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Tracking the Progress of Portals and Web-Based Services

Kenneth C. Green, The Campus Computing Project

4772 Walnut Street, Suite 206 ◆ Boulder, Colorado 80301-2538 ◆ www.educause.edu/ecar/

Overview

In the campus community as elsewhere, technology accelerates both the potential for innovation as well as the pace of innovation. Some new technologies (such as wireless networks) move quickly across the campus community. Others, because of cost, scope, and complexity (and also, perhaps, because of organizational politics and personnel issues) take longer to define, develop, and deploy.

How, then, should we assess the arrival and progress of Web portals and Web-based services in the campus community? Without question, the deployment of portals and Web-based services (such as online and portal-based registration, fee payment, library resources, course content, and related campus services) is a complex and demanding information technology initiative. The implementation process involves a large number of institutional participants and campus offices, including administrative services, student services, information technology, academic departments, and the library, among others. Some observers characterize the process as one that involves a dozen or more campus offices, hundreds of people, and thousands of requirements. Portal development (or deployment, if the portal technology is purchased from a commercial firm) also requires campus officials to share both a vision for the portal as well as data and resources that will populate the portal.

By many accounts, the first campus portal services were offered by commercial firms.[1] Most cite the Campus Pipeline press release at the 1998 CAUSE Conference in Seattle as the first formal announcement of institutional portal services specifically developed for higher education. The years following that announcement have been filled with much discussion and debate, on campus and at conferences, focused on portal definitions, technology standards, student and faculty services in and on the portal, planning and implementation strategies, integration with campus information systems, and the merits of "build versus buy."

To date, the "data" informing these discussions have been limited to either institutional case studies—often interesting and informative, but frequently the unique experience of one college or university—or the aggregated experience of a particular portal provider's clients. Missing from both the campus discussions and the conference presentations have been hard data, covering all sectors of higher education, to track both the deployment of campus portals and the availability of a wide range of institutional services on campus Web sites. This Research Bulletin draws on the 2002 Campus Computing Survey[2] to profile the status of portal deployment and Web-based services at American colleges and universities. The survey data are based on the responses of CIOs and other senior campus IT officials at more than 630 two- and four-year public and private colleges and universities across the United States.

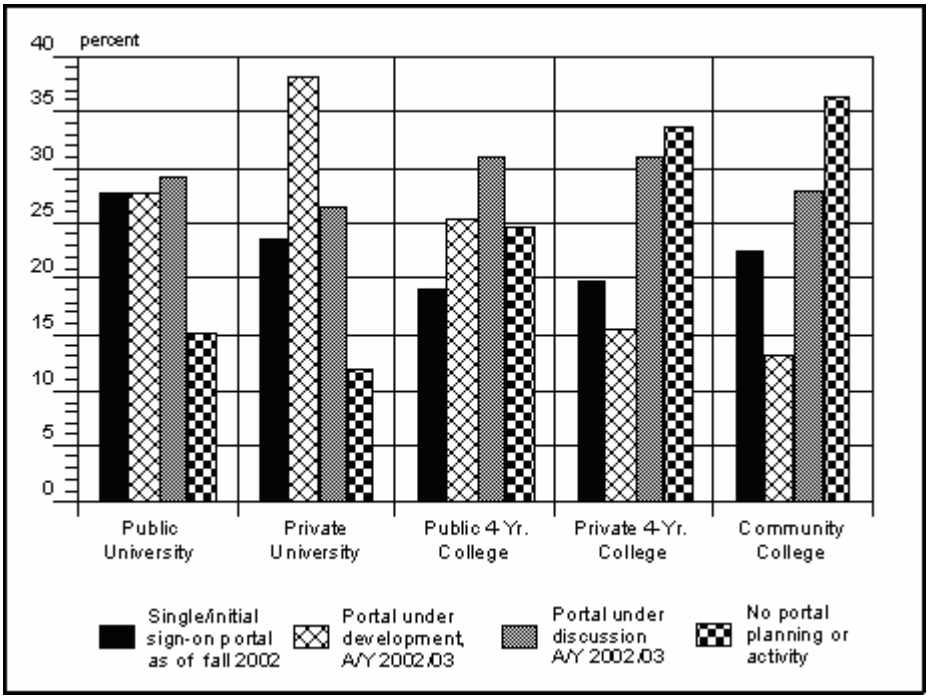
Highlights of Campus Portals Progress

The 2002 Campus Computing Survey data provide a wealth of information about campus portal development, portal planning, the relationship between Web services and portal development, and overall gains in Web-based services.

