

University at Buffalo State University of New York

MyUB: A Personalized Service Portal

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Overview

In September 1999, the University at Buffalo became one of the first institutions of the Association of American Universities to implement a student computing access program, [url] *iConnect@UB*. By requiring access to computers, we can deliver state-of-the-art computing on a number of levels. We provide electronic and multimedia support capabilities for students not only in class, but also in labs, residence halls, the library, and off campus. In addition, the program provides the capability for students to access services virtually (e.g., course management platform, Web registration, Web-based advisement, and student progress toward degree completion tracking).

Central to the provision of these resources was the establishment of our portal—MyUB, the institutional infrastructure that provides students access to a wide array of research resources, instruction, and student services, and acts as an information platform for faculty, students, and staff.

Compelling Case for Change

UB's strong commitment to becoming a click-and-mortar university on both the academic and service side is represented by *iConnect@UB*. However, some significant challenges still must be resolved. Before the *iConnect@UB* initiative, UB's Web presence was made up of silos of niche Web sites: 17 Web servers and more than 250,000 cataloged Web pages plus an enormous volume of Web pages that were not cataloged. This volume of Web pages in no way ensured timely access to quality information. Nearly every site had a

different look and feel, navigational scheme, nomenclature, and search capabilities.

With a population of more than 60,000 community members, students could easily get lost and never discover the myriad resources available—the very resources that ensure academic success and build a sense of community. For large universities, retention during the freshman year is extremely challenging. Having access to technology increases communication between faculty and students. In addition, it also increases the proliferation of learner communities, a phenomenon that has been documented as having a direct effect on increased quality of student life and, therefore, on

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retention. With programs like the Freshman Experience (UB 101), shared-interest housing, and block registration already in place, we had a conduit for disseminating important information to some of our constituents. But we found that students still did not have access to, or knowledge of, all of the information and services available to them.

Because our challenge was to make good on our technology pledge, and to bring the full spectrum of online campus services to all students, we needed a vehicle that had the capacity for centralizing access of online services and reaching every student with meaningful, useful information. This environment was ripe for the development of a portal that organized and selectively linked all the student services and applications available, and provided a one-stop approach to finding information. MyUB was developed with these goals in mind.

Project Summary: Vision and Goals

“It has everything that I can possibly think about using online...I used to have all the different sites bookmarked as I found them, and then I decided to just bookmark MyUB.”

—Unsolicited e-mail feedback from Paul, UB Freshman

The vision for MyUB was to create a personalized service portal that decreases the distance between students, faculty, and student services, and increases the sense of community. This sense of community was considered in the planning of MyUB and is implicit in its every aspect.

Fundamental to that vision was the notion that the portal should provide fine-grained, time-based delivery of information, which means that each user who views MyUB will see different information based on his or her role at the university. All may see content that is germane to everyone, but, in addition, users will see more. “Fine-grained delivery” means that we can deliver information on one-to-one, one-to-many, and one-to-all levels. Student attributes such as major, minor, class level, and division (undergraduate/graduate) are used to deliver specialized and timely information and services directly to the student.

A number of specific goals established for MyUB relate to improving the quality of campus life for students, faculty and staff:

- ◆ Make it easy for students to find the information they need by providing an easy-to-navigate, personalized, and customizable portal.
- ◆ Create a portal that would coach students from orientation through graduation, growing and changing with them.
- ◆ Build awareness of the many virtual and physical campus services available to students.
- ◆ Encourage the use of MyUB as a proactive university communication tool.
- ◆ Have a tool that establishes learner communities and, therefore, aids in retention of students.
- ◆ Extend the services currently available by providing a secure platform and framework on which to introduce future Web services.
- ◆ Demonstrate full support of the *iConnect@UB* initiative.
- ◆ Show that UB is committed to a complete information technology infrastructure to support student needs.
- ◆ Gain recognition from and establish collaboration with peer institutions.

Translating these goals into reality has led to many specific projects. For example, in the “Program and Career Planning” area, all users see information about effective time management, but freshmen might also see information related to getting their academic program on track and studying effectively. A senior might instead see information about finding a graduate school and future employment. We can even tailor our information specifically to one student—to be viewed by that student alone—in the form of a display of back-end data. For instance, our information can become as individualized as displaying for students their current status for their major. Thus, a given user is only shown what is actually relevant and not distracted by irrelevant or even misleading information. Pages have higher value because of this added relevance and specificity.

We are working toward being able to deliver other fine-grained content, such as alerting individual students to problems before they become problems. For example, the system can alert a student who has an outstanding balance that she can’t register until the balance is eliminated. This would appear only to her upon log-in on her main display page in the “Need to Know”

channel. This is the area to which students refer for important institutional communications.

We also developed an application for content management and assigned a “cybrarian” to mine deeper for the right sites—not just the top pages, but the hidden gems that can match the needs of our students. Links that personally and actively reach out to students act as a system of online coaching and mentoring to make sure that students have access to the resources they need when they need them. It complements what the human advisor can provide by bringing the wide resources of UB to the student’s fingertips at any time of the day or night. For example, MyUB connects students with self-paced guides to writing better papers and performing academic research in the libraries.

The portal is also used to deliver “virtual thoughts” or proactive information to students about resources and services we think they might find useful at some point during their tenure at UB. For example, information about health and wellness services, student advocates, and counseling periodically comes up in the form of a virtual thought. These virtual thoughts inform students about services in a mentoring way that they can act on immediately or use as reminders when they need help.

The MyUB portal coaches students from orientation through graduation, growing and changing with them. This can be as passive as day-to-day weather conditions or upcoming academic and social events. It can be as active as calculating the grades they’ll need to make the dean’s list or providing access to information on what they need to meet degree requirements.

