

DISTANCE EDUCATION AS A COMPETITIVE TOOL

José Gerardo Martínez

Resumen

Este artículo examina la educación a distancia como una herramienta competitiva y ofrece un plan coherente a su uso más eficaz como parte de la estrategia integral de una universidad. El autor aplica teoría de avanzada para explorar la generalidad de la educación a distancia y sugiere que ésta posee un excedente potencial de dos ventajas sobre la instrucción tradicional. Finalmente, desarrolla una tipología de universidades como proveedoras de la educación y utiliza esta tipología para buscar opciones de la estrategia a distancia en el mercado educativo.

Palabras Claves: Educación a distancia, Tipología de universidades, Estrategias genéricas, Estrategias de dirección del coste, Estrategias de diferenciación, Estrategias de foco.

Abstract

This article examines distance education as a competitive tool and offers propositions concerning its most effective use as part of a university's overall competitive strategy. The author applies innovation theory to examine the notion of distance education as a "killer application" and suggests that it possesses two potential advantages over campus-based face-to-face instruction. Finally, he develops a typology of universities as suppliers of education and uses this typology to explore distance strategy choices in the educational marketplace.

Keywords: Distance Education, Typology of Universities, Generic Strategies, Cost Leadership Strategies, Differentiation Strategies, Focus Strategies.

Introduction

Distance education has become an important issue for higher education. The distance debate usually focuses on issues related to student learning outcomes and student attitudes as compared to traditional classroom-based settings (Phipps & Merisotis, 2006; Webster & Hackley, 2004; Yellen, 2004-2005).

Equally important, yet overlooked issues, are the economic and competitive aspects of universities using distance education tools. The ease with which most universities can acquire a basic distance education toolkit has placed them in an environment that they historically have not occupied, namely, the opportunity to engage in outright competition with other universities for enrollments.

For this analysis, the author defines distance education as any course delivered with tools or technologies designed to overcome the restrictions of either same-time or same-place learning (Daniel, 2004; Lewis, Alexander, & Farris, 2004; Swift, Wilson, & Wayland, 2004). Historically, enrollments have been constrained by "brick-and-mortar" space limitations that were not easily correctable in the short run. The new generation of distance education technologies, especially the Internet and the World Wide Web, makes it technically possible for an institution physically

located in Minnesota to have a majority of its students in Hawaii. Already, more than 40 accredited U.S. institutions offer complete distance MBA programs.

However, the preceding picture of distance education is not nearly that simple. Having the basic toolkit is one matter, being able to compete effectively with it is another. Despite their initial lure, distance education strategies can be incredibly expensive in terms of both resources and money. Consider the following:

- Many authors (Downes, 2005; Gladieux & Swail, 2006) report that the costs associated with providing distance education are more likely to add significant strain, rather than relief, to university budgets.
- Britain's Open University, a pioneer in distance education using primarily low-tech methods (videotapes, handouts), calculates that a single distance education course typically costs between \$2.5 and \$3.3 million to produce (Murphy & Wotring, 2005).
- Distance education classes delivered using computer-mediated communication media typically require between 200 and 300 hours of faculty and staff development time per student contact hour (Moore, 2001). Similarly, Web-based courses typically cost between \$50,000 and \$100,000 to fully develop (Downes, 2005).
- Commercial firms have discovered that conducting business on the Internet has quickly become a war of high volume, low margin, little or no profits, and high attrition, in which the defining characteristic of customers is price sensitivity based on low switching costs (Anders, 2005; Shapiro & Varian, 2005).

Clearly, ill-conceived or poorly executed distance education strategies can cause enormous harm to the institutions that pursue them. Yet, well-established competitors, such as the Open University, Athabasca University, and the University of Phoenix, testify to its potential in higher education. The central tenet of this article is that not all distance strategies are appropriate for all colleges and universities.

Distance Education as a Killer Application

Innovation theory suggests that a new technology must present a significant compelling advantage over the current prevailing technology before it reaches a critical usage mass that makes it economically viable. This advantage is commonly called the technology's killer application (Anderson & Tushman, 2000; Downes & Mui, 2005). A classic killer application was the arrival of the Lotus 1-2-3 spreadsheet software and its ability to perform complex financial modeling on the desktop. It provided the IBM PC with the edge it needed to overcome the dominant paradigm of mainframe computing (Cringely, 2001).

