Distance Education in the United States: Past, Present, Future

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The practice of distance education in the United States is traced back to its early roots. In the 20th century, distance education remained at the periphery in corporate training, K–12 schools, and most universities, but it gradually developed its practice by using broadcast media, and later the Internet. Since the turn of the current century, distance education has seen an unprecedented growth in the US. Antecedent to this growth is the emergence of a post-industrial economy as well as expanded theory building and research in the discipline. The future of distance education depends on how successfully established institutions can adapt themselves to the post-industrial environment by adopting key theoretical concepts and implementing research findings, and how institutions are able to reduce the cost of education while increasing access.

Introduction

In the first decade of the 21st century, distance education moved from a peripheral endeavor in public education and private sector training to center stage. There are several economic, social, and technological antecedences for this phenomenon. This article presents a review of the history of distance education in the United States (US), describes the conditions for its growth in recent years, and reflects on some future trends, the outline of which are already evident.

Given the relatively long history of the field in the US, it is impossible to give a comprehensive historical account in this article. Therefore, only selected foundational concepts and events that have been instrumental in developing the contemporary theory and practice of distance education are highlighted.

Numerous practitioners have an active role in developing distance education in many other countries of the world, ranging from Canada and Mexico on our borders to the United Kingdom, Germany, India, and Australia, to name just a few. This brief article cannot do justice to describing the important role of distance education in countries other than the US. Therefore, it will be limited to the past, present, and future of distance education in the US. The author reflects the most recent developments in the field in the US as well as elsewhere in the world at *http://distance-educator.com* each day. Visit this Website for ongoing and comprehensive coverage of practice, research, and theoretical developments in the US, as well as in other countries.

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Historic Foundations

Distance education has provided an alternative means of learning for countless individuals for many years in the US. The field had its roots in independent study, self-directed learning, and non-traditional and open education (Wedemeyer, 1981).

Early Days

Ideas and practices as far back as Colonial times have influenced conceptualization, growth, and practice of distance education. These include:

- Informal apprenticeship programs (1600s).
- Discussion forums, such as when Benjamin Franklin organized the Junto Society—an informal discussion group—in Philadelphia (1700s).
- Self-improvement groups, such as the Lyceum and the Chautauqua movement in the 1800s and various other adult, self-directed, continuing education, and extension programs that are now formalized in higher education institutions and other organizations (Rasmussen, 1989).

Although Junto and Lyceum sessions were conducted in-person, their formation was based on the principle of *independent learning* that is a foundational concept of contemporary distance education. The Chautauqua movement, however, expanded beyond its birthplace in upstate New York, and evolved into an early form of distance teaching and learning through correspondence.

Correspondence Education and Meeting Needs of the Under-Served

Edelson and Pittman (2001) posited that correspondence education developed on two parallel tracks; one

found its home and prospered in higher education, the other in the private sector. The quality of education in the commercial sector ranged from very good to outright fraudulent. The commercial or *proprietary* schools that engaged in deceptive practices damaged the reputation of distance education to the point that the federal government withdrew its financial support for students in such schools and established rules that limited the practice in the 1950s. Although reputable faculty and administrators practiced correspondence education in state-supported institutions of higher education, the practice did not develop parity of esteem with the so-called *traditional* form of teaching and learning (Jevons, 1987; Pittman, 1990, 2003). It was not until a decade ago that the federal government began to relax its regulations for distance education. Despite the rapid growth of distance education in recent years, and overwhelming research evidence that there is no "statistically significant difference" between the effectiveness of distance and face-to-face instruction, the issue of quality of distance education has remained alive (Chu & Schramm, 1967; Johnson, Aragon, & Shaik, 2000; Machtmes & Asher, 2000; Schramm, 1962; Wetzel, Radtke, & Stern, 1994).

Such an elitist attitude towards distance education highlights a socio-economic aspect of the field that has been important since its inception and might become even more important in the future. The curricula of most correspondence schools were designed to help the common man/woman to access education, often for developing vocational and farming skills. Self-initiated and directed learning had a democratizing influence in education, which did not follow the methods and procedures of established educational institutions that were available to the privileged classes.