MyUB builds awareness of the many virtual and physical campus services available to students. Though many of us are alumni of UB and longtime staff members, even we didn’t know about the diversity and magnitude of what is available until we began to research UB’s vast services. We wanted students to get the deepest, richest experience possible by having fingertip access to resources they might never have discovered without this tool. Information is organized by topic or tasks that make sense to students because they are intuitive. This intuitive structure breaks existing organizational boundaries, allowing students to determine their own hierarchical needs. While our cybrarian works full time just to keep the information fresh, this process is invisible—and invaluable—to our students.

Encouraging proactive university communication, MyUB provides students with a sense of control over their academic and administrative records. Because MyUB provides status information—grades, majors, course schedules—students can “see” their data as administrators do and can proactively determine if it is accurate. An English major who is listed as an engineering major can contact his or her advisor to correct the error. We observed this effect during orientation when students first logged into their accounts and were able to verify the accuracy or inaccuracy of their information. Before classes even started, they were able to clear up misinformation with their advisors. The same is true for grades and schedules, allowing students a sense of control over their records and alleviating the frustration they sometimes feel at large universities of being just a “number.”

In all of this, our students are the ones who benefit most: they have the luxury of thinking and learning, rather than chasing down information and resources.

Lessons Learned: Leadership and Strategy

A confluence of several events preceded the development of MyUB. Our campus administration was ready for a paradigm shift involving technology. Not only were administrators willing to allocate funds and resources to build the infrastructure, but our chief information officer was already investing in training that developed communication and team-building skills for the university-wide information technology community. This created the ideal environment. Innovation grows best in an environment open to new ideas. We were fortunate to have top-down support from key administrators, including the chief information officer, the vice provost for educational technology, and the associate vice president for communications, to champion our proposals. This allowed us to sell the idea fairly easily and to begin working on a prototype. To get buy-in from as many campus entities as we could from the start, we started by educating them on the portal concept and demonstrating an early MyUB prototype. Within three months of showing the initial prototype, the project received initial funding and was linked with the student computing access program (*iConnect@UB*) for all entering freshmen.

Build versus buy. We began to design and build prototypes for MyUB in July 1998, before the JA-SIG uPortal product, portal framework products (e.g., Epicentric), e-learning portals (e.g., Blackboard 5), and “free” higher education portals were available. We had a clear business objective and only one way to achieve it—build it in-house.

Clearly this isn’t the only option available now. Most software vendors (e.g. Enterprise Resource Planning, Course Management Systems, Data Warehouses [**Au: are these the proper names of vendors or generic descriptions?!**]) have “portalized” their products and would like to convince you that their portal should be yours. Several framework products that provide building blocks for a portal (e.g., Epicentric, Plumtree, Oracle, Sun) are now available. The JA-SIG uPortal has matured and has been implemented at a small number of universities. Most application vendors, from PeopleSoft to Blackboard, have “portalized” their products.

We made the only decision available in 1998. If we had to start over again, we would build our own portal but use as many building blocks as possible. Rather than starting from scratch, we would use either a commercial portal framework product or uPortal. We would also investigate commercial content management systems and possibly purchase one rather than develop our own. We continue to stay informed on the development and maturation of these products and see these as viable long-term solutions.

There is no clear “best practice” for the build-versus-buy question because each institution has a unique situation with different legacy systems, integration challenges, technical resources, skill sets, organizational structures, culture, and information infrastructures. However, one practice can help ensure the correct approach is taken. Before even considering the build-versus-buy question, develop a clear campus portal strategy.

Developing a campus portal strategy. For the first two years of the MyUB project, we worked under an informal campus portal strategy, which the chief information officer supported. In short, the strategy was to build our own portal, focus on the student as the primary constituent, keep the portal free from advertising, and attempt to prevent multiple portals on campus. However, as the issues surrounding enterprise campus portals (both technical and nontechnical)

continue to expand in number and complexity, it has become necessary to develop a more formal approach. We recently developed a proposed campus portal strategy that is under review. [**Au: is it still under review or now in place?!**] The following describes the approach we have taken in developing that strategy:

- ◆ Develop the strategy with a group that is large enough to attain the appropriate diversity of input and allow you to build wider acceptance later, but small enough to get things done efficiently and effectively. What we’re doing at UB is developing the strategy with a small cross-functional group. A much larger group (the Administrative Systems Advisory Board) will review, critique, and eventually approve a strategy.
- ◆ Develop a clear assessment of your current situation as it relates to portal development. Address legacy systems, technical resources and skills, organizational structures, information technology infrastructures, integration challenges, and the amount of control desired.
- ◆ Develop an assessment of your business need for a portal. This will help gain the support and funding necessary to implement your vision successfully.
- ◆ Develop a list of technical principles that will guide your decision making. Establish principles on issues such as security, integration, technical architecture, interface design, content management, personalization, customization, system availability, and the university’s attitudes toward outsourcing and vendor selection.
- ◆ Develop a list of nontechnical principles that will guide your decision making. Make it clear where the university stands on commercialism in the portal. Address the issue of one portal versus multiple portals. Decide who your primary audience will be. Decide the primary and secondary objectives of the portal. Is it one-stop student services, integration of services, personalization, customization, improved organization of information, community building, pro-active communication, or something else? Decide what is most important, next most important, and so on. The objectives can’t all be the most important.
- ◆ Learn from the approaches that other universities are taking and from the mistakes they have made.

- ◆ Identify your institution's tolerance for the ongoing development and support costs associated with implementing a portal. Portal development requires iterative development. It's impossible to "complete" the entire portal and then roll it out. Therefore, both development and support costs will be ongoing. It's never done.