It is important to remember that the technology's killer application must provide a significant advantage over the prevailing technology in the eyes of the customer. Merely being better, cheaper, or better and cheaper is often not enough to guarantee a dominant role in the market. For example, the videophone has been available since the early 1960s, but its commercial presence is minimal because customers have been unwilling to pay the price premium for its perceived benefits over the telephone.

Distance education has two primary potential killer applications, time and spatial independence, over the traditional system of student-instructor time and place congruence. As time independent technologies, distance tools enable students to study and learn at their convenience. As spatially independent technologies, the tools do not require students to be in the same locale as the instructor to receive instruction. Web pages and pre-recorded videotapes are perhaps two of the most common examples of distance education technologies possessing time and spatial independence.

It must be noted, however, that not all distance techniques provide both time and spatial independence. The use of chat rooms for online conferencing, for example, typically eliminates time independence, whereas two-way compressed video only partially provides spatial independence. For this analysis, the author assumes that distance education tools provide absolute time and spatial independence over traditional

delivery methods and that universities select the most appropriate distance tools to match their goals.

The author admits hesitancy in describing idealized competitive strategies, decision-making, and technology use within a higher education environment. However, he feels that sub-optimization on these factors only highlights our argument that distance education must be carefully planned as a competitive strategy. The emergence of nontraditional competitors, for example, nimble corporate schools such as the University of Phoenix and National Technical University, further emphasizes the problems faced by the traditional higher education system in this arena (Noble, 2005; Talbott, 2005). Other well-funded new entrants, with practically none of the costs and restrictions of a typical university, further threaten traditional schools. Kaplan, known primarily for its test preparation programs, has launched an online law degree, while textbook publisher Harcourt General plans to begin its own online university. Finally, large corporations have even begun to eye the market. Former Wall Street financier Michael Milken's Knowledge Universe aims to be a major player in the coming digital education era (Morris, 2006).

The question then becomes, is the mode of instruction the only important factor for students in the modern university? Perhaps the best way to examine this would be by asking what education would look like if we eliminated the traditional university entirely and were left with only distance education. This might help us understand the impact of distance education as a killer application.

Casper (2005), Stanford University's president, speaks of nine roles that universities play in modern society. These roles are (a) education and professional training, (b) credentialing, (c) social integration, (d) providing a rite of passage, (e) networking, (f) knowledge assessment and creation, (g) the selection of academic elites and peer review, (h) fostering a worldwide community of scholars, and (i) the transfer of knowledge.

Clearly, distance education can augment or replace many of these roles, but several cannot be adequately

replaced. In particular, distance education is not likely to replace social integration, rite of passage, and networking, which are primarily social events experienced through long-term on-campus group interactions. In fact, recent studies indicate that use of the Internet and e-mail as social tools lead to a variety of psychological and communication problems (Hallowell, 2005; Kraut et al., 2005; Sarbaugh-Thompson & Feldman, 2005). Yet, distance education can replace, to some extent, training, credentialing, knowledge assessment and creation, selection of academic elites, fostering a scholarly community, and knowledge transfer, which can be partially defined as roles that rely on delivery systems or communications technologies.

Distance education will not supplant all traditional university instruction as a business strategy in the near future because much of the university experience and learning is found outside the classroom. Universities that heavily emphasize their social or co-curricular domains, or are valued by their students primarily for their social and networking aspects, may be insulated from the competition of distance education. Consequently, these schools may feel less pressure to pursue the benefits of distance learning's killer applications. This does not necessarily prevent them from successfully leveraging their strengths in the distance arena, perhaps through programs that mix distance and face-to-face activities. Additionally, a portion of the population has not pursued a college education due to the time- and place-intensive trappings of the traditional university when all they want is curriculum delivery (Wayland, Swift, & Wilson, 2003). Distance education's killer applications may open markets of untapped students who fit this categorization and have historically felt blocked out of a university education. This suggests the first two propositions.

- Proposition 1: Distance learning's killer applications of time and spatial independence will have the least impact with students who view universities primarily for their social, networking, and rite of passage roles.
- Proposition 2: Distance learning's killer applications of time and spatial independence will have the greatest impact with students who view universities

primarily for their education, professional training, and credentialing roles.

The overall size of this market remains a key unknown variable for institutions considering a distance strategy, but it currently appears to be well below 5% of the total market based on FTE. From a headcount perspective, an estimated 710,000 students nationwide enrolled in a distance education course in 2005. This is expected to reach 2.2 million students (or about 15% headcount) by 2002 (Solomon, 2006). The statistics, however, do not reflect the key question of the number of students who would not have enrolled if the distance alternative had been unavailable.

