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E-Learning as an Emerging Entrepreneurial Enterprise in Universities and Firms

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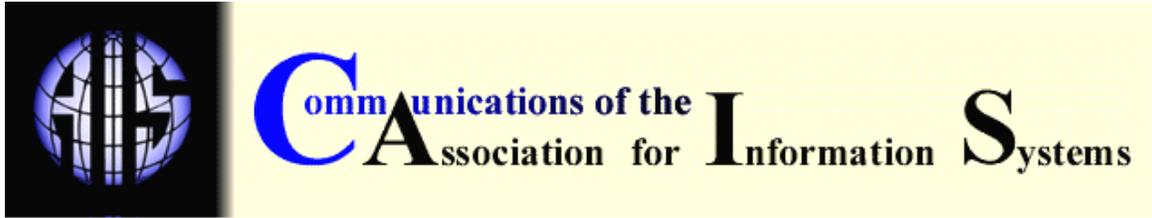
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E-LEARNING AS AN EMERGING ENTREPRENEURIAL ENTERPRISE IN UNIVERSITIES AND FIRMS

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ABSTRACT

With the inflow of an estimated \$6 billion of venture capital over the past five years, E-learning is driven not only by many startup dot-com entrepreneurs but also big corporations, for-profit spin-off ventures, and big and small universities. All vie for a piece of a promising marketplace. Many universities entered the E-learning marketplace using non-profit models, leveraging their knowledge in the traditional classroom to the E-learning environment.

Countless entrants and overwhelming numbers of services and products, coupled with market chaos, created confusion that makes it difficult to assess the E-learning industry. This paper identifies and presents four emerging models of E-learning in terms of enterprises, target market, relative advantages and challenges. We introduce a spatial visualization to differentiate among various E-learning models based on their educational orientations and resources. A comparison of the costs associated with E-learning from the perspectives of producers, consumers, and faculty is then presented. We conclude by discussing the lessons that can be learned from this industry's evolution.

KEYWORDS: e-learning models, entrepreneurial venture, technology start-up, economics of e-learning industry, entrepreneurship in education, corporate training, distance education.

I. INTRODUCTION

The Wall Street Journal reports that more than \$6 billion in venture capital flowed into the education sector during the 1990s [Grimes, 2000]. During the peak of the dot.com era, the development and growth in the E-learning industry can be described as phenomenal; more recently, although cutback occurred, significant funding is continuing to flow into this sector. For

example, Starbuck Chairman Howard Schultz recently invested US\$ 7.5 million in Capella Education [Cook, 2003; Jean, 2003].

During the height of the dot.com era, the Internet flourished with the creation of numerous for-profit learning ventures, from Click2Learn.com to Knowledge Universe to the multi-institutional corporate training of Unext. The enrollment in distance learning is growing at a high rate. For example, enrollment at University of Phoenix Online nearly doubled from 16,000 to 29,000 in the year 2000 [Carlson and Carnevale, 2000]. A similar trend is also observed in the online offerings of many traditional academic institutions [Gu, 2003]. Over this period, many universities entered the E-learning marketplace using a non-profit model and leveraging knowledge in the traditional classroom to the E-learning environment. Of the 1,028 accredited two- and four-year institutions surveyed by Market Data Retrieval, 72% offered online courses in 1999, up from 48% the year before. Among them, 34% offered an accredited distance program, compared with 15% in 1998 [Grimes, 2000]. In 2003, it is estimated that more than 500,000 students are earning degrees via online programs [Symonds, 2003]. Overall, the online school enrollment is growing at 33 percent a year. According to the more optimistic International Data Corp's estimate, the number of online students (not all seeking degrees) is expected to reach 2.2 million by 2004 [Jean, 2003]. Working adults with full-time jobs are the largest audience for online education because it provides them not only the convenience but also the flexibility to advance their education and career. Online education could be Internet's biggest growth area [Pohl, 2003; Gurwell, 2003; Gu, 2003].

This growth did not go unnoticed. Cisco Systems' John Chambers dubbed online education as "the next big killer application on the Internet" [Grimes, 2000]. Digital technology is expected to create a convergence of higher education with publishing, telecommunication, and entertainment, resulting in a global education industry [National Research Council, 2002]. Like any other emerging industry, however, E-learning is going through a shakeout cycle. A round of layoffs at Unext in 2002 is a strong indicator of the severe turbulence in the market, and Unext isn't the only one facing difficult times. This industry saw the demise of NYU online in December 2001, the closure of UMUC online in October 2001, the disappearance of Virtual Temple in July 2001 as well as the ongoing struggles of distance programs at the Masters Institute in California and the Western Governors University [Hafner, 2002; MacCleod, 2002]. The shakeout affects all enterprises in the market, forcing not only private investors but also program implementers within state and publicly funded organizations to take a long and careful look at the viability of E-learning.

Despite the headline coverage of the promise and failures of E-learning in the popular press, little is actually understood about this emerging industry. In this paper, we intend to provide a panoramic view of E-learning as an emerging industry. In Section II, we look at its root, then trace its development, and finally project its future direction. In Section III, we identify four major models of E-learning businesses that emerged over the past five years and examine the competitive strengths, target markets, advantages, and challenges of these models. Then, in Section IV, we compare the costs associated with E-learning from the perspectives of producers, consumers, and faculty. In the final section, we reflect on the lessons learned from the current status of the industry and present a description of the future directions for the E-learning industry.

II. THE EVOLUTION TO E-LEARNING

The E-learning models of today rest on the shoulders of earlier distance learning approaches. The root of E-learning can be traced back to the correspondence course model of learning. One of the first correspondence programs in the U.S. was developed at Pennsylvania State University in 1892, where the main mission was to provide higher education access to remote and rural areas [Banas et al. 1998]. In later years, the correspondence model was further developed into a more robust distance education program with the integration of technology. During its heyday in the 1920s and 1930s, schools such as Penn State experimented with the use of radio to broadcast their correspondence courses nationally. To keep pace with the demand generated by the GI Bill in the 1950s, prestigious universities such as Columbia, Chicago, and Penn State launched several distance education programs.

Over 22 universities engaged in distance education worldwide between 1951 and 1992. Most of the university-level courses were conducted in a correspondence format via various media. For example, Stanford's use of electronic means to offer courses and programs in engineering is not new. Stanford, a leader in the 1970s, created special classrooms with video cameras focused on the instructor and on the students. Classes were telecast via microwave links to companies using an educational video band. Students could view their classes during work hours at video screens, typically located at the company's human resource department. The remote students received video and could communicate via audio. The system worked quite well and attracted significant numbers of off-campus students.

Not every university or company possessed the resources and technology to provide good distance learning experiences during the 1960s and 1970s. Many correspondence programs failed because of poor quality and lack of student-teacher interaction. Distance education in the U.S. slowly re-emerged in the 1980s. The transformation of the once disparaged distance education approach into the modern E-learning industry accelerated in the 1990s, with the advent of the World Wide Web, widespread access to the Internet, the lower cost of PC ownership, and broader computer literacy. The convergence of information and communication technologies led to the widespread growth in the popularity of technology-supported distributed learning. Educational institutions and private enterprises ventured into initiatives that leverage the many available technologies, such as videoconferencing, groupware, and Web-based interactive applications, extending the classroom beyond its normal boundaries [Alavi et al., 2002]. As a result, E-learning – available at any time and any place – increasingly became a viable alternative to the traditional education model.