The primary theme in distance education to meet the needs of the under-served segment of the society was highlighted again in the 1960s. During this tumultuous decade, the civil rights movement brought to the forefront the plight of children living in inner cities who were deprived of adequate means of learning. This concern led to the establishment of the Public Broadcasting Service (PBS) and the Corporation for Public Broadcasting (CPB). The task of the CPB was to fund production and, thereby, broadcast of educational programs. Perhaps the best known and the most successful program funded by CPB is Sesame Street, which has reached millions of preschool children throughout the country on PBS affiliated television stations and has offered them the type of early education in language development and mathematical thinking which they otherwise would not have received. It continues to this day.

Today, the cost of education is rising at 10% to 15% a year, and distance education can play a major role again in providing access to education for segments of the society that are either priced out of the education market, or graduate from college with thousands of dollars of debt. This, however, will require a fundamental change in the way K–12 schools and institutions of higher education are managed—an issue which we will revisit later in this article.

Educational Broadcasting

In parallel with correspondence education, as the 20th century evolved, educators employed radio, television, telecommunications satellites, and cable television in teaching and learning. With the advent of broadcasting, the federal government issued the first educational radio license to the Latter Day Saints' University of Salt Lake City in 1921. The University of Wisconsin and the University of Minnesota received licenses to establish educational radio stations in 1922 (Saettler, 1990).

Willey and Young (1948) analyzed issues related to the use of radio in education, some of which have not been resolved even now with new media as educators experiment with the latest technologies. A summary of these issues follows:

1. Listening to radio develops "intellectual passivity."
2. Radio is a one-way means of communication.
3. It is hard to adjust instruction by radio to the "capacity of the individual pupil."
4. Listening to radio is less effective than face-to-face communication due to lack of the speaker's "facial expressions and gestures."
5. Broadcast times are hard to adjust to class schedules.
6. Programs are produced by radio artists and financiers, and not by educators.
7. Programs are not based on school curriculum.
8. "Too many teachers have had to work too many hours at too many chores. We cannot expect them to assume the labor of producing or using radio broadcasts without time allowance and without proper training."

Iowa State University applied to the Federal Communications Commission (FCC) for an educational television (ETV) license in 1945, and it became the first ETV broadcaster in the world, as it commenced televising educational programs in 1950 (Saettler, 1990).

Kumata (1960) listed learner traits as "prime" factors in learning from instructional television, and not "in the fact of TV transmission." In summary, these traits were:

1. *Audience motivation*. "Superiority of TV is reported more often in voluntary audience situations than in captive audience situations."
2. *Subject matter preparation and integration into a teaching process*.
3. *Audience intelligence*. "TV seems to affect intelligence levels differently but exactly how has not been shown."
4. *The mode of presentation*. "TV or face-to-face has no differential effect upon retention of the subject matter."

5. *Interaction with teacher.* "…gives students reassurance and greater willingness to undergo the television experience."
6. *Attitudes toward TV and toward subject matter.* The medium has no effect on learning achievements; however, it might affect selection and future use of television for learning.
7. *Adult learners.* Popularity of educational television among adult learners indicates that "adult credit courses…may carry the educational television station" as a viable financial enterprise.

These relatively early findings are remarkable in light of what media researchers found during the next two decades. Researchers including Salomon (1969, 1971, 1979), Salomon and Snow (1970), Snow and Salomon (1968a, b), Cronbach and Snow (1977), and Snow, Federico, and Montague (1980) conducted a series of studies based on the idea that if learner traits are paired with the right treatment attributes, mediated or otherwise, instruction could lead to the control and prediction of learning outcomes. This line of research, known as aptitude-treatment interaction (ATI), revealed that there are potentially unlimited combinations of cognitive states with media variables. These findings defied parsimony and closure in that mediated instruction could not be designed to precisely match learner characteristics. Clark and Salomon (1985) presented a comprehensive review of research in media and teaching and called this phenomenon *"confounding variables."*

Nevertheless, in general, ATI researchers agreed that aptitude-treatment interactions are very common in education. However, perhaps because computers were not as versatile as they are today, they could not simulate multiple ATI combinations. Therefore, they conceded that many ATI combinations are *complex* and difficult to demonstrate clearly. As a result, they concluded that ATI effects are not sufficiently understood to be the basis of instructional practice.

These ATI studies, therefore, provided the necessary background knowledge for understanding the *complexity* of distance education systems now that personal computers offer advanced software applications which can potentially provide differential responses (treatments) to learners, depending on the learners' profiles. As will be discussed later in this article, ATI studies also offer the groundwork for explaining the use of system dynamics as a method for a comprehensive analysis and synthesis of learning in complex adaptive environments, while developing the contemporary theoretical foundations of distance education.

