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Written monthly by Bob Heterick and Carol Twigg, The Learning MarketSpace provides leading-edge assessment of and future-oriented thinking about issues and developments concerning the nexus of higher education and information technology.

TECHNIQUE LAGS BEHIND TECHNOLOGY

During the early nineties, many of those interested in the impact of information technology liked to talk about "paradigm shifts." In fact, they spent so much time talking about them that their colleagues began to express a strong desire for them to cease and desist.

Despite its attainment of cliché status, the concept of a paradigm shift is a powerful one. Most of those who were once skeptical of the Internet's impact on the ways we do business in all facets of society (including Bill Gates) now recognize that our paradigms are, in fact, shifting.

The word "paradigm" comes from the Greek word "paradeigma," meaning model or pattern. A paradigm represents a way of looking at the world, a shared set of assumptions that enables one to understand or predict behavior. Paradigms have a powerful impact on individuals and on society because our view of the world is determined by our set of assumptions about it. To put it another way, a person's vision is often affected by what he or she believes about the world; one's beliefs often determine the information one "sees."

To apply this concept to the application of technology, the paradigm effect may cause people to be blind to what is happening around them such that they may fail to see the potential in a new application of technology. As Jim Wetherbe puts it, "The biggest obstacle to innovation is thinking it can be done the old way." Familiar examples of how, in Wetherbe's words, "technique lags behind technology" come to mind:

* During the American Revolutionary War, British soldiers dressed in bright red uniforms and clustered together in a style that had made sense doing battle with swords and shields, making them vulnerable to the Americans' new style of fighting. Feelings of superiority prevented the British from seeing why they were losing the war.

* Faced with the invention of the telegraph, the first reaction of the Pony Express was to buy faster horses. When that failed, they tried to hire better riders. They did not realize that the world had changed, and they went out of business.

* The first ATM was located inside a bank and was available only during banking hours. Bankers viewed this technological innovation as an automated teller. Real innovation did not occur until ATMs were placed outside the bank, in malls, grocery stores and airports, and made available twenty-four hours a day.

As we enter the new millennium, colleges and universities are offering thousands of online courses and, in the process, ostensibly altering centuries-old methods of teaching and learning. Some would argue that this represents a paradigm shift. But does it?

There is no question that the higher education community has moved well beyond the time-and-place-specific campus paradigm of the eighties and early nineties when discussions of IT applications consisted primarily of wiring the classroom or wiring the campus. Most folks engaged in online learning programs promote the benefits of 24*7 access to courses and degree programs. Because they may not need to go to campus as frequently or at all, students also value the flexibility offered by online programs. So a lot has changed.

At the same time, a lot has not changed. The vast majority of online courses are organized much like their campus counterparts: developed by individual faculty members, with some support from the IT staff, and offered within a semester or quarter framework. Most follow traditional academic practices ("Here's the syllabus, go off and read or do research, come back and discuss."), and most are evaluated using traditional student satisfaction methods.

This is hardly surprising. Most online courses are offered by traditional institutions of higher education. To return to our paradigm discussion, a paradigm provides boundaries for behavior, guides to action, and rules for success. All paradigms give practitioners a view of the world that enables them to solve specific problems. The higher education paradigm, honed and perfected for hundreds of years, has served us well.

Leaders of the old paradigm community have a tremendous amount of time and energy invested in using the old rules. Consequently, they are often resistant to change and less likely to look for creative, innovative
approaches to new opportunities. In much the same way as Thomas Kuhn, who first called our attention to the idea of paradigm shifts, observed scientists trying to "save the theory," so too do defenders of the old paradigm focus their efforts on old solutions to new problems.

The problem with applying old solutions to new problems in the world of online learning is that they tend to produce results that are "as good as" what we have done before. Because these courses emulate face-to-face pedagogies and organizational frameworks, few of them make significant improvements in either the cost or quality dimensions of student learning. As long as we continue to replicate traditional approaches online, we will once again find "no significant difference" vis a vis quality, and we will only make a negligible dent in the access problem rather than taking full advantage of the networked environment.

Joel Barker and others have observed that the "paradigm shifters," those who create the new rules, are almost always outsiders to the old paradigm community. Since they lack investment in the prevailing paradigm, they can look for innovative ways to solve problems in new ways. This phenomenon seems to be happening in the world of online education. Here are some examples of how some paradigm shifters are taking advantage of the capabilities of the net to increase access, reduce costs and improve quality.