During the early stages of the E-learning boom, most organizations and universities deployed a small-scale implementation of distance education. New entrants to the E-learning marketplace begin by offering a course that is normally taught by an expert or an authority in the field, or by offering courses in a 'hot' area. Both on and off-campus students within the university are potential customers using this approach. For example, the University of Pennsylvania's five-week, web-based class with well-known market analyst and Professor Jeremy Siegel is one example of this initiative. A course on "Climate Change from a Geological Perspective," offered at Carleton University in Canada, is another example.

III. PRACTICAL E-LEARNING MODELS EMERGING SINCE 1998

E-learning is experiencing a renaissance as a result of the rapid changes in the development and maturation of enabling technology. Today, an entire curriculum can be delivered using bi-directional audio and video via the Web where students and instructors can interact online at any time and from any place. In this section, various models of E-learning businesses are contrasted by examining the competitive strengths, target markets, advantages and challenges of each approach. This examination of various E-learning models was conducted in two phases:

- The first phase involved a review of the literature, drawing from a variety of sources that included national newspapers, magazines, journals, and white papers from vendors. Additional information was obtained from a survey of web sites related to E-learning, including those operated by E-learning ventures or companies.
- The second phase focused on making sense of these data in order to address the following key questions:
 1. Which enterprises are representative?
 2. What is the business model and competitive approach?
 3. Who is the target market?
 4. What are the advantages and challenges of the emerging business models?

These four questions form the basis for gaining a better understanding of the viable E-learning models and help to better contrast the strengths and weaknesses of each approach. The following subsections present detailed discussion of each model identified in the development of E-learning over the past five years. Table 1 provides a summary of the four E-learning business models and the key attributes for each model.

We also introduce Figure 1 to provide a panoramic view of E-learning, and to show the context for comparing E-learning models where various models can be represented spatially along two dimensions. The X-axis spans from corporate and professional training to classic university-type instruction. The former focuses on specialized skills and specific knowledge and the latter covering a broader curriculum-based education, which is typical of a university setting. The Y-axis distinguishes various models based on the sources of their funding and infrastructure resources. Exact spatial positions are debatable, but the general locations are applicable in most cases. There are cases in which one model may span over more than one quadrant, and in practice it is likely that some overlapping across models might occur.

Figure 1. Spatial Distinctions among E-learning Models Based on their Educational Orientations and Resources.

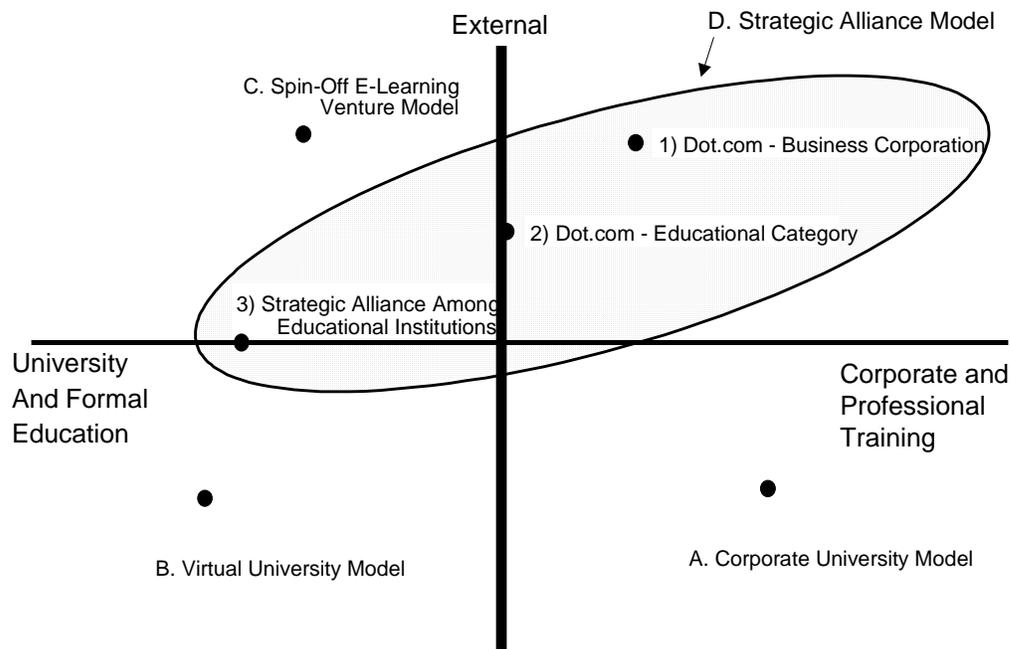


Table1. Summary of E-learning Models in Practice

Model	Examples of Enterprises	Business Model & Competitive Approach	Target Market	Advantages and Challenges
Corporate University	Large companies (e.g., GE, Disney, Motorola)	Aim at improving employee skills and investing in human capital while saving time and money. Rely on the company's internal budget. Offer unique and highly specialized content.	Corporate employees, other corporations.	<u>Advantage:</u> Can be turned into an E-learning outsourcing provider and a customer-focused service. <u>Challenge:</u> Require the initial capital investment and high ongoing costs.
Virtual University	University of Phoenix Online, Concord University Online Law School, Capella University, Kaplan College.	Aim at providing access to education at any time and in any place through flexible technology; standardized courses taught by practitioners.	Global adult working population.	<u>Advantage:</u> Provide convenient class times and locations with flexible technology and standardized courses. <u>Challenge:</u> Face increasing competition from other E-learning ventures.
Spin-off Venture	Fathom Knowledge Network, Inc., iVentures, e-Skolar Inc., Unext.	Aim at creating a value-chain partnership between the content providers and the spin-off venture. Allow schools to capitalize their intellectual capital and brand names without intruding on intellectual property ownership.	Professional and business executives and other educational institutions.	<u>Advantage:</u> Obtain an instant recognition backed by the brand name schools. <u>Challenge:</u> Pressure to generate profit.
Strategic Alliance	<u>Dot.com-Business Corporation:</u> Click2Learn + Eastman Kodak's Elearning Initiative <u>Dot.com-Educational Institutions:</u> Wharton Direct <u>University Strategic Alliance:</u> University of Texas System's TeleCampus	Aim at using the power of economies of scale based on collaboration. Allow partners to share resources, gain access, establish market share, and save costs.	Corporate employees, working professional, and off campus students usually confined to a region.	<u>Advantage:</u> Provide a powerful marketing tool and access to variety of resources through economies of scale. <u>Challenge:</u> Manage and coordinate the partnership.

THE CORPORATE UNIVERSITY MODEL

Representative Enterprises

Large corporations such as General Electric (GE), Disney, Motorola, and Massachusetts Mutual Life Insurance set up their own learning centers. The number of corporate universities jumped from 400 in 1990 to about 2000 in 1999 with the number of students increasing at 30% a year since 1990 [Jones, 2000]. Corporate universities focus primarily on cost savings. Annual training costs run into hundreds of millions of dollars for large corporations. At GE, for example, \$500 million is spent annually on employee training and education [Jones, 2000].