A Typology of Universities

Institutions implementing distance programs do not pursue the same student population as traditional campus-based programs, yet they must operate within the constraints of their own competitive capabilities. Although some market overlap exists, the initiation of distance education programs by traditional universities is best explored through a market-focused classification of higher education institutions. This section briefly examines the limitations of the existing classification system and describes a typology of institutional configurations based on market-focused or competitive characteristics.

The most common classification system is the Carnegie Classification system, which groups American colleges and universities according to their missions and programs (Boyer, 2003). Its underlying goal of providing macro level trend data across institutions makes it unsuitable as a classification scheme focusing on competitive characteristics, which it does not purport to do anyway. From a competitive standpoint, more relevant attributes can be found by examining institutional characteristics reported by representative consumer-focused market-based college selection and ranking guides such as U.S. News and Barron's.

U.S. News & World Report's annual rankings group schools according to mission as well as region and compare data from each institution on 16 indicators of academic quality. Among the evaluative components

are academic reputation, retention rates, student selectivity, financial resources, and graduation rates. These indicators mirror the data found in popular college guides. Barron's Profiles of American Colleges provides data on more than 1,500 North American colleges and universities; variables include size, costs, geographic recruitment, and selectivity. Taken together, these sources suggest a common view of universities based on three primary organizational and competitive characteristics: institution size, tuition cost, and reputation.

Institution sizes range from small to large. Small institutions typically focus on personalized student attention, limited class sizes, and the community-based advantages of smallness, albeit often at the expense of program and activity diversity. Large institutions typically focus on advantages of scale such as a greater number of programs and activities. They usually offer less of an *in loco parentis* environment, albeit with structures and orientations geared toward mass outputs and efficiency.

Institutions can also be categorized by their tuition structures. At one end of the spectrum are publicly funded institutions where students frequently pay less than 20% of their actual educational expenses. On the other end are private institutions where students typically cover 80% or more of their educational expenses. The universities' operating cost structures also typically mirror their overall tuition structures.

Finally, institutions can be classified based on the scope of their reputation. Reputation factors (scope, prestige, and exclusivity) refer to an institution's overall perceived quality, which translates into the size of its potential market. Institutions with national reputations typically pursue selective or targeted enrollment programs, whereas regional institutions often seek to serve a specific geographic area. Although regional institutions may be larger than national institutions, their overall potential markets are not.

Taken together, these three dimensions result in eight distinct organizational types. Organizational types, or forms, consist of coherent configurations of variables that describe an organization's strategy,

structure, ideologies, systems, and processes (e.g., Miles & Snow, 1999; Miller & Friesen, 2001). Over time, each form develops its own unique competencies and capabilities for adapting to environmental contingencies (Snow & Hrebiniak, 2000). Porter (2003) asserts that these consistent groupings of activities are necessary precursors to producing distinctive strategic fits that enable organizations to not only build but also sustain competitive advantage in the marketplace.

Following configuration theory and Porter's notion (2003) of fits, the author suggests that these competencies and capabilities strongly influence the success or failure of an institution's distance education strategy, especially when an organization attempts to operate outside of its prevailing form. Empirical evidence suggests that strategy changes moving organizations away from their core domains result in performance decline (Haveman, 2001; Singh, House, & Tucker, 1999). One explanation for this difficulty is organizations' failure to build the competencies necessary for success in emerging domains.

Porter's Generic Strategies

An organization must consider how its technology fits into the firm's overall strategy and configuration when technology itself becomes the means by which an organization attempts to compete. For distance education to make economic sense, it must exist as an integral part of a firm's strategic configuration and provide a sustainable competitive advantage.

The distinctions between operational effectiveness and strategy must be noted. Porter (2003) notes, "Operational effectiveness (OE) means performing similar activities better than rivals perform them ... in contrast, strategic positioning means performing different activities from rivals' or performing similar activities in different ways" (p. 62). OE is a necessary, but not sufficient, condition for achieving a competitive advantage. This caveat becomes particularly important when distance technology, which is typically used as a tool of OE for higher education institutions, becomes confused with the underlying competitive strategy.