Profile of Campus Portals

American colleges and universities are making real progress in developing and deploying campus Web portals. One-fifth (21 percent) of the campuses participating in the 2002 Campus Computing Survey reported that they had a "single/initial sign-on campus portal" up and functioning as of fall 2002; another fifth (20 percent) reported that their campus portals were "under development" or being installed in the 2002–2003 academic year. Just under one-third (30 percent) indicated that portal issues are now "under review/discussion" at their institutions; only 29 percent of campuses indicated no portal planning or related portal activity. Interestingly, while dramatic differences often appear on IT deployment issues across sectors, the 2002 survey data reveal that the portal "deployment gap" is just 11 percentage points—from a high of 28 percent in public universities to a low of 17 percent in private four-year colleges[3] (see Figure 1).

Figure 1. Campus Portal Deployment (percentage by campus sectors, 2002)



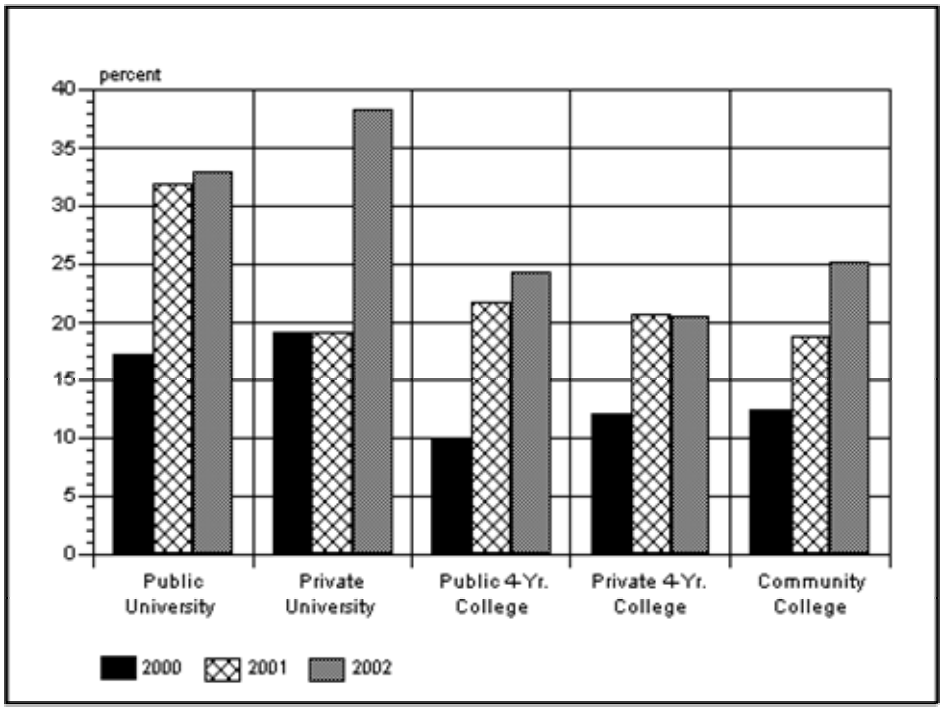
As noted above, the campus conversation about the role and value of Web portals began in late 1998. Consequently, the summer 2002 survey data documenting portal deployment suggest that Web portals are making the transition from an abstract concept to a real institutional service. The speed at which campuses have developed and deployed portals—some homegrown, others acquired from commercial providers—is striking. Between fall 1998 and fall 2003, approximately two-fifths of U.S. colleges and

universities will have deployed portals, reflecting a diffusion of campus portals in almost "Internet time"—moving from zero to forty (percent) in just five years.