The Contemporary Scene

The Knowledge Economy

When the National Science Foundation provided access for universities to the Internet in the mid-1990s, educators gained a powerful means for teaching and learning, which was radically different from previous electronic broadcast media. Arrival of networked computing to higher education, the place of work, K–12 schools, and even homes did not come a moment too soon, since towards the late 1980s and in the early 1990s families, institutions, societies, and relations among nations were going through rapid change. Novel solutions were required to meet the demands of a new epoch in history, marked by the ascendance of knowledge as the single most important element in the prosperity of nations.

In June of 1997, Alan Greenspan, then the Chairman of the Federal Reserve Board, testified in Congress that the US economy had gone through a fundamental change. Dr. Greenspan said a synergy among technologies, which may occur "once or twice in a century," had brought unprecedented added value to the products of many companies, and had reduced the cost of production and distribution of goods and services. Thus, technological innovation based on generation of new knowledge began to replace industrial production as the primary factor in the wealth of advanced economies (Neef, 1998).

The emergence of the knowledge economy had a profound effect on business and education. First, information technology deeply impacted training, teaching, learning, and management practices. Businesses were able to eliminate middle managers whose primary functions were relaying information between the top management and front-line workers. Organization charts went flat; some with only two layers—top management and front-line workers—when leading managers could directly communicate with front-line workers using information technologies. This downsizing or rightsizing of the organization also eliminated the stand-up trainer in many organizations. Instruction could be placed on the World Wide Web, often without an instructor or a facilitator to present such information to learners. Further, employees could access instruction at their convenience, thus reducing the time they would spend away from their tasks in training, at times hundreds of miles away from their workstations. This form of training, dubbed eLearning, was developed in corporations independent of the key theoretical and practical concepts in distance education in Europe and the United States. As will be demonstrated below, dialogue, or interaction between learners and instructors, and among the learners, is a fundamental concept in distance education. Therefore, eLearning, as conceptualized, devoid of learner–instructor and/or learner–learner interaction, is flawed and is an inadequate concept for practical training as well as for building a comprehensive theory of distance education.

Public Education

Public education did not go through the organizational restructuring which maximized the use of information

technology in some businesses. In most institutions, the role of technology has been to bring down the cost of services per person served or units of goods produced. An effect of the lack of re-organization in public education is that despite massive investments in telecommunications technology, tuitions are increasing by 10% to 15% a year. Education costs are going higher while billions of dollars have been invested in information technology; a major disparity to say the least. Thus, the true potential of distance education remains to be realized in K–12 and higher education. Lack of organizational restructuring in educational institutions prevents them from benefiting from their investment in information technology. Nevertheless, today distance education is thriving among homeschoolers, K–12 schools, and colleges and universities, many of which require synchronous or asynchronous interaction with an instructor, while relying on instruction on the Web (Saba, 1997, 2006).

Most recent information survey results available indicate:

- More than one-quarter (27%) of all high school students took at least one class online in 2009, up from 14% the year before. According to the same report, 21% of middle school students were taking online classes in 2009 as compared to 16% in 2008 (Project Tomorrow, 2010).
- 1.5 million students were homeschooled in 2007. This was an increase of 74% from in 1999, and up 36% since 2003 (US Department of Education Center for Education Statistics, 2008). If these trends have continued, the number of homeschoolers should hover around 3 to 4 million by now, although no up-to-date statistics for this category are available.
- In 2009, almost 30% of students in colleges and universities took at least one course online. This put the number at 5.6 million students during the fall 2009 term; an increase of almost one million over the previous year (Allen & Seaman, 2010).

While the number of students in public and for-profit K–20 institutions who are involved in various forms of distance learning may pale in comparison to those who are learning in traditional ways, the important factor is the steady rate at which distance learners are increasing. For example, as Allen and Seaman (2010) have indicated, the 21% growth rate for online enrollments in higher education far exceeds the less than 2% growth of the overall student population. If the tendency to use information technology for teaching and learning continues in coming years, distance education will become the dominant form of education in the foreseeable future.

Distance Education in Government

Federal, state, and local governments also offer extensive distance education programs for their employees and clients throughout the country. The US military has been at the forefront of new developments in distance education, and is one of its largest users throughout the world.

The commitment to distance education by the federal government for its civilian personnel is evident in the Website of the US Office of Personnel Management. This Website, titled GoLearn Knowledge Portal *(http://www.golearn.gov)*, offers a one-stop portal to federal employees to keep their skills and knowledge current in a wide array of knowledge domains and skill sets.

