



## **DISTANCE LEARNING: CHALLENGES AND QUESTIONS**

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The rise of the internet and related technologies has caused many in higher education and in the corporate sector to take a fresh look at distance learning (DL). While it is widely felt that internet-mediated DL has the potential to have a major impact on colleges and universities, we are far from having a clear understanding of the ways in which that impact might be felt. This new DL is being driven by powerful developing technologies; and the ways in which such technologies can best be used often take years to clarify. Nevertheless, we can begin to identify some of the issues and questions that must be resolved as we move to a better understanding of the field.

Given how ubiquitous use of the web seems to be now, it is sometimes hard to remember how recent it is, and how rapidly its importance has grown. The web as we know it only began to emerge as a practical method of mass communication in 1993 with the appearance of the web browser Mosaic.<sup>1</sup> In 2000, only seven short years later, hundreds of millions of people use the web worldwide, and it is rapidly transforming the ways in which people communicate and access information.

Many new businesses have been created through the web; many existing businesses have significantly altered their internal structure and external connections through use of the web. The web has been credited by many as being the major contributor to the increased productivity of the American economy over the past decade. In this context, it is very difficult to imagine that the web will not eventually have a similar major impact on higher education. While that impact may be felt in many aspects of higher education,<sup>2</sup> the one that has attracted perhaps the most attention is DL.

Distance learning can be observed from many different perspectives, but I would like to look at it from the perspective of "traditional" colleges and universities. I define these as institutions of higher learning that are primarily located in one physical location and that focus on educating full-time students at that location. A four-year undergraduate curriculum lies at the heart of all of these institutions, and the universities add graduate and professional training as well. It is obvious that institutions in this group reflect a very broad spectrum of individual missions and exhibit considerable variation in overall strength.

Because of these variations, the impact of DL on these institutions will not be uniform. I will not endeavor to address these differential impacts of DL on colleges and universities, but will focus instead on broad issues and themes that will affect them all at some substantial level.

### CONVENTIONAL DL

It is important to note that DL is not new for many of these institutions. Many offer off-site continuing education or extension programs through the simplest technology possible — a faculty member who goes to that off-campus site to teach a scheduled course. Television has also been used extensively for years for DL. Extension courses carried on public television have reached broad audiences, and universities have beamed courses over proprietary channels to focused audiences, typically in corporations that purchase the courses for subsets of their employees. Engineering schools and business schools have probably been the greatest providers of this latter type of distance learning.

The simplest and oldest form of DL using television typically involved showing previously prepared films of a professor lecturing. A more sophisticated use of television has the cameras transmitting (and filming) a live class to which students at remote sites are connected by telephone or two-way video. The distant students can then join in discussions as if they were in the classroom. In this more interactive case, however, the films of that class are usually then re-shown on some regular schedule, enabling students to repeat the class or catch up on a missed class. Of course, the repeat classes provide a passive experience since the possibility of interaction has passed. Thus most use of television for DL is a mixture of synchronous learning (in which the faculty and the students are “meeting” together at the same time) and asynchronous learning (in which the student can access the material on a schedule independent of the participation of the faculty). In terms of teaching,

traditional DL has generally been based on an extension of the traditional classroom lecture. In this approach, the student moves through a subject following a linear path defined by the professor, at a pace defined by the professor. This approach is, of course, one that has been followed for centuries. However, it leaves little room for individual differences in learning style or background. In the traditional DL then, conventional approaches to students’ learning style and professorial teaching style are typically maintained.

What then will happen to DL when the explosion of developing technologies — the internet, CD ROMS, computers with television cameras, and so on — is applied? The results will almost certainly be both “sustaining” and “disruptive,” terms defined by Clayton Christensen in *The Entrepreneurs Dilemma* to describe the effects of new technologies.<sup>3</sup> In Christensen’s terminology, new technologies are sustaining when they lead to improved performance in established activities. When they are disruptive, they initially lead to worse performance than the established approaches but bring to the market markedly different benefits than had been available previously. Christensen has shown that if the performance of the disruptive technology can improve sufficiently, this combination of higher performance and novel benefits can lead to the product based on disruptive technology displacing the traditionally based product. He has noted that, in general, the internet can be both sustaining and disruptive.<sup>4</sup> The result can hardly be different for the case of internet-mediated DL.

