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UNIVERSITY-INDUSTRY RELATIONS IN THE MARKET FOR ONLINE COURSES AND DEGREES

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ABSTRACT

The market for online courses and degrees has continued to grow in recent years in spite of an overall slowdown in the growth of Internet-related industries. Who will control the new market for online courses and degrees – universities or corporations, or will a division of labor emerge between the two? What are the advantages of universities and corporations in this new market, and what are their liabilities? Will widely endorsed models of "blended" online learning, which require some face-to-face interaction, become the norm, or will most courses substitute chat rooms and bulletin boards for face-to-face interaction? This study investigates these questions.

The market for online courses and degrees has continued to grow in recent years in spite of an overall slowdown in the growth of Internet-related industries. Every year hundreds, if not thousands, of new courses go online. Who will control the new market for online courses and degrees – universities or corporations, or will a division of labor emerge between the two? What are the advantages of universities and corporations in this new market, and what are their liabilities? Will widely endorsed models of "blended"

online learning, which require some face-to-face interaction, become the norm, or will most courses substitute chat rooms and bulletin boards for face-to-face interaction?

This study investigates these questions. It was conceived at approximately the same time that Teacher's College president and higher education scholar Arthur Levine (2000) was told by an e-learning entrepreneur, "You're going to be the next health care: a poorly managed nonprofit industry which was overtaken by the profit-making sector." Only a few years before, Peter Drucker (1998) had famously predicted that "in 30 years big university campuses will be relics," made obsolescent by more efficient online vendors attracted to the $225 billion postsecondary education "industry." Naturally, we were interested in the prospects for these prophecies, how much of higher learning was likely to move online, whether universities or corporations would control the lion's share of this market, and what consequences for teaching and learning this control might have. The discourse of the period was strongly divided between those who saw the rise of online courses and degrees bringing gains in flexibility and no losses in quality (Green, 2000; Twigg, 2000) and those who saw the further de-skilling of college teachers, greater control by economizing managers, and potentially significant threats to student learning (Nelson and Watt, 1999; Noble, 1998).

Since the study was conceived, however, the situation has changed significantly. Much of the swagger is gone from the private sector. It is possible to draw a red line through many of the companies listed in Merrill-Lynch's *The Knowledge Web*, one of the bibles of the e-learning craze of the late 1990s (Merrill-Lynch, 1999). The record includes the failures of such well-capitalized firms as ThinkWell, Caliber, Hungry Minds, and the American entry of the Open University. Nor did some of the early university-corporate partnerships fare well, as indicated by the very modest success of such ventures as Fathom, NYU Online, and UCLA's Onlinelearning.net. Not surprisingly, in a matter of five years, the conventional wisdom has changed from Peter Drucker's prediction of technological revolution to Larry Cuban's (1986) dictum that new technology in education *never* displaces the primary classroom-based frame of teaching and learning.

Nevertheless, we think the economic and pedagogical issues posed by Drucker's prediction remain pertinent. In the fluid, and potentially transforming area of technological change, we believe it is important to continue to monitor how corporate and university leaders size up the market and one another. We also believe it is important to keep an eye on what kinds of learning experiences they are offering and proposing for the future. Indeed, the failures of some highly-visible enterprises should not distract us from the continued growth of online courses and degrees, including the steadily-growing phenomena of regular students on college and university campuses opting to take some of their courses online, or the more than 30,000 students enrolled online both at the University of Phoenix and in the various operations of the Education Management Corporation, or the more than 40 Kaplan online campuses enrolling an estimated 11,000 students.

The study is based primarily on lengthy interviews with 36 executives whose organizations are active in the market for online courses and degrees, 20 from colleges and universities and 16 from private firms. These executives include people with titles like "Director of Distance Education" and "Vice-President for Product Development." These executives were asked questions about the advantages and liabilities of online learning, whether particular kinds of students were best able to profit from online courses, the comparative advantages of corporations and universities in the new market,

and the role of accrediting in maintaining educational quality. We also interviewed 18 college students in Southern California who had taken courses online. These interviews took place on six college campuses. Students were asked about differences between online and face-to-face courses, whether online courses were boring or interesting, motivating or unmotivating, empowering or not, whether they missed face-to-face interaction with fellow students, and whether instructors were quick to respond to their questions and comments. To gain a sense of the quality of currently available online courses, we also sampled courses from 40 providers.