Business Model and Competitive Approach

By taking advantage of E-learning via the Internet and multimedia technology, corporate universities attempt to provide their employees with training developed in-house instead of training offered through external providers. Employees can take courses and learn at any time or place, and often at their own pace. They often do not need to travel, lose wages, and need time off since classes are taken outside normal work hours.

This model offers a number of competitive advantages:

- The constraints in selecting technology infrastructure are fewer. The corporate university can pick its own technology.
- The firm is able to develop unique, company centric content to meet a corporation's specific needs. This content often requires special knowledge not readily available elsewhere. This last benefit is perhaps the most important.

Target Market

The target market is the company employee who needs specific skills not typically provided by broad-based university programs. The primary mission of these corporate learning centers is to use E-learning to improve employee skills and to invest in human capital. Corporate learning centers also help the employers save valuable man-hours and productivity that can be lost when employees must go to off-company locations for training.

Advantages of the Corporate University Model

The corporate university model is a one-stop shop for corporate training needs, including the entire process of creating, customizing, packaging, and delivering the training solutions to the corporation's employees. The main challenge to this model is the initial capital investment and high ongoing costs, making this model infeasible for many small companies to pursue. However, two benefits can help to defray the high ongoing costs associated with operating a corporate university.

- The company can become an E-learning provider for others, and
- A corporate university can serve the corporation's customers through customer-focused E-learning programs.

THE VIRTUAL UNIVERSITY MODEL

Representative Enterprises

The virtual university model (see Table 1) is often viewed as a serious threat to brick and mortar universities and colleges. When University of Phoenix Online moved into Boston, the expansion sent a shock wave throughout many of the region's schools. Phoenix Online is expected to lure away students from an already tight market. A number of schools following the virtual university model are quite successful in extending the E-learning market. Jones International, Phoenix

Online, Concord University Online Law School, Capella University, and Kaplan College are representative of the virtual university model.

Business Model and Competitive Approach

Schools in this model are mostly profit oriented and privately financed. The virtual university model is unique in its complete reliance on cyberspace for the delivery of education. Because of its full online learning approach, these schools require a high-level of motivation and commitment from their students; some use both age and employment requirements to limit their admission. For example, a student must be over 23 to register for courses at the University of Phoenix Online.

Schools following the virtual university model undertake all phases of the educational process without relying on external providers, similar to the corporate university model. The courses at Phoenix Online and Concord University Online Law School are designed and synthesized by their own faculty. These schools also use proprietary technology to support delivery of courses, handle their own marketing efforts, and provide their own student services. Given the competitive, for-profit orientation of the virtual university model, these institutions generally do not share resources, innovations, or services with one another.

Target Market

The main mission in these schools is to apply both innovative delivery methods and enabling technology to bring educational access to working adults, regardless of their geographic location. Following a full online approach for learning and teaching, these schools cater primarily to working professionals. The target market is the population of adult learners who can access the Internet and who want to use technology to develop skills in technology and management. These learners seek to finish continuing education requirements in their professions, and to pursue advanced degrees, such as MBAs, Law, and even Ph.Ds. The virtual university model fits well with those who wish to pursue their education but face time, work, and family constraints. It appeals most to those who do not reside in metropolitan areas, whose schedules do not permit them to take regular classes, or whose jobs require frequent travel.

Advantages and Challenges of the Virtual University

The success of the virtual university model can be seen at the University of Phoenix Online. Offering 90% of the degree programs found at traditional institutions' brick-and-mortar campuses [Bushnell, 2001], University of Phoenix Online boasts more than 126 campuses, in 26 states, Puerto Rico and Canada with total enrollments of over 150,000 students, with nearly 90,000 online students (www.uonline.com).

The critical success factors attributed to University of Phoenix Online and the other virtual universities include:

- convenient class times and locations,
- flexible technology,
- standardized courses that are easily replicated,
- before-and-after testing of students,
- a faculty of practitioners,
- relatively low cost to the student, and
- a great deal of experience in the production and distribution of online content.

The main challenge facing schools in this model is competition from other market participants. First, competition comes from highly customized training provided by the E-learning ventures described in the next subsection. Competition can come from the corporate universities mentioned in the previous subsection, as well. Competition also comes from the growing number of online courses offered by the traditional institutions. Of particular concern are courses offered by colleges and universities with accredited programs and greater brand recognition.

THE SPIN-OFF E-LEARNING VENTURE MODEL

Representative Enterprises

Inspired by the success of many Internet startup ventures, many universities quickly jumped on the bandwagon that gave rise to the spin-off E-learning venture model. Public and private higher learning institutions, including brand name schools such as Columbia, Stanford, and Chicago, pursued this model. Columbia is among the first Ivy League universities to spin-off the E-learning venture model. Specifically, its Fathom Knowledge Network, Inc., designed for profit, creates a knowledge community, selling distance-learning courses and academic books online. The goal is to become an educational portal by partnering with other powerhouses such as the Cambridge University Press, the New York Public Library, and the University of Chicago [Totty and Grimes, 2001].

An ambitious spin-off venture is Unext, a privately held company specializing in the development and delivery of online business education. Its approach is to collaborate with prestigious schools including Columbia Business School, Stanford University, the University of Chicago Graduate School of Business, Carnegie Mellon University, and the London School of Economics and Political Science (LSE) to bring world-class education to the global marketplace through its online learning community, Cardean University. The target market of Unext, individual learners as well as other universities and corporate clients, is far-reaching. Unext caters their high quality content and proven technology to business corporations and other educational institutions that are in need of various E-learning programs. The most lucrative market segment is the busy corporate executive and senior manager marketplace; these individuals need access to high quality business education but need great flexibility in course duration and timing.

Public institutions also use the spin-off venture model. An example is the Western Governors University (WGU), a project partly subsidized by public funding in addition to corporate partnerships and donations. The model of WGU is based on the concept of a freestanding university that brings together courses offered by various member schools under one brand name. Instead of following the traditional academic assessment, WGU relies on competency rather than course work. A degree is awarded after a student passes competency exams regardless of the credit hours earned. The design aims to attract and accommodate working adults with a mixture of work experience and college education.

Business Model and Competitive Approach

Like other for-profit universities, the drive behind the spin-off venture model is profit. Their financial backing comes from schools, donations, and private investors, except in cases involving public schools. The key differentiation between the spin-off venture and the corporate university or the virtual university is that the spin-off venture is not involved in the creation of content. Instead, they partner with various content providers and offer this content under its own academic banner. Students would receive degrees or certifications bearing the spin-off venture's name while course content is designed and delivered by faculty from various member schools.

Target Market

The mission, the delivery of content, and the market reach vary greatly among the different entrants in the spin-off venture model. The target markets for spin-off ventures include on and off campus students, professionals and business executives. The market includes executives whose main interest is not to earn a traditional degree but to access top-notch experts or high quality

courses from recognized universities. These professionals take courses to improve critical skills or to supplement courses at their own universities. Ventures such as Fathom attempt to serve as an educational portal while others such as Unext try to establish themselves as an E-learning outsourcing provider. The target market is not so much individual students, but other universities and business corporations who need to offer certain courses or training, but don't have the resource to develop in-house.

Advantages and Challenges of the Spin Off Venture

The spin-off venture model provides a number of competitive advantages:

The value-chain partnership between the content provider and the spin-off venture can be a win-win proposition. Content providers do not need to invest in or maintain the technology infrastructure. Providers can focus their resources on content production.