Distance education initiatives, and programs by states, counties, and local municipalities, are too numerous to list and describe in this short review. As these government agencies have expanded their use of telework, or the ability of their employees to work at home via information technology, their use of learning via the Internet has also increased dramatically.

In classroom lectures and conference presentations, when in the 1980s this author predicted the ubiquity of distance education via integrated audio, video, and text communication through telephone lines—before the Internet was made available to educators—the audience response was invariably: "It is hard to imagine," or even "It will never happen." Now, most of my audience realizes that distance education is here to stay and will continue to expand in the future. The question remains, what is the magnitude of its future expansion and what impact will it have in the lives of learners, teachers, and educational administrators?

Future Trends

The growth in popularity of distance education has been a mixed blessing insofar as theoretical and practical developments in the field are concerned. Most institutions, including some of the leading technology-based corporations, approach distance education from a physical science and industrial perspective. This reductionist view of the field essentially precludes considering social aspects of learning from their practice. The mechanical perspective partially stems from a concept of distance education in which an instructor may not be present and the learner may interact with learning materials only. In many cases, corporations flocked to this concept and practice—or as it became known, eLearning—to eliminate the instructor during the downsizing frenzy of the 1990s and thereafter. The idea was that it was only necessary to port the manual of their instructor-led training content to a learning management system and make the self-instructional modules available to learners. Although this form of distance education may be effective in certain instances (e.g., rote memorization, or basic behavioral training), it lacks important affordances of a complete educational experience,

especially that of the *interaction* between the learner and the teacher, and among the learners.

Transactional Distance

As Moore (1983) postulated, *distance in education is a social and psychological phenomenon*. The distance between the learner and the instructor—or *transactional distance*—is determined by the *dialogue* between the learner and the instructor. Transactional distance is measured by the *independence* that *each* learner requires in the teaching and learning process, and the requisite structure that the instructor or the instructional institution must bring to bear to ensure that students meet the necessary learning objectives, as well as unanticipated creative outcomes. Thus, *distance in education varies for each individual learner and throughout the learning process as dialogue and structure vary in a dynamic process of learner-instructor, learner-learner, and learner-instructional materials interaction*.

Saba and Shearer (1994) conducted a study to empirically verify these theoretical constructs and their relationships as put forward by Moore. They used systems dynamic modeling software to simulate the variability of transactional distance with two other variables of structure and dialogue. In this study, 30 learners received the same instruction individually and independently from the same instructor using a simulated integrated voice/video/data distance education system, as at the time the Internet was not available for this study. Data indicated that in each case when structure (instructor control) increased, transactional distance also increased, and when dialogue (learner control) increased, transactional distance decreased; therefore, there was an inverse relationship between the rate of dialogue and the level of transactional distance.

Ramification for Learners

A significant implication of demonstrating the concept of transactional distance in a system dynamics model by Saba and Shearer is that educational systems of the future can be optimized if they respond to learner differences dynamically as the learning process evolves. This is in contrast to the current prevailing models of instructional design that tend to favor a static system in which achieving pre-determined objectives by the learner is based on a prior needs assessment but not an ongoing dynamic interaction of each individual learner with the learning environment as well as an instructor and a community of learners. Linear models with pre-determined objectives, although useful and necessary in certain training programs, do not provide for spontaneous creativity. Such outcomes are a characteristic of non-linear systems and are present in peak learning experiences of most learners, but may occur under different conditions for each individual (Saba, 2007).

Individualizing instruction is not a new concept. In the 1960s the idea of adapting instruction to learner differences became the subject of much theoretical speculation and practical application (Saettler, 1990). However, as ATI studies of the 1970s revealed, prescribing pre-defined interactions between learner traits and media attributes is not an easy task, since there are potentially unlimited combinations of cognitive, affective, and behavioral states with media variables.

A dynamic and non-linear approach to interaction between learner traits and instructional treatment is necessary to break through the dead end of confounding variables. Perhaps as equally significant if not more, dynamically adaptive learning systems also provide for spontaneous creativity, which is theoretically absent from models of instructional design that prescribe every learning outcome in advance and leave no room for unstructured, intuitive, or spontaneous reactions to problems or novel situations.