Other benefits of developing a strategy include the following:

- ◆ It identifies subprojects that must be completed before the portal can be developed. For example, many universities have determined that they need to improve their security and directory infrastructures before they can begin to develop their portal.
- ◆ It documents a common understanding of the project's objectives and helps to manage expectations from the beginning.
- ◆ It helps ensure that the initiative is in line with the university's business objectives.
- ◆ It helps prevent silos of portals from developing on campus.
- ◆ It helps in developing the long-term support that will be necessary for a successful portal.

Lessons Learned:

Building a Team-Based Approach

It's important to realize from the start that no single department has the skill set necessary to develop a successful enterprise portal. On the technical side, we required skills such as Web programming, database design, Web design, interface design, information architecture, system administration, and usability testing. On the nontechnical side, we required people who realized the potential of the portal as a tool for improving student services, enhancing the university image, and providing proactive communication and who possessed deep knowledge of many functional areas within the university.

Culture change. Different skill sets and mind-sets were brought to this project: two different reporting units (Creative Services and Administrative Computing Services), two different cultures, and two different sets of expertise allowed this project to come together in unexpected ways. Creative Services brought to the table years of experience in communications and marketing;

in addition, it had fostered the UB Web team responsible for the university's external communications.

Administrative Computing Services brought an expertise in application development and systems analysis as well as the tools for a more formalized approach important for a university-wide infrastructure. The collaboration was successful because an environment was in place in which people valued each other's input to a point where the lines blurred. This fostered team thinking and broke down barriers, hierarchies, cultural differences, and silos that had existed for years, encouraging collaboration among diverse groups. We became a cross-functional team that drew upon necessary skill sets that did not exist in one department alone. We partnered marketing people with technology people as the core team. We made each other stronger and, by working together, added a dimension to the project that we could never get on our own.

Aligning information technology objectives with sound business practices. When you're building a cutting-edge application, you must align your information technology objectives with sound business practices. We made use of the existing, mature Web team and Web application specialists for vision and a good cross section of talent. These two groups working together kept the front end usable and navigable while maintaining back-end efficiency. Because it was a project based on business needs, trust was built, allowing the product to expand beyond its core team. We engaged the university with the MyUB concept and created a large group of key partners, including Communications, Computing & Information Technology, the Office of the Provost, the Libraries, Student Affairs, Records and Registration, Advising, and many more.

Technical education. MyUB was written primarily in Perl, a high-level programming language. It derives from the C programming language and, to a lesser extent, at least a dozen other tools and languages. Perl's process, file, and text manipulation facilities make it particularly well-suited for Web programming and countless other tasks. It was the right tool for the job, but it presented a challenge. Administrative Computing had only one Perl expert. Therefore, we instituted a plan to educate additional staff members through off-campus course offerings and on-the-job experience. The investment proved valuable because having an on-site, departmental expert significantly helped the new Perl

advisors to get a general idea of how receptive students were to MyUB.

In June 2000, we rolled out MyUB to all undergraduates, rather than to all students. This allowed us to focus on undergraduate content, working closely with faculty and staff who provide student support services and/or would be providing content for MyUB. This also gave us the ability to assess the demands that would be placed on the cybrarian and prevented us from getting in over our head with respect to content.

[Au: this book will be published in March 2002, which makes this paragraph dated. Can you please update?] To this day, we have remained sensitive to the fact that not all students had MyUB. We have chosen not to “mass market” MyUB and, as a result, have received very little criticism for having a limited rollout. This will no longer be a concern in August 2001, as MyUB will be rolled out to all remaining students.

Lessons Learned: Building Support

A project like this is as successful as our ability to get stakeholders to commit to it. We spent a great deal of time building relationships with stakeholders, who take many forms: those who support resources and funding; those who develop and maintain content; and, most important, those who have made MyUB an integral part of their business practices and who are most responsible for promoting usage to our student audience.

Building a stakeholder base. Perhaps the best way to encourage participation and ownership is through regular, solicited critique from stakeholders. This allows them to build ownership by collaborating with us, and it shows them that we value their input. This is done initially with face-to-face “dog and pony” sessions, where we brainstorm with them on where to grow MyUB. This is followed up through stakeholder communications—one-to-one and one-to-many—and a regular listserv updating everyone of statistics, new features, and other information. We then store collected comments and suggestions in a “parking lot,” implementing some solutions immediately and reviewing others every six months. In addition, the cybrarian holds regular, ongoing meetings with all stakeholders to assess and reconfigure content modules to conform to the evolving needs or expectations of both stakeholders and users. These sessions confirm the currency and accuracy of our resources,

provide opportunities to share usage data, and over the long-term help reinforce content management practices as well as a deeper understanding of the portal itself.

Ensuring that stakeholders have access. Because personalized MyUB accounts are fine-grained rather than generic, everyone has different views. But stakeholders have to be able to see what the students see to guide and advise students properly. We created a guest account at [url] www.buffalo.edu/aboutmyub that allows stakeholders and visitors to view MyUB through different eyes. This also allows prospective students to sample MyUB and the myriad offerings UB has.

Educating the campus community. In the early stages of the MyUB project, it was impossible to “show” potential content providers the end product. Not having a “product” made developing buy-in at the department/functional level a challenge. It was difficult to educate the campus community about something they could not see; nor could they imagine pertinent information until it was live. We presented prototype versions, which received enthusiastic reactions but little in the way of active participation. Instead we received passive support. Because it was a pilot program, many stakeholders were not ready to invest their time. However, when MyUB was launched and they were able to actually see how their department’s materials were being displayed, they became much more active because they had something to react to and get involved with.