The value-chain partnership also provides incentives for star professors to get involved, and discourages them from being lured away by competitors. The venture allows schools to leverage their intellectual capital and brand names without the messy problem of intellectual property ownership (i.e., it is possible to circumvent the traditional intellectual-property policies by setting up purely contractual relationships with professors). For example, Cornell University's eCornell venture creates a three-way contract among the school, the online spin-off and Cornell faculty. Both the university and eCornell own courseware (the Internet bells and whistles) and faculty retains the intellectual content rights (the lectures and the syllabus) behind the course. All three parties share the revenue [Totty and Grimes, 2001].

The partnership gives spin-off ventures instant recognition backed by brand name schools. Except in cases involving public schools, financial backing comes from partner schools, donations, and private investors. These sources of funding help unite the technology infrastructure of the spin-off venture and the content expertise of the university. The resulting synergy substantially intensifies the level of the competition in the E-learning industry.

The main challenge to the spin-off venture model is the pressure to generate profit. Viability is determined by profitability in a competitive marketplace. Skeptics both inside and outside the university are wary of these spin-off ventures because they focus on profit, instead of education or technology [Grimes, 2001].

THE STRATEGIC ALLIANCE MODEL

Representative Enterprises

The strategic alliance model is perhaps the most promising and viable model of all. This conclusion is based on the growing partnership among universities, colleges, industry, and IT software companies. Three major categories of partnership are observed, based on the type of institutions involved in the collaboration. These partnerships can be (1) between a dot-com and a business corporation, (2) between a dot-com and an educational institution, or (3) a partnership among educational institutions.

1. The dot-com-Business Corporation Category:

This type of partnership reflects the growing trend of outsourcing training where companies rely on an external provider to meet their training needs. External providers offer not only the technology but also customized content. In this model, a corporation contracts with an IT-training software vendor. An example is Click2Learn, an established IT training software vendor that designed and packaged numerous online courses for Kodak's employees worldwide. Similarly, DigitalThink struck agreements with companies like Sun Microsystems and KPMG Consulting. Powered is another example of this dot-com-business alliance model that focuses primarily on customer services and training, offering corporate clients a wide variety of non-accredited online courses in many subjects [Joseph, 2001].

The main advantages of this model are substantial savings for clients, access to a wealth of training resources, very little investment in personnel or equipment. The difficulty for clients is to determine which of the countless suitable partners will be most beneficial. They must make a difficult choice with limited information.

2. *The dot-com-Educational Institution Category:*

This type of partnership represents a strong response from many traditional higher education institutions to counter the growing threat from virtual universities, corporate universities, and spin-off E-learning ventures. The partnership effort between Duke and Pensare, Inc. is an example of how the collaboration between a dot-com and an educational institution can work effectively. Duke provides the content while Pensare packages and delivers the courses. Other alliances include

- the "Humanity Online Program" from Williams College and Global Education Network, and
- the "Business Management Education Program"—Wharton Direct, from the University of Pennsylvania and Pensare.

These partnerships are different from the spin-off venture model because the schools award the degree and certification directly. Little or no integration exists between the content creation and the content delivery and distribution. The development of content is totally controlled by the schools. Many schools appear to favor this approach, reluctant to give up their most valuable asset—their brand name.

One of the challenges facing this model is the nagging problem of intellectual property ownership. It is rather complex to determine who the owner of the packaged content is and what the rights each party are in the use and distribution of the content. This problem is severe in technology-oriented programs where faculty turnover is relatively high and course content must be updated continually.

3. *The Strategic Alliance Among Educational Institutions:*

The final variation in the strategic alliance model is the collaboration among multiple educational institutions. Entrants in this group include California Virtual University project initiated in early 1998, the University of Texas System's TeleCampus, and the collaboration among community colleges in states like Michigan, New Jersey, Oregon, and Texas. The most successful implementation of this model is perhaps the Electronic Campus, initiated and supported by the Southern Regional Education Board (SREB).

The SREB's Electronic Campus features the E-learning program that involves a loosely coupled cooperation among a number of different institutions. One fundamental distinction between this approach and the university approach is the so-called "free-trade zone" electronic campus. The "free-trade zone" refers to an agreement among participating schools that allows developing and sharing courses with other member institutions, thus, creating a collective resource and a common market. The Electronic Campus functions as a directory of online courses offered by institutions in 16 SREB member States, with a listing of more than 3200 courses delivering 102 separate degree programs through 262 institutions. Students can simultaneously take courses, earn credits, and gain degrees from any of those institutions. The approach of SREB's Electronic Campus is distinct from that of Western Governor University (WGU) in two aspects.

1. WGU awards its own degree although students may take courses at different schools.
2. Standards and procedures are relatively uniform at WGU compared to the loose structure in SREB's E-learning program.

The SREB's collaborations provide an effective and efficient way for educational institutions to move quickly into E-learning with a very modest investment, reaching many more students

beyond normal geographic boundaries. This advantage also poses a challenge because it is difficult to manage and coordinate the activities of institutions that operate under different standards and requirements across states [Carnevale, 2000].

Business Model and Competitive Approach

The driving force behind the strategic alliance model is the power of economies of scale based on collaboration. High levels of cross-organizational collaboration allow more resource sharing among the partners, access to a bigger marketplace, and faster transition into E-learning. While the strategic alliance model relies on partnership, it is different from the spin-off venture model in one key aspect. Unlike the spin-off venture, a strategic alliance is a loosely coupled partnership in which the content providers retain control of their intellectual property. In sum, no venture spins off as an independent entity and serves under one academic banner; partners maintain their brand name independent from the alliance.

Target Market

Similar to the spin-off venture model, the target markets depend on the type of partnership. The marketplace of the dot-com and business corporation partnership is the corporate training of employees. The mission of such a partnership is to use outsourcing as a way for companies to meet training requirements, which are narrow in scope and focused on immediate needs of the corporation. For the dot-com and educational institution partnership, the target market is mainly busy professionals and business executives who want high quality education and professional development. The mission is to offer just-in-time training, developed by branded schools and delivered through a propriety technology platform.

Finally, the target market for the loosely coupled partnership among educational institutions consists of a wide range of students from adult learners to high school students, seeking the benefits of the traditional college education. The primary strategy is to use economies of scale to save developmental costs and to gain a presence in the E-learning market quickly.

Advantages and Challenges of Strategic Alliances

A growing number of entrants, including technology startups, business corporations, and higher educational institutions around the United State take advantage of this model as a way to move quickly into E-learning and to gain a presence in the market. The most-cited reason for this growth is the value of collaboration as an effective marketing tool; i.e., the more partnerships in which one engages, the more visible the program becomes. In the case of SREB's Electronic Campus, the more partnerships an institution joins the more places its courses are listed, and hence, the greater the chance for students to learn about those courses. Furthermore, through collaboration, institutions can take advantage of creative ideas developed at neighboring institutions without reinvention [Carnevale, 2000].

The biggest challenge in this model is the management and coordination of the partnership because it involves technology and a high degree of trust and collaboration. Other issues include the specific implementation of rules and policies, given differing standards. Winning accreditation, providing student services, setting tuition, calculating finances, and transferring course credits are among the thorny issues that must be grappled with.