Some institutions are moving the ATMs outside the bank, improving access to higher education in the process. In contrast to prevailing practice, entering students at Rio Salado College and the University of Phoenix don't have to wait until the beginning of the next semester to enroll. Rio begins each of its distance learning courses 26 times a year. This means that students never have to wait more than two weeks to start a class. In addition, although each course is advertised as a 14-week class, students are allowed to accelerate or decelerate as needed. In their online programs, the University of Phoenix uses a cohort model, which enables a course to begin as soon as 8 - 13 students are ready to start a particular study. Students at New York's Regents College can create programs of study that combine on-campus courses, online courses, test preparation and independent study to individualize the time and place of study while producing common learning outcomes as validated by Regents' standardized examinations.

A new paradigm has emerged for "traditional" online courses that, not surprisingly, reflects the on-campus small seminar paradigm that calls for a 20:1 (or less) student/faculty ratio. A number of institutions are breaking through this model and creating new paradigms that are both high quality and cost effective. In 1999, the British Open University piloted what is now their most successful online course, "You, Your Computer and the Net" with 800 students. This year the course had a total student cohort of some 12,000. The University of Illinois at Urbana-Champaign has tripled enrollment in foreign language courses by relying heavily on Mallard, a UIUC-developed intelligent assessment software program that automates grading of homework exercises and quizzes. Virginia Tech has created student mathematics course cohorts of 1500 in their Math Emporium initiative. Organized around computer-based assignments, with on-demand tutorial assistance provided as needed, VT's new designs are dramatically reducing both student failure rates and instructional costs.

Seeking to make qualitative improvements in online education, UNext.com is incorporating advances in cognitive science and Internet technology to create an interactive, intuitive, accessible environment. UNext business courses are based on the "learning by doing" philosophy of John Dewey and current social constructivist views of learning. Courses are designed around real world business problems. Rather than reading chapters and studying for a test, students use learning resources to work on such problems. For example, they may be placed in the role of "analyst" and assigned to evaluate several investment options and provide a rationale for recommended action. Each course ends with a reflective or debriefing activity: what was learned, what is needed to get a better understanding, where else do these concepts apply, and how can the process for working on problems like these be improved. This reflectively activity is critical to students’ abstracting and indexing the learning that has occurred. Finally, there are performance outcomes for each course and students are assessed in terms of their ability to demonstrate those competencies, i.e., to apply the concepts learned to real world situations.

We need follow the lead of these paradigm shifters and move beyond online education that is "as good as" traditional education. Let's find ways to build on the strengths of communications technologies and the Internet to create new designs that can surpass our traditional modes of instruction.

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WHAT IF THE FACULTY REALLY MATTERED?

Insiders will tell you that a college or university is as good as its faculty. A truly great university has a great faculty. And how do we measure the "greatness" of faculty? As everyone knows, the reputation of a faculty in general, or an individual in particular, is primarily, if not solely, based upon his or her reputation as a researcher and scholar. How many books has she written and what kind of reviews did they receive? How much grant funding has he received and how many graduate assistants are supported in his laboratory?

Does faculty "greatness" matter much in student learning? The way higher education operates suggests not much at all in lower division undergraduate courses, somewhat more in the upper division courses and a whole lot in the graduate programs. The typical lower division course is taught from a departmentally designed syllabus, with an agreed upon textbook and graded upon the basis of standardized or common tests and exams. It wouldn't be too illogical to ask why we don't have faculty design the syllabus and the tests, select the textbook and use less expensive labor to teach. In fact, we frequently do that given the presence of so many adjuncts and Graduate Assistants in the classroom. Seldom do we, and then, generally subject to great criticism, permit the teacher to subjectively assess student progress—something we ought to want to do if the
quality of the faculty is really important. There are precious few people who have been through the undergraduate experience at a good college or university who don’t have anecdotes about one or more faculty members who significantly impacted their life or career. When pressed to explain, almost invariably the experience is one that occurred outside the lecture hall. I think it was Immanuel Kant who observed that a lecture is the process by which the speaker’s notes become the listener’s—without passing through the head of either. That may be an unflattering observation but, for the typical lower division undergraduate course, not far off the mark. The memorable exchanges between faculty and students seldom, if ever, occur in the classroom.

If we consider the introductory calculus, or biology, or French course it is abundantly clear that there is little likelihood that the faculty member’s expertise in group theory or the human genome or 13th century Parisian playwrights will play much of a role in the classroom. In fact, most of these introductory courses are dominated by a very small number of textbooks—the authors that by general consensus do the best job of providing logical and well explained presentation of the subject matter. While the faculty member may provide some personally developed notes for portions of the course, the course itself is dominated by the textbook.