In this paper, we will present both quantitative and qualitative data, but the quantitative data, which is based on just 36 executives and 18 students, is obviously not highly reliable. At most, it may be suggestive. The qualitative data – that based on longer responses to interview questions – is clearly richer and more useful at this point.

In this paper, we address three specific issues. First, we discuss commonalities and differences in the views of university and corporate officials about online higher education. Second, we discuss what the data show about the stability of the current division of labor between universities and corporations and the strategies that corporations are developing to compete more directly with colleges and universities. Third, we address a principal concern that has emerged from our sampling of courses: the gap between the assurances of equivalent quality in online courses and our student respondents' reservations about the quality of online courses. This last section of the paper will provide a survey of quality issues, including student and instructor effort in online courses, the unfulfilled promise of "blended" models combining face-to-face and online interaction, and the insufficient control on quality provided by current accrediting procedures.

We find that a division of labor is emerging with corporations servicing a considerable share of the market for mid-career adults, while universities continue to dominate the traditional 18-24 year old market. Corporations have significant advantages in speed to market and in business-sensitive design, but high-quality content remains, in most areas, the preserve of universities – and reputation for educational excellence continues to matter in the online market. At the same time, universities endorsing a training (rather than a broader educational) mission and laboring under strained finances may turn increasingly to online products, leading to a new "digital divide" between those campuses able to maintain control of the means of educational production and those unable to maintain this control. We find that important issues related to quality remain for online courses in spite of widespread assurances that "no significant differences" exist in learning between similar online and face-to-face courses. These issues have to do with the level of interest course materials generate and the extent to which students miss opportunities to interact with one another about course materials. Finally, we find little reason to believe that "blended" experiences, which combine online and face-to-face instruction, will become the norm for online courses, even though they are strongly endorsed as an ideal by many executives particularly in the private sector.

The New Conventional Wisdom

Table 1 shows areas of agreement between corporate and university respondents. Respondents from both sectors agreed that online courses will continue to be an important and growing part of post-secondary education, primarily because of their

convenience. Neither corporate nor university respondents believe that online learning will eventually replace traditional forms of instruction. It is a "supplement," many said, "not a substitute." Although half of the respondents in both sectors denied that face-to-face interaction was necessary for the success of online courses, respondents indicated that a purely online experience would not work for most younger students or for adults who lacked high levels of motivation and self-discipline. In the market for younger and less independent learners, private firms, they said, will have to offer "hybrid" or "blended" courses involving some face-to-face interaction, typically through affiliation with a college and university.

Thus, as compared to the situation just two years ago, the online market appears to be developing a relatively straightforward division of labor, with colleges taking the younger learners and corporations the business-to-business market, and with competition limited to the adult and continuing education markets. Colleges and universities, which were relegated to the dustbin of history by Drucker and others not long ago, now appear to be in a comparatively secure and even dominant position in the market, primarily because of their name recognition. Indeed, one senses a degree of confidence verging on complacency among the larger university providers "Private firms no longer possess any real advantages over universities," said one. "Universities all have access to what was once specialized software, and universities have the expert faculty to implement and design courses... (T)he big advantage colleges and universities maintain is reputation."

Table 1. Commonalities among Corporate and Higher Education Respondents

	Corporate Officials	College & University Officials
Advantages of Online Courses: Convenience	58% (11)	50% (8)
Online is Most Appropriate for Self-Motivated and Independent Learners	58% (11)	56% (9)
Online is Mainly a Supplement, Not a Replacement for Traditional Courses	47% (9)	50% (8)
Face-to-Face Interaction is Not Necessary for the Success of Online Courses	47% (9)	50% (8)
Advantage of Corporations in the Online Market: Level of Capitalization/Resources	32% (6)	38% (6)

Comparing University and Industry Respondents

Table 2 reports differences between university and corporate respondents. Not surprisingly, both sets of respondents tend to look at the market in ways that reflect their own investments and traditional asset strengths.

