By Michael Looney and Peter Lyman

PORTALS
IN HIGHER EDUCATION

SINCE THE FALL OF 1999, many campuses have been approached by "college.com" businesses offering some type of "portal," with a range of e-business models attempting to reach campus audiences, especially undergraduates and alumni. While some campus administrators have welcomed these proposals as a means of providing needed Web services or revenue, others have been offended by what they perceive to be an invasion of higher education by commercial ventures. But most administrators simply could not respond to the offers because they were unable to evaluate the value of portals for higher education. To aid in this decision-making process, we will address three basic questions about portals: What are portals? Why is e-commerce interested in higher education? What is the potential value of a portal for higher education?

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WHAT ARE THEY, AND WHAT IS THEIR POTENTIAL?

The reader is encouraged to create a do-it-yourself multimedia text by propping this issue of *EDUCAUSE Review* against a computer with a Web browser and exploring the features of the portals discussed in this article while reading the text.

WHAT ARE PORTALS?

Let's start with a simple definition, and then explore some of the variations of portals. At the most basic level, portals gather a variety of useful information resources into a single, "one-stop" Web page, helping the user to avoid being overwhelmed by "infoglut" or feeling lost on the Web. But since no two people have the same interests, portals allow users to *customize* their information sources by selecting and viewing only the information they find personally useful. Some portals also let you *personalize* your portal by including private information (such as your stock portfolio or checking-account balance). Put simply, an institution's portal is designed to make an individual's Web experience more efficient and thereby make the institution as a whole more productive and responsive.

But portals have an economic and social impact that extends far beyond any basic functional definition. Eighty-nine percent of the estimated fifty-eight million people using the Web in the United States use some type of portal. It is estimated that over 20 percent of the Internet's retail e-commerce is portal-based. And though portals have historically been developed from search-engine-based sites (e.g., Yahoo, Excite, Lycos, Alta Vista) or ISP-based sites (e.g., AOL, Earthlink, Prodigy), their value goes far beyond a Web page

containing a directory of URLs. One author described a portal as a place to start your day and get a little news. It is an epicenter of the Web experience, a "home base," a place to return to when you get lost, a place to keep your information, a place from which to communicate with others, "a security blanket or a safety net, and a trusty guide to all things 'Web.' "[1]

The most common type of portal is a *consumer portal.* The two most popular consumer portals are AOL and Yahoo! AOL (http://www.aol.com) has over twenty-five million users averaging 12 minutes per session.[2] Yahoo! (http://www.yahoo.com) has over twenty-two million users averaging nearly 25 minutes per session and is the classic directory portal that most other portals have imitated. Portals often seem similar from one site to another because publishers of generic consumer information, such as Info-Space (http://www.infospace.com) and MyWay (http://www.myway.com), license the same information services to many dot.coms. College.com companies may license these information services to campuses as a B2B (business-to-business) enterprise or use them on student-oriented Web pages as a B2C (business-to-consumer) enterprise.
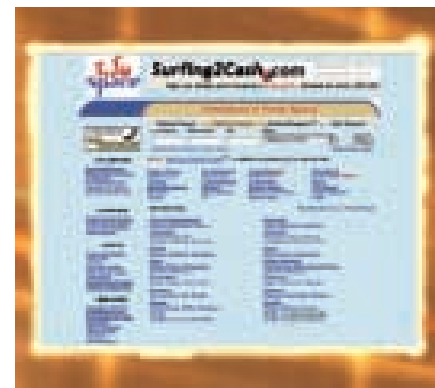
Thus a key problem in e-commerce is how to differentiate a portal from the competition. One classic solution to the differentiation problem is to allow the user to design his or her own customized "MyPortal" Web page. Executives at Excite claim that users are five times more likely to return to a customizable site such as MyYahoo, MyExcite, MyLycos, MyUW, or

MyUCLA. The value of these types of sites is that users can select and organize the content to some extent. They can select specialized information within a general category; for example, users can select basketball rather than world news and then within basketball can select news and scores about only Big 10 basketball teams or only Michigan State. Sometimes users can also customize some of the look of the site by arranging the location of content (e.g., placing stocks above weather, which is to the left of world news, etc.). Although *customized,* frequently the information cannot be *personalized* with information that is specific to the individual (e.g., a checking-account balance).

