E-Learning in the United States: New Directions and Opportunities

For University Continuing Education

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Abstract

The authors address recent developments in electronic distance learning (or e-learning) in the United States with special attention to its historical antecedents in correspondence education. Using this analytical framework they identify similarities in the ways in which American colleges, including faculty, have critically reacted to these phenomena, as well as to the peripheral location of distance education within higher education's array of programmes. This paper also details important ways in which e-learning differs from learning by correspondence, and offers predictions for the future of distance education. The authors furnish data from the first national study of distance learning in the USA, conducted by the National Center for Educational Statistics (NCES).

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For continuing education professionals today, the practice of distance learning is the equivalent of holding a tiger by the tail. Distance learning represents the most dynamic sector of adult education, particularly in the United States, where World Wide Web-based electronic delivery is fast becoming the dominant mode of instruction. This trend will almost certainly soon apply around the world. Other forms of distance learning persist, of course. Turkey's Anadolu University (according to the World Bank the largest university in the world) enrolls more than 500,000 students, mostly through correspondence. The same is true for the United Kingdom Open University (UKOU) and Indira Gandhi National Open University (IGNOU), both of which are heavily dependent on correspondence study. However, at the moment, there can be no question that computer-mediated asynchronous distance learning is the medium of choice in the development of new academic courses and programmes.

<u>U.S. National Context</u>

The dramatic growth of electronic distance education initially caught faculty and administrators in the United States by surprise. According to the federal government's National Center for Educational Statistics (NCES), in the current academic year (2000-

01), 91% of public four-year and two-year colleges report that they plan to offer at least some courses at a distance (National Center for Educational Statistics, October 1998). By far the greatest number say they will offer web-based courses.

Students and faculty in the United States who experience online teaching and learning report enthusiasm for—and satisfaction with—the medium. Between 1994 and 1997, online courses tallied an overall growth of 116% among all institutions, and 204% in public four-year schools. According to this NCES trend line, by 2009-10, online courses are projected to account for 31% of all course enrollments at the postsecondary level. Student demographics indicate equal popularity among both full- and part-time students.

E-learning is proving itself to be, using Christensen's term, a "disruptive technology" in U.S. higher education; it is following the classic trend lines of growth for new technologies, thereby reshaping all of higher learning (Christensen, 2000).

Background: Correspondence Study Models

Today's educators, particularly in the United States, frequently fall into the error of presentism, imagining this period, and their own experiences, as *sui generis*, unique unto themselves. Yet this is not the case. In many respects, the development of electronic distance education is reminiscent of the history of correspondence education in the United States. This first distance teaching format appeared in the late nineteenth century and quickly became a major phenomenon, particularly in adult education. It enabled students to study and learn at a distance and to earn academic credit. They could, if they wished, bring the credits with them if they decided to relocate to a campus.

Correspondence study proved incredibly popular, particularly in the first three decades of the twentieth century.

Two distinct sectors of correspondence study—university programmes and profit-oriented commercial schools—appeared at virtually the same time and grew up as rivals. University correspondence courses were intended to extend access to college education to people living far from any campuses. Commercial, or "proprietary," schools were founded and operated for the sole purpose of making money for their owners. In terms of quality, the latter schools ranged from very good to fraudulent. Commercial schools began offering secondary level diploma programmes in the early part of the century. Some universities, located mainly in rural states, also adopted this practice, beginning in the 1920s. The two sectors grew up together, the first emphasizing the accumulation of academic credits, the second geared to the accumulation of knowledge and skills necessary in trades and vocation.

Because of correspondence study's accessibility to people of all classes and income levels, and the aggressive advertising campaigns of some of its practitioners, it enrolled people in huge numbers. In 1924, four times as many people were enrolled in proprietary correspondence schools than in all resident colleges, universities, and professional schools combined (Noffsinger, 1926).

The rise of correspondence education coincided with the proliferation of advancing job opportunities in a variety of occupations, especially in technical and professional areas and in state licensing, which were most often based on performance on tests. These developments favored the acquisition of specific occupationally related knowledge and certificates of completion. Both the proprietary correspondence schools

and university "home study" departments addressed this need for specialized skills and knowledge. Like the correspondence study medium, many e-learning programmes also are credential and certificate driven. They are intertwined with opportunities in e-commerce and in virtually all fields of employment.