Planning for Portal Services

Other data from the 2002 Campus Computing Survey confirm the campus commitment to Web portals. For example, one-fourth (25 percent) of the campuses participating in the 2002 survey reported a strategic plan for portal services, up from 21 percent in 2001 and 12 percent in 2000. Another third (33 percent) are now developing portal plans, compared to 30 percent in 2001. Compared to other sectors, public and private universities are more likely to have strategic plans for portal services (see Figure 2). Additionally, campus officials now assign a higher institutional priority to portal issues than in the past. Survey respondents, typically campus CIOs or other senior computing officers, rated "providing a campus portal for Web-based student services" at 5.5 on a 1 to 7 scale (1=not important, 7=very important), up from 5.3 in 2001 and 5.2 in 2000. The largest gains in portal priorities occurred among public four-year colleges, rising from a rating of 5.2 in 2000 to 5.7 in 2002, and in community colleges, rising from 4.7 to 5.2 during the same period.

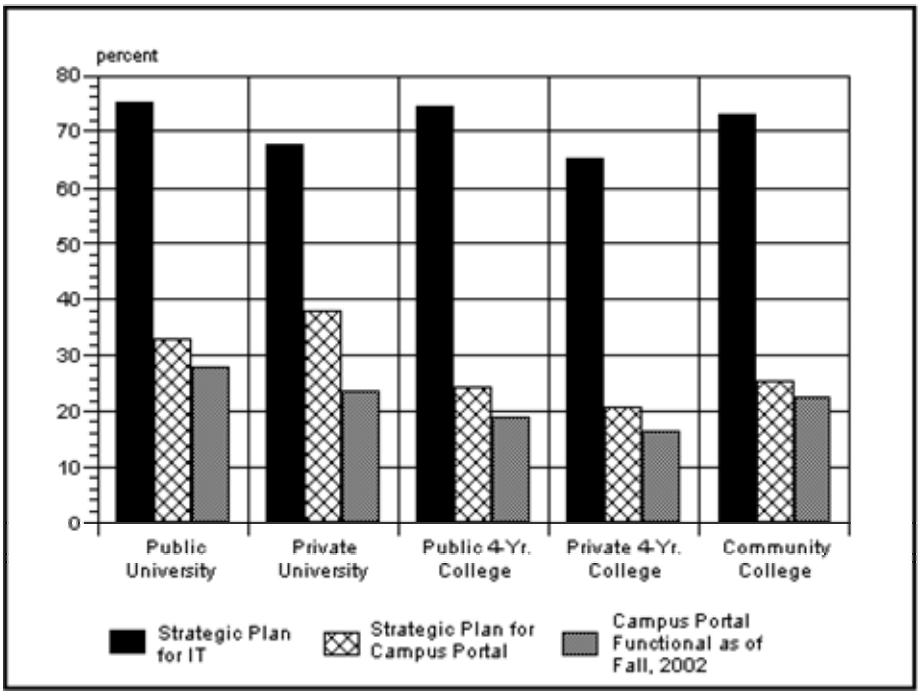
Figure 2. Campuses Reporting Strategic Plans for Portal Services, 2000–2002 (percentage by campus sectors, 2002)



However, even as growing numbers of institutions across all sectors report both operational portals and strategic plans for portal services, the data suggest that portal planning initiatives have not yet been well-integrated into the overall IT strategic planning effort on most campuses. For example, more than two-thirds (71 percent) of respondents reported strategic plans for information technology, while only one-fourth (25 percent) reported a strategic plan for campus portal services. Although the gap

between campus IT plans and plans for portal services is large across all sectors (see Figure 3), it is greatest in public four-year institutions (76 percent versus 24 percent). The gap is smallest in private universities (68 percent versus 39 percent).