IV. A COMPARISON OF PRODUCER, CONSUMER AND FACULTY COSTS OF E-LEARNING

Driving the rapid rise of E-learning industry is the promise of a lower cost of education. This topic is discussed from a variety of viewpoints in the literature [cf., Jung et al., 2000; Cukier, 1997; Capper and Fletcher, 1996]. The basic argument appears to be that costs can be distributed over a large number of students and thus lowers the cost per student at educational institutions [Iglis, 1999; Kearsley, 2000; Whalen and Wright, 1999]. Although an extensive economic analysis is beyond the scope of this paper, there are many assumptions and misperceptions about the real economic tradeoffs between tradition classroom and E-learning-based programs. In this section,

we briefly compare these competing viewpoints from the perspectives of the producer, the consumer, and by academia.

PRODUCER PERSPECTIVE

From a producer's perspective, the total cost of providing education is taken to be the fixed cost of developing a course plus the variable cost of teaching students each semester or quarter. Added to these costs is the overhead, which includes computer infrastructure and maintenance. The literature reports that development cost of an online course can be relatively high. For example, a full-blown multimedia course could reach a million dollars to develop [Grimes, 2001], whereas a simple bare-bones distance learning course could cost as much as \$50,000 [Altschuler, 2001]. Of course, economies of scale as well as the sophistication of course content and infrastructure suggests that a broad range of development costs for a given course is possible for both non-profit and for-profit producers. Nonetheless, development costs can be broken up into three major areas:

- content development (e.g., salary and wages for instructor's, graphic designers, infrastructure personnel),
- marketing expenses (e.g., printing, search engine placement, and other promotions), and
- technology (e.g., web site development, maintenance, servers, networking, courseware).

These costs apply during the development and implementation stages and are a recurring cost throughout the life of a course.

Unlike the fixed cost of development, the marginal cost to the school during deployment is assumed to be relatively low. For example, the cost of an additional student logging on to an E-learning course is considered negligible. When a large number of students enroll in a class the total additional cost for the institution is small compared to the tuition revenue, which is a linear function of the number of students. The per-student cost comparison, as traditionally expounded by E-learning proponents, is illustrated in Figure 2. The cost of educating students in an E-learning setting is high with a small number of students. Beyond the "efficiency threshold" (ET in Figure 2), the cost is less than that of the traditional classroom and declines rapidly with increases in class size.

The assumed conceptualization of fixed and variable costs in Figure 2 is far too simplistic. The variable cost of additional students enrolling in an E-learning class is, in fact, non-trivial. Some administrators presume that faculty and other personnel workload increases stemming from greater enrollment can be offset by other factors. For example, using teaching assistants is often cited as a means to further mitigate the impact of larger student populations on faculty workloads. While administrators see the problem as manageable, many instructors would readily dispute this notion – just ask an instructor of such a class if the workload increase is minimal when the class size is doubled!

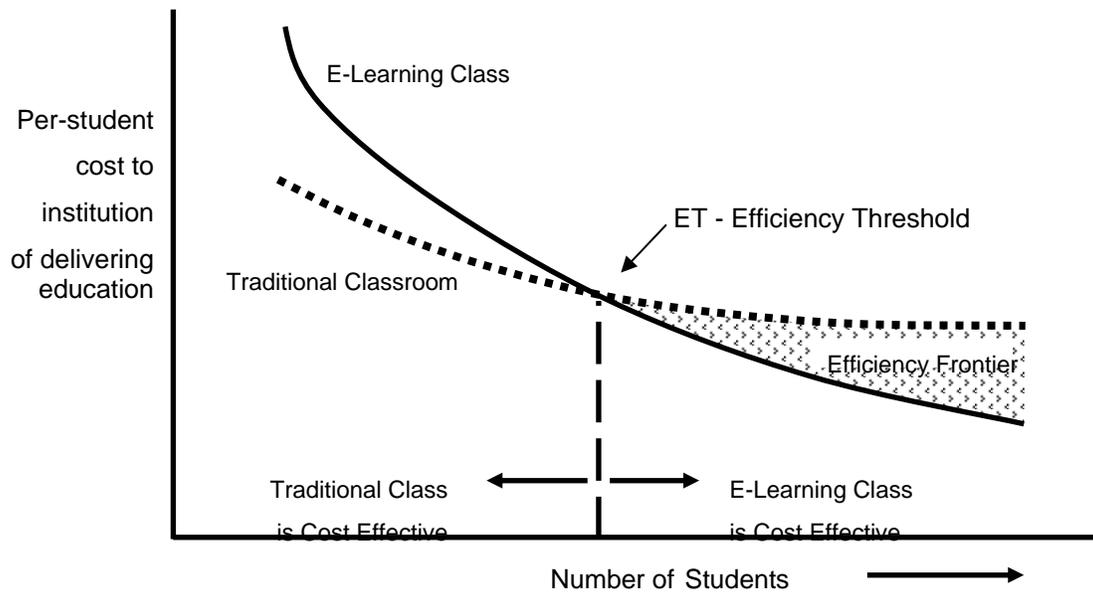


Figure 2. The Common Assumption on The Cost Curves Between E-Learning And Traditional Classroom – Single class.

CONSUMER PERSPECTIVE

In addition the oversimplification of the producer perspective in the E-learning marketplace, numerous consumer issues are not often reported or considered. Of course, one cost to the consumer is tuition. While some institutions charge a premium for taking online courses (e.g., Duke's Global MBA), others, like Washington State University, charge students the same price for traditional or E-learning based courses. It is likely that students can also find online programs and courses for lower costs than traditional offerings (e.g., Western Governors University). Although it is obvious that the relative tuition cost differences for the consumer can significantly influence the attractiveness of these two models, this view does not consider a broader set of consumer costs. For example, some relative cost differences between traditional education and E-learning can include:

1. Relocation cost - when a student moves from home to a distant university and incurs living expenses.
2. Commuting cost - when off-campus students travel to attend classes from their home.
3. Loss of income - when students quit their jobs to attend school full-time.
4. Professional cost - when students skip a class due to work commitment or business travel, which may impact their professional advancement.
5. Quality family time - when part-time students go to class or study in the evening at the expense of spending time with family, especially those with small children.

In sum, if we consider all costs to consumers, the average cost of E-learning classes may be lower than traditional classes, even for situations where E-Learning tuition costs are relatively higher (i.e., the tuition paid for a course is likely to be only one part of the true economic cost for enrolling in an online or traditional class). It is clear that a much broader conceptualization of

consumer benefits and costs should be used in any systematic economic comparison between the traditional and E-learning models.

FACULTY PERSPECTIVE

The fear of some faculty in academia is that if Figure 2 can describe the cost of providing the education, then over time, the number of students would expand rapidly without a corresponding increase, or with even a decrease, in the number of faculty at an institution. If this indeed were true, we could even see a decline in the number of institutions, because one star professor could teach an introductory course in MIS to 5000 students across the country. The result would be a need for only a handful of such professors. This doomsday scenario, however, is unlikely to threaten the livelihood of college professors. As discussed above, the costs of teaching an additional student is far from zero in the E-learning environment. Although E-learning can provide a comparable quality of education, the nature of high quality university education requires that additional resources be expended to teach the added students effectively. The University of Phoenix Online Model of highly standardized classes cannot be replicated by the likes of Harvard, Stanford, or Claremont Graduate University without spending considerable resources on each additional student.