Addressing stakeholders who “think brick.” Many stakeholders look at their services and interactions with students from a brick, rather than a click, viewpoint. It is difficult for them to step back and think how best to deliver services and what the students’ actual needs are once the brick structures are removed. For best success, stakeholders need to redesign the delivery of services from a student-centered perspective and anticipate the need for services as well as provide a platform for delivery.

Lessons Learned: Continuous Improvement

Throughout our continuous improvement cycle, we’ve learned many important lessons about developing an enterprise portal.

An enterprise portal is never finished. Working with our stakeholders, doing usability testing and generating team ideas, we identified more than 250 infrastructure enhancements and new applications we

hope to develop. The infrastructure enhancements include projects such as extending the personalization and customization capabilities of MyUB, improving usability, developing more powerful search capabilities, and extending capabilities of the content management system. New applications range from integrated Web-based e-mail to better integration between applications, such as the course catalog, the Web student degree audit reports, and Web registration.

The lifecycle of content is continuous. Content must always be attended to through maintenance. Providing content management for a university portal is continuous and time consuming and requires input from a very wide group of stakeholders. We now have more than 200 content stakeholders providing content for MyUB. The information is culled from more than 250,000 cataloged pages and across 17 servers. This represents only a portion of the content available in the .buffalo.edu domain. In keeping with MyUB's "quality not quantity" philosophy, the cybrarian deep mines .buffalo.edu Web content by review and by working with stakeholders to produce a selection of quality content for specific audiences. A good example of this is tuition. A search of the .buffalo.edu domain nets more than 1,000 results for tuition. MyUB recommends the one logical link to content most relevant to the user. For example, an international student, graduate student, and undergraduate student each would receive a link to the tuition page most relevant to them.

The cybrarian, using the MyUB content management system, is responsible for monitoring and maintaining content through the following:

- ◆ *Automated link checks.* The cybrarian prepares nightly reports on broken links. Through e-mail reports, the cybrarian targets replacement Web pages to which the MyUB entries can be redirected. In cases where the information has been discontinued, the cybrarian contacts content stakeholders

to provide new information or to affirm removing the resource.

- ◆ *Manual review.* The cybrarian constantly sifts through data and identifies pages that are not current.
- ◆ *Stakeholder review.* Stakeholders proactively notify the cybrarian of changes in page content or location as well as information that is being discontinued.
- ◆ *Setting lifecycles* (publish and expire, renewal). For information that has a known life span or time sensitivity, the MyUB content management system is capable of displaying resources for a specified block of time to accommodate user needs (for example, late spring interest in summer jobs) or the natural life cycle of an event or opportunity (such as commencement). We plan to develop automated back-end features that will allow the MyUB content management system to recognize that specific entries may be cyclic in nature and display them regularly (by month, semester, or year) or at least alert the cybrarian to reset the display dates proactively.

We would like to extend our content management system by allowing for controlled distributed content management. [Au: please make reference to Figure 21.3 here.]

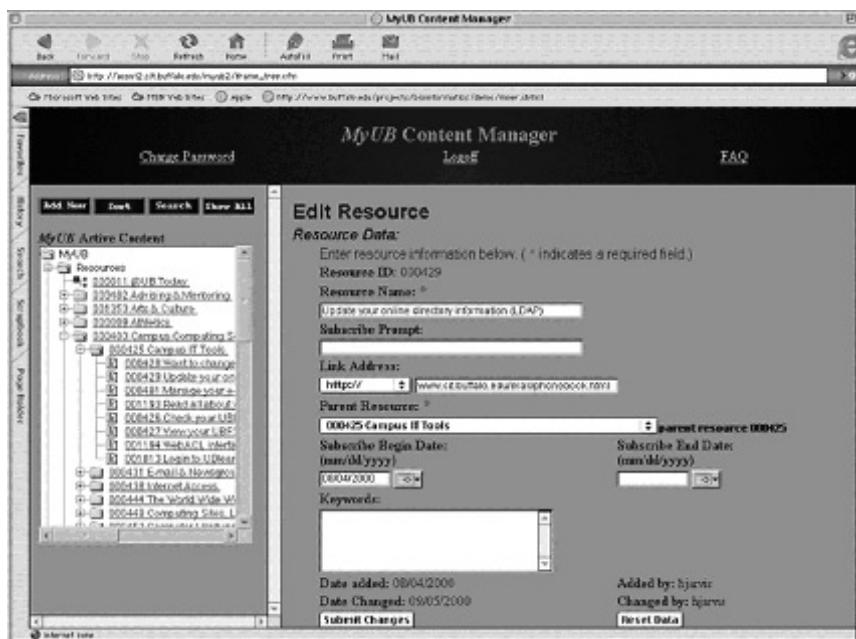


Figure 21.3
MyUB Content Manager

Portals are content driven. We made sure that the portal was sufficiently staffed for maintaining a constant flow of content. We knew we needed an information coordinator (cybrarian) along with an editor to provide guidance and organization. As liaison, our cybrarian communicates with stakeholders, cultivating resources from the various service units, grouping them into sensible bundles, and placing them in effective locations in the portal. This role is two-way. The cybrarian educates the information providers on how the portal can most effectively deliver their informational content to users. In return, providers educate the cybrarian on which users need what services, how, when, and why. This will become even more important as the user base and delivery mechanism (e.g., fine-detail) become more complex. Finally, the cybrarian reports back to the stakeholders on actual user behavior so they can react to actual user needs (inside and outside the portal), better understand their users for future planning, and provide improved information for the portal. In one example, our cybrarian worked with our campus information technology literacy group to promote UB's new online parking hangtag registration service. Independent confirmation of the importance of this service to students came not only from its click-through but from the number of students proactively searching for it using MyUB's QuickSearch. This analysis affirmed the importance to the stakeholder and ensured the portal was handling information delivery effectively.