Figure 3. IT Planning, Portal Planning, and Portal Deployment, 2002 (percentage by campus sectors, 2002)



Highlights of Web-Based Services Progress

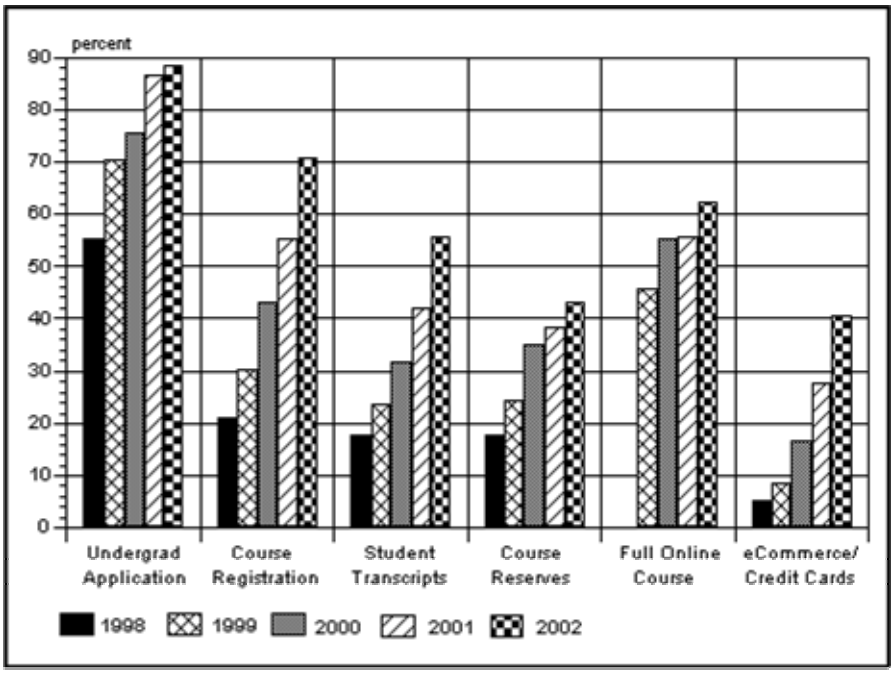
The 2002 Campus Computing Survey data show continuing gains in the availability of Web-based resources and services (see Figure 4). For example, the percentage of campuses offering online course registration and online transcripts more than tripled between 1998 and 2002. The percentage offering online credit fee payment (credit card payment) was up by a factor of seven, from 6 percent in 1998 to 41 percent in 2002. During the same four-year period, the percentage of campuses offering online course reserves more than doubled.

Moreover, the institutional commitment to enhanced Web-based services has not slowed despite recent budget cuts affecting campuses in general and information technology resources in particular.[4] Indeed, between 2001 and 2002, among campuses surveyed, the percentage of institutions able to process online credit card payments is up two-fifths (from 28 to 40 percent), online registration services are up almost a third (from 55 to 71 percent), and course reserves are up an eighth (from 38 to 43 percent).

Although these gains in online campus services are striking, they are less impressive when compared to the experience and expectations of U.S. college students, ages 17 to 57, who come to campus to *learn about* and to *learn with* technology. Their expectations about campus services and Web-services have been fostered by their off-campus,

online experiences at Amazon.com, Abercrombie, Gap, eFollett, Land's End, Charles Schwab, and other retail Web sites.

Figure 4. Trends in Online Services, 1998–2002 (percentages)



Most college students—full-time undergraduates living on or near campus; commuting students attending metropolitan four-year institutions or community colleges who come to campus once or twice a week; or executive MBA students on campus one or two weekends a month—can easily access information about their bank, credit card, and cell phone accounts on the Web and have come to expect customized Web services and support. Yet these same students often do not have routine access to comparable services—online transcripts, course registration, financial account or financial aid information, among others—from the colleges they attend. Indeed, the Campus Computing survey data suggest that many campus Web sites and online campus services lag well behind the consumer sector.