In spite of the market turbulence, excellent new E-learning programs are emerging: Harvard University intends to offer a Master of Public Health; Brown University is developing a medical school curriculum; and Stanford continues to offer a Master of Science in Engineering [Forelle 2003]. The quality of these programs would be maintained by sufficient use of faculty resources without resorting to the University of Phoenix Online model, where adjunct faculty or practitioners are given "cookie cutter" instructions and notes to teach their classes.

In our opinion, the objection to the E-learning classes in academia comes largely from the sincere belief that face-to-face classroom learning is superior to the technology-mediated learning environment. Yet, research studies related to technology-mediated learning report no significant differences in performance between students enrolled in the two environments [Piccoli et al. 2001]. More importantly, the evidence from these studies shows the positive results of technology use in improving teamwork collaboration, classroom interaction, and delivery of instructional material [Alavi 1994; Alavi et al. 1995; Leidner and Fuller 1997; Leidner and Jarvenpaa 1993]. The objection to the adoption of E-learning may arise more from the subjective attitude than the perceived lack of effectiveness of the technology. Some faculty members might be uncomfortable in using the technology, while others might not believe in the value in using it. Sometimes objections from these grounds could be mistaken for faculty's concern about E-learning being a threat to their job.

V. STATUS OF E-LEARNING AND ITS FUTURE

Beginning in early 2000, the dot-com shakeout sent shockwaves across all sectors of the economy. Nonetheless, the evidence from the stock market suggests that E-learning can be profitable. The British E-learning company RM reported 22% increase in profits, with a healthy 7.5% net profit margin on sales [Barrie 1999]. Other E-learning enterprises are also in the black. University of Phoenix Online reported a record-breaking profit of \$23.6 million in the first six months of fiscal 2002 [Pethokoukis 2002]¹. In addition, the stock price of the Apollo Group, corporate owner of the University of Phoenix Online, rose from \$2 per share in 1994 to a record of over \$47 in 2003 in spite of the slump in the overall technology stock market [Symonds, 2003]. International Data Corporation indicates that, as of 2001, the E-learning enrollment growth rate was 33% and climbing. If this growth rate continues, E-learning enrollment could reach 2.2 million in 2004 [Pethokoukis, 2002]. Not surprisingly, the number of universities with online courses also increased by 33% between 1998 and 2000. [Alavi and Leidner, 2001]. As an industry with a heavy reliance on the Internet, E-learning is also experiencing its own turbulence.

¹ Note, however, that University of Phoenix Online profits include those from both online and traditional delivery businesses. We were unable to find a clear breakout of profit for online versus traditional delivery.

This section focuses on the status of E-learning in the midst of the market shakeout and the lessons learned from this downturn.

MARKET SHAKEOUT

The market shakeout in the E-learning industry appears due to the lack of funding and affected both the for-profit firms (through the reduction of venture capital investments) and the universities (through the reduction of internal funding). Ultimately, the market forces that affect for-profit and non-profit E-learning initiatives are similar. Like many dot-coms, a number of E-learning startups failed since early 2000, vanishing into cyber oblivion. As market conditions changed during this period some ventures looked toward mergers as a way out, while stronger companies seized the market shakeout as an opportunity to acquire and consolidate their positions. For example, FT Knowledge in London acquired the venerable Forum Corp. of Boston; San Francisco-based DigitalThink absorbed Arista Knowledge Systems of Alameda, CA; and ProsoftTraining.com of Austin, TX merged with ComputerPREP of Phoenix [Dobbs, 2000]. These events represent some of the changes in the E-learning industry that took place in just a matter of weeks.

Organizations in the spin-off model also suffered from the downturn. Several scaled back their operations drastically. Fathom, the spin-off venture at Columbia University, is a case in point, as is Pensare. In early 2001, Fathom decided to restructure its online effort, leading to a reduction of staff and the elimination of programs. Also in early 2001, Unext, the heavily funded E-learning venture, eliminated 52 jobs from a total of 390, citing the completion of key infrastructure development projects as the reason for the cuts. This downsizing was preceded by eCollege's layoff of 35 of its 330 employees in response to decreased revenue [Carr, 2001].

The doldrums in the E-learning marketplace not only affected the small E-learning startups, they also raised doubts about the viability of the bigger and more ambitious E-learning models in the non-profit sector. The struggle of Western Governors University, once a highly praised and publicized virtual institution, showed signs of this vulnerability. When the numbers of students in both certificate programs and corporate training were far below the expected figures, and when the pressure for profit was mounting, WGU quickly found itself vulnerable in the highly competitive E-learning marketplace [Carnevale, 2000].

Market growth is being hampered in both for-profit and non-profit sector as less money flows into the E-learning industry. The decline of state budgets is only one of the many problems facing E-learning initiatives by public universities. A larger problem is the concern about the substantial investment required in developing E-learning courses and the ongoing overhead expenses incurred by these universities. As fewer ventures are able to survive in an increasingly competitive market, the shakeout continues [Carlson and Carnevale, 2000]. Intense competition is occurring between universities and for-profit ventures.

As a survival strategy, some for-profit and non-profit ventures are working together rather than competing against one another. One approach is to separate the development of content of the courses from the process of packaging and delivery. Thus, non-profits can provide the content while for-profit ventures create the operations of providing these classes to the public at a lower cost using their internal efficiencies.

In sum, some for-profit ventures continue to compete directly with the universities, while others work collaboratively with them. With only a few well-established survivors in the market, the number of choices of products, services, and pedagogical approaches will be fewer. Lack of competition may ultimately result in little incentive for bold innovation in this industry [Dobbs, 2000].

LESSONS LEARNED

The rapid rise and subsequent downturn illustrates three lessons for the E-learning industry:

1. Market Survival Still Favors the Strongest and Fittest.

A predictable part in the evolution of a new industry such as E-learning is the intense competition driven by the resource cycle. As less viable companies vanish, only the strong are able to sustain market share and the investment necessary to survive and grow. Even these “survivors” are struggling in this emerging industry, searching for a sustainable business model to follow [Totty and Grimes, 2001].

From these observations, two practical strategies to survive and succeed can be employed in the E-learning field [Turban et al., 2000].

1. A cooperative strategy of value-chain partnership in which suppliers and distributors form a long-term alliance for mutual advantage. E-learning companies such as Unext, Click2Learn, BlackBoard, and WebCT formed strategic alliances with schools, offering their expertise in E-learning packaging while the schools focus on content creation and production.
2. A flanking maneuver strategy in which a firm concentrates on a market niche rather than competing in markets widely served or going head-to-head with a larger and stronger provider. Smaller E-learning endeavors adopted this strategy, attempting to carve out niches that went untouched by their larger competitors. Kaplan College became very successful by targeting specialized financial courses, such as capital investment or treasury management, to its customers; these topics are in great demand and are not widely available online.