In addition, the cybrarian manages the database that contains the informational content of the portal. The database includes the titles and URLs for each link and a series of additional fields: "subtext" (descriptive field used by and displayed in searches), keywords, content life span, and access control (which user groups can view the resource). All of this information is managed in conjunction with stakeholders, user needs (from usability tests, e-mail feedback, and campus media), and user behavior (search keywords and Web server logs) as well as library cataloging methods (such as keyword indexing). With each addition or adjustment to existing content, frequent changes are required in other related or similar entries to provide the most effective search returns and concise page displays.

Listen to the customer. Our stakeholders' assessment of needs, wants, and abilities in the e-world were not always in agreement. While stakeholders might

Student Services Trends	Status
Change/Organizational Management	○
Student-Centered Services	○
One-Stop Service Centers	○
■ Redesigned processes	○
■ Generalists/Specialists	○
■ Cross-functional teams	○
■ Measurable outcomes	○
Web Portal	●
■ Personalized	●
■ Customized	●
■ Community oriented	◐
■ Process oriented	◐
Service Support Center (telephone/e-mail)	◐
Customer Relationship Management (CRM)	○
Document Management	●
Back Office Process Redesign	◐
Year Recognized	2001
<ul style="list-style-type: none"> ● <i>In production</i> ○ <i>Implementing</i> ◐ <i>Planning</i> ◑ <i>Designing</i> ⊙ <i>Not intended</i> 	

be familiar with what students want in the physical world, their information needs and abilities to fulfill them in the virtual world may differ. One of the ways we listen to the customer is through QuickSearch. All language from MyUB searches is logged, including whether the search was successful (matches found) or unsuccessful (no matches). In addition, a pop-up satisfaction survey randomly appears, allowing users to indicate their satisfaction with the search results. A weekly report is then generated automatically and e-mailed to the content manager. This information is used to adjust database content with new entries, changes in language, and new keywords to accommodate user needs and expectations better. This also identifies holes in content; our cybrarian then works to educate the appropriate stakeholders about student needs.

Ongoing usability testing is essential. Usability studies were conducted as part of our continuous improvement and monitoring effort. Their results were extremely useful and eye opening. For example, we immediately discovered that our URL, [[url](#)] MyUB.buffalo.edu, was not at all intuitive, so we redirected the intuitive URLs to the actual MyUB URL to compensate. We learned that our help and feedback pages were confusing, so we reorganized our thinking and approach to them. We clustered help and feedback resources so this section became a one-stop service channel for help, feedback, questions, FAQs, and finding information. We set up user-defined e-mail routing where end-users select a category for their message and that automatically routes it to the appropriate stakeholder group to answer. We also learned that students favored a relatively small link called an Info-Locator anytime they were asked to find anything. Because that phrase seemed to have strong affinity across the board for all our test subjects, we implemented a tab called Info-Locator, which houses tools for finding information at UB, such as searches, directories, and information-base resources. For a complete summary of the findings, see [[url](#)] www.buffalo.edu/aboutmyub/info/usability. **[Au: I couldn't get to this site. Is the URL correct?]**

This study formed part of a Web development course run by MyUB team members. Students surveyed other students and coordinated a series of usability tests on specific aspects and features, including design, navigation, wording, and content. The usability tests were based on Jakob Nielsen's approach to usability. Nielsen recommends watching users as they attempt to perform tasks with the user interface in order to determine which designs work best. The tests were videotaped for future analysis. In addition, student assistants periodically interview small groups of students about design, language, and content issues. Knowledge learned from these studies is immediately used to improve the portal and the applications within.

Choose at least one service application that everyone loves. Doing this will improve your odds of success. Obviously, applications like Web registration, academic progress, and grades help build a lot of traffic to MyUB. But other applications we've implemented—such as the schedule wizard, GPA calculator, graphical schedule, MySchedule-UBlearns (blackboard)

integration, news, and weather—help draw in students on a more frequent basis. Web-based e-mail in the portal is the ultimate sticky application, and that project is currently under way at UB.

Lessons Learned: Building Awareness

The challenge to marketing MyUB was developing a plan that respected MyUB's "quality not quantity" philosophy, which allowed access only to a segment of the university. Initially, we rolled out MyUB as a pilot program only to freshmen, followed by all undergraduate students. Because the project was rolled out to a limited audience, we had to be sensitive to the fact that not all students had MyUB. Mass marketing was not an option, so we chose "viral marketing," a strategy building on our practice of integrating MyUB into constituent business practices. **[Au: I added "viral marketing" here because I'm not sure readers will know what it is without a definition. OK?]**

The effect of good viral marketing depends on person-to-person interaction and goes beyond building awareness. It can effect change in user behavior and promote integration of the product into business practices and lifestyle. This type of marketing relies on stakeholder-to-student communications that promote reliance on MyUB to perform tasks as well as student-to-student communications that affirm the usefulness of the product.

Awareness of MyUB grew slowly, yet exponentially, through this word-of-mouth, integrated marketing technique. Viral marketing doesn't work overnight. It is a slow, subtle process. First we encourage stakeholders—such as advising, records and registration, libraries, or student affairs—to use it and take ownership of it by integrating it into their business practices; we then encourage them to talk about it with other potential stakeholders as well as the student population they serve. Through the stakeholders, we were able to integrate MyUB into UB 101, orientation, and key freshman courses. The challenge was the full undergraduate rollout. We were able to reach freshmen (our largest base) through programming that they were most likely participate in (UB 101, admissions, orientation), but we had no centralized way to reach our existing upperclassmen when the full undergraduate

rollout occurred. Business integration and viral marketing provided the communication platform for us.