Correspondence study, a system that allowed—even encouraged—the common man or woman to take charge of his or her own learning, and guaranteed access to all who desired it, complemented a persistent theme in American political philosophy, the glorification of the common citizen. In U.S. political history, this theme is often called "Jacksonian Democracy," after Andrew Jackson, the country's seventh president, a noted champion of the "common man," who urged his followers to resist intimidation by the social and political elite that had previously governed the country. Thus, correspondence study was a tool of a movement one scholar called "the democratization of knowledge" (Kett, 1994, p. 36).

Some prestigious institutions entered correspondence study early on. The University of Chicago, a world-class university from the day it opened in 1892, integrated correspondence study into its original design. Its founding president, William Rainey Harper, had been academic principal of the Chautauqua Institute's College of Liberal Arts, which made extensive use of correspondence study. And even before that, he had built up a huge correspondence programme for the learning of the Hebrew language at the Baptist Union Theological Seminary, also in Chicago. It became the basis of the American Institute for Sacred Literature, which he had taken to Yale as a professor, then returned to Chicago when he assumed its presidency. Chicago's early

programme flourished, also. Indeed, between 1893 and 1923, the University of Chicago enrolled 32,000 students in home study sociology courses alone (MacLean, 1923).

The University of Chicago was not alone among prestigious American universities in offering correspondence study programmes. A number of the most respected public universities featured extensive correspondence course offerings. For many of them—most notably the University of Wisconsin—this mode of study represented a manifestation of democratic ideology, a feature of their "land-grant" origins.[i] As agencies of their states, the land-grant universities had the mission of serving all the citizenry, not just those people who could relocate to a campus for full-time study. In the last decade of the nineteenth century and the first two decades of the twentieth, such major institutions as the Universities of Wisconsin, Illinois, Minnesota, and Iowa established or revitalized extensive correspondence programmes. The best of the southern schools, the University of North Carolina, did likewise. At the Pennsylvania State University and other schools with colleges of agriculture, the faculties developed detailed courses of study for people engaged in farming and agribusiness (United States Department of Agriculture, 1900). A number of smaller colleges that mainly served to train teachers also began to offer correspondence study (Jenkins, 1953). Thus, the collegiate correspondence programmes served two publics: those interested in a traditional liberal arts curriculum and those who needed more applied professional or vocational training.

In Wisconsin, a legislative agency investigated the numerous commercial schools—usually located in other states—in which thousands of citizens were enrolling. They found many of the schools suspect, ineffective, or even fraudulent. In response, the

University of Wisconsin's Board of Regents (the university's official governing body) made a commitment to provide an honest, high-quality alternative to the proprietary schools. The University accordingly developed a large curriculum of vocationally oriented courses, in addition to its college-level offerings. In some respects the University of Wisconsin represented its programme as a consumer protection measure (Rosentretor, 1957).

Modern American postsecondary institutions vary greatly in their enthusiasm for distance education. Some elite schools, notably private institutions, have limited their involvement in e-learning to the marketing of their brand names for income-producing non-credit offerings, while limiting their high-status degree programs to conventional delivery formats. This strategy is both described and recommended in Lloyd Armstrong's article in *Change* (2000). On the other hand, equally illustrious schools are offering their "big ticket" programmes at a distance. Duke University and Purdue University's renowned Krannert School, for example, are offering their highly regarded Master's of Business Administration (MBA) degree programmes via the Internet.

While correspondence study has a long history within a number of large universities, most of them have treated it as a marginal enterprise. It has usually gone without saying that correspondence study programmes have been mandated to operate in a "self-sustaining" financial mode. Within this funding scheme, tuition receipts have had to cover all faculty stipends for developing and grading courses, delivery costs, and staff payroll. Some universities, including Wisconsin and Chicago, demanded that their correspondence programs generate a profit that could be used to support less lucrative outreach or extension activities. And, because students had to pay in excess of 100% of

the cost of these courses, correspondence departments were essentially small, profit-oriented businesses within large public, taxpayer-supported institutions. The parent universities obviously regarded correspondence courses as "profit centers."