### THE NEW DL AS A SUSTAINING EDUCATIONAL FORCE

As a sustaining educational technology, the internet will enable universities to improve and extend their traditional DL capabilities in quite dramatic ways. The simplest change is the direct replacement of TV by the internet as a mode of transmitting DL classes to distant students. Use of computers with mounted televi-

sion cameras could enable every student to have a two-way video connection to a synchronous class. Filmed classes could be downloaded on demand for asynchronous viewing and reviewing, freeing the student from the constraints of scheduled TV showings. However, once the program has moved to the internet and the desktop computer, powerful options to improve the learning experience become available. The combination of computer and internet open up nonlinear learning strategies, in which students move from subject to subject in their own time and in their own order. Courses following this approach are organized and presented very differently from the traditional lecture course, and may or may not include film clips of the professor (or others) lecturing on specific points. These approaches appear to have great potential to be relatively scalable, that is, to be extendable to quite large audiences without changing the basic paradigm.

It is important to note that the current implementation of this approach does not use the centuries-old "vertical" integration of teaching in which a single individual determines the subject matter to be taught, chooses the pedagogical approach to be used, presents the material to the class, and then assesses the learning of the students. This new paradigm calls for the knowledgeable professor to define the material that should be taught, an expert in multimedia pedagogy to create the structure of the course, technical people to implement it, and an assessment expert to evaluate the success of the course in enabling the students to learn the subject matter. The resulting course may contain some lectures by the professor who defined the course, a multiplicity of experts lecturing on specific points, a hired presenter providing some lectures, or no "talking heads" at all. In essence, the traditional teaching function is "unbundled."

It is also worth noting that DL need not be taught on the usual academic schedule. In particular, many of the approaches now being tried allow

students to start courses almost on demand. This enables considerable flexibility in matching the length of a course to the subject matter being taught. The limitations of the traditional semester or quarter system need not exist with many of the approaches now being tested for DL.

The internet is also a sustaining technology in DL when used to open up improved interaction with other existing constituencies of universities. Examples of this are on-line courses directed at alumni and courses aimed at high school seniors already admitted to the university. However, the internet becomes a disruptive technology in DL when it enables one organization to access a constituency that had previously belonged to another.

#### **THE NEW DL AS A DISRUPTIVE EDUCATIONAL FORCE**

As pointed out by Robert Frank and Philip Cook in *The Winner-Take-All Society*, the very best students in the country are increasingly seeking entry into a small number of highly prestigious universities and colleges because of the market value of their diplomas.<sup>5</sup> Of course, the number of students who can actually get into those prestigious universities and colleges has always been limited by the number of seats that could be fit into their geographically determined campuses; thus large numbers of excellent students have ended up on campuses somewhat lower on the perceived prestige scale. As a consequence, there has been some reasonable distribution among colleges and universities of the brightest and most highly motivated students. However, as noted by Frank and Cook, "on the supply side, the ultimate source of a mass winner-take-all market is that the services of the best performers can be reproduced, or 'cloned,' at low additional cost."<sup>6</sup> By removing limitations on the number of students who can be taught by an institution or a star professor at any one time, DL over the internet has the potential to greatly exacerbate the winner-take-all tendencies of higher education, thus becoming a very disruptive technol-

ogy for all but the most highly ranked institutions.

Of course, traditional colleges and universities contribute to the education of undergraduate students in more ways than simply offering courses. For example, they provide a very important transitional social structure that helps high school students become adults and citizens. They also enable "networking" with peers who can be very important in later life. Thus one can argue that there are limits to the degree to which DL can be disruptive to those traditional institutions. However, if we divide the roles of most of our undergraduate institutions into three broad categories — social growth, education, and credentialing — it is clear that individual undergraduate students will weigh those components differently as they choose among their educational options. Were new options to appear for obtaining the same credential — perhaps from a more prestigious institution than the student would normally consider — we might well see some significant behavioral changes as students evaluate these options within the context of their own relative priorities.