Another form of differentiation is a *community portal,* in which information is aggregated, edited, and organized around a specific topic. An example is a community of pregnant women or recent mothers on BabyCenter (http://www.babycenter.com). This classic community portal is organized around personalized information—the estimated birth-date allows appropriate information to be provided at appropriate times. A community portal

for higher education is College Club (http://www.collegeclub.com), which markets directly to undergraduate students. Like other college.com portals, College Club makes money by selling student demographics to advertisers, offering banner ad space and products, and collecting a "bounty" when a student signs up for services.[3]

Vertical portals are similar to community portals but are generally structured by a particular vendor around a specialized business theme. Examples of vertical portals are the financial-service portals provided by Charles Schwab & Co. and E*TRADE. Among higher education service companies, Blackboard (http://www.blackboard.com) has integrated a portal around its course-management service, and PeopleSoft is offering a portal front-end for its enterprise resource planning (ERP) system.
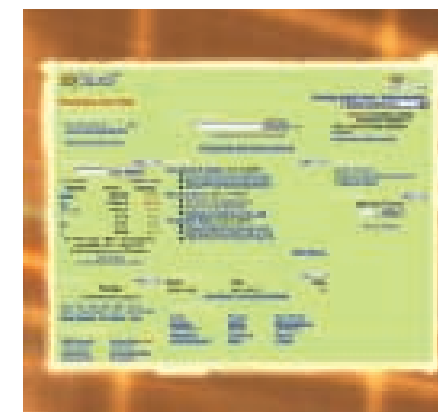
According to the Delphi Group's published survey results, 55 percent of Fortune 500 companies are already using an *enterprise portal* or have plans to develop one in the near future. Enterprise portals are intended to assist employees to be more efficient and productive by centralizing access to needed data services—for example, competitive information, manufacturing and accounting data, 401K information, and other human relations data. Enterprise portals often include news, weather, and sports feeds as a benefit for the employee, giving these portals the appearance of a community portal.

Corporate portal designers often buy specialized features from Application Service Providers (ASPs), such as Perks

At Work (http://www.perksatwork.com). In addition, a number of portal application developers have emerged to assist corporations with the internal development of their enterprise portals. Companies such as Epicentric, Plumtree, Autonomoy, and Verano have all created software tools that are designed to assist a company in bringing Web-enabled intranet data to the employee's browser in a "one-stop" portal.

Since campuses are often more complex and heterogeneous than corporations, we feel that the enterprise portal model gives higher education institutions the greatest flexibility to meet the diverse needs and constituents on and off campus.

WHY IS E-COMMERCE INTERESTED IN HIGHER EDUCATION?

Many college administrators were bewildered by the sudden onslaught of all the college.com companies in the back-to-school period of 1999. Why us? Why now? To answer these questions, we need to understand that economic incentives drive the world of Internet e-commerce and to note that most college Web sites have yet to take advantage of the applications that corporations are using to enhance productivity and build a sense of community.

As e-commerce investment has exploded, the entrepreneurial world has looked around the Internet and realized that the most connected population with the best commercial demographics is in higher education. Approximately 80 percent of higher education is already connected to the Web, compared

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with the average 39 percent of the U.S. population as a whole. Higher education also represents the most affluent, the best-educated, and in some segments of higher education, the most "brand ready" population group.[4] Moreover, since e-commerce business models tend to be tightly focused on building brand names to ensure customer loyalty in a fiercely competitive marketplace, college.com companies perceive the loyalty of students and alumni (and often parents) to the campus brand to be a valuable marketing asset. Others seek undergraduates, or alumni, because of the value of their demographics to advertisers. Thus, although campuses do not often think of themselves in terms of their "brands" or in terms of marketing demographics, higher education possesses extraordinary assets for e-commerce and should not give these assets to a college.com too cheaply or too quickly.

There are many different college .coms in the market, with more being created and announced every day due to the low barrier to entry, and others going out of business due to economic instability, consolidation, and other factors. To help distinguish one from another, the matrix below might be useful in mapping the roles and business models of these various competitors. The horizontal rows describe different segments of the higher education market, whereas the vertical columns refer to the content or service being offered by the portal.

Alumni consumer goods market. Several B2C college.coms focus on the alumni market segment. These portal companies contract with the campus alumni

organization to reach as many alumni as possible. The content is focused on consumer-oriented information delivered under the auspices of the university or college logo or brand name. The business model is built on the notion of providing e-commerce offerings: ads, shopping, and bounties.

Undergraduate consumer goods market. A significant number of B2C college.coms are focusing on the traditional college market: 18-to-24-year-old undergraduates. They offer students basic directory information about consumer goods, coupled with interactive communication tools (chat, polling, etc.). The business goal of these companies is to capture as many "eyeballs" as possible in order to sell banner advertisements and products and to sign up as many users for services as possible to receive cash bounties.

Business-to-education partnerships. A few companies have decided to develop B2B relationships with higher education institutions, seeking long-term partnerships to adapt commercial Web technologies to enhance educational values. This is a tougher road to follow, since the Web is often not yet perceived to be a strategic asset by colleges and thus no one person has the authority to develop a campus portal. The business models may involve both traditional product and service contracts and e-commerce elements targeted at students, parents, alumni, and so forth.