While this circumstance has been demeaning in some ways, it has not been totally irredeemable. At the University of Chicago, President Harper professed great respect for—and commitment to—the Extension Division, including the correspondence department. But he insisted that all Extension departments pay their own way; he refused to contribute funds from the University's general budget to them. In the end, however, home study was the only part of Harper's extension division that survived his presidency. All of the other outreach departments failed because they could not cover expenses with their revenues (Dunkel and Fay, 1978). And it is doubtful that many correspondence departments would have survived the Great Depression of the 1930s had they not generated their own funding. The miserably low pay to the professors who taught the courses also helped university correspondence departments to survive. And while they did survive, it would be an exaggeration to say they prospered.

In spite of the lessons of history, the promoters of today's e-learning often try to sell it as a source of immense potential profits. While this prospect cannot yet be ruled out, neither has it become a reality, to this point. So far, university e-learning operations are more notable for their earning potential than for their profit margin.

One operational principle of many early correspondence programmes was to rationalize the course design and production processes so as to deliver curricula at the lowest possible cost. This mechanical approach to multiplying productivity—and thus profitability—became known as the "industrial model." Indeed, some scholars concluded

that distance education could not succeed unless this approach was employed (Peters, 1983). This approach came to dominate commercial correspondence school courses. Its heavy reliance on standardization made it especially attractive to the military. Some colleges also adopted it. The University of Missouri's Computer-Assisted Lesson Service (CALS), developed in the 1970s, is especially notable. In this case the industrial model enabled Missouri to develop the first large-scale use of the computer in collegiate correspondence study (Young & Phillips, 1982). It should be noted, however, that neither the University of Missouri nor any other major university ever converted *all* of their courses to an industrial or computer-evaluated model.

While some universities adopted the industrial model, at least in part, others took an entirely different approach. They developed courses that mandated intense and frequent one-to-one interaction between student and instructor. They used this feature as a justification of the medium, and thereby as a marketing feature. These programmes based their instructional strategies upon principles not unlike those William Rainey Harper set down in 1885 (Vincent, 1885/1971). Harper's orientation and philosophy evolved into a system sometimes called the "author-editor model," whereby a professional editor or instructional developer works with a professor on a one-to-one basis. As a team, they convert the professor's conventional class to a correspondence or online format. Under this model, they create a study guide, either in print or online. The function of this document has been described as

> not a substitute for the professor, but only for his or her physical presence. A good study guide extends an instructor's style, point of view, and to some extent, personality to students never met in person. At the same time, it should also reflect the instructor's standards, degree of rigor, and determination to make the course worthwhile. (Pittman, 1987, pp.198-199)

Today, the same controversies are being played out in the creation, communication, and promotion of online courses, with a great deal of confusion ensuing in the process. For example, the term "asynchronous" has become ambiguous. Online course administrators and designers use it in two vastly different ways. The first defines "asynchronous" in a manner reminiscent of traditional correspondence study. Students may enroll at any time and—usually—set their own pace, all within a time frame that extends a set number of months—usually nine or twelve—from enrollment. This format differs from the usual term of study, with fixed start and stop dates. Within this definition of asynchronous learning, some universities rely on the industrial model of course construction, while others feature the intense student-teacher interaction described above. Neither model provides for student-to-student interaction.

Other administrators, professors, and distance education professionals use "asynchronous" in a more restricted manner. Their courses take place within a conventional school term, with fixed beginning and completion dates, and operate as classes, with frequent, mandated student-to-student interaction. In this usage, "asynchronous" means that instructors and students do not gather in one place, or in "real time." They interact with each other, even to the point of participating in joint projects, via online bulletin boards and other forms of delayed communications, at their convenience, within definite periods. Most often, the week is used as a pacing mechanism. For such courses, the term "semi-asynchronous" might be more appropriate. However, it is unlikely that this term will catch on.

As noted above, while some of the more aggressive promoters of online teaching have promised abundant financial returns from their classes, to this point, such results

have been rare. Indeed, some institutions, usually under faculty pressure, have imposed restrictions such as small class sizes, which limit profitability. The emphasis on revenue generation from the perspective of many institutions stems from the fact that both correspondence and e-learning are viewed as areas of "soft pedagogy," particularly by many administrators and professors. They too often view students taking courses at a distance as occupying the educational fringe, not as participants in the major activities of the university. It should be noted that this perspective is definitely not that of the continuing education units charged with operating these programmes. Generally, they are advocates of both distance education courses and the students that choose to enroll in them. Nor do institutions for which e-learning is the primary instructional format view it as a marginal activity.