As compared to corporate respondents, university officials were more likely to say that an advantage of online courses was their ability to serve students living in remote locations. They were more likely to worry about the loss of community brought about by the shift to online courses, but nonetheless they proposed to meet interaction needs

primarily through bulletin boards and chat rooms (features of all of the most popular platforms) rather than through more sophisticated technological means or by requiring some face-to-face interaction. They were much more likely to see quality of course content, reflecting the expertise of instructors, as a distinctive advantage of universities.

Corporate officials were more likely to see online courses as appealing to adult learners and business people. They were more likely to see corporations as having advantages in their speed to market, their technological capabilities, and the resources available to them to create high quality learning materials. Because they were more reliant on sophisticated technology, they were also more aware of problems in existing delivery systems. A noteworthy minority of corporate respondents also continued to exhibit 1990s-style signs of revolutionary enthusiasm. This minority argued that online graduates were actually more desirable employees than regular graduates (because of their maturity, independence, and ability to navigate technology), and they were willing to agree with Drucker that in the future online alternatives would replace some physical campuses.

Table 2. Differences between Corporate and University Respondents

A. College and University Officials Higher

	College & University Officials	Corporate Officials
Disadvantages of Online: Loss of Social Interaction/Community	58% (11)	38% (6)
Advantages of Universities: Quality of Courses is Higher	53% (10)	0%
Interaction Needs Can Be Met by Bulletin Boards/Chat Rooms	53% (10)	25% (4)
Advantages of Online: Ability to Reach Students in Remote Locations	42% (8)	19% (3)
Advantages of Universities: Name Recognition	37% (7)	25% (4)

B. Corporate Officials Higher

	College & University Officials	Corporate Officials
Advantages of Corporations: Cutting-Edge Technology	11% (2)	44% (7)
Online Graduates May Be More Desirable to Employers	16% (3)	38% (6)
Interaction Needs Can Be Met with Advanced Technological Solutions	5% (1)	31% (5)
Advantages of Corporations: Higher-Quality Learning Materials	0%	25% (4)
Some or Many Colleges & Universities Will Be Displaced by Online Programs	0%	25% (4)

Competitive Tensions

The qualitative responses add shape and depth to these quantitative patterns. For all of the talk of a division of labor between universities and corporations, the interviews make clear that corporations and universities see themselves as competitors, and the corporations, in particular, continue to view mass higher education as having critical vulnerabilities. Competitive tensions are particularly evident in responses to our question about the advantages and disadvantages of universities and corporations in the online market.

From the universities' perspective, corporations are in the e-learning business strictly to make money. "Hungry Minds is an example," said one respondent. "All they were in it for was the immediate payoff and when that didn't look like it was gong to happen they pulled the plug, leaving all their students out to dry. That doesn't foster a good image for other privates." Because they see corporations as primarily oriented to profit rather than content, university officials view corporations as unable to create truly high quality content. "Yes, corporations can make a course more visually appealing, because they have the financial resources to do so. Yet a drawback to this is that private firms tend to water down the content." This also makes it easier for colleges and universities to market an association with educational quality. As one respondent put it: "We don't promote traditional education, saying, 'Come to our campus, we use chalk!' Or: 'Get an overhead degree!' If universities want to sell their courses (in an online format), they can sell the fact that now more students can have access to their quality education."