Through viral marketing to the stakeholders, we allowed them to take ownership of the product and market it for us. After each introductory session to a new stakeholder group, we noted spikes in student activity. Many stakeholders came back to us with requests to demonstrate the product to the next level of their organizational structure until we had complete integration. For example, stakeholders from the registrar's office quickly recognized that MyUB's value went beyond including logical links from that office's Web site. We did a dog-and-pony session for the entire frontline staff followed by a brainstorming session on how content in MyUB could support the generalist/specialist direction the staff was moving toward. Ownership is encouraged by asking for, and valuing, input and ideas on how to improve the product. We demonstrate the value of the product by sharing accomplishments and results on our stakeholder listserv and working with stakeholder groups to share data we have gathered that affect their organizations directly.

Now that we have a full undergraduate rollout, we are able to add to our marketing strategy more widespread venues, such as the following:

- ◆ We integrated MyUB into the *iConnect@UB* Tech Tools CD, which contains various software packages, documentation, and useful technology and is distributed during orientation.
- ◆ MyUB has been promoted in campus newspaper articles and is included in various UB guidebooks.
- ◆ When important new applications or features become available, they are introduced to users through a wizard that appears upon their next log-in. They are also e-mailed to all stakeholders through our stakeholder listserv.
- ◆ Instructions on how to use MyUB are available at all campus computer labs.
- ◆ MyUB is promoted at online registration and at the *iConnect@UB* Web site.
- ◆ We printed more than 15,000 MyUB bookmarks at no cost by piggybacking them with existing print runs. These are distributed at events and in other venues to students.

Lessons Learned: Avoiding the Pitfalls

We learned some of our lessons the hard way.

Develop a committee structure for direction setting. Once MyUB was rolled out, we did not have a formal process in place to review and prioritize future enhancements and projects. UB had struggled with formal information technology planning structures in the past and was on hiatus from even having one. MyUB was the first project to come along that underscored the need for this type of central planning body because this project affected nearly everyone on campus in some way.

In 2000, UB implemented a formal information technology planning committee and has received campuswide participation. The key benefit of this committee is that every information technology initiative being put forth in 2001 is in line with the goals and objectives of UB, rather than with departmental efforts that affect only a limited group of people. Without this formal planning, current enterprise information technology initiatives such as our e-Payment initiative would have struggled with the same issues as MyUB.

Old models for identifying stakeholders didn't hold up. We used old models and past experience to determine which stakeholders to work with on new applications within MyUB. For example, we attempted to roll out a new schedule builder wizard and worked closely with the university registrar, the custodian of registration, and transcript information. However, this application now affects a much wider group of stakeholders, such as advisors, orientation staff, and students, who desire more inclusion at the early stages of the project. This oversight underscored the importance of breaking down traditional barriers with an eye toward developing useful strategies and partnerships to provide e-services.

Accomplishments

MyUB is successful only as it succeeds in serving the needs of our audience and the communication needs of institutional stakeholders. Since the inception of MyUB, our stakeholder base has risen from 20 to more than 200. In the 2001 annual user survey, completed by almost one-third of our user base, 87.5 percent of our audience rated MyUB with an overall grade of good or excellent,

citing the ease of use and access to valuable information. Almost half visited several times weekly. Our user base is continually growing, with penetration to more than 65 percent of our undergraduate population.

Making a difference in the student experience at UB. From unsolicited comments in our MyUB e-mail feedback such as the following, we find that MyUB has accomplished the goals we set out for it, helping students find the resources they need and getting a sense of community that they can feel a part of: “As a freshman, I wanted to thank you for making answers to my questions accessible. I have been more than satisfied with MyUB,” Jessica, UB freshman. “The thing that made my adjustment easier was my computer because MyUB put every possible thing on there,” an anonymous UB 101 student.

Developing a strong cross-functional work team. We knew from the start that the completion of a university portal initiative required multiple departments because no single department had all the skills and experience necessary to pull it off. This project was a close marriage between Administrative Computing and Creative Services, two departments that had never worked together before.

Conclusion and Recommendations

Many factors contributed to an atmosphere that demanded an enterprise portal at the University at Buffalo. UB is a large and sometimes impersonal university. Computer access is a requirement. Freshmen arrive at UB more technologically savvy each year. Silos of disparate Web sites exist all around campus. At a large university, the best online customer service is no longer a luxury; it is a necessity. At UB, it was the MyUB project that took online customer service to the next level.

This project has left us with a blueprint and platform for connecting disparate systems. It has developed a strong sense of the importance of Web-based communication on our campus. The Office of Admissions, for example, is now looking to use the MyUB platform to develop a Web applicant tracking

and management system. The e-Payment project now under way will be integrated with MyUB.

But much more work remains to be done. We have more than 250 enhancements we'd like to make. We have additional constituents we'd like to serve. We have projects chartered to provide individualized delivery of information, using the students' information and university business rules to proactively notify students about important things before they become problematic. An enterprise portal is never done.

[Carol: Since it's long and there are three figures, I prefer that this be contained on a two-page spread.--Sharon, as you can see there was too much text for only two pages.]

The University at Buffalo

The University at Buffalo is New York's premier public center for graduate and professional education and the State University of New York's largest and most comprehensive university center. UB was founded as a private institution in 1846 and was a regional university until it merged with the state university system in 1962. It now moves in state, national, and international arenas.