In spite of its consignment to the margins of the university, correspondence study—since the 1960s more often called "independent study"—has enhanced the structural edifice of continuing education in the United States. In fact, the large number of independent study students flowing into American higher education initially provided a major *raison d'etre* for collegiate continuing education units, which were charged specifically with administering, bringing cohesion to, and improving the quality of distance learning (Edelson, 1991). E-learning, likewise, follows the same pattern, and is usually housed within schools and divisions of continuing education. It attracts the greatest interest there, since its primary appeal is to the same audience of working adults found in other part-time programmes, including correspondence study.

Further, it should be remembered that this progression has some paradoxical elements. The strongest independent study and online education programmes were—and

are—located at research-oriented flagship and land-grant universities that are also the most likely to view distance education as peripheral to their mission. At any rate, correspondence study generated the greatest share of employment in early university outreach. Online teaching is having the same effect on today's continuing education divisions and departments.

While some universities offered large correspondence programs, they could not satisfy the popular demand for courses. And given that the greatest interest was in vocational and applied skills courses, realistically they could not. With a few notable exceptions, such as the University of Wisconsin, they offered only academic subjects. The commercial schools filled the vacuum. Indeed, because these schools emerged at roughly the same time as mass media advertising, they played a large part in *creating* the demand, which turned out to be great. For example, the International Correspondence Schools of Scranton, Pennsylvania, founded in 1891, could claim more than 4,000,000 alumni by 1930. Today, due to the emergence of dedicated large-scale distance education institutions such as UKOU and IGNOU, annual enrollments—numbering up to one half million—are beginning to rival those of the American proprietary schools of the early twentieth century. Even though the bulk of this work is by correspondence, it is definitely shifting towards e-learning. In the United States, the University of Phoenix, which is now the nation's largest private university in terms of enrollments, is aggressively expanding its online programme (Klor de Alva, 1999-2000).

Breaks with the Past—Predictions

To this point we have argued that online education has numerous antecedents in the instructional format of correspondence study, particularly as university departments

of continuing education have practiced it. Those similarities will continue to apply.

However, we also expect to see some definite changes.

Educators and students will increasingly view distance education as beneficial to

all students, full-time as well as part-time, resident as well as nonresident. The

distinction between such arbitrary categories of students will become less definite. More

young students will work; more older, working people will enroll in colleges and

universities. This is not an entirely new phenomenon, of course. Physical distance is not

the only factor that draws students to independent study courses. Some university

independent study directors have long noted that resident, full-time students have

accounted for upwards of 40% of their enrollments. Students who encounter scheduling

problems when they register for resident courses often opt for one independent study

course to fill out their semesters. This strategy has provided many students with a means

of staying on track, even when closed out of a required or badly needed course on

campus. Still, to this point, such classification of students has been possible, if imprecise.

Soon, such categories as "resident," "off-campus," and "distance" will have become so

thoroughly mixed that rigourous delineation will no longer be possible. Nor, would it

serve any useful purpose.

Today's online education is institutionally ubiquitous. Through the 1990s,

approximately 70 University Continuing Education Association (UCEA) schools

dominated independent study enrollments, numbering about 250,000 annually. The

[U.S.] National Center for Education Statistics (NCES) predicts that by the end of 2001,

91% of public institutions and 65% of all institutions will participate in electronic

distance education. Two reasons for this are the almost universal allure of e-learning and

the notion that little capitalization is required. In other words, it looks easy and cheap, but seems to promise a large return. Advocates of e-learning tend to overstate this position. Actually, the increased server and network capacity needed for large-scale operations are not inexpensive. And the payroll costs of instructional developers, graphic artists, and technical support personnel can be considerable. By any measure, developing online courses is considerably more costly than creating the conventional print-based independent study counterparts of these courses. However, some for-profit companies, including publishing houses, will enter into partnerships in which colleges produce the content for courses, and publishers do all the design, production, and marketing work. McGraw-Hill, one of the United States largest publishing houses, provides a good example of this type of vertical integration.