Web Services and Portal Deployment

Given the progress in Web-based services, the question arises as to whether the presence of a campus portal affects the range and scope of online services institutions provide their students. In fact, many campus officials involved in portal planning and deployment describe the process as a catalyst for adding new services and resources to the institutional Web site. However, the data in Table 1 suggest otherwise, indicating that, across all sectors, campuses have moved services to the Web ahead (sometimes well ahead) of portal deployment. For example, while only one-fifth (21 percent) of the survey respondents reported an operational campus portal as of fall 2002, more than two-thirds (71 percent) provided online course registration, three-fifths (59 percent) offered online add-drop services for classes, and two-fifths (43 percent) offered online

course reserves. In fact, statistical analysis shows only very small (positive) correlations between functional portals and the presence of various Web-based services.[5]

Table 1. Portal Status and Web-Based Services by Sector, Fall 2002

	All Institutions	Universities		Four-Year Colleges		Community Colleges
		Public	Private	Public	Private	
Number of Institutions	632	73	34	143	227	147
Operational Campus Portals (percent)						
Functional As of Fall 2002	21	28	24	19	20	22
Web-Based Campus Services (percent)						
Core Information Services						
Undergraduate admissions application	88	99	91	90	89	80
Financial aid application	70	85	71	72	62	72
Current course catalog	92	100	94	92	90	93
Program/major/degree requirements	83	85	88	87	84	76
Course Registration and Payment Services						
Course registration	71	92	85	79	52	80
Course add/drop options	59	89	65	70	41	62
E-commerce (such as fee payments)	41	70	47	50	24	42
Online courses (fully online)	63	90	56	78	36	78
Student transcripts	56	75	74	62	41	61
Course Content and Library Services						
Library/card catalog	88	99	94	90	89	78
Interlibrary loan services	71	92	82	83	71	47
Journals and reference resources	76	95	88	82	82	54
Course reserves	43	74	65	50	44	18
Technology Resources and Support Services						
IT support resources	76	99	88	83	77	53
IT training/tutorials	56	82	79	60	55	33
Instructional software	44	74	65	50	41	25
Miscellaneous Information Resources and Support Services						
Faculty/staff directory	93	97	94	94	91	93
Student newspaper	50	77	77	57	47	29
Student handbook	63	80	77	70	64	44
Athletic event schedule	82	97	85	90	88	57
Alumni information/services	72	89	88	85	83	31
Press releases/media services	78	96	94	85	83	49
Campus book store	64	71	79	73	61	56
Personalized student calendar	20	29	32	22	19	16

That portal deployment appears to lag, not lead, the migration of campus resources and services to the Web is not surprising. Campuses began implementing Web-based services before the advent of portals. However, portal planning and deployment has provided a much needed organizing imperative: the intended sum (the campus portal) is greater than the parts (the individual service and resource components). The campus portal can (indeed, should!) provide added value in a multitude of ways—by organizing the individual services scattered across campus Web pages, serving as an institutional umbrella for reviewing and standardizing these services, providing an opportunity for a customized view of services, and enhancing a sense of community.

At the same time, aggregating and integrating various Web-based services under an initial or single sign-on campus portal requires careful and collaborative planning. The deployment challenge is significant because it requires individuals and institutions to explore and assess new technologies, integrate many data resources, implement security and privacy protection, resolve control and resource issues across many departments, and implement new institutional policies. Significant progress has been made, but challenges remain.

Web-Based Services by Sector

Table 1 reveals important similarities and differences with respect to the availability of Web-based services across the various sectors of American higher education. For example, across all sectors the most widely available Web-based campus services are faculty/staff directories (93 percent), current course catalog (92 percent), library/card catalog (88 percent), undergraduate admissions application (88 percent), and program/major/degree requirements (83 percent). In contrast, across all sectors the services least likely to be offered on the Web include personalized student calendars (20 percent), e-commerce services/fee payments (41 percent), course reserves (43 percent), and instructional software (44 percent).

Public universities generally provide more Web-based services than other sectors, leading on 22 of the 24 indicators of Web-based services presented in Table 1. Not surprisingly, private universities are second, followed by public four-year colleges. This most likely reflects the fact that these institutions, as a group, benefited from earlier and larger investments in IT than did other sectors. The size of public universities and the corresponding size and range of their (often specialized, sometimes competing) IT organizations frequently resulted in separate but simultaneous initiatives. For example, on some campuses individual service units, such as admissions, library, registrar, and alumni/development, developed specific Web-based services at their own pace, for their own Web pages, before—or even as—the campus began a larger, coordinated effort to plan for portal deployment.