Some students will continue to find the traditional residential college experience to be most desirable, while others may find they can create more desirable options by "unbundling" the roles of the college through DL. For example, a student might want to take a junior year through DL while traveling, or she might want to take a minimal load while in residence at her university and take most of her courses from a variety of other institutions through DL. While we all have rules regarding transfer credits for matriculated students, the competitive pressures to relax those rules could become quite intense as DL increases in demonstrated quality and effectiveness. One important aspect of DL may be, therefore, that the increased options it provides will give students more opportunity to create a more customized approach to higher education.

It is also argued that DL cannot offer the quality of learning experience that is now found in the classrooms of our colleges and universities. While that may be generally correct at present, it may not hold over the longer term. Christensen emphasizes that in the early days of their existence, products made with disruptive technologies are inferior to those made with the existing dominant technology but possess some novel benefits. Among the comparative benefits of this internet-and-computer-mediated DL are ease of asynchronous access, low marginal cost for additional students, and the flexibility to respond to multiple learning styles. Novel, highly individualized, nonlinear pedagogical approaches and additional technological developments such as virtual reality have the potential to enable DL to surpass the traditional lecture course in terms of efficiency of learning and understanding of subject. The experience will certainly be different from that found in the classroom of the great teacher, but in the end DL may well provide a competitive or even superior way to learn.

Whatever the eventual power of the new DL approaches, however, the reality is that universities and colleges serve multiple constituencies, and each of those constituencies will weigh the pluses and minuses of this new DL differently. This creates the potential for new disruptive competition in higher education. For example, a significant fraction of students are pursuing an advanced professional degree, and many of these students are probably more interested in getting that degree (and the knowledge and skills it represents) quickly, cheaply, and efficiently than they are in the amenities of campus life. Thus many of these students may be willing to accept DL even if it is not quite as good a learning medium as the lecture — especially if the DL degree allows them to affiliate with a higher prestige institution. Similarly, most universities are engaged in continuing professional education of one type or another, and enabling the professional to take these courses without seriously impinging on his

or her work schedule is a very high priority both to the professional and the employer — something that is much more possible with asynchronous DL than with any traditional synchronous approach. If another institution — non-profit or for-profit — succeeds in using DL to access students in these and other categories, it expands its own reach in a sustaining way but lowers revenues in a quite disruptive manner for the institutions that were serving those students using more traditional approaches.

Here, as in many instances of the disruptive impacts of DL, one of the possible defenses an institution can use against such intrusion is to develop its own similarly focused DL programs. These programs would be aimed at both holding its own students and intruding disruptively into the student pools of other institutions. In the former case, the institution will cannibalize its own traditional programs with its new DL programs. However, the alternative may be to cede the students to a competitor. This necessity to cannibalize one's own traditional market in order to compete is a common, and difficult, characteristic of disruptive technologies.

Another potentially disruptive use of DL can occur when a college or university offers college courses for college credit to large numbers of high-achieving high school students. Many colleges and universities do this now for a few students who come to campus to take courses. However, advances in this new technology leads one to imagine a day in the not-too-distant future when the top portion of the new freshman class arrives with a year or two of DL college credits given by major sister institutions. On the one hand, if the institution refuses some or all of these credits, it risks driving the talented and aggressive students it most wants to another institution that will accept the credits. On the other, if it accepts the credits, it is faced with at least three problems. First, it becomes more difficult for institutions to create a distinctive introductory

base on which to build later programs. Second, these students can graduate in less than four years, thus creating a serious loss of anticipated revenue. Third, the courses they have taken by DL will most likely be those introductory freshman courses that can appropriately be taught in larger lecture sections. These large-section introductory courses enable most universities to make enough "profit" that they can afford to offer smaller courses in the upper division. The more students who do not take those courses, the greater the difficulty for the college or university in paying for the smaller upper-division courses. Again, DL is sustaining for the institution that has extended its reach to a greater audience of pre-college students but at the same time disruptive for the impacted institutions.