Online courses are far more popular among faculty than were—and are— independent study courses and other distance education formats, such as television. The allure factor again applies. Also, most young faculty have grown up with computers and have little difficulty in integrating them into their academic disciplines. Indeed, elements of distance education, such as class web pages and bulletin boards, are now commonplace in conventional classrooms.

This is not to say that faculty acceptance is a given. No sector of the work force is without Luddites.[ii] Indeed, we have begun to see signs of a backlash that could become considerably larger than the anti-correspondence course feelings on many campuses. Independent study has provoked little resentment, probably because the large universities that have operated the largest programmes have so effectively marginalized them that while they have continued to operate, they have drawn little notice.

Online programs, by contrast, are attracting considerable attention, in both the academic press and in the general news. Some faculty, as a result, have begun to express concern. The most obvious feature of online education is that individual professors cannot maintain the degree of control they have enjoyed for centuries in the conventional classroom. They frequently need instructional designers to help them adapt their expertise to a more dynamic medium. The asynchronous pacing, or lack of it, results in a drastic loss of control. Courses become "student" rather than "faculty" centered. Further, some professors know that many—if not most—of the students they will encounter will be their superiors in terms of computer literacy and Web literacy.

Far more threatening for some professors are fears that their employers will steal or misappropriate their intellectual property. With this wrongfully gained "courseware," universities will then attempt to increase "productivity" by foisting more students upon them, these faculty members fear.

Some professors have taken the exploitation theme even farther. Professor David Noble, of Toronto's York University, has developed a Marxist critique of distance education. He has said that universities have formed partnerships with corporate enterprises in order to further exploit labor, in this case, professors. By using private capital to set up and offer courses online, universities can reduce the value of professors' work and deprive them of their autonomy in curriculum and governance. Indeed, Noble and his fellows at York succeeded in winning a provision in their union contract that forbids the university to force professors to teach via distance education (Noble, 1998).

The problem of faculty backlash will probably abate with time. But in the short run it will certainly generate considerable tension and general unpleasantness on some campuses.

E-learning and e-commerce will converge on a wide scale. As the population in general becomes more familiar with e-mail and the Internet, their comfort level with Web-based learning will increase, massively and quickly. Colleges, universities, and other education providers will combine e-learning with other educational innovations— such as compressed scheduling and outcomes assessment—aggressively to provide greater flexibility, thus removing or diminishing some barriers to participation. Indeed, it is this very flexibility that already draws many resident college students to independent study, telecourses, and other conventional distance education media. E-learning will not only take advantage of these measures of flexibility, it will far surpass them.

Myths and Misperceptions

E-learning has inspired or provoked a number of arguments from both advocates and skeptics, creating glee among the former and dread among the latter. Some are clearly myths, others merely exaggerations.

E-learning will replace traditional education. Class cohorts, campuses, and face-to-face teaching will not disappear. Innovators, pioneers, and enthusiasts for the various educational media have long proclaimed that total revolution was just around the corner. President Harper, in 1885, proclaimed,

> The day is coming when the work done by correspondence will be greater
> in amount than that done in the class-rooms of our academies and colleges
> . . . (Vinson, 1885/1971, p. 193).

He would come to regret this widely publicized utterance in his own lifetime. In 1894, Thomas Edison introduced motion pictures, which, he proclaimed, would replace textbooks (Ohles, 1985). More recently, such a respected authority as management expert Peter Drucker joined enthusiasts of distance education when he warned of the impending obsolescence of campus physical facilities (Lenzner and Johnson, 1997).

This will not happen. There will always be an essential place for real-time, cohort-based learning, especially in fields that rely upon apprentice-based training, where people are the expert systems, where the problems of practice are too unpredictable, and where the human cost of error is unacceptable. Additionally, campus-based learning will always be a preferred option for students whose parents seek for them a "traditional" experience. The conventional college will continue to provide socialization for eighteen- to twenty-two-year-old students. Indeed, as they always have, parents will continue to insist that society provide a place for their children that is well removed from them. But even within conventional institutions, many students will take some e-learning courses as the supply expands.