UB's College of Arts and Sciences offers undergraduate and graduate study in the arts, humanities, social sciences, and physical sciences. The university also offers degree programs in the schools of architecture and planning, dental medicine, education (graduate programs only), engineering, health-related professions, informatics, law, management, medicine, nursing, pharmacy, and social work. UB enrollment is 24,000: two-thirds undergraduate and one-third graduate and professional.

As a research-intensive university, UB supports and houses a wide array of research institutes, centers, and laboratories. In 2000, UB researchers expended \$142 million of such external funds on research projects, making UB the 34th-largest research campus in the nation in total annual expenditure of external funds. Based on recent developmental work and new research partnerships—particularly in biotechnology and information technology—UB expects its research expenditures to rise significantly over the next five years.

Appendix

Assessment

One of the lessons quickly learned in the development of MyUB was to expect the unexpected. Many of our expectations changed due to the usage patterns of our audience. By continually assessing our product through a variety of different methods, we are able to keep our finger on the pulse of our user base, respond proactively to user-defined needs, make the case for further investments in the growth of MyUB, and continually improve our product.

Benchmarking

Data for benchmarking is accumulated from a suite of resources. Primary benchmarks address quantity, frequency, and other usage patterns, penetration, “stickiness,” and speed of adoption. This information is available in our server usage logs. Smaller benchmarks can additionally be built from the following:

QuickSearch log data (Seventy-eight percent of searches were successful and 21 percent failed.)

Surveys that record how highly users value the portal (According to the 2001 annual user survey, 97.5 percent of our users found that MyUB contained useful information that was easy to find, and 87.5 percent rated MyUB with an overall grade of good or excellent.)

Search results (QuickSearch pop-up satisfaction surveys recorded 76 percent satisfaction with the quality of the results.)

All of this information is fed back into the product design and used to help grow the portal, encourage more stakeholders, and draw more funding.

Survey

We run an online survey each spring, during the peak use period when grades are posted. The survey is displayed to students as they log on to MyUB during the survey period. Students may take the survey immediately or click a “skip for now” button to ignore it until their next log-in. Once students complete the survey, they are not presented with the survey again and are prevented from completing multiple survey entries. Surveys include a fixed set of quantifiable questions each year to help us measure our progress, variable questions to address specific content or design issues, and open-ended

questions to gather comments and more focused criticism.

The first survey, run in 2000, was designed to determine the frequency of MyUB usage and to gather information about how students use the Web, how familiar they are with portals, and the features they value most about MyUB. The 2001 survey, which was filled out by 3,326 students (more than 30 percent of our user base), contained some of the same questions as the previous year, such as frequency of use. Several additional questions allowed us to measure and improve in the areas that were critical to MyUB's success through user opinions on the effectiveness of the navigation scheme, content visibility/accessibility, and overall satisfaction with the portal. Perceived ease of use, value, and overall satisfaction are key factors to our achieving deep penetration into our user population. One 2001 user wrote, “The site is great. It does what it's supposed to. It provides students with relevant info and easy access to campus stuff.”

Usage Statistics and Analysis

Access to statistical analysis tools is through a password-protected master control panel. This provides quick access to key usage data as well as a list of new applications under development. The statistical tools can filter server log data by class, division, or constituent type, and any date range. They include travel frame analysis, which reports use for every MyUB link, application, or content channel (usage frequency and breakdown); the new users tool, which graphs the number of people logging into MyUB for the first time; the resource tracker, which allows us to chart use of any single MyUB link or application over time; the Ten Most Wanted list of the most active resources from the past seven days; and the use of the My Web Links and My E-mail Links applications. These tools allow our cybrarian to monitor and analyze usage patterns, report usage statistics to key stakeholders, and evaluate placement and organization of key content. They also allow us to measure the effect of our viral marketing campaign and orientation and class demos, and to generate “market share” statistics. To respect the privacy of our constituents, we do not gather statistics at the individual user level. **[Au: please make reference to Figures 21.4 and 21.5 here.]**

Search Engine Analysis

All search queries and returns are logged. As part of the travel frame statistics tool, we can view the most common searches performed in MyUB. They are useful to monitor and even anticipate user needs and respond accordingly. We can also produce word lists and graphs of usage patterns that can be shared with stakeholders. Because the search is one of the most popular navigational features, this information also measures the impact of marketing (e.g., campus news releases and student demos) and interest in significant events (e.g., fee referendum).

In addition, automated weekly e-mail reports are generated and used by our content editor. These reports allow us to evaluate and improve the effectiveness of our search engine. By responding quickly to just-in-time user needs, we better address those needs as well as improve the overall value of our content. Our response includes adjustments to entry titles and descriptive fields as well as fine-tuning the keyword index. We can promptly cull new content from key stakeholders and over the longer term adjust how specific resources are bundled within the portal channels and pages. Ultimately, we are able to channel users toward specific campus services and resources more effectively, based on our understanding of their actual needs, as well as their importance as understood by our stakeholders.