The indictment of universities by private firms was, in many cases, equally severe. The real education provided at colleges and universities is, they said, not as high as advertised. "Let's not kid ourselves about real classroom experiences. I have been in some terribly unmotivating physical classrooms." Nor do they do well with online courses: "Courses often end up looking like a digital textbook with limited interaction and students who regurgitate rather than learn." Part of the problem is lack of funds: "Producing high quality content is very problematic for universities because of competition for funds on campus.... In general, private companies can provide higher production values to the equation..."[1]

Indeed, at least the more aggressive respondents in the corporate sector showed signs of developing a full-scale analysis of the cultural and resource vulnerabilities of colleges of universities. In their view, academic freedom creates conditions that allow for high levels of variability in course and teaching quality. Academic culture, moreover, presents each course as a unique, holistic experience. Online corporate officials supplying the middle levels of the managerial and technical labor markets doubt that this is a model that meshes well with the outlook of employers: "If you know something already," said one, "Why shouldn't you be able to skip ahead? If you need to review something, why shouldn't you have it explained in a number of different ways?" In the words of another, "Corporations are more concerned about exactly what you need to know to do a job. Modular components that are self-contained are appropriate under these circumstances. This implies a different instructional design." Over-extension is understood to be a major problem faced by universities, particularly during periods of reduced state funding. Pointedly, corporate respondents observed that many colleges and universities have more students than buildings and classes to accommodate them. "In my area, the University of Central Florida was known by students as U Can't Finish, because students

couldn't find classes to enroll in... Now (it)... is working on hybrid courses, where most of the work is online, and so are... other institutions and state systems."

Only a few respondents were willing to project a very different educational landscape than exists today, but these few are worthy of note. According to one: "I definitely see some colleges and universities closing in the future. Even today, I don't see how colleges under 1000 make it. How do they maintain a college with so few students? Why not just sell the land? I have a 14-year old. I believe he will take online courses and go to college with 40-50 hours already   done. This option will have a name that doesn't exist today. He will probably go to a traditional university where he takes some courses online. I have a six-year old whose experience will be very different. He might go to Disney University. Courses will be produced to look like X-Box games. Educational games are already being used in lots of elementary schools with Sony Play Stations. This is the generation that will grow up with video game expectations of the educational experience."

The New "Digital Divide"

To move beyond the business-to-business and adult continuing education markets, corporations can either compete directly by setting up their own online "campuses," or they can market course products to colleges and universities. Name recognition would seem to be a daunting barrier to the first strategy, but a surprising number of for-profit entities are enrolling students if not always turning a profit. It may be that the title "university," when combined with engaging enough content and low enough cost, confers a degree of legitimacy that is sufficient.[2]

Perhaps more important, the lower half of the market for business and technical labor seems to be cooperating with these new entities: One recent survey found that some 60 percent of 240 employers surveyed say they do not care if degrees are earned online so long as the quality of the degree is credible (Vault.com, 2001). Nevertheless, the success of for-profit online universities has been decidedly mixed. A few, such as the University of Phoenix, have established a strong presence in the market; many others have faltered. Name recognition and the reputation of universities for quality continue to pose a major barrier to the success of for-profit firms.

Name recognition is obviously not a barrier to the second strategy, because course products are licensed to existing institutions. Quite a bit of development effort is, therefore, also moving in this direction – some of it related to specialized business and technical courses, and some of it related to development of online versions of large lower-division courses. For the time being, the business-to-business market is stronger for specialized courses. But development work that is going on now for business training markets can be transferred to the college and university market. Clearly, some corporate executives have come to the conclusion that licensed online courses will become the textbooks of the future. "Corporations have tremendous economies of scale," said one. "We can sell courses at a reasonable price. Colleges can't even share materials across campuses...Colleges simply don't have the resources to be an effective model."

Community colleges, which have already provided a substantial market for tele-courses are the most likely points of entry. The community colleges may even be open to modular, job-related course products that can be customized to meet specific student,

