



INNOVATING EDUCATION IN A WEBCAFE

2005 COMPUTERWORLD HONORS CASE STUDY

EDUCATION & ACADEMIA

A TEAMWORK-BASED BUSINESS-SCHOOL CURRICULUM IS SUPPORTED BY MAKING COLLABORATION TOOLS AVAILABLE ON COURSE WEB SITES, PROVIDING FACULTY WITH AN EASY WAY TO DISTRIBUTE MATERIALS AND RESPOND TO QUESTIONS OUTSIDE OF CLASS, AND HELPING STUDENTS WORK TOGETHER ONLINE REGARDLESS OF SCHEDULE OR LOCATION. [20055391]

A Search for New Horizons



SUMMARY

WebCafe supports the Wharton School's teamwork-based curriculum by making collaboration tools available on course web sites, meeting two sets of goals: providing faculty with an easy way to distribute materials and respond to questions outside of class, and helping students work together online regardless of schedule or location.

Robert Carrigan,
Chairman of the Chairmen's Committee

Ron Milton,
Vice-Chairman of the Chairmen's
Committee

Dan Morrow,
Chief Historian

APPLICATION

In the early 1990s, the Wharton School implemented a major revamp of its MBA curriculum which BusinessWeek magazine (May 13, 1991) described as "the most radical departure in business education since the early 1960s." The new curriculum brought together leadership training, a comprehensive global management orientation, and an emphasis on collaboration and teamwork.

The development of technology at the Wharton School is closely allied to this vision of management education. When Wharton sought to deploy an environment for courseware throughout the School, rather than implementing a traditional course management system, the School deployed an enterprise groupware solution built around EMC Documentum's eRoom.

Back in 1997 Wharton's IT staff observed that students did most of their work outside of class by meeting in teams at crowded tables and cafes around campus. This is exactly the type of teamwork and collaboration that the School's curriculum sought to foster -- but the busy schedules and significant course load of Wharton's MBA program made it difficult for students to get together as often as they would like. The School was looking for a way to enable this type of collaboration over the Web so students could meet virtually from anywhere at any time. At the same time, an increasing number of faculty were looking for an easy way to distribute course materials online and to develop rich, interactive instructional web sites.

Wharton's IT staff concluded that one solution might address both of these needs. Rather than implementing one of the traditional academic courseware offerings -- which typically emphasize content delivery over student interaction -- Wharton selected eRoom from a small company then known as Instinctive Technology (subsequently acquired by Documentum and now a division of EMC Corporation). Implementing a customized version of this collaborative groupware product not only made it easy for faculty to distribute content, it also provided a way for students to collaborate online when they were unable to meet in person.

In August 1998, Wharton launched webCafe (<http://webcafe.wharton.upenn.edu/pages/overview.html>) -- so named because it used Web technology to create virtual meeting spaces online where students could collaborate and work together. Faculty in all eleven Wharton academic departments utilize webCafe's collaborative courseware environment in over 500 courses each year, teaching more than 7,500 students across all of the School's curricula, including Wharton's top-ranked MBA, undergraduate and executive MBA degree programs.

For faculty, webCafe provides a broad selection of Web-based tools for posting course materials, syllabi, readings, and calendar events online. Throughout the semester, as instructors add reading materials and lecture slides to their webCafe course sites, the content is automatically indexed for searching. Nightly e-mails are sent to the members of the class to alert them to the content updates, which are also displayed with "unread item" markers highlighting new and changed material during their follow-up visits to the virtual meeting space.

For students, webCafe offers a forum for students to share documents, have discussions, work together online,

and interact with both the professor and each other. Project folders aid in posting and reviewing drafts of papers or presentations, making comments on works-in-process, and taking advantage of document versioning and progress tracking capabilities. Students use the access-control features to make project folders private to a specific subset of the class working together as a team. An additional private folder, visible only to the teaching team, provides a staging area for new content. Discussion forums can be used by individual groups or, more commonly, by the entire class so everyone can see the answers the instructor gives in response to questions from individual students. Polls help settle "administrivia" issues such as preferred times for meetings or review sessions.

BENEFITS

Wharton's webCafe is designed to extend -- not replace -- the traditional classroom environment. A key aspect of a Wharton education is the interaction between faculty and students, and students with each other. Wharton does not want to use technology to replace that personal interaction. The School, rather, hopes to supplement the in-class experience by facilitating collaboration online outside of class time.

While several faculty members had established a Web presence before Wharton launched webCafe in August 1998, others remain devoted to chalkboards and overhead projectors. Interestingly, the early adopters of the webCafe solution were the large number of faculty in between those two extremes -- instructors with varying levels of technology expertise looking for approachable, innovative teaching tools for themselves and their students.

Early on, Wharton's support team established a practice of creating course sites in webCafe based on a common template with designated areas for discussions, calendar information, links to other sites, and folders for individual or group projects -- with the notion that both faculty and students will be active online participants.

What surprised Wharton's IT staff was how quickly the webCafe tools met so many other needs at the School. Intended as a courseware solution, webCafe quickly grew during the 1999-2001 period to encompass activities such as online tutoring, student government, conference support, faculty meeting document distribution, course approval voting, and (last but not least) researchers working in teams. This groundswell of grass-roots interest added to the value of the webCafe platform for faculty who waited to adopt, as their students were by now already familiar with the service and often requested its use. By the 2001-02 academic year, the webCafe team saw large increases in first-time instructor use of webCafe as word of mouth spread among faculty and students.

This success led to recognition of the Wharton School's webCafe as a pioneering approach in "blended learning" -- combining the traditional classroom with teaching tools that make communication transparent and pervasive, as opposed to using technology as just another delivery system. Van Weigel, professor of ethics and economic development at Eastern College, cites webCafe as "an early pioneer of a bricks-and-clicks approach to e-learning" in his book "Deep Learning for a Digital Age" (2002, Jossey-Bass).

IMPORTANCE

Wharton looks to technology to support the core research and instructional mission of the School rather than seeking to implement technology merely for technology's sake. The collaborative groupware features of webCafe reinforce the School's emphasis on teamwork and collaboration throughout the curriculum.

The early-1990s revamp of Wharton's curriculum, which emphasized collaboration and teamwork as a key component of the learning process, influenced the School's thinking in selecting a web-based solution for courses. Approaches such as automated conversion of syllabi to HTML pages, automated course web site generators, and WYSIWYG authoring tools were all considered. Ultimately, Wharton's IT (information technology) staff realized that giving instructors ease of use in managing content and course communication was just as important as providing tools to help the students in the project-oriented curriculum. With tools to do project work asynchronously -- from anywhere at any time -- each class's or group's "face time" can focus on brainstorming and experiential learning activities. To remove one obstacle for getting started with this process, a significant implementation choice was to make webCafe accessible using existing online accounts. No new username and password was required for people at Wharton to begin using the solution.

Key to the success of the platform at the Wharton School is the flexibility of the underlying eRoom software from EMC Documentum. In addition to providing interoperation with existing authentication systems and user directories, this flexibility also allows the School to tailor the features of the product to the particular needs of each faculty member who chooses to adopt webCafe. Although Wharton's IT staff uses a standard template to

create a starter "electronic room" (eRoom course site) for a class, webCafe serves as a toolkit that allows faculty to create their own personalized instructional environments. An instructor uses a simple wizard-style interface to add items such as polls or topic-focused threaded conversations. Students enjoy the same ease of use when revising documents or making group decisions using webCafe tools, which require only a web browser, an internet connection and an authorized Wharton computing account.

Furthermore, the additional flexibility offered by EMC Documentum's programming APIs (application program interfaces) allows Wharton to make customizations to the off-the-shelf eRoom application as needed to fit the School's processes. For example, one custom application automatically synchronizes course enrollment with webCafe room membership. Additional custom modules written by Wharton programmers, such as a grade book and homework submission "drop box", further serve to adapt the platform to Wharton's instructional requirements, innovatively blending teaching support with group collaboration.

ORIGINALITY

Conventional courseware tools targeted at the educational market tend to be information-based -- presenting assignments, due dates, etc. While webCafe includes these features, its emphasis on collaborative groupware allows students to interact over the Web regardless of location. Although collaboration software is used at other universities, these tend to be relatively small scale "point solutions." Wharton's use is the most pervasive throughout a large academic curriculum.

Validation of the webCafe approach came from a three-semester period in 2001-2002 during which the faculty were offered a choice of webCafe or a product from a commercial e-learning vendor serving the higher education market. webCafe was preferred by a 13:1 ratio in all three semesters.

After initial success in 30 courses during the 1998-99 academic year with the original formula of "easy publishing for faculty, readily available group tools for students," key features of webCafe emerged through subsequent development efforts. Although the underlying platform -- Documentum's eRoom -- provides rich collaboration features, it is positioned as a corporate collaboration tool rather than an academic courseware platform. Consequently, Wharton developed a number of custom features to address particular needs of the School using the API (application program interface) of eRoom.

The team's first API project automatically synchronized webCafe room membership with class enrollment. This custom enrollment program also allowed faculty members who teach the same class several times a day or who have related sections in different departments to share a single webCafe room—a feature that is, to this day, lacking in the course management solutions generally available to the education market.

Subsequent custom educational modules developed by Wharton include a grade book feature which allows faculty to view all students and assignments as a single spreadsheet-like grid while allowing students to only see their own grades. A homework "drop box" allows a student to submit date- and time-stamped homework assignments in areas only visible to her/him plus the teaching team.

Wharton's webCafe is one component of the School's ambitious plan to reshape the nature of business education. Wharton's Alfred West Jr. Learning Lab (www.wharton.upenn.edu/learning/) is exploring new methods of learning and instruction using interactive multimedia and real-time simulations. Jon M. Huntsman Hall (www.wharton.upenn.edu/news/building/) is a 320,000 square foot facility incorporating multiple-screen video projection, on-demand video and audio recording, and broadband video teleconferencing throughout the building's 48 classrooms and 57 group study rooms.

WebCafe is also integrated into Wharton's student portal, called "SPIKE". Students log in to SPIKE to see their personalized homepages, which include information on their current courses. If their course has a webCafe room, a coffee cup icon appears next to the course title to link students directly to the course's webCafe room. This is just one way in which students perceive Wharton's many IT offerings as a single, integrated world of information.

SUCCESS

Wharton's webCafe addresses two key audiences -- faculty teaching Wharton courses and the students enrolled in those classes.

Originally unveiled to faculty in the Fall 1998 semester, webCafe's adoption rate (as measured by the number of course enrollment sections supported by a webCafe course site) has grown an average of 87% a year for the past 7 years. In the fall 2004 semester webCafe was used by 682 enrollment sections in over 200 distinct courses, and supported 7200 student users -- all full-time MBA, executive MBA and undergraduate degree

candidates, as well as a large percentage of doctoral and evening students, faculty, and teaching assistants.

Edward I. George, professor of Statistics, writes that webCafe "... has become a critical facility for our course... the gradebook addition and the private learning team folders have been a huge plus for Statistics 621. WebCafe has been huge in terms of value added."

Wharton's undergraduate Management 100 course was one of the first core (required) courses to adopt webCafe on a large scale, providing a webCafe room for each course section and a private folder for each of four student teams performing a community service project in the Philadelphia area. Anne Greenhalgh, codirector of Management 100 and associate professor of Management, describes webCafe as the place "where the lecture hall, the boardroom, and the student café converge. As a virtual meeting place for teams, it offers busy people a great opportunity to make team decisions and continue programs on important projects. From an academic standpoint, webCafe provides a new avenue of exchange outside of the class meeting times. It lessens the barriers between teacher and student, facilitates peer advising and strengthens the community."

Of the students responding to an end-of-year survey for the Fall 2004 edition of the Management 100 course, 90% reported webCafe to be a valuable addition to the class, praising the system for being "accessible and reliable."

Students have found webCafe to be valuable beyond their course-related activities. At the request of the MBA student government, webCafe rooms also became available for student clubs and activities at the School. In the four most recent annual student satisfaction surveys of all Wharton MBA candidates, the percentage of respondents categorizing webCafe as "valuable" grew from 93% in 2001 to 99% in 2004, with the percentage of selecting "very valuable" growing each year from 54% in 2001 to 92% in 2004.

A common thread in the comments from the 2002 and 2003 MBA surveys was that they wished faculty would standardize on webCafe; this has subsequently happened in the MBA curriculum, with all MBA core (required) courses using a webCafe site starting in Fall 2003. Adoption in electives and in other curricula continues to grow, with over three-quarters of faculty teaching any course in Fall 2004 choosing to use a webCafe site.

DIFFICULTY

At the outset, the biggest challenge was faculty adoption. Since Wharton wants to encourage faculty to teach using whatever tools they find most effective, the use of a specific teaching platform is not mandated by the School.

Once the first faculty began to use webCafe, the success of the platform spread rapidly through word-of-mouth and usage has significantly increased in each succeeding semester.

Ironically, in recent years the primary difficulty has been the supporting the rapid growth and increasing scale of the platform. Since the staff added a second fulltime support position dedicated to the project, the use of webCafe (as measured by the number of course enrollment sections electing to use the platform) has increased fivefold. During the Fall 2004 semester, webCafe received 3 million hits a month, and had on average 800 usage sessions per hour while classes were in session. There are now over distinct 1250 webCafe rooms in use at the Wharton School.