A significant concern must be that the disruptive, competition-increasing aspects of DL could lead to what Frank and Cook call a "Positional Arms Race." A university's increased investment in DL will improve its chances of successfully entering some student market previously belonging to a competing institution. As noted earlier, however, one defensive reaction by the competing institutions will be to start their own disruptive DL programs. If all institutions invest equally in DL, they could find that their competitive positions ultimately end up unchanged. Their investments will have, in effect, neutralized each other. The tendency in such cases can be to spend just a bit more than the competition in order to gain an advantage — a tendency that ultimately leads to excessive and inefficient investment. In fact, of course, the reality that new players — the for-profits — are entering this educational universe provides the possibility of an even more negative outcome to this arms race. The traditional colleges and universities could find they have not changed their market share relative to each other but are now sharing the market with new providers.

## **DISRUPTIVE RELATIONSHIPS AND GOVERNANCE**

In addition to being disruptive through its financial impact, DL may well be disruptive to the traditional relationships and organizational structure of universities and colleges. The development and growth of DL will almost certainly be driven in large part by the for-profit sector. This will put colleges and universities in direct competition with that sector for many parts of a market that has primarily been theirs up to this point. While the traditional colleges and universities will bring their own very recognizable "brands" to this contest, the private sector brings the ability to move quickly and with significant financial resources. Furthermore, although colleges and universities may own the name and reputation of their institutions, there is often no impediment to their best faculty's using traditional consulting time to create courses carrying their own personal brand for a competing for-profit DL venture or even for a competing university in its own DL efforts. The resulting pressures on universities and colleges could push them to act much more quickly than is usually possible within the tradition of shared governance. In addition, the ability of star faculty to work simultaneously for both the university and a competitor could put significant strain on existing faculty-administration relationships. The situation is exacerbated because DL does not fit neatly into either of the two regimes of intellectual property most familiar to traditional educational institutions: patents and scholarly output in the form of books and journal articles. Similarly, an asynchronous DL course is not exactly like either a book (which faculty are encouraged to write) or a course taught at another university (which is generally not permitted without special permission).

## **CREATING BRAND VALUE**

The question of who or what will be able to create a desirable and recognizable brand for DL speaks to the issue of where relative leverage will

exist in this field. Traditional universities and colleges who enter this field will bring name recognition with them that is based on the quality of their more traditional programs. For the highest prestige institutions, this will probably suffice to give their DL product great visibility and acceptability. For institutions that fall below this top group in prestige, however, it is likely that consistent quality and effectiveness of courses will be the critical parameters in creating a valuable DL brand. In fact, it may well be possible for an institution that is not perceived as being in the top tier in their regular programs to create a high-value brand in the DL arena by consistently producing a quality product. It is likely to be critical, therefore, for the central administrations of colleges and universities to exert quality control over all DL efforts throughout the institution. It is also possible, indeed probable, that there will be areas where for-profit entities will be able to create the highest-value brands because they have best met the needs of the student audience.

If visibility in other media such as television provides any guide, faculty who already have significant name recognition from books or personal appearances might well have a very high carryover into individual branding of DL courses. However, the general potential of faculty to create high-value DL brands probably depends in significant degree on the style of pedagogy that works most effectively in this new medium. The great campus teacher who can hold spellbound a class of hundreds may or may not turn out to be a great teacher using the new technologies. Indeed, as indicated previously, the technology may be most effective where the lecturing skill of the professor is only minimally, or not at all, visible in the literal sense. We find here a parallel with textbooks, where the most successful authors are not always the most successful classroom teachers. In the DL approach where there are no lectures, the professor would have to create brand identity through innovative definition of course

material. However, if the vertical integration of course production does disappear, the success of the DL product would be shared with other professionals who participated in its creation. As a consequence, it is equally possible that the identifiable brand might be shared with, or even belong to, the pedagogical designer renowned for structuring the DL learning process most effectively.