E-learning will democratize higher education by enhancing access. In The Social Life of Information (2000), Brown and Duguid argue that distance learning advocates often neglect "social distance" when they think about e-learning in purely geographical terms. "Minorities, women, and the poor[all have] to struggle across this distance for access," they write. "It is not overcome by a "few strokes of the keyboard" (p. 224).

E-learning will improve quality. The jury is still out on this matter. In 1999, Thomas Russell published a bibliography of 355 research studies produced between 1928 and 1997 that compared the effectiveness of teaching formats. He included studies that

compared the traditional classroom to correspondence, correspondence to television, television to "teaching machines," and so on. These research studies have compared virtually every possible juxtaposition of teaching formats. The overwhelming conclusion of these studies provided the title for Russell's book; in terms of learning outcomes, he found that the choice of medium made *No Significant Difference* (Russell, 1999). At least to this point, there is no indication that e-learning is either inferior or superior to other types of instruction.

More recently, Russell has begun to gather a few studies that have found significant differences, usually to the advantage of electronic formats. To this point, however, the generalization of "no significant difference" continues to apply. And, of course, it should be noted that not only have researchers not found a significant difference in favor of e-learning or any other distance education format, neither have they discovered any advantage in favor of the conventional classroom, lecture hall, or seminar room. In the long run there may be grounds to substantiate the case for e-learning, but they have not yet been established.

Critics of e-learning, like those of other distance education formats, base much of their argument on the absence of visceral clues in teaching within the virtual classroom. This is reminiscent of the argument that acting on stage is superior to acting on film or television, in that the former is "more real," and happens before a live audience. The implied comparison provides a model of teacher as performer. Yet this is essentially a "straw man" argument unless proven by analysis of outcomes. The state of research at present is such that we cannot assert that online teaching is superior to that of any other format. But the reverse is also true; there is no evidence that conventional teaching is in

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any way superior to online teaching. Scholars should continue to test the effectiveness of all teaching formats, but to this point, traditionalists have produced no empirical evidence of the superiority of their preferred methodologies.

E-learning will speed tendencies towards education globalization. "Globalization" is an imprecise term. E-learning is unlikely to create standardization of teaching along the lines of a particular model. Ideally, for students it will expand choice with respect to selection of programs. E-learning, from a college perspective, may make it easier to see what other institutions are doing, and thus intensify competition. It should not erode national markets except where there is no comparable national product. However, defenses of national educational borders will no longer be possible. Tariffs cannot block online education. Except in police states, it would be close to impossible to prevent someone from taking a degree online, should he or she qualify for admission to an institution located on the other side of the globe. There are, however, barriers to trade within certain countries, with respect to the value of foreign degrees. UKOU students outside the United Kingdom and IGNOU students outside India tend to be nationals of those countries living abroad. In many countries foreign degrees have a limited appeal, except for students who intend to emigrate.

Predictions

Within the United States, registration in online courses could rise to 50% of all enrollments. This would include graduate as well as undergraduate students. To some extent this will depend upon the development of a uniform nomenclature. Currently there is no universally accepted definition of "on-line course." Even many more-or-less conventional courses include online components. At some colleges and universities they

are labeled on-line; at others they do not qualify for this category. Either way, the Web will be ubiquitous in all instructional formats. According to Gleick (1999), "faster is better." The preference of many students for greater speed, in order to finish their degrees in a shorter time span, enhances the appeal and marketability of e-learning.

The U.S. government will provide increased support for students learning at a distance. Federal aid will be made independent of the number of class hours taken per week. Presently the "12-hour rule" requires that students must be in class 12 hours per week to qualify for government aid. In the future, financial aid will be based upon the number of credits, or course load. The current financial aid policy is one of the reasons that correspondence study has never become a major factor in American higher education. The success of online instruction will be dependent upon the liberalization of financial aid regulations.