Community colleges generally lag behind four-year colleges and universities on most Web-based service metrics, ranking last on 16 of the 24 indicators presented in Table 1. However, it is important to acknowledge that this sector has generally received less—and later—support for IT infrastructure and investment than other sectors, both public and private. Yet, even under these resource constraints, community colleges are often on a par with public four-year institutions (and ahead of private four-year colleges) on six

Web-based student services: course registration, add/drop services, online courses, student transcripts, e-commerce/credit-card transactions, and financial aid applications. These core student services have been given high priority in community colleges and are essential to supporting their often large student populations, including many older, part-time, and commuting students.

Public institutions are more likely to offer online courses than are private colleges and universities. Ninety percent of public universities offer at least one complete online course, followed by community colleges (78 percent) and public four-year institutions (78 percent). In contrast, just over half (56 percent) of private universities and a third (36 percent) of private four-year colleges offer at least one complete online course as of fall 2002. Institutional size and mission, the decentralized management of departmental IT resources and online courses, and market opportunities in selected fields may help explain why public institutions are more likely to offer online courses than their private counterparts.

In contrast, private liberal arts colleges have demonstrated far less interest in online courses and degree programs. As of fall 2002, fewer than a fourth (24 percent) reported at least one complete online course. This is not surprising because many of these institutions embrace a “high touch” philosophy associated with more traditional classroom-based instruction supplemented by Internet resources. Indeed, within the cluster of four-year private colleges, which include both master’s level institutions and more traditional liberal arts colleges, it is the private master’s institutions that have been entrepreneurial about complete online Web-based courses and degree programs, often focused on graduate courses in business and education.

Processing Web-based credit card payments remains a challenge across all sectors. Although the percentage of institutions offering Web-based credit card services has risen dramatically in recent years (from 6 percent in 1998 to 41 percent in 2002), the overall number is generally low compared to other kinds of Web-based services. Two factors may help explain the low numbers for Web-based credit card payments.

- Web-based fee payment, like portal planning, is a complex process involving many campus units. A full-service e-commerce option for tuition payments might also include the ability to pay accompanying fees for student activities, health services, lab supplies, departmental charges, campus parking, and perhaps even coursepacks from the book store or campus copy center. Each additional participant (parking, student health, library fines, activity fees, bookstore) involves an accounting allocation. In contrast, cash, check, or even credit card payments made by mail or at the counter in individual offices can be deposited directly into the appropriate departmental account. Consequently, these Web transactions involve specialized fund accounting that can also complicate deployment of Web-based credit card services.
- Colleges and universities, like commercial enterprises, are required to pay transaction fees, ranging from one to two percent of the transaction, to the banks that process the credit card payments. Transaction fees on $10 million (not to mention $50 million or $100 million for a very large institution) represent

significant dollars: many institutions view these transaction fees as “cash lost” rather than operating costs, even if a broader cost-benefit analysis shows other savings (such as eliminating bad checks, faster access to cash, and redeployment of personnel to other services). Moreover, these transaction fees do not include the initial acquisition and licensing fees for Web-based banking software. Finally, on some campuses there may also be concern about students taking on more debt with credit cards.

Web-based library services, as reflected in an online card catalog, are essentially ubiquitous across all sectors—operational at 90 percent or more of public and private four-year colleges and universities and available at three-fourths (78 percent) of community colleges. Similarly, online journals and reference resources are available in roughly 90 percent of universities and approximately 80 percent of four-year colleges, but limited to just over half (54 percent) of community colleges. Historically, librarians have been eager and effective advocates for migrating library databases to the Web, and many institutions began to convert paper-based card catalogs into digital databases well before the emergence of the Web. Consequently, efforts to migrate library databases into Web-based services posed fewer challenges for many institutions than did other kinds of Web-based services.