employer, and state certification demands. They have already shown a receptivity to customized training and an indifference to degree completion. Online providers already mimic the class resentment-tinged rhetoric that has been a staple of the community college movement for many years. Thus, in the words of one corporate respondent: "Whether you got your degree online will be a non-issue in 20 years. The real question is not: 'Did you take a course in swimming?' It is: 'Can you swim?' Competency-based models will ultimately control for the elitist notion that where you studied is somehow more important than your demonstrated knowledge, know-how, and behavior..." Another immediate opportunity is provided by large, general education courses with high enrollments, such as Introduction to Psychology, Introduction to Economics, and Introduction to Biology. For these courses, textbook publishers (and perhaps others) will soon have the capacity to produce and license visually appealing, highly interactive courses in these subjects. If licensing fees are low enough, they will likely find a market, again mainly at the community colleges and regional comprehensives. Some doctoral-granting institutions in the public sector may also be tempted to outsource this function. In general, state fiscal crises stimulate a search for cost-cutting measures, favoring the outsourcing of introductory courses. One corporate executive put it this way: "Online courses free up space. They offer efficiencies and free up space. Many colleges have more students attending and not enough money to build buildings for them...We will go after the 20 courses that enroll 80 percent of students – Intro to Psych, Intro to Econ, etc."

Eventually a new "digital divide" will likely separate institutions that can afford to maintain control over the means of their online production and those that cannot. This divide will correspond to two educational cultures: one oriented primarily to training ("learning just the skills and content you need") and the other to higher education in the traditional sense – with its stress on creative activity, capacity development, theory and methods, contexts for understanding, and critical approaches to existing knowledge. Thus, the status division between "further" and "higher" education, which is already apparent at the extremes of mass and elite post-secondary education, will become traceable in another way, through adoption of "canned" versus "home-produced" online courses. Issues of quality may plague these online courses, just as issues of quality plague lower-prestige institutions generally. "Traditional methods, textbooks and lectures, are not going to cut it for long," said one corporate executive. "Private firms are going to be more progressive (and will find ways) to engage students. But private firms may also be less theory-oriented." At the top end, colleges and universities will continue to be dismissive. This attitude is clear in the response of one of our university officials: "Colleges and universities have a reputation for educating people. Corporations have a reputation for getting rich quick. I don't think (the latter) is conducive to trust."

Culturally, the contrast between those receptive to mass-produced online materials and those insisting on craft work boils down to a distinction between training (learning what is necessary for a job) and education (learning that is rooted in context, interpretation, and research). Business e-learning has already embraced the training idea that students should be taught exactly what they need to do a job. Many community colleges are receptive to this idea as well, as are some university extension centers. It is possible that it will creep into other public institutions. In general, corporate executives were optimistic that the training model of postsecondary education would spread: "There's a struggle between task-based courses and courses that connect theory with tasks. Business is migrating away from traditional courses and asking 'are (students) getting what they want out of it...Corporations are more concerned about exactly what the student needs.

This leads to the possibility of testing out of a unit in a course (unless a certification is involved.) That is a different model from a traditional collegiate experience. (It) leads to a different instructional design. Modular components (can) be self-contained." Liberal arts and research-oriented professors will naturally continue to embrace the traditional ideal of theory and context-based education in contrast to training. One hypothesis is that institutions and courses in which textbook teaching is now common will be the institutions and courses in which canned online course materials will be common in the future.

Quality Issues

Often-cited meta-analyses of comparable face-to-face and online courses show "no significant learning differences" (Phipps and Merisotis, 1999). However, this literature showing "no significant learning differences" may mask a reality in which online courses are often not comparable, at least not in the amount of attention they require of students (or instructors), and perhaps also in other ways. Indeed, our interviews with students lead us to question the quality of currently available online courses. If quality differences are evident, persistence and learning differences are likely to follow. If low quality courses are particularly common in low-prestige colleges and universities, the social significance of the quality issue is greatly amplified.

Three quality issues were raised in our interviews: (1) the extent to which online courses provide higher or lower levels of instructional quality than face-to-face courses, (2) the extent to   which "blending" online and face-to-face instruction is necessary for effective online courses, and (3) the role of accrediting agencies in providing guarantees of quality. In this final section of the paper, we will discuss each of these issues.

Design and Instructional Quality. Our executive respondents debated the merits of online courses as compared to face-to-face courses. Many in both sectors felt that, in the words of one respondent, "Nothing in the world is like being employed full-time as a learner in a residential setting. This is a powerful and wonderful experience for most students." But, as partisans of online learning, they were also quick to point out that this ideal "is not available to everyone or even to most people." Respondents were quick to note that compelling graphics sometimes substituted for compelling content, and that this drawback seemed particularly evident in courses designed in the private sector. Most defended online courses, however, denying that course content was weaker.