A dynamic learning system that potentially is capable of differentially responding to a learner would include pre-programmed responses as well as synchronous interaction with the instructor, thus limiting or eliminating confounding states. Today, personal computers and massive amounts of information on the World Wide Web allow for a learner's cognitive, behavioral, and affective states to be matched with dynamically generated content, a capability that was not readily available to ATI researchers of the 1970s. Further, dynamically adaptive learning systems can account for each learner's novel ideas, creative endeavors, and attaining objectives that have not been included in the system *a priori*.

A practical application of these research observations is in designing the learning management systems (LMS) of the future (Saba, 2008). Almost all of the commercial LMSs in use today, such as BlackBoard or SumTotal, are not designed to differentially respond to the learning states of the student, as these states, such as the following, evolve and change:

- learning preferences;
- prior knowledge of the subject matter;
- learning priorities;
- levels of abstractions in encountering new concepts, and other similar variables; and
- creative or novel responses to problems.

Through application of learning objects, recommendation engines, artificial intelligence, and other similar technologies, a new class of software is already emerging that provides an adaptive environment for the learners. These software applications are precursors to fully developed learning management systems of the future, which would be more responsive and adaptable to each learner's needs and learning interests dynamically. This new class of LMSs, however, will

not preclude or eliminate the need for live dialogue with an instructor or a learner's community of peers. At points that are different for each learner, s/he would need to engage in a dialogue with an instructor, or members of his/her learning community. The dynamics of synchronous instructor–learner and learner–learner interaction must be investigated in future research so that instructional designers and instructors can provide optimal and cost-effective synchronous interaction for the learner while relying on dynamically responsive asynchronous learning activities. As such, the differentiation between distance education and eLearning or synchronous and asynchronous learning is arbitrary and theoretically and practically unnecessary.

Ramifications for Organizational Structures

Despite the rapid growth of the use of information technology, students who can easily adjust the level of difficulty in their ordinary video games are presented with lockstep one-size-fits-all courses in most educational institutions. The irony is that such uniform educational services are increasingly offered through powerful information technologies that have the potential to provide individualized responses! But such capabilities are neutered by administrative and regulatory policies. A simple example of this is the customary semester that in most institutions is 15 weeks long. Regardless of the performance of a learner in completing a course of study, educational institutions are funded based on attendance and seat-time. Therefore, students endure a 15-week semester or an entire academic year to move to the next level of learning experience. Today, educational institutions are structured so rigidly that they do not respond or even acknowledge the individuality of the learner.

Currently, public educational institutions that were organized during the industrial revolution are primarily in charge of implementing distance education. Unlike some corporations, which went through organizational reengineering during the post-industrialization 1990s, the main features of the organizational structures of public educational institutions have remained the same as they were in the late 1800s or early 1900s. Even in some of those leading private businesses where the structure of the company was drastically changed two decades ago, training practices such as stand-up expository presentations have been merely transplanted into static Internet-based instructional environments.

Regardless of the pacing required by individual learners, most courses move at a pre-determined speed reflecting the uniformity that perhaps was desirable in the industrial era, but is outdated now. In short, the industrial organizational structures in which most distance education programs are implemented inhibit presenting novel opportunities to students, instructors, and staff that new information technologies might provide them. A major opportunity that is missed here is to save time, thus money, by offering differential learning programs and learning schedules to learners. The one size-fits-all system of education today is becoming increasingly more expensive because as a system public education no longer is responsive to its larger social environment. Similar to a cell that has become inefficient, it either must go through division (in this case offering personalized and individualized programs of study to different learners) or become so costly that it would no longer be sustainable. The current trend is toward an unsustainable future, as institutions seem to have chosen to increase the cost of education for parents, students, and taxpayers in general instead of becoming more responsive to them.

Impact on Instructors

Faculty live in a craft-oriented, pre-industrialized culture. In most cases they offer their courses on their own. Very rarely do they step into the industrial culture of the university administrators, in which they are offered assistance by an instructional designer, or other professional personnel, or are presented with capital to develop and disseminate instructional materials. If such modern means (i.e., division of labor and capital) are afforded to faculty through a grant or a special project, it is for a limited period of time. Thus, faculty revert back to their pre-industrial mode of work when the grant runs out or the project is completed. Administrators, on the other hand, live in an industrial culture. They enjoy division of labor and many of the affordances of industrialization to meet the needs of masses of students as *uniformly* as possible.