In these courses it seems entirely possible, in fact even advantageous, to relegate the textbook to a secondary source and build learning software that encompasses the textbook material and that places the student in a self-paced, interactive learning environment—so called “immersion” learningware. The course can, and probably will, be augmented and personalized with material developed by the instructor of record. Such augmentation will fit seamlessly into the software-based learning environment.

Freed from the responsibilities of formal, scheduled lectures, what does the faculty do? There are a number of examples of learning environments that are beginning to approximate this situation that can be instructive. One of the most successful such applications is the Math Emporium at Virginia Tech. Here, in a converted commercial building about the size of a small Wal-Mart, are found hundreds of state-of-the-art computers arranged in pods seating eight. Students help students. The equivalent of raising your hand for help is placing a bright red cup on the top of your computer. Within a minute or so a faculty member or Graduate Assistant is at your station providing immediate help and mediation for your problem. Ad hoc lectures are held in mini-classrooms when a number of students appear to be experiencing the same problem. And, faculty are available for “drop-in” conversations about math or perhaps even more important issues (this is obviously not written by a mathematician who might argue that there isn’t anything more important than math).

Rio Salado Community College in Arizona has carried this a step further in permitting students to begin the class every two weeks and complete the requirements at any time. The thorny problem is to find how to find the equivalent of the bright red cup on the Internet. When that problem is solved, we may be ready to move all this into cyberspace. As we do, we can begin to demonstrate that faculty really do matter in lower division undergraduate courses. Not because they give good lectures (in truth, most don’t), but because they will have the time to dialogue with students—in person, via email or chat rooms, internet telephony and television when broadband connectivity becomes ubiquitous—and, in the process, generate many more of those life and career defining anecdotes.

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UPCOMING LEADERSHIP FORUM EVENTS

STATE-OF-THE-ART LEARNING ENVIRONMENTS: PEW GRANT PROGRAM IN COURSE REDESIGN ROUNDM I RESULTS

November 13, 2000, Orlando, Florida
February 26, 2001, Dallas, Texas

Co-sponsored by the Executive Forum in Information Technology at Virginia Tech

This seminar will present the results of the first of three rounds of the Pew Grant Program in Course Redesign. Learn from faculty project leaders how to increase quality and reduce costs using information technology. Faculty from four institutions will talk about their models of course redesign, including their decisions regarding student learning objectives, course content, learning resources, course staffing and task analysis, and student and project evaluation. These models provide varied approaches that demonstrate multiple routes to success, tailored to the needs and context of each institution.

These seminars provide a unique opportunity for you to:

- Learn firsthand how to increase quality and reduce costs using information technology from successful faculty project leaders.
- Find out how to design learning environments for the future by tapping the expertise of those who have done it.
- Talk with experienced faculty from multiple institutions about how and why they made their redesign decisions.
- Move beyond “today” and learn where on-line learning is going . . . find a model that will work for your institution.

STRATEGIES FOR AN INSTITUTIONAL APPROACH TO E-LEARNING

October 30 - 31, 2000
This invitational seminar will provide Chief Executive and Chief Academic Officers an opportunity to develop a strategy framework for e-Learning that is attuned to institutional resources and goals and open to commercial and nonprofit partnerships as a means to achieve focus and a favorable return on investment. Participants will interact with peers and nationally recognized speakers to discuss assessing organizational readiness to implement an effective e-Learning program; planning, developing, implementing, and evaluating e-instruction; linking IT investments to strategic academic goals; insourcing versus outsourcing; and finding an appropriate balance between a virtual-campus instructional program and virtual enhancements to traditional classroom-based instructional programs.

There is no registration fee to participate in this thought provoking two-day session.

THE LEARNING MARKETPLACE: NEW RESOURCES FOR TEACHING AND LEARNING

Seminar: Thursday, October 26, 2000, 8:30 am-4:00 pm
Product Demos: Wednesday, October 25, 2000, 4:00-7:00 pm
Location: Atlanta, Georgia

Moderators: Bob Heterick and Carol Twigg

More and more companies are entering the higher education market, providing new and different approaches to supporting your teaching/learning efforts. This workshop provides a rare opportunity for you to compare and contrast commercial offerings in an impartial environment and to gain an overall understanding of the industry.

* Learn in one day what would take you many to find out on your own. * Identify potential partners for developing new learning environments. * Meet your colleagues who are wrestling with the same set of issues. * See product demonstrations (optional activity on October 25).

Featuring moderated discussions with:
* Blackboard Inc.
* Convene.com
* eCollege.com
* Eduprise
* WebCT

If you are involved in decisions regarding expenditure of funds for teaching/learning services and products, you can’t afford to miss this workshop!

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