Sustainable competitive advantage comes not from mistaken notions of operational effectiveness, which are easily copied by competitors, but rather from the careful positioning of distance education programs in the competitive market. Effective implementation of distance strategies requires that the technologies' killer applications be consistent with the institution's chosen strategy and supported by the institution's distinctive competencies, structure, processes, and systems that form its overall configuration. Bluntly stated, simply following the recommended strategy does not guarantee an institution success but, rather, only gives it the opportunity for success. Success lies in the matching of strategy and distance technology within a coherent configuration of organizational attributes.

So, how does an organization achieve a competitive advantage through strategy choices? The most familiar and commonly used model is Porter's (2000) notion of generic strategies. Porter describes three distinct strategies for achieving a competitive advantage in the market: (a) positioning the organization as the lowest cost producer of the product or service being offered, (b) differentiating the organization and its offerings from other organizations, or (c) focusing on a niche not filled by other organizations. This section applies Porter's work to the university types described above to derive propositions of the most effective competitive strategies for various organizational configurations in the distance arena.

Cost Leadership Strategies

Overall cost leadership strategies are based on the goal of achieving a better (lower) cost position than the competition. Products are often standardized to allow for long and efficient production runs. The strategy implies high relative market shares vis-à-vis other generic strategies and large output volumes to make the most efficient use of the organization's assets.

The essence of a low-cost distance education strategy for a university is primarily low-cost tuition on the price side, although savings should be achieved on the cost side through means such as reduced auxiliary fees or tightly controlled operating costs. Efficiencies gained through electronic registration reduced physical

facilities expenditures, and lower maintenance costs should also contribute to a cost leadership strategy on the cost side. Britain's Open University is a classic example of cost leadership. It has the lowest expenditure per student of all British institutions, yet it ranks in Britain's top 20 for teaching quality. Sir John Daniel (2004) states, "Thanks to economies of scale, the Open University has resources to move the academic paradigms steadily forward" (p. 16).

Schools must consider several factors in order to be successful using a cost leadership strategy. Foremost is that low-cost strategies rely on high volume, large market share, and output stability to achieve their efficiencies. Because distance education infrastructures are expensive to implement and maintain (e.g., Downes, 2005; Gladieux & Swail, 2006), it follows that any organization pursuing a best-cost strategy will need a large student volume to generate the necessary revenue. This pressure is intensified because student dropout rates in distance courses average more than 30% compared to less than 5% for traditional-face-to-face courses (Phipps & Merisotis, 2006).

Consequently, smaller universities, with their individual-student orientations and smaller initial infrastructures, will have harder times generating the volume necessary to successfully sustain cost leadership-based distance strategies than larger universities, which typically have competencies in mass output and larger infrastructures.

Universities with excellent regional reputations, although having smaller total potential markets to draw on than national institutions, may still be dominant players in their region. As a result, they also may be able to take advantage of a low-cost strategy but typically not as well as their national siblings. Conversely, national universities, with their larger potential markets, typically have higher cost structures associated with obtaining renowned faculty, staff, and resources. Therefore, there does not appear to be any inherent cost advantage based on institutional reputation.

Distance education's killer applications of time or spatial independence must also be managed from the best-cost perspective. Organizations pursuing cost leadership strategies will face stiff competition from other low-cost non-distance education institutions in local markets (i.e., community colleges). The entry of new nontraditional competitors, such as Kaplan and Harcourt, which do not have to cope with university overhead cost and decision-making structures, further illustrates the potential pitfalls of traditional higher education institutions competing in this arena. Finally, innovation theory reminds us that the best-cost position must typically provide some superior sustainable advantage compared to the lowest cost producer of traditional education in each of the local markets that the low-cost provider is attempting to serve to achieve the required volume. As a result, best-cost institutions require a larger number of markets in which they can compete to gain the necessary volume.

Athabasca University—with its charge from the government to serve the entire Canadian market, its emphasis on flexible enrollment schedules enabled through distance technologies, and its institutional structures geared primarily to the production of distance education—is a prime example of a distance cost leader that has successfully implemented its strategy. This suggests the following proposition.

- Proposition 3: Large, low-tuition-cost universities, regardless of reputation, will most effectively implement cost leadership distance education strategies.