Most of the executives also denied that opportunities for interaction were less online. Many agreed with the saying: "Distance education begins in the tenth row." "For those students who are afraid to raise their hand in a 600-person auditorium," one said, "face-to-face is not necessary. I mean, how much face-to-face interpersonal contact is fostered in that kind of setting?" Some familiar advantages of the online setting were frequently noted. People who are shy, our respondents said, often feel safer in an online environment. "Due to the anonymity that online discussion and message boards provide, (we) have found that online students tend to be less intimidated and share and discuss more freely than those in a traditional classroom." Collaborative projects were often cited as helping to build participation, and real-time conference rooms are available in some settings as a close substitute for face-to-face interaction. In spite of their overall support for the online environment, a few respondents did worry that poorly-paid virtual instructors might at times provide less feedback than one would expect in face-to-face

courses. Costs, they said, could be a major factor here. Most on-line instructors are paid modest flat fees for online courses[3] and treasure their own flexibility in posting and grading.[4]

The student view provides an interesting contrast to that of online executives. The students we interviewed were much more attentive than the executives to the second-class nature of online courses. Of the 18 students we interviewed, more than 70 percent found online courses to be both more boring than face-to-face courses and to say they missed talking to other students after class. More than 60 percent said that they did not have as much interaction with fellow students in online courses, and nearly 80 percent said that they did not get to know their instructors well in online courses. Fully two-thirds said that they would take an online course only if they "didn't care about the course." These comments suggest an image of online courses as relatively undemanding, fast food approaches to learning. One student, for example, told us, "If there is a class you don't want to take, take it online and get it out of the way. That way you can save room for the courses you like or for your major. They aren't selling online courses because they are good education. They are selling them for convenience." Not all of the student responses were negative. About half of the student respondents said they found the anonymity of the online setting to be empowering and nearly two-thirds denied that instructors were slow to respond to their questions and comments. Only a minority said that they missed watching their instructors perform on stage.

The Rhetoric and Reality of the "Blended" Model. One solution to problems of interaction in online courses is to combine some face-to-face interaction with predominantly online course work. The most successful models of online instruction, such as the Virginia Tech "Math Emporium" and the RPI "Studio Courses," typically include ample opportunities for face-to-face interaction with instructors and fellow students (Tomlinson-Keasey, 2002). Most of our corporate respondents vigorously endorsed this "blended" model. However, when we pressed them, half said that in fact face-to-face interaction was not necessary to successful online courses. College and university respondents were still less likely to consider face-to-face interaction a necessity. Certainly, the blended model is much rarer in practice than it is as an ideal. Most on-line courses in colleges and universities require no face-to-face interaction. (High-end MBA programs, such as the Duke Global MBA, are notable exceptions, as are the other model programs mentioned above.)

This ambivalence about face-to-face interaction – embraced as an ideal, but denied in practice as a necessary principle – shows up also in the findings of our sampling of 40 online courses. We classified courses as either high, medium, and low in interaction requirements. All courses requiring some face-to-face interaction were classified as high, as were courses that required real-time discussions online. If courses required use of bulletin boards, chat rooms, and discussion threads, they were classified as medium in interactivity. At the low end, interaction opportunities were limited to bulletin boards, chat rooms, and email, and they were not required. These are liberal criteria to measure interaction, but nonetheless a majority of the courses we sampled, including some at elite institutions, were at the low end of the scale and only a few were at the high end. Instructors in both "low" and "medium" interaction courses did not always answer email or provide other forms of feedback promptly. Nor did they generally frequent discussion areas. These retreats from instruction can be and are legitimized as means of encouraging "self-sufficiency." A few officials were aware of the potential for abuse: "I would say the biggest disadvantage of online courses is the slow turnaround time for immediate questions," said one college respondent. "Discussion boards and email are

great ways to contact someone or ask questions, but that convenient time frame can also work against you if someone gets back to you (only) when it is convenient for them."