The report includes three components: good searches (successful), failed searches (no results), and opinion survey ratings. For good and failed searches, the report provides a running total of all search phrases queried by users. Randomized within every 20 searches that are performed, a small pop-up survey is displayed containing one question: “Did you find what you were looking for?” These ratings tell us whether the users actually liked the results they received. This

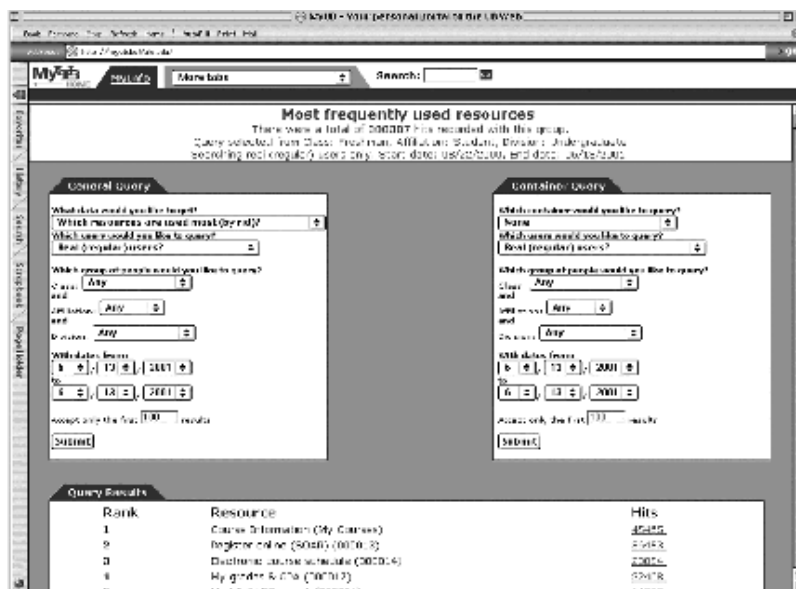


Figure 21.4
Freshman Usage Stats

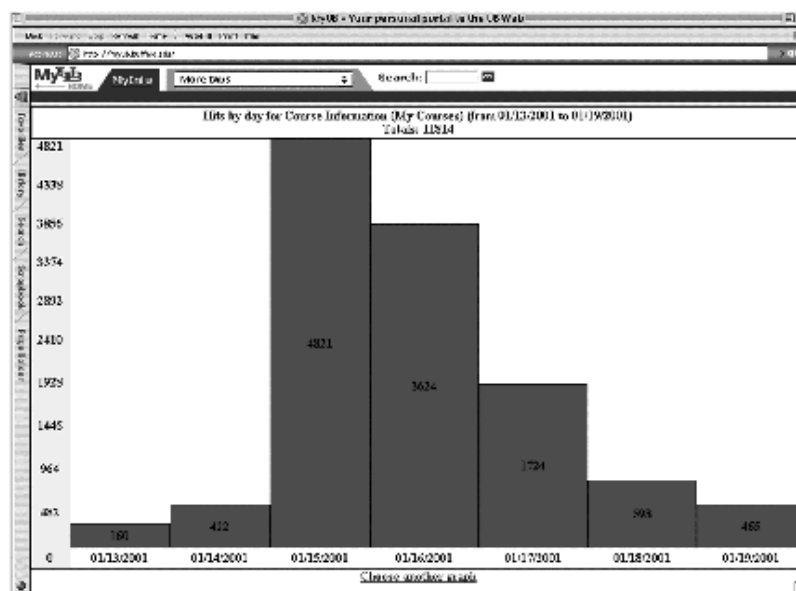


Figure 21.5
Detail of Freshman Usage Stats

information allows our content editor and stakeholders to respond to spikes in a particular topic, to be knowledgeable about what students need at particular points in time, and to refine existing resource channels and develop new content areas. [Au: please make reference to Figures 21.6 here.]

Figure 21.6
Sample Weekly
Automated E-mail
Report

From: jatill@buffalo.edu [mailto:jatill@buffalo.edu]
 Sent: Monday, July 02, 2001 4:00 AM
 To: jatill@buffalo.edu; lease@buffalo.edu; hjarvis@buffalo.edu; woodward@buffalo.edu
 Subject: MyUB Search Results-week ending 07/02/2001

Which queries succeed most often? (Through the week of 07/02/2001)

Query	Total	New	Good/Bad
1 bird	58	10	6/1
2 e-mail	39	8	1/1
3 financial aid	41	8	2/2
4 bookstore	19	5	2/0
5 flint village	15	5	0/0
6 ceeb code	5	4	0/1
7 parking	17	4	3/1
8 classes	14	4	1/3
9 biology	11	4	0/0
10 calendar	21	4	2/0
11 fafsa	5	3	0/0
12 entrance counseling	3	3	1/0
13 history major	3	3	0/0
14 soar	63	3	6/4
15 online student directory	3	3	0/0
16 e-mail	10	3	1/1
17 meal plans	4	3	0/0
18 political science department	5	3	1/0
19 housing	11	3	2/2
20 library hours	5	2	1/0
21 change password	3	2	1/0
22 political science	6	2	0/0
23 student health center	7	2	0/0
24 exercise programs	2	2	0/0
25 financial	3	2	0/0
26 business	7	2	1/0
27 craft center	2	2	0/0
28 academic probation	11	2	1/1
29 people finder	4	2	0/0
30 undergraduate counseling	2	2	0/0
SUBTOTAL	499	105	32/17

Which queries fail most often? (Through the week of 07/02/2001)

Query	Total	New
1 215	7	
2 aacsb	7	3
3 dms	4	2
4 lulat	1	1
5 summerclasses	1	1
6 eco181	5	1
7 damage	1	1
8 drafting	2	1
9 bar tending	1	1
10 ceeb	2	1
11 rm107	1	1
12 calendarr	1	1
13 janet mather	3	1
14 biolgoy	1	1
15 bartending	1	1
16 sefa	1	1
17 plaque	1	1
18 mgg300	1	1
19 bartolo	1	1
20 spa 104	1	1
SUBTOTAL	251	29

TOTALS	750	134

For more information, visit the [url] http://myub.buffalo.edu/myub-cgi/cgiwrap/myub/pw/scripts/myub_search_results.cgi MyUB Search Results Page