Differentiation Strategies

Porter (2000) states, "The second generic strategy is one of differentiating the product or service offering of the firm, creating something that is perceived industry-wide as being unique ideally the firm differentiates itself along several dimensions" (p. 37). These dimensions may include design, brand image, technology, special features, customer service, or other factors of interest to the customer. A goal of the differentiation strategy is avoiding price-based competition and instead earning customer loyalty through the uniqueness and distinctive value of the

product or service. Differentiation strategies are inherently industry-wide. The value accrues to differentiators when they can create unique programs to justify a price premium and gain sufficient volumes to generate the desired level of returns.

Stanford University's new online master's degree in electrical engineering is typical of the differentiation strategy. Its promotional literature stresses Stanford's brand image and price. Its graduate program was ranked first among those at American universities by the National Research Council in 2005. The new web-based offerings will be priced similarly to existing remotely delivered courses, which are considerably more expensive than normal tuition. (Salisbury, 2005).

Colleges and universities desiring to pursue successful differentiation distance strategies must consider several factors. First, uniqueness typically implies more expensive cost structures, whether through the provision of higher-quality-per-price programs or a more complete range of programs. Consequently, high-tuition-cost institutions, with structures already in place to support these programs, will have an advantage over low-tuition-cost institutions. Differentiation does not necessarily involve larger or smaller potential markets but, rather, reflects the institution's position within the total market. Thus, with distance technologies, institution size plays less of a role in an organization's ability to deliver a differentiation-based distance education program than the institution's reputation (Shapiro & Varian, 2005). Consequently, institutions with national reputations will have greater flexibility in identifying and capturing markets matched to their unique competencies than institutions with regional reputations and their more limited market access.

Finally, innovation theory implies that the successful implementation of a differentiation-based distance strategy must provide a sustainable advantage that exceeds the best differentiator in each of the markets that the institution is seeking to compete. Duke University pursues the differentiation strategy with its primarily Web-based Global Executive MBA program. Duke's literature emphasizes its respected faculty, international perspective, corporate connections, and

the program's positive coverage in popular business publications such as *Business Week* (Bliwise, 2005). This suggests the following proposition.

- Proposition 4: National reputation, high-tuition-cost institutions, regardless of size, will most effectively implement differentiation-based distance education strategies.

Focus Strategies

Porter (2000) describes the focus, or niche, strategy as targeting a specific buyer, market, or product line instead of competing in the mass market. The essence of the focus strategy is avoiding competition. Generally, focus firms are smaller firms that generally do not have the resources or capabilities to be full-fledged competitors in the broader marketplace.

At the core, focus organizations compete on the basis of either cost leadership or differentiation within their chosen niche market(s). The primary difference from the aforementioned strategies is that the focus organization attempts to establish and sustain an advantage from a specific market segment or a small number of segments. The strategy may confer an advantage to the institution when compared to the entire market, although it may not be the absolute best-cost producer or the best full differentiator.

The University of Phoenix is a typical focus-differentiator in the academic market. Its target audience is not all college-age students, nor does it seek to be a comprehensive university. Rather, it "offers graduate and undergraduate degree programs and certificate programs to working professionals around the world" (University of Phoenix, 2006). By focusing on working professionals, Phoenix is able to target a market typically overlooked by more traditional universities, which results in a better use of its assets, a greater understanding of its customers, and a competitive advantage in the distance marketplace.

The focus strategy also carries caveats. First, niche players rarely achieve the absolute volume or best-cost position of other competitors. Consequently, schools desiring to pursue a focus strategy must decide

whether they will attempt to achieve the strategy through a cost-based or a differentiation-based focus. Second, niche strategies imply market segments that are neither so large that they attract the attention of the entire industry nor so small that schools are unable to earn a profit in them.

Although these lessons suggest that the most common focus players are small institutions (Wright, 2000), distance technologies can accommodate the rare instance of a large niche player (Phoenix enrolls more than 61,000 students) if its market segment is not strategically important to organizations that are pursuing an industry-wide best cost or differentiation strategy. Large corporate schools such as Phoenix are likely to remain a strong exception to the norm for the foreseeable future. Phoenix's corporate style and its eschewing of most constraints binding virtually all other universities (e.g., lack of permanent campuses and reliance on nontraditional instructor compensation and evaluation models) is virtually impossible for traditional higher education institutions to replicate. However, other new nontraditional competitors, such as Kaplan and Harcourt, with even fewer constraints than Phoenix, should be able to compete very effectively against traditional niche players in the distance market.

