growing for-profit University of Phoenix, closed its doors in October 2001, along with the University of Maryland's distance education for-profit arm (Carlson & Carnevale, 2001). Surprisingly, that same year, the University of Phoenix's enrollments nearly doubled from 16,000 to 29,000 (Carlson & Carnevale, 2001). By 2002, over 1.6 million postsecondary students were enrolled in online courses, and six years later that number had almost tripled (Allen & Seaman, 2008). However, aside from the University of Phoenix, many fledgling online educational programs started during this time did not survive. Of these, many were online programs begun by traditional brick-and-mortar institutions.

Numerous factors influenced the demise of these online institutions, but perhaps the most significant were the lack of understanding of online pedagogy and online learning styles, as well as the lack of faculty buy-in for online education (Marcus, 2004). Online education is a different medium for teaching and learning, and therefore requires a different pedagogy (Bernard et al., 2004). Further, faculty were, and still are, an integral part of any university's success, and many faculty members at the traditional universities did not embrace online education due to concerns regarding the quality of education being provided through this medium (Shelton & Saltsman, 2005). As many traditional universities entered the online marketplace, they did so without the full support of the faculty, ultimately impacting the sustainability of their online programs (Carlson & Carnevale, 2001). As Bates (2000) stated, "presidents may dream visions and vice presidents may design plans, and deans and department heads may try to implement them, but without the support of the faculty members, nothing will change" (p. 95).

Another factor that led to the closure of many of the institutions providing online education was the failure on the part of educators to recognize that differences exist between teaching and learning in the online and face-to-face environments (Arenson, 1998). Many professors merely provided the online students with lecture notes from the traditional classroom, with the assumption that this would suffice. However, research has found that a well-designed, documented, and structured online course that facilitates active engagement with the students is essential for success (Dykman & Davis, 2008; Gaytan & McEwen, 2007; Palmer & Holt, 2008). Carlson and Carnevale (2001) contend that online pedagogy is not the only reason for the initial failure, but rather the lack of institutional support for the faculty and lack of leadership with an understanding of online education were also to blame. According to Shelton and Saltsman (2005), the most common complaints from faculty regarding online education are (1) the lack of understanding of this method of teaching; (2) the lack of institutional support; and (3) fear that the quality of education in the online environment suffers.

In sum, in 1998, as nonprofit institutions sought to increase profits by entering into the online marketplace through the creation of subsidiaries and partnerships, they ignored the fundamental principles of the quality of education, institutional governance, and project planning. Derek Bok (2003) argued that new technolo-

gies harness great power with the potential to improve teaching and learning; yet, should universities continue to seek a profit and commercialize education, the credibility and integrity of the institution of higher education will be threatened. He further contends that universities must invest in researching new technologies and use them to improve the quality of education we provide.

DISTANCE EDUCATION TODAY AND TOMORROW

Distance education was based on the premise that education was possible without the face-to-face interaction between the student and teacher. In the 1700s, this may have been difficult to conceive. Today, with the advancements in communications technology and the connectivity of computers and the Internet, distance education is commonplace. Distance education continues to play an important role in education in the United States, as it provides greater access and, in some respects, an affordable option. From the Postal Service, to spark transmitters, to television broadcasting, to the Internet and the Web, advances in communication technology have led to the changing landscape of education and the proliferation of distance education. Online education is the fastest growing form of distance education and is valued at both traditional and non-traditional colleges and universities. In 2011, 65% of institutions reported that online learning was critical to their long-term strategic plans (Allen & Seaman, 2011). Online education is no longer simply a trend.

Online education has not only changed the landscape for distance education, but has greatly impacted higher education as a whole across the globe. We have seen the proliferation of for-profit institutions of higher education, the commercialization of education by traditional non-profit institutions, and a continued increase in the demand for online education (Allen & Seaman, 2011). The traditional brick-and-mortar institution has existed for centuries; its current infrastructure has been in place for decades, and faculty, in the traditional classroom, have taught very much as they did fifty years ago (Stark, 2003). This is changing. John Sener (2012), argues, “education has been, is being, and will continue to be cyberized” (p. 157). He defines “cyberize” as “adapt[ing] to digital technology or culture” (p. 125). Sener contends that the first era of online education has been devoted to providing access, while the second era has the potential to improve the quality of education as a whole, not just online education. It is not about changing the knowledge being conveyed, but merely shifting the way it is “transmitted, preserved, and generated” (Sener, 2012, p. 124). Richard Levin, former president of Yale and current Chief Executive Officer of Coursera, stated, “In 10 or 20 years, when we judge the great universities, it will not just be on their research but on the reach of their teaching” (Kolowich, 2014). Distance education, since its inception in the 1700s, was about making knowledge accessible to more than just a privileged few. Just as financial aid and scholarships make education possible

for those who are unable to afford the cost, distance education makes education attainable for those who are unable to sit in the traditional classroom. It is now time to focus on the quality of the education we provide, both in the classroom and online, and use the technology and innovations available today to motivate, inspire, and educate the students of the 21st century.

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