Undergraduate academic services market. College.coms in the final group aim portals at undergraduates but offer educational services, such as mentoring and

	E-Commerce	Academic Value
Campus Administration and Alumni	Alumni Consumer Goods Market (Business to .org)	Business-to-Education Partnerships (Business to .edu)
18-to-24-Year-Old Undergraduates	Undergraduate Consumer Goods Market (Business to Undergraduates)	Undergraduate Academic Services Market (Business to Undergraduates)

referrals to helpful research sites. However, some of these sites also refer users to term papers for sale and other forms of plagiarism and thus appeal directly to students without linking to educational institutions. The business model of college.coms in the academic services market is much the same as that of the first group—revenue from ads, shopping, and bounties.

This explosion of e-commerce interest in higher education began when entrepreneurs noticed that campuses have not often taken advantage of the portal technologies being developed for e-commerce, even though these technologies may have powerful educational promise. The majority of college Web sites contain a home page that is a "brochure" for the college (often under the direction of the Public Affairs Office) and perhaps pointers to other Web sites on campus. But campuses have rarely used portal or other Web-based options to customize and personalize information for different segments of the campus community or to turn the campus Web site from a reference site to a destination site that aims to attract and retain users or to create a virtual lifelong community. In effect, Internet entrepreneurs have quietly decided that if campuses aren't going to try to develop an Internet relationship with their constituents (students, alumni, parents, faculty, staff, corporate partners, etc.), then they will. Some are linking directly to the student audience, without any involvement by the campus, even in defiance of the campus. Others are attempting to work with one or more auxiliary departments or groups on campus. A few are attempting to become partners with campuses to make portals a tool that higher education institutions can use to develop and enhance lifelong educational relationships.

WHAT IS THE POTENTIAL VALUE OF A PORTAL FOR HIGHER EDUCATION?
The irony in all this is that the Internet and the Web largely originated in the higher education research community, and although portal technologies have developed for e-commerce, they could

be adapted to serve educational needs very well. E-commerce business models might serve as useful examples for economically sustainable Web-based educational services (at the discretion of the campus rather than a mandate by a vendor)—services such as digital libraries, alumni relations, or lifelong learning. However, the ideal campus portal would not simply import commercial technologies. Campuses are complex social and information environments that require a new model drawing on each of the types of portals described above.

The following examples show how a campus might begin to plan a portal-based innovation process. But higher education will surely adapt commercial applications in innovative ways to achieve unique campus needs and missions.

■ A data-centric or enterprise portal is important because of the information resources that the campus may want to provide to many of its constituents—not just students but also alumni, donors, and even parents.
■ Elements of a consumer portal will be needed, to provide relevant day-to-day information and to reach out to the 40 percent of students who are nontraditional undergraduates. Many students are adults in the real world—they are employees and parents—and certainly elements of a community portal will be critical to building lifelong loyalty and retention.
■ Portals should serve as an important publishing medium for the campus, sending some information to everyone but customizing other information to meet the needs of different segments of the community and allowing individuals to personalize their own portals.
■ Using polling technologies, portals can serve as a valuable tool for real-time institutional research and strategic planning.
■ Portals look both inward and outward and can provide a powerful medium for campuses to communicate with off-campus constituencies: prospective students; parents; stu-

dents who work or commute; alumni; business and government partners.

Existing budgets may already support these information management and communication functions, although organizational responsibilities may be diffuse. If a campus is prepared to reorganize around a knowledge management strategy, it is possible to achieve large returns on investment by redefining information resources as a service. The return on investment should be measured both in terms of cost savings and in qualitative terms, measured by entending and revitalizing the sense of participating in a campus community.[5]

So should a campus develop a portal? Increased efficiency alone suggests yes, but there are other benefits that make a personalized campus portal not only desirable but imperative. We believe that the value of a portal to a campus is that it can be used to *engage* constituent groups, *empower* them with access to information resources and communication tools, and ultimately *retain* them by providing a more encompassing sense of membership in an academic community.

Some campuses have already started developing educational portals to accomplish these goals. The University of Washington has developed MyUW (http://myuw.washington.edu). This portal site uses information in innovative ways that enhance the educational mission, personalizing student data (student debit-card totals, student course information) and providing faculty with ideas and resources for new uses of technology for teaching. The

UW portal seems to have the mission of creating an online community encompassing a diverse and complex on- and off-campus environment. And the MyUCLA site (http://www.my.ucla.edu), one of the oldest in higher education, provides a classic directory-style portal, ranging from new modes of accessing campus administrative data to relevant feeds from the *UCLA Daily Bruin.*

In strategic planning discussions about portals, campuses must think clearly about the return on investment they need and expect. They should answer the following questions:

- How will we extend the sense of membership in the campus community beyond the campus walls?
- How should we manage our brand and image?
- Can administrative costs be reduced by building more efficient modes of access to data and services?
- Can portals increase targeted admissions and acceptance rates and increase retention by fostering a sense of community?
- Can portals increase the quality of connection with parents and alumni, building lifelong educational relationships and encouraging increased financial support?