The "low interaction" sites we visited appear to work well enough for adult learners pursuing credentials and continuing education units, as the reported 93 percent completion rate at Onlinelearning.net attests. But for younger students, lack of required interaction can affect engagement and persistence. One university respondent indicated that studies at his institution showed that dropout rates from online courses fell from 75 percent with no interaction to 20 percent with some face-to-face interaction.

The Limited Role of Accreditation. Unfortunately, accrediting bodies have not presented a major quality check for online providers. None of our respondents felt that accrediting bodies were effective in monitoring quality. Indeed, quite a bit of cynicism was evident in these responses. "Currently accreditation caters to private institutions," said one college and university official. "The focus is on the proposal. (T)his focus should not only include the proposal which private firms can put quite a bit of money into to present themselves in the most positive light. It should also include the need to prove the implementation of the education (but it doesn't). Private firms work with the bottom line not the academic standard and, in a sense, the academic standard has been sacrificed to appease and incorporate private firms." At universities, online programs are generally accredited without independent inspection for universities, and a special body now exists to provide accreditation for strictly online providers. This specialized accrediting body, the Accreditation Commission of the Distance Education and Training Council (DETC), was not widely respected. "Certain channels and specific accreditation bodies have lower standards and are easier to receive validation in comparison to the more traditional and stringent accreditation bodies," said one respondent. This view was endorsed by many others in the university sector.

Conclusion

The next step in this project will be to interview many more students and instructors on campuses offering both online and traditional courses about their experiences in the two settings. This will give us a more complete bottom-up perspective to complement the top-down themes that are emerging from our interviews with corporate and university officials. Only by combining the two will a true picture emerge of the front lines of technological change.

Our interviews with executives lead us to believe that the online market will continue to grow, with universities capturing the largest share of both the traditional 18-24 and the nontraditional mid-career adult market. However, private providers should continue to gain incrementally in the mid-career adult market, buoyed by evidence of employer indifference to the provenance of degrees. In addition, outsourcing of course content to private providers, following the lines of textbook production, is likely to continue to grow in public community colleges and regional comprehensives, creating a new "digital divide" between those institutions able to maintain control over the means of educational production and those unable to do so. The culture of student (and de-professionalized faculty) consumerism will contribute significantly to these flexibility-enhancing changes. Online courses, other than those required for recertifications, are likely to show bimodal completion rates. These courses are appropriate for highly motivated adults, but fail to provide sufficient social control to encourage completion among less highly motivated

and younger students. Issues of educational quality should also remain front and center. Courses sold for convenience and cost-savings are rarely monitored in a serious way for quality. Problems of weak course content and insufficient opportunities for interaction continue to plague online courses. An extensive effort to agree upon ways to evaluate and monitor the quality of online course materials and instructional efforts would be a welcome development in this increasingly important sector of post-secondary education. (For useful suggestions, see Marginson, 2002.)

Notes

[1] Marchese (1998) reports that some entrepreneurs recommend a development budget of at least $80,000 per hour for online graphics intensive courses with high marketability. No university can fund such a course. Highly graphics intensive courses will in all likelihood be the preserve of the private sector.

[2] Altbach (2001) has criticized the use of the term "university" by online firms as implying higher standards and a broader range of offerings than actually exist. He suggests that these are "pseudo-universities" and should in fact be called "training" institutions. This would be a valuable change, in our opinion. At the same time, we note that the lack of category regulation also extends to brick-and-mortar entities. Many colleges have changed their names in recent years to universities, hoping to capture some of the higher prestige associated with the term.

[3] Nelson and Watt (1999) report that the University of Chicago paid virtual instructors $965 per course in 1997. This is significantly less that part-time instructors in face-to-face courses are typically paid.

[4] An instructor we interviewed inadvertently provided support for this concern: "One of the great things about teaching online," he said, "is that I can grade work from my boat, rather than having to drive into a campus."

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