Wright (2000) notes that in certain situations, large national reputation institutions may use a focus strategy (e.g., focus differentiation) in support of a broader strategy (e.g., differentiation) to sustain an overall competitive advantage. Typically, organizations employing combination strategies are doing so to prevent the encroachment of the niche players into their larger (and more lucrative) primary markets. The author would like to emphasize that corporate schools such as Phoenix and domain-protecting institutions pursuing simultaneous strategies remain rare exceptions to the rule and cannot be considered the most effective course of action for the majority of schools.

The nature of niche markets suggests that most competitors will have regional rather than national reputations. National schools' higher cost structures and wider scope of programs typically afford access to broad markets, thus making the focus strategy less attractive to the institutions with national reputations. A regional institution may pursue a differentiation-based

focus strategy by offering a unique academic program to a targeted student market or pursue a cost leadership-based strategy by offering a price advantage within its limited geographic area. Each of the focus strategies clearly implies a connection to the organization's cost structure. Focus-differentiators will undoubtedly have higher cost structures, whereas focus-cost leadership institutions will be required to maintain lower cost structures.

Finally, innovation theory suggests that successful niche players must also translate time and spatial independence into a competitive advantage. The University of Phoenix achieves this through a focus on absolute flexibility for the student. Phoenix supports its strategy with a standardized curriculum that can be studied practically anywhere. It emphasizes the ability of its working students to continue their studies, in person, at 1 of 77 learning centers (typically rented office space), or via distance, if they are transferred. Furthermore, its AlexWare software presents students with a unified and consistent class and communication system for every course in their program. This discussion suggests the following propositions.

- Proposition 5: Low-cost institutions, primarily small schools with regional reputations, will most effectively implement focus-cost leadership-based distance education strategies.
- Proposition 6: High-cost institutions, primarily small schools with regional reputations, will most effectively implement focus-differentiation-based distance education strategies.

Implications and Conclusion

The author is concerned that distance education appears to be suffering from many of the unreflective "bandwagon effects" that frequently characterize new technologies. Unfortunately, the high-cost structures associated with distance education, coupled with the potential for intense competition for a limited student market, may spell competitive and financial disaster for universities that do not plan and implement their programs wisely.

The moves by colleges and universities to provide distance education place them directly in the competitive marketplace. Most schools are unfamiliar with the dynamics of such intense competition and the resulting imperative to have clearly conceived and executed strategies. It has been argued throughout this article that higher education institutions must match their distance education tools to their overall competitive strategies, competencies, and organizational configurations. Competing successfully in the distance market requires the selection of an appropriate strategy, the creation and maintenance of a coherent organizational configuration to support the chosen strategy, and the implementation of distance technologies' killer applications in some unique and valuable way.

In conclusion, the author offers Porter's (2000) vivid description of the stuck-in-the-middle strategy adapted for the competitive environment of higher education. The university stuck in the middle is almost guaranteed low profitability. It either loses the high-volume students who demand low prices or must bid away its profits to get this business away from low-cost universities. Yet it also loses high-margin students—the cream—to the universities which are focused on high-margin targets or have achieved differentiation overall. The university stuck in the middle also probably suffers from a blurred corporate culture and a conflicting set of organizational arrangements and motivation system. (p. 41-42).

References

- Anders, G. (2005, July 23). Comparison-shopping is the Web's virtue unless you're a seller. *The Wall Street Journal*, p. A1.
- Anderson, P., & Tushman, M. L. (2000). Managing through cycles of technological change. *Research-Technology Management*, 34(3), 26-31.
- Bliwise, R. (2005, March-April). School in a box: Global M.B.A. 's. Duke Magazine [Online]. Available: <http://www.adm.duke.edu/alumni/dm15/box.html>.
- Boyer, E. L. (Ed.). (2003). *A classification of institutions of higher education*. Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching.
- Casper, G. (2005, April 18). Come the millenium, where the university? Stanford University [Online]. Available: <http://portfolio.stanford.edu:8050/documents/president/950418millennium.html>.
- Cringely, R. X. (2001). *Accidental empires: How the boys of Silicon Valley make their millions, battle foreign competition, and still can't get a date*. Reading, MA: Addison-Wesley.
- Daniel, J. (2004, July/August). Why universities need technology strategies. *Change*, 29, 10-17.
- Downes, L., & Mui, C. (2005). *Unleashing the killer app: Digital strategies for market dominance*. Cambridge, MA: Harvard Business School Press.
- Downes, S. (2005). The future of online learning. *Paper presented at the Fourth International Conference on Web-Based Learning*. New Brunswick, Canada.
- Gladieux, L. E., & Swail, W. S. (2006). *The virtual university & educational opportunity: Issues of equity and access for the next generation*. Washington, DC: The College Board.
- Hallowell, E. M. (2005). The human moment at work. *Harvard Business Review*, 77(1), 58-66.
- Haveman, H. A. (2001). Between a rock and a hard place: Organizational change and performance under conditions of fundamental environmental transformation. *Administrative Science Quarterly*, 37, 48-75.
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis, W. (2005). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53(9), 1017-1031.
- Lewis, L., Alexander, D., & Farris, E. (2004). *Distance education in higher education institutions* (NCES 98-062). Washington, DC: U.S. Department of Education Office of Educational Technology National Center for Education Statistics.
- Miles, R. E., & Snow, C. C. (1999). *Organizational strategy, structure, and process*. New York: McGraw-Hill.
- Miller, D., & Friesen, P. (2001). *Organizations: A quantum view*. Englewood Cliffs, NJ: Prentice Hall.
- Moore, M. G. (2001). Take time to design. *The American Journal of Distance Education*, 6(2), 1-2.
- Morris, K. (2006, May 10). The reincarnation of Mike Milken. *Business Week*, 92-104.