Such strategic questions are critical, for campus portals should be designed to enhance the academic mission, and there is no one simple formula for accomplishing this goal, given the great diversity of institutional missions and histories.

Campuses that decide to commit to building a portal will face issues beyond a "build-or-buy" decision. The Forrester

Group has estimated that corporations spend several hundred thousand dollars on their enterprise portals during the first year and up to several million dollars by the end of the second year. The following are some of the issues to consider in this decision-making process:

- What technology is needed? Is it available? Is it affordable?
- Who is going to do this? Do we have the in-house talent and engineering?
- Do we have the content needed for the audiences/constituents this portal is designed to reach?
- Do we have the ability to keep the site current, fresh, and engaging?
- How and by whom will the site be directed, maintained, and refreshed?

We believe these latter questions are the critical issues for higher education; the problem is not the absence of suitable technology. Many Research 1, Research 2, and even some small liberal art schools are now building portals using off-the-shelf tools or are licensing enterprise portals. Some campuses will likely share their technologies with one another; for example, North Carolina State University is making its MyLibrary (http://my.lib.ncsu.edu) open-source code available, and the JA-SIG group (http://www.ja-sig.org) also has a portal solution freely available to interested campuses.
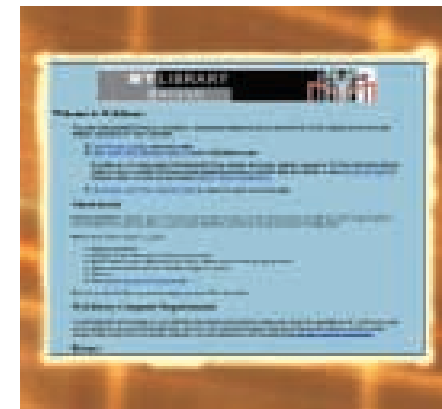
However, we believe the bigger issues to tackle are ones that affect sustainability: content, maintenance, and support. These issues are ultimately going to be the test of a good campus portal solution. Most current in-house portal projects

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FP JONES

35

have just begun to realize that a portal cannot be turned off once it is begun; thus campuses need to understand that recurring budgetary commitments are needed. But in addition, campuses must calculate what it will take on an ongoing basis to keep pace with the e-commerce world, which will be setting the standard for applications, tools, and content.

Why develop a portal? We believe that a portal is a means of renewing and extending a sense of academic community—learning communities, alumni or development communities, faculty communities—using the Internet. Every campus will have to decide how the development of these virtual communities can be affordable. What form should a return on investment take? The answer will depend on the culture of the community and its needs. In some communities, the notion of any type of commercialism will be unacceptable, and finding sources of funding such as departmental software budgets or fees will be necessary. For other communities, the idea of advertising or commercial sponsorship may be acceptable and may even be seen as a "value added" to the community as a whole. For instance, learning communities may appreciate sponsorships from publishers or research database companies. Student services communities may welcome sponsorships from potential employers and service providers (such as travel agents and financial aid organizations). These sponsorships can be provided with discretion and taste, not unlike the sponsorships found on public television. As for ongoing content and information, it will be important for campuses to collaborate with other institutions to keep academic communities alive and fresh. There is more and more technology available to support such cooperative work. And, most fundamentally, portals can be supported if they provide a more cost-effective means to accomplish goals that are already in the budget, such as publication and information management.

Finally, we believe that portals can be used to engage and retain students for a lifetime of education. Although new models of "digital marketing" are unfamiliar, and perhaps even alien in their campus.com incarnation, campuses can design and support portal-based "virtual communities" to extend traditional academic values and relationships into new markets. *e*

Notes
1. "Home on the Web," *PCMagazine*, September 1, 1998 (online version: http://www.zdnet.com/pcmag/features/webportals/intro.html).
2. These figures are taken from Nielsen ratings for the second week of January 2000.
3. A "bounty" is a lump-sum payment made by a commercial entity to a vendor (e.g., a bank may pay $50 for a vendor to sign up new users).
4. Marketers have long seen undergraduates as "brand ready," meaning that developmentally they are at a stage in which they will start making independent choices about which products and services they will buy—developing purchasing behavior that can last most of their lives.
5. See Gerald Bernbom, ed., *Information Alchemy: The Art and Science of Knowledge Management* (San Francisco: Jossey-Bass Inc., Publishers, 2000, forthcoming).