Another interesting question relating to faculty brand regards the role of textbooks and other reference material in DL. Courses built in a more evolutionary way on existing DL programs will probably continue to use textbooks, but many of the more interactive nonlinear courses will be self-contained and will not rely in a primary sense on textbooks. However, these latter courses may want to offer supplementary information for their more engaged students. Similarly, a college using a DL course from another institution may want to supplement certain aspects of the course to reflect emphases of the offering college. It seems less than optimal to use a traditional textbook with its intrinsically linear format to supplement a nonlinear DL course since the pedagogical approaches of the two are so different. Some have suggested that the most likely supplements will be packages of DL material not unlike the packets of photocopied materials used as supplements in many traditional courses today. The supplemental packages might be composed of shorter, more focused DL material that is taken (for a fee) from the web sites of individual faculty members. If this were to emerge as a viable model, one could imagine that some faculty would choose to prepare on-line "books" that are a sequence of self-contained DL "chapters" rather than creating traditional textbooks.

### **BRAND DILUTION**

An equally interesting and important question relates to brand dilution. Prestigious colleges and universities enjoy allure, or brand value, in large part because so few people can get into and

graduate from them. A diploma from one of these institutions tells a prospective employer that the holder met the institution's very high entrance standards and passed the rigorous courses needed to obtain the degree. This certification that the degree holder is one of the best of his or her generation adds considerable value for many employers and increases job opportunities for the holders of these prestigious diplomas. As Frank and Cook point out, this, in turn, increases the demand to get into these institutions, which then enables the institution to further increase its standards, and its brand value. With its potential to greatly increase the number of holders of degrees from an institution, DL could certainly negatively impact the value of the brand if not managed appropriately.

Because so many of our prestigious institutions have been active in traditional continuing education, there are probably some lessons to be drawn from that arena regarding the potential impact of large-scale DL on brand value. Many of these institutions have managed to be extremely active in continuing education without diluting the value of their brand by focusing on certificates rather than degrees in those programs. Because a certificate carries a message that is different from a degree, one might consider it a form of "second brand," related to but not the same as the high prestige brand of the degree. This approach is perhaps the cleanest separation of regular from continuing programs, and seems generally to have been useful in increasing the value of the overall brand when appropriate quality was maintained. Another common approach is to offer degrees, generally at the graduate level, through schools of continuing education that are different from anything offered through the regular programs, such as a master of liberal studies. While there is some potential confusion between the two programs among employers and the public, this approach also seems generally to be positive for the reputations of the institutions so long as appropriate quality is maintained. Finally,

there are many cases in which institutions have offered degrees through continuing education programs that are very similar to their regular degrees. Some of these, such as MBAs, typically have some modifier in front of the degree name that designates it as different from the traditional degree. If of appropriate quality, these also can increase the brand recognition and prestige of the institution. Other such degrees, however, do not appear to be differentiated by anything other than that they were issued by the school of continuing studies rather than one of the other schools. This difference is often ignored by graduates in the preparation of résumés. I know of no study that quantifies the brand impact of this last class of continuing education. Anecdotal evidence would indicate that it is sometimes negative in brand building and preservation.

All of these reflections are based on continuing education activities that are modest compared to the potential of DL, so it is difficult to imagine how they might scale. It is also important to remember that disruptive technologies require some time to demonstrate how they are most effectively used. The most effective and important use of DL may therefore eventually be in some realm that is "none of the above," leaving us with no information concerning its brand impact. However, it does seem likely that some activities, such as a high quality on-line MBA, would prove to be very positive in building brand value in a world in which e-commerce is increasingly the norm. For other activities, however, universities and colleges that develop extensive DL programs may want to consider ways to build second brands that reflect the quality of the first brand but do not dilute it.