Because the ideal of industrialization for educational administrators is standardization of products or services, faculty face myriad difficulties in performing their tasks and fulfilling their missions in their pre-industrial enclaves, as they cannot synchronize their role with that of the administrators. Since the industrial structure of the university precludes meeting the individual needs of students by providing them with variable structure and autonomy, faculty often ask, why should they use information technologies, such as learning management systems, to offer a one-size-fits-all product and service as uniformly as possible to a large group of students, since the same ends can be met with much less expensive means? If students are not to strive toward gaining skills that are needed in a post-industrial culture, such as context-based critical thinking and problem solving, and the ability to differentially respond to novel situations with creative solutions, why use expensive information technologies that are designed to offer variable treatments to each individual learner?

It is how educational administrators; governing bodies, such as academic senates; and state law makers

respond to these questions that will determine the future of distance education in the immediate years to come. If distance education is employed to meet the individual needs of the learner in an adaptive learning system, distance education will remain relevant and effective. If not, it will leave center stage once again only to re-emerge later as it did with radio, television, the satellite, and cable.

Ramifications for the Discipline

The reductionist defines distance education based on physical attributes of communications media, and geographic distance between the learner and an instructional organization or an instructor. This approach to defining distance education has led to a conceptual confusion in the field. Moore & Kearsley (2005, 2012) have attributed the confusion, in part, to:

- Technology enthusiasts who have coined new terms, such as "telelearning," "eLearning," and "asynchronous learning," without fully considering the history and conceptual development of the field.
- Authors who have not adequately analyzed the relationship of terms such as "flexible learning" or "open learning" to the concept of transactional distance.
- Researchers who have not asked serious questions when they have encountered newer terms, such as "virtual education" or "virtual university."

Some confusion about the field is inevitable during a period of rapid growth, which in the case of distance education has also been coupled with the introduction of a new class of digital technologies with many seemingly novel possibilities to teaching and learning as compared with their analog predecessors. However, a rigorous analysis of these new terms and their verification is needed if the field of distance education is going to remain intact. The field may fracture, if it has not already done so, under the pressure of concepts and constructs that are either invalid or whose validity has not been demonstrated. A clear understanding of the concept of transactional distance and its centrality to the future of practice, research, and policy formation are necessary if distance education is going to grow and develop in the foreseeable future.

The terms stemming from *a physical science paradigm* are not durable constructs; they break down after even the most superficial analysis. For example, eLearning, one of the popular terms that has appeared even on the title of books, such as Rosenberg's (2001), generally refers to learning that takes place on a networked computer. However the "e" in eLearning refers to "electronic," and it should include other electronic media, such as radio and television, to name just two, if the term is inclusive of all of its connotations. The subtitle of the same book also includes the term "online learning," another popular term that is based on the physical property of some networks.

While the last mile of the most current networks connecting computers together may consist of a physical line, the signal generated by a server, or a client computer, may travel through wireless means, such as a microwave link or a telecommunication satellite, before it reaches its destination. Furthermore, the telecommunications industry has switched many times how it offers its primary services since its inception. Initially, services were offered online as in the telegraph and telephone; then it was switched to wireless as in radio, and television; then online again as in cable television; then wireless, as in the satellite, and online again as in the Internet (although the Internet has never been purely online), and now the Internet (as well as the phone) has gone wireless again!

Online learning, thus, is a misnomer as it does not offer a durable and reliable concept that can explain a specific kind of learning as it might be distinct from when instructional and learning transactions are taking place through wireless means.

Nevertheless, one must always keep the door open to the theoretical possibility that these new terms, and others, such as Web-based education, distributed learning, etc., might afford unique features to the process of teaching and learning that are not included in the classical theory of distance education. If this is the case, their uniqueness must be explicated, and their validity must be experimentally verified. Unfortunately, at the present time, the professional and lay literatures are full of references to terms such as eLearning and online learning with extensive prose explanation of what they are or might be. However, there is no evidence that these terms refer to valid concepts, based on research data or any other acceptable form of validation; as indicated above, they do not even pass the test of face validity.

Conclusion

Distance education has served specific social needs in its formative years as well as during the 20th century. In the second decade of the new century, the accelerating pace of innovation in information technology and increased research in how people learn will introduce more theoretical, conceptual, and practical opportunities as well as challenges for professionals in the field. The promise of distance education, however, will depend to a great extent on two factors: (1) how successfully established institutions adapt themselves to the post-industrial environment by adopting key theoretical concepts and implementing research findings in distance education; and (2) how public representatives and government officials succeed in employing distance education in decreasing the cost of education, while increasing access to learning opportunities for everyone. □

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