E-learning students will be highly mobile, at least in terms of the institutions from which they choose to take courses and programmes. This will lead to greater competition between established institutions and new virtual colleges. Supply may catch up with demand due to lower capitalization costs for electronic distance education. For faculty who enjoy and relish teaching, online instruction provides another area for mastery. For those who shun teaching, e-learning has no intrinsic appeal. Newer schools will specialize; many schools will offer only a few programmes. Currently, many small liberal arts colleges in the United States are already struggling with declining budgets and enrollments. Some are closing; more will. While e-learning has not been a factor in this phenomenon to this point, it will accelerate the pace. Many of these smaller institutions will attempt to go online; few will succeed. This sector of the educational marketplace

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will definitely shrink. While e-learning courses are not responsible for this trend, neither will they it reverse it.

E-learning will alter the higher education landscape for the better. It will do so by promoting outcomes-based assessment that will measure *what* is learned, rather than concerning itself with where or how the learning takes place. For example, the University of Phoenix (UOP), a proprietary institution, offers academic programs online that have been highly successful in enrolling students. However, faculty and administrators in many conventional universities have either dismissed it out-of-hand or ridiculed it. The founder of UOP, John Sperling, in essence has challenged its detractors to "put up or shut up," that is, to prove their points. UOP publishes a peer-reviewed journal, *Assessment and Accountability Forum (AAF),* in which it publishes studies of innovative programs and teaching formats based primarily on the assessment of learning outcomes. Conventional institutions have traditionally shied away from evaluation based on learner outcomes. However, they will find it increasingly difficult, and perhaps even embarrassing, to continue avoiding comparisons based on actual results.

E-learning will expedite the development of more robust multimedia learning environments based upon the widespread integration of technology and learning. And in turn, a rich e-learning environment will facilitate the emergence of a continuous learning environment, one in which the teaching-learning process never ends**.** The e-learning environment provides a platform for the combinations of text, voice, and video that is compatible with divergent learning styles and inclinations. This feature will promote repeated use and heavy demand.

E-learning will make "scientific learning," which stresses maximum efficiency, an important goal.   Indeed, it will be as important as "scientific management" in the workplace. All concerned will devote more attention to the "science" of teaching and learning. They will also give greater attention to measurement of learning outcomes.

Electronic distance education will reshape the professorate. The impact will be as profound and as wrenching as current changes in the practice of medicine have been for physicians and related health professionals. The new faculty model will no longer provide for the high degree of autonomy that tenured professors now enjoy. It will give more power to institutions. This change will be neither easy nor pretty. The counterrevolution, represented by professors like David Noble, is underway; indeed, it has already become nasty.

Conclusions

Distance learning can provide an educational environment every bit as demanding as the traditional face-to-face class. Quality resides in the worth of the effort put forth by faculty and students. There are—and always have been—poor face-to-face classes, just as there are—and long have been—inferior distance learning classes. This is not a question of format. Instead, discussions of quality and its pursuit must be waged on an individual basis, class-by-class.

Change will continue to build rapidly. James Gleick's book *Faster* analyzes the incredible acceleration we are experiencing within technology based cultures. But earlier generations have also faced this situation. Alvin Toffler's *Future Shock* (1970) gave a comparable warning to the 1960s generation. Today's—and tomorrow's—online education provides some major opportunities, problems, and challenges. But while they

may be profound in degree, they are not entirely new in kind. The founders of distance education—the administrators and faculty who made correspondence study/independent study programmes work—faced many of the same issues, including asynchronous communication, rolling (non term-based) enrollment; and constant questions about quality and standards.

These problems will never be entirely resolved; no questions ever reach closure in academia. But the past does provide some clues to the future. Distance education formats may be new, but the concept is not. Continuing education professionals and others seeking to understand the applications of new technology to adult education would do well to consider the traditions and history of lifelong learning as they have unfolded over time; in our own case-study, the United States. The broader perspective achieved in this manner will undoubtedly prepare them (and us) for the future, and especially for whatever new advances might spring forth in distance education.

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[i] In 1862, the United States Congress passed legislation entitled the Morrill Act. This law gave each state large amounts of land then owned by the federal government, with the stipulation that revenues generated from the sale or lease of that land be used to create new colleges and universities or to improve extant ones. The institutions that benefited from these revenues are called "land-grant universities." Many are now among the most prestigious research universities in the United States.

[ii] In the nineteenth century a group of English workers destroyed textile manufacturing machinery that they believed was displacing them from their jobs. They were called Luddites after their leader. The term has come to mean people who oppose technological change.