2. The E-learning Industry Follows the Classic “Breakeven Point” Principle.

Neither for-profit nor non-profit enterprises can, in the long run, sustain negative cash flows. Managers, analysts, and administrators ultimately raise questions about consistent financial losses, and about when the breakeven point is to be achieved. E-learning ventures need a sustainable financial model since venture funding cannot flow forever. We have little doubt about the scalable potential of E-learning. The idea of developing the content once, packaging it, and selling it to a scalable market sounds attractive. Yet, E-learning requires massive capital funding and sophisticated infrastructure to develop and operate. As many ventures realized, hidden costs are associated with an E-learning initiative including the costs of providing technical support, accessing online libraries, hiring faculty, course content updating, providing student services and other overhead expenditures. A report in 2000 by a faculty committee at the University of Illinois concluded that online education is actually more costly and time-consuming for a university than traditional classroom teaching [Grimes, 2001]. The major challenge for this industry is to therefore keep these costs under control.

For the private sector, capital funding comes primarily from schools, investors, and corporations, with high pressure to make a profit. The recent shakeout in the E-learning industry demonstrates the fragile nature of the commercialization of E-learning. When the funding dries up, so does the innovation. Public funding for E-learning is also under fire. Critics point to projects such as California Virtual University as an abuse of taxpayer money, subsidizing and financing corporate training. The only financial model that shows some promise is based on collaboration, such as the Southern Regional Education Board (SREB). Here, the funding is quite stable when each member is required to contribute only a relatively small annual payment to the organization.

3. Is History Repeating Itself?

As pointed out in Section II, today's E-learning stems from the correspondence course model of the past. Likewise, much can be learned from the experiences of the pre-Internet distance education programs. It is likely that the hype generated during the heyday of correspondence-based distance education partly contributed to its downfall. Despite many claims, its quality was never comparable to mainstream education. Psychological isolation, low level of motivation, and lack of interaction, coupled with commercialization, tarnished the ideal mission of distance education by the 1950s. Will E-learning head down the same path? The critics of E-learning

claim it is no different than the distance education of the past. Is it the same fad—any time, any place education, working at one's own pace—but with a technology twist? On the other hand, the proponents believe that E-learning represents nothing less than a revolution in education. It offers the potential to transform teaching and learning forever.

Between these two extreme views is the perspective of seeing E-learning as "disruptive technology". The notion of "disruptive technology" was illustrated in *The Innovator's Dilemma* (Christensen 1997). The idea behind the "disruptive technology" concept is that an inferior product or service is sometimes good enough to capture a large market share. Examples of "disruptive technology" in the past include: the rise of the online investing company E-Trade forcing Merrill Lynch to change its tactics; the introduction of Microsoft Windows driving Apple Macintosh out of its leading position as the "easy to use" computer; or the penetration of Japanese low cost, fuel efficient automobiles in the 1970s causing shock waves among the American auto industry [Jones, 2000].

Some people might presume that the E-learning MBA experience would be in many ways inferior to the experience of the traditional MBA. Nonetheless, E-learning may be good enough for corporations that want to save time and money, or that want the flexibility and customization that online courses provide. As a result, E-learning may be "good enough" for an increasing number of students, especially those not having the flexibility and freedom to attend a traditional university.

With many virtual universities offerings courses at prices less than traditional universities, those looking for a bargain in education might also choose E-learning. From the "disruptive technology" perspective, E-learning will not likely fade away. In the short term, IS educators and administrators should consider E-learning as an alternative or supplemental form of education for the vast majority of education consumers. Over time, however, refinements in E-learning (both product quality and pricing) may eventually result in it meeting the needs (at least partially) of the vast majority of this market. Hence, its impacts will continue to be felt throughout this industry. For example, if the total demand for the university experience decreases, the smaller and middle-tier brick and mortar universities will feel the brunt of the impact because it will be easier to be accepted at the top universities.

4. Implication for IS Professionals Including University IT Managers

Analysis indicates that economic issues play an important role in the success of E-learning ventures. The successful programs are based on keeping costs under control and maintaining revenue growth. While it is possible for firms to improve revenue by spending resources, they are in danger of ending up with persistent negative cash flows and no profitability. E-learning models whose costs for development and maintenance are less than those of the traditional class are likely to be successful in the long run.

E-learning's total cost to the customer is the true benchmark for determining the economic success of offerings. From the viewpoint of the customer, student or a corporate employee, the E-learning class helps to minimize a number of costs – relocation, cost, commuting cost, loss of income, professional cost, loss of quality family time – and may help to make E-learning a viable option for an increasingly greater number of students. Course and program developers are advised to design the offerings in such a way that external costs to the customers are kept to minimum. E-learning offerings, particularly those with larger potential enrollments, may effectively compete and thrive against the traditional classroom offerings. Well-designed programs that keep external non-tuition costs low for the user may also be able to charge more for E-learning classes than for traditional classes, and make the programs profitable, e.g., Stanford and Duke.

THE FUTURE OF E-LEARNING

Based on our analyses from the previous sections, we offer the following observations on the future direction of E-learning. Despite the ramifications of the recent shakeout in E-learning, we believe that the emerging leaders in this industry cannot afford to stagnate. The evolution and dynamics of software and hardware enabling technologies represent an ongoing challenge that the E-learning industry needs to manage effectively. For instance, all E-learning providers

continue to struggle with the issue of buying off-the-shelf instructional technology, outsourcing through partnership, or developing their own applications. Such a decision is not easy to make given the variety of available options and limited knowledge about these options. Another substantial challenge for the providers of E-learning is the ever-evolving hardware. The application of two-way streaming video and audio, interactive Web-based applications, powerful search engines, mobile computing, and increasing bandwidth will provide an increasingly sophisticated product. Likewise, increased technological sophistication of the consumers in this marketplace puts pressure on providers to innovate. As a result, demand from the students for sustained technological and pedagogical innovations in turn helps to form E-learning into a stronger alternative to traditional modes of classroom learning.

The for-profit model and the non-profit model can coexist in the E-learning marketplace. Both are affected by the decline of venture funding, be it external or internal. Joint ventures between the sectors have been successful. Joint venture doesn't eclipse the pure-profit or pure-non-profit initiatives. The market shakeout affected all sectors. Ultimately, the enterprises that are able to adapt to changes in the environment, while keeping the costs under control, will be successful in both sectors. In other words, there appears to be space for all efficient enterprises. Hence, the success of the for-profit sector may not necessarily preclude the success of the non-profit sector, or vice-versa.

As long as the E-learning industry continues to evolve and innovate, corporations are expected to continue to embrace this approach to education and training. In 2000, corporations spent an estimated of \$4 billion on E-learning. By 2004 the expenditure is estimated to be \$14.5 billion [Eure, 2001]. Meanwhile, the education market for working adults will continue to grow as the economy recovers, and as both businesses and consumers retool for the information-based economy. The coming of *Generation I*—the student population that grew up using the Internet—calls for even more demand on E-learning. E-learning analysts such as Cushing Anderson at IDC predict that the E-learning industry is poised to enjoy explosive growth in the coming years [Eure, 2001; Gu, 2003; Symonds, 2003].

The information technology evolution could well accelerate in the next several decades [National Research Council, 2002]. In the long-term, activity in the E-learning industry will not dry up, despite the recent shakeout. As technology advances and the needs of the customers change, technological start-ups in this field will continue to appear. Entrepreneurs, rather than traditional managers, will be the catalyst for meeting rapid changes with flexible strategies to cater to this fast-growing field. Entrepreneurial skills will play an important role in the future for E-learning innovations. The efficiency and convenience of E-learning was, and will continue to be its competitive advantage over traditional brick and mortar offerings. As the E-learning industry continues to mature, it is likely that it will play an increasingly larger and more disruptive role in the education industry.