Other kinds of library resources and content services are less common, however, and show more variation across sectors. Not surprisingly, there are significant differences in the availability of online course reserves, ranging from three-fourths (74 percent) in public universities to less than one-fifth (18 percent) in community colleges. Certainly the complex internal and external issues that must be resolved to support online course reserves—publisher permissions, document conversion, posting and security, as well as the permission fees—demand resources that are more likely to be found in larger, frequently more affluent, institutions.

What It Means to Higher Education

The path to providing campus portals and Web-based services is laden with reminders that the significant technology challenges confronting colleges and universities today are about more than products or managing the technology itself. The challenges ahead require the thoughtful and balanced deployment of both “high touch” and “high tech” resources. In the end, the service challenges focus on reaching consensus on institutional policies and priorities and then mobilizing people and resources to attain these service goals and objectives.

In this context, the campus discussion about portals has come full circle. Begun as a metaphor for describing online campus services, portals are now an organizational metaphor as well as an operational imperative for campus efforts to move resources and services to the Internet.

Key Questions to Ask

- Does your institution have a strategic plan for portal deployment? Is the portal plan integrated into the IT strategic plan?
- Which Web-based services does your institution provide? Which services are not provided? Is there a plan for adding or enhancing Web-based services?
- What services are most important, given your institution's mission and clientele? What services are most important, given student needs and expectations?
- How does your Web-based services portfolio compare to similar institutions, such as those in the same sector classification? Are the similarities and differences significant in the context of institutional mission, mandates, and student expectations?

Where to Learn More

- James P. Frazee, "Charting a Smooth Course for Portal Development," *EDUCAUSE Quarterly*, Vol. 24, No. 3, 2001, <http://www.educause.edu/ir/library/pdf/eqm0134.pdf>. This article won the 2002 *EDUCAUSE Quarterly* Contribution of the Year Award.
- Kenneth C. Green, *Campus Computing 2002: The 13th National Survey of Computing and Information Technology in American Higher Education* (Encino, Calif.; Campus Computing, December, 2002), <http://www.campuscomputing.net/>.
- Richard N. Katz and Associates, *Web Portals and Higher Education* (San Francisco: Jossey-Bass, 2002), <http://www.educause.edu/ir/library/html/pub5006.asp>.
- Portals Community <http://www.portalscommunity.com/> has focused on planning and deployment issues affecting portal plans in corporate environments.
- *Portals Magazine* <http://www.portalsmag.com/> is also focused primarily on corporate portals.
- Additional materials regarding portal planning, development, deployment, and support are available from various companies, academic organizations, and consortia that provide portal tools and technologies.

Endnotes

1. Richard N. Katz, "It's a Bird, It's a Plane, It's a … Portal?" in *Web Portals and Higher Education,* Richard N. Katz and Associates (San Francisco: Jossey-Bass, 2002), <http://www.educause.edu/ir/library/pdf/pub5006d.pdf>.

2. Kenneth C. Green, *Campus Computing 2002: The 13th National Survey of Computing and Information Technology in American Higher Education* (Encino, Calif.; Campus Computing, December, 2002), <http://www.campuscomputing.net/>. The survey sample is a modified stratified sample of accredited two- and four-year public and private U.S. colleges and universities.

3. The sector "universities" includes the Carnegie research universities (extensive and intensive); the sector "four-year colleges" includes Carnegie master's and baccalaureate institutions; and the sector "community colleges" includes the Carnegie associate degree institutions.

4. 2002 Campus Computing Survey data indicate that 33 percent of the participating institutions experienced budget cuts in academic computing for fall 2002 and that 31 percent reported budget cuts in administrative computing. However, only 9 percent reported budget cuts affecting portal services, and 8 percent reported reduced funding for ERP software and services.

5. The correlations (r^2 values) for portal deployment and Web-based services, while positive, are also very low (less than .12) for most items presented in Table 1. Statistical data (r^2 values) for each Web-based service, analyzed by portal deployment status and sector, are available from the author.

About the Author

Kenneth C. Green (cgreen@campuscomputing.net) is director of The Campus Computing Project and a visiting scholar at Claremont Graduate University.