- Murphy, J., & Wotring, C. E. (2005, May 26). *Distance learning on the net means more than technology*. The Wall Street Journal, p. B4:1.
- Noble, D. (2005, January 5). Digital diploma mills: The automation of higher education. First Monday [Online], 3(1). Available: http://firstmonday.dlotissues/issue3_1/noble/index.html.
- Phipps, R., & Merisotis, J. (2006). *What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education*. Washington, DC: The Institute for Higher Education Policy.
- Porter, M. E. (2000). *Competitive strategy: Techniques for analyzing industries and competitors*. New York: Free Press.
- Porter, M. E. (2003). What is strategy? *Harvard Business Review*. 75(1), 61-78.
- Salisbury, D. F. (2005, July 29). Web masters: Online degree to debut in fall [Online]. Stanford, CA: Stanford University. Available: <http://www.stanford.edu/dept/news/report/news/july29/webdegree.html>.
- Sarbaugh-Thompson, M., & Feldman, M. (2005). Electronic mail and organizational communication: Does saying "Hi" really matter? *Organization Science*. 9(6), 685-698.
- Shapiro, C., & Varian, H. R. (2005). *Information rules: A strategic guide to the network economy*. Cambridge, MA: Harvard Business School Press.
- Singh, J. V., House, R., & Tucker, D. (1999). Organizational change and organizational mortality. *Administrative Science Quarterly*. 31, 587-611.
- Snow, C. C., & Hrebiniak, L. G. (2000). Strategy, distinctive competence, and organizational performance. *Administrative Science Quarterly*, 25, 317-335.
- Solomon, K. (2006, July). Closing in on distance. *Business*. 2.0, 30.
- Swift, C. O., Wilson, J. W., & Wayland, J. P. (2004). Interactive distance education in business: Is the new technology right for you? *Journal of Education for Business*. 73(2), 85-89.
- Talbott, S. (2005, October 15). Who's killing higher education? (Or is it suicide?). Netfuture [Online], 78. Available: http://www.oreilly.com/people/staff/stevet/netfuture/20051 Oct 1598_78.html.
- University of Phoenix. (2006). Academic Programs. University of Phoenix [Online]. Available: http://www.uophx.edu/uop/_program.htm.
- Wayland, J. P., Swift, C. O., & Wilson, J. W. (2003). Student attitudes toward distance learning. In B. Engelland & A. J. Bush (Eds.), *Marketing: Advances in theory and thought* (p. 296-299). New Orleans, LA: Southern Marketing Association.
- Webster, J., & Hackley, P. (2004). Teaching effectiveness in technology-mediated distance learning. *Academy of Management Journal*. 40(6), 1282-1309.
- Wright, P. (2000). A refinement of Porter's strategies. *Strategic Management Journal*. 8, 93-101.
- Yellen, R. E. (2004-2005). Distant learning students: A comparison with traditional studies. *Journal of Educational Technology Systems*. 26(3), 215-224.

Dr. José Gerardo Martínez, Assistant Professor, Computer Sciences Department, University of Puerto Rico, Bayamón Campus (digito@hotmail.com).

Recibido: 20.IX.2006

Aprobado: 29.I.2007