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REFERENCES

- Altschuler, G. (2001) "The E-Learning Curve", *New York Times*, August 5, page 4A13.
- Alavi, M. (1994) "Computer-Mediated Collaborative Learning: an Empirical Evaluation", *MIS Quarterly*, (18)2, June, pp. 159-174.
- Alavi, M. and Leidner, D. (2001) "Research Commentary: Technology-Mediated Learning: A Call for Greater Depth and Breadth of Research", *Information Systems Research*, (12)1, March, pp. 1-10.
- Alavi, M.; Marakas, G.; and Yoo, Y.J. (2002) "A Comparative Study of Distributed Learning Environments on Learning Outcomes", *Information Systems Research*, (13)4, December, pp. 404-415.

- Alavi, M., Wheeler, B. and Valacich, J. (1995) "Using IT to Reengineer Business Education: an Exploratory Investigation of Collaborative Telelearning", *MIS Quarterly*, (19)3, September, pp. 293-312.
- Banas, E. and Emory, F. (1998) "History and Issues of Distance Learning", *Public Administration Quarterly*, (22)3, Fall, pp. 365-383.
- Barrie, C. (1999.) "E-Finance: Information Appetite Bolsters RM 'Ze Project' Launched by Luxury Goods Magnate *Education, Education—and Profits", *The Guardian*, Manchester, UK November 23,
- Bushnell, D. (2001) "No Fears Voiced Over Rival College", *Boston Globe*, Jun 3, page. 8.
- Carlson, S. and Carnevale, D. (2000) "Debating the Demise of NYUonline", *The Chronicle of Higher Education*, (48)16, December 14, page. A31.
- Carnevale, D. (2000) "2 Models for Collaboration in Distance Education", *The Chronicle of Higher Education*, (46)37, May 19, page. A53-A55.
- Capper, J. and Fletcher, D. (1996) "Effectiveness and Cost-Effectiveness of Print-based Correspondence Study", Alexandria, VA: Institute for Defense Analysis
- Carr, S. (2001) "ECollege Announces Plan to Lay Off 35 Employees", *The Chronicle of Higher Education*, (47)30 Apr 6, page. 43.
- Christensen, C. M. (1997) *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Management of Innovation and Change Series), Boston, MA: Harvard Business School Press.
- Cook, J. (2003). Venture Capital: Online education attracting support. *Seattle Post-Intelligencer*, January 24.
- Cukier, J. (1997) "Cost-Benefit Analysis of Telelearning: Developing a Methodology Framework", *Distance Education*, 18(1), pp. 137-152.
- Dobbs, K. (2000) "The Coming Shake Out in E-Learning", *Training*, (37)10, October, pp. 114-120.
- Eure, R. (2001) "E-Commerce(A Special Report): The Classroom --- On The Job: Corporate E-learning Makes Training Available Anytime, Anywhere", *Wall Street Journal*, March 12,page R.33.
- Forelle,C. (2003) "Elite Collegs Finally Embrace Online Degree Courses", *Wall Street Journal* January 15,, page B1.
- Grimes, A. (2000) "E-Commerce (A Special Report): On the Battlefield --- A Matter of Degree: After a Slow Start, Universities are Going on the Offensive Against Virtual U's; They Get High Marks for Effort", *Wall Street Journal*, Jul 17, page R.29.
- Grimes, A. (2001) "E-Commerce (A Special Report): Overview --- The Hope...And The Reality -- - Big money is Pouring into the Business of Education; But It's Too Soon to Tell Whether There Will Be Any Payoff", *Wall Street Journal* March 12,, page R.6.
- Gu, W. (2003). "Online Education Attracts Students and Profits." Reuters, June 4, www.reuters.com.
- Gurwell, L. (2003) "Online education could be Internet's biggest growth area", *The Colorado Springs Business Journal*, Apr 11, page. 1.
- Hafner, K. (2002) "Lessons Learned At Dot-Com U.", *New York Times*, page May 2, G.1.
- Iglis, A. (1999) "Is Online Delivery Less Costly than Print and is it Meaningful to Ask?" *Distance Education*, 20(2), pp. 220-239.

- Jean, S. (2003) "Starbucks Owner Invests in Minneapolis-Based Online University", *Knight Ridder Tribune Business News*, Jan 24, page. 1.
- Jones, D. (2000) "Will Business Schools go out of Business? E-Learning, Corporate Academies Change the Rules", *USA Today*, May 23, page 01B.
- Joseph, L. (2001) "E-learning in the Digital Age", *Multimedia Schools*, (8)3, May/Jun, pp. 34-37.
- Jung, I and Rha, I. (2000) "Effectiveness and Cost-Effectiveness of Online Education: A Review of the Literature", *Educational Technology*, 40(4), July-August, pp. 57-60.
- Kearsley, G. (2000) *Online education: Learning and Teaching in Cyberspace*, Belmont, CA: Wadsworth.
- Leidner, D.E., and Fuller, M.A. (1997) "Improving Student Processing and Assimilation of Conceptual Information: GSS Supported Collaborative Learning vs. Individual Constructive Learning", *Decision Support Systems* (20)2, pp. 149-163.
- Leidner, D. and Jarvenpaa, S. (1993) "The Information Age Confronts Education: Case Studies on Electronic Classrooms", *Information Systems Research*, 4(1), pp. 24-54.
- MacLeod, D. (2002) "Higher Education: e for East End: Donald MacLeod finds a global consortium offering London history as one of its short courses online", *The Guardian*, Manchester (UK), Feb 19, page 15.
- National Research Council (2002) *Preparing for the Revolution Information Technology and the Future of the Research University*, Washington, DC: The National Academies Press.
- Pethokoukis, J. (2002) "E-Learn and Earn", *U.S. News & World Report*, June 24, p. 36.
- Piccoli, G.; Ahmad, R.; Ives, B. (2001) "Web-Based Virtual Learning Environments: A Research Framework and a Preliminary Assessment of Effectiveness in Basic IT Skills Training", *MIS Quarterly*, (25)4, December, pp. 401-426.
- Pohl, O. (2003) "Universities Exporting M.B.A. Programs Via the Internet", *New York Times*, Mar 26, page. D.7.
- Symonds, W. (2003) "University of Phoenix Online: Swift Rise." *BusinessWeek Online*, June 23, www.businessweek.com.
- Totty, M. and Grimes, A. (2001) "E-Commerce (A Special Report): The Business --- The Old College Try: Traditional Universities are Taking to the Net with a Wide Range of Strategies", *Wall Street Journal*, March 12, page R.10.
- Turban, E., Lee, J., King, D., Chung H. (2000) *Electronic Commerce: A Managerial Perspective*, Upper Saddle River, NJ: Prentice Hall, p. 317.
- Whalen, T. & Wright, D. (1999) "Methodology for Cost-Benefit Analysis of Web-Based Telelearning: Case Study of the Bell Online Institute", *American Journal of Distance Education*, 13(1), pp. 23-44.

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