### **THE ROLE OF FOR-PROFIT DL PROVIDERS**

It is important to acknowledge the possible major role and impact of the for-profit sector in DL. Because the scalable nature of DL makes it po-

tentially very attractive to the for-profit sector, DL is an area in which the traditional universities and colleges may find themselves in direct competition with the for-profit sector for the first time. DL is being aggressively pursued by established for-profit colleges and universities, startup education.com companies, and the "universities" that large corporations are increasingly creating to do in-house continuing education. These organizations often make extensive use of the newest technologies and the most sophisticated cognitive learning theories in developing and presenting their courses. Unhampered by limits of faculty academic freedom, they are student-centric, focused on the effectiveness of their programs in providing the desired educational benefits. Consequently it is quite possible that rapid advances in the power of DL will come from the for-profit sector. In addition, because this sector does not concern itself with some of the other roles of our traditional institutions, such as research and the creation of knowledge, their cost structures are and will be considerably less than ours. Under these conditions, Christensen's analysis would suggest that the traditional colleges and universities could begin to lose market share to the for-profit sector.

It must be noted that for most of the traditional colleges and universities, transmission of knowledge is only one goal of the educational experience. Critical thinking, learning how to evaluate and integrate different ideas and concepts, and a host of other more global intellectual skills are central to the desired outcomes of the experience. The for-profits can also embrace these broader goals, but they are unlikely to be part of the core mission of a for-profit DL concern. Thus at the same time that the for-profit sector may be leading the development of some aspects of DL, it might also be creating *de facto* DL educational expectations that most in traditional higher education would decry. One has only to consider what the nightly TV news has become under pressure to generate viewership and create profit to



understand the dangers here. However, it must be emphasized that it is also quite possible that at least some components of the for-profit DL sector will be even more aggressive and systematic than traditional higher education in pursuing these broader goals if students and employers value them.

Many traditional universities and colleges are already partnering with for-profit enterprises in creating DL courses. This is likely to be a trend that increases with time as traditional institutions seek to gain access to the capital markets and the expertise that are open to for-profit ventures. This partnering will undoubtedly put additional pressures on the governance and organizational structures of the traditional institutions. It is also likely that there will be increased partnering among the traditional institutions themselves as they try to capture market share and provide additional value for alliances with for-profit enterprises. These partnerships will bring with them pressures as well. In addition, all of these partnering activities are likely to produce multiply branded products, which may impact brand value in a complicated fashion.

#### **IN THE END**

It may be that in the end internet-facilitated DL will have as minimal an overall impact on the traditional colleges and universities as did instructional television. The promise of the approach for improved learning may not be fulfilled. Even if it is, scalability may not be compatible with the requirements necessary for this improved learning. Finally, even if all of this works out, students may simply decide they really prefer the tried and true approaches.

On the other hand, DL has the potential to radically change the power relationships within our institutions by giving the student greatly increased options. By splitting off the purely instructional function from the social and research functions of the traditional college and univer-

sity, DL could put great pressure on our very successful but very expensive "integrated" model of higher education. It could also challenge the faculty-centric vertical integration of teaching. Both competition and cooperation with the for-profit sector could put great pressure on the organizational structure of higher education, and greatly increase strains on university governance. Increased student choice and DL organizations focused on maximizing profits rather than learning could lead to the proliferation of popular but educationally suspect courses. Investments in DL certainly will divert resources from existing programs, and it is likely to be some time before we know whether these investments ultimately will create new resources that can be used to support core missions. Disruptive invasions of our existing student pools could cause severe financial dislocations.

However, if we can master these challenges, a more powerful form of DL could allow us to extend the opportunities of high-quality education to millions of currently underserved people around the globe. It could enable lifelong learning to become a reality. These are inspiring prospects that provide an extremely challenging extension of the educational core of our missions.

These are, indeed, exciting times.

## NOTES

1. A very good retrospective of the early development of the web is given by Bebo White, *Physics Today*, November 1998, 30.
2. For example, the internet is radically changing the way students do research for college courses. In addition, the internet is being used extensively in new pedagogical approaches that seek to extend the learning space beyond the classroom in a coordinated fashion. It is also being used to create new modes of interaction between and among the professor and the students in a class.
3. Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Boston: Harvard Business School Press, 1997).
4. Clayton M. Christensen, quoted in *Money* magazine, March 2000.
5. Robert H. Frank and Philip J. Cook, *The Winner-Take-All Society* (New York: Penguin Books, 1996).