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DEVELOPING AND LAUNCHING AN ONLINE MBA: KEY DECISIONS, EXPERIENCES, AND SUCCESS FACTORS

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Abstract

In the Fall of 2001, after more than two years of planning, the School of Management at the University of Michigan – Dearborn launched its webMBA program. The launch of this program marked the culmination of over three years of research, planning, design, and development. This article reviews many of the key issues involved in developing and launching the webMBA, including decisions made about program administration, course technology, campus presence, faculty involvement, faculty incentives, student tuition, external funding and support, and degree equivalency. Critical factors to the webMBA's success include: leadership by the Dean with support from university administration, raising external funds to cover development costs, committing to deliver the entire degree online without a required campus presence, creating generous faculty incentives, hiring a project/technical support manager, forming a partnership with an online services provider, focusing on small interactive classes, and emphasizing equivalency of online and on-campus courses. The article concludes with a discussion of opportunities for the future.

Keywords: Graduate degree program, distance learning, Web-based learning

Introduction

Five years ago, the School of Management (SOM) at the University of Michigan – Dearborn (UMD) began the planning process for delivering its MBA degree online. This article summarizes some of the issues and decisions that were made during the process of planning and launching the webMBA program.

The SOM is accredited by the Association to Advance Collegiate Schools of Business International (AACSB). There are currently 400 students enrolled in the on-campus MBA program, which is a part-time, evening program requiring 60 credit hours. The MBA has traditionally appealed to engineers from the automotive industry with concentrations available in accounting, finance, management information systems, marketing, workforce management, and international business. There are many market competitors for the part-time MBA, both AACSB accredited and non-AASCB accredited institutions. The UMD MBA is more selective than most universities within the state of Michigan, with a mean GMAT higher than all others except for the University of Michigan – Ann Arbor and Michigan State University.

The Decision to Go Online

The SOM began to explore the feasibility of a fully web-based MBA in 1998. The development of an online MBA was championed by the SOM's new Dean with the enthusiastic support of central university administration. The market for business education had expanded dramatically during the 1990s. Reports from the U.S. Department of Education indicated that the number of degrees conferred in Business Administration and Management more than doubled from only six years ago, with Bachelor's

degrees growing from 113,000 in 1994 to 253,000 in 2000, and Master's degrees growing from 52,000 in 1994 to 112,000 in 2000 (U.S. Department of Education 1998a, 1998b, 2001a, 2001b). Therefore, our early decisions about the feasibility and need for an online program were largely speculative, based on the general growth of business education and the assumption that part of that continued growth could be satisfied by alternative delivery methods. Although online education was early in its lifecycle, we assumed that it would become a significant part of management education, and that there would be market advantages to those able to enter the market early.

There were two primary drivers for taking the MBA online. The first was a desire to reach students unable or unwilling to participate in a traditional on-campus MBA, due to work hours, extensive travel, or location. The second was a desire to retain MBA students who would otherwise have to interrupt or end their MBA studies due to job-related relocations, expatriate assignments, extensive business travel, extended military assignments, or changes in family status. The historical completion rate for on-campus MBAs is about 60% (over an average of four years), but we felt that an online alternative would allow many more students to complete their degrees. We also believed there were students who might consider an MBA, but could not reliably expect to remain in the local area for the duration of their studies. An online MBA would minimize this risk.

An evaluation of distance learning MBA programs offered in 1998 revealed that many were essentially correspondence programs, using mail or low-level technology to distribute course materials. They generally used media such as audio or video tapes, electronically delivered documents, or CDs. Only a few credible, online MBA programs were available at the time, and many required periodic attendance on-campus. There was little experience to guide us in making choices about developing an MBA program to be delivered exclusively online. Encouragement for an online MBA came from the SOM's advisory council members, from several large employers in the region, and from university administration. This encouragement and support was a key motivator in deciding to go forward with a proposal to develop an online degree program.

Objectives of the Online Program

We considered three stakeholders during initial discussions: *students, faculty*, and *the institution (the SOM* and *the University)*. It was concluded that for students, an online MBA would provide flexibility and convenience. It would enable the university to better serve its existing MBA market, as well as to expand the market outside the region. However, an online MBA would require significant faculty resources, and would require faculty to develop new approaches to pedagogy and assessment.

It was quickly apparent that the SOM faculty would support delivering the MBA online if, and only if, it could be done with identical quality to the on-campus MBA. The first principle for the online MBA was that it appear to be, and truly be, of identical quality. This led to the development of several essential criteria:

- Same Courses, Same Curriculum, Same Full-time Faculty. Online and on-campus MBA courses need to be equivalent, the curriculum identical, and courses must be taught by regular, full-time faculty.
- Highly Interactive. An MBA of identical quality would require a high level of interaction among faculty and students.
- Small class sizes. Online interaction is only feasible with small classes.
- Asynchronous learning within a common schedule. Providing interactive coursework mandates that all students are working on the same problems or cases, yet the assignments must be flexible enough to allow students to do their work at any time of the day. We envisioned that the typical course would include assigned activities for all students to do during a week, but would allow them to do them at their own convenience during that week.
- *Multiple Instructional/Learning Modes*. It was important to have an online system that allowed faculty to use multiple learning modes to ensure that students are able to understand, contextualize, and apply what they have learned.

After establishing the essential criteria for an online MBA, we spent considerable time seeking input from other universities and searching for and assessing available online technology and service providers. During this period of search and assessment, several important decisions were made that set the stage for later implementation.

Funding for Program Development

As an incentive to move forward with online development, university administration granted the SOM the right to retain tuition revenues from the online MBA. This gave us a substantial revenue stream to offset the high costs of development and promotion. We were also fortunate to receive a sizable grant from a local employer for development of the online program.

IT Infrastructure and Support

We decided to outsource instructional services technology to a private provider of online educational services to higher education. This company would host the servers and provide a 24-hour helpdesk, instructional design expertise, and faculty training. Our initial contract constituted a risk-sharing arrangement, where instead of paying fees for services provided, we agreed to pay a set amount per student credit hour. We anticipated that this would backload the initial costs of course development to a time when revenue was being generated from student enrollments. We also decided to create an administrative support position to provide project management and technical support for the online degree program. This half-time position — Distance Learning Coordinator — would coordinate faculty course development, act as liaison with the IT services provider, and be the in-house technical expert.

Faculty Incentives

It was important to introduce an incentive program for faculty to encourage them to develop courses for the new program. The basic components of this incentive program were: (a) a laptop that the faculty member would keep as long as he/she remained involved with course development or course delivery, (b) a one-course load reduction, to be taken at the faculty member's discretion with his/her department chair's approval (most often used during the term prior to first offering the course), and (c) a \$7,000 stipend to be paid when the course was completed. Teaching an online course would also count toward one's teaching load in the same manner as an on-campus course.

Software Platform

The webMBA would be developed using off-the-shelf course development tools in conjunction with custom programming. Numerous course development tools were evaluated, including: Lotus LearningSpace®, WebCT®, CourseInfo/Blackboard®, eCollege®, UM Course Tools®, LearnLink® and ERes®. Others considered at the early stage included: TopClass®, Virtual-U®, Web-Course in a Box®, First Class®, QuestionMark®, PlaceWare®, Norton Connect®, Allaire Forum®, Team Wave®, WebBoard®, Asymetrix ToolBook®, and IntraLearn®.

Most, but not all, of the above course tools included features in two major categories: 1) Learner Tools – web browsing, asynchronous and synchronous learning, and student tools, and 2) Support Tools – course, lesson, quiz and examination creation; assignment grading; student performance tracking; data and resource administration; and a help desk. Platforms also differed in their technical capabilities and licensing fees. The final choice of platforms was influenced by the experiences of faculty who had experimented with different platforms for online activities for undergraduate courses. In the end, the choice was made to use WebCT®.

Implementation

At this point, the SOM had made key decisions and acquired resources needed to launch the online MBA. The online MBA had momentum, but there was skepticism among some faculty. The next stage of development was to form an implementation team who were charged with developing the final proposal, gaining the support and approval of SOM faculty, and working through the myriad issues and details necessary to launch the new program. All team members had administrative, technical, and/or online pedagogical expertise. The team consisted of the Assistant Dean, the Graduate Programs Director, the new Distance Learning Coordinator, and seven members of the faculty, including two expected to be among the first course developers. The team began working in February 2001, with the objective of offering the first online courses in the Fall of 2001. One of the first decisions made was to name the new online program the *webMBA*. Other key issues and decisions can be categorized as follows:

Concentrations and Electives

The webMBA curricular requirements are identical to those in the on-campus degree, but we decided not to offer any courses online that would allow students to earn a specific concentration. The decision was made to limit online course offerings to just those courses needed to earn the general MBA. If future demand warrants, concentrations may be added to the webMBA. Courses offered through the webMBA would consist of all eleven required core courses, seven advanced managerial applications

courses, one required capstone course, and one general elective course – identical to the courses in the on-campus MBA program when no concentration is sought.

Cohorts and Crossover Students

There was initial support for planning and marketing the webMBA as a cohort-based curriculum, where students would enter and progress through the curriculum as a cohort, building relationships and a sense of community through the entire program. A new cohort would be admitted each fall and winter terms. In order to avoid problems of populating the online courses with existing on-campus students, we decided to initially segregate the two student populations. We would allow on-campus students to formally switch to the webMBA, but only if it was clear that they intended to complete their MBA through webMBA courses.

Campus Presence Requirement

While there are many benefits to having online students meet face-to-face periodically, the early publicity about the program had proclaimed that students would be able to earn their degree entirely online, without a campus visit requirement. Clearly, an MBA delivered wholly online would eliminate any geographic constraint on the market, and would allow us to best meet the needs of both new students and relocated existing students in distant locations. So, we reaffirmed our commitment to 100% online delivery.

Course Rollout Schedule

A course rollout schedule was created, specifying when each course would first be taught and in what terms it would be offered over the next five years. This served to ensure that courses would be in place when they were needed, to help faculty plan their long-term course development schedules, to assist department chairs in planning faculty resources for both on-campus and webMBA courses, and to help students develop their program of study. After its initial offering, each course was to be offered online twice per academic year. As a show of support for the webMBA, a senior faculty member developed a pilot course. Students from this faculty member's on-campus course reviewed the pilot course and provided extensive feedback. This feedback was quite positive and provided a solid reference point for the faculty.

Online Platform Design and Training

The faculty teaching on-campus classes were given full latitude to design the content, tools, learning activities, and evaluation methods that they felt would best serve the learning objectives for their class. The overarching mandate was that each webMBA course must be of identical quality and learning as its on-campus counterpart. This was primarily realized by having the faculty member responsible for the on-campus course be the person creating and subsequently teaching the online course. The implementation team worked with the IT services provider to develop a consistent look and menu for all webMBA courses using standardized colors and icons. Throughout the development of the online courses, the IT services provider was instrumental in planning and achieving the program's development objectives. They also held several training sessions for SOM faculty and staff. This helped faculty understand the capabilities of the Learning Management System (WebCT®) so that they could plan and design their courses. It also benefited staff who would be involved with recruiting, admissions, and advising for webMBA students.

Student Assessment

The implementation team gave substantial attention to faculty concerns about student assessment. There were initial concerns about how to assess student learning in an unmonitored environment (i.e., without traditional in-class testing). Some of these concerns were initially allayed as faculty educated themselves about the online assessment issues and learned how to use the assessment tools within WebCT®. Over time, faculty have adapted their traditional assessment methods to be appropriate for an online environment.

Administration

It was decided that all student services, recruiting, promotion, admissions, and advising would be administered by the SOM Graduate Programs Office, as they are for all other Master's degree programs. At the recommendation of the SOM Dean, university administration sought approval for a separate tuition structure for the webMBA. The in-state tuition rate per online course was set about \$500 higher than for in-state, on-campus courses. This was necessary to cover the additional costs associated with the outsourced online technology and support. To make the online program appealing to those outside Michigan, the out-of-state tuition premium was set at \$200 per course above in-state tuition, far less than the out-of-state premium paid for on-campus courses.

Program Marketing

Three primary methods for recruiting students were utilized, including the development of a webMBA website, media and direct mail advertising, and corporate site visits. The website (www.webmba.edu) has been an important vehicle for attracting and informing prospective students. The traffic at the site is tracked and has increased steadily since the site was launched. The site provides prospective students and interested companies with the information needed to gain a full understanding of the webMBA courses and curriculum, as well as answers to common questions about online education. All application materials and MBA documentation are available online.

Local print and radio ads have been used to build awareness of the new program within our core, metropolitan market. While expensive, some print ads have been used to gain exposure outside Michigan. The goal of radio and print ads is to generate interest and drive listeners or readers to the website. A noticeable increase in website activity was documented following both radio and print advertising.

Corporate site visits to some of the larger corporations in the UMD local market have served as a mechanism for informing employees and prospective students of the webMBA. UMD alumni have proven to be helpful at setting up in-house informational sessions open to interested employees. Initially, some advocates wanted to promote the webMBA via corporate executives with close ties to the university. This met with minimal success, since the decision to invest time and money into an MBA is a highly personal decision, made by the prospective student and not by their employers and supervisors.

Proposal and Faculty Approval

The implementation team developed a proposal detailing the justification, philosophy, design, curriculum, and rollout schedule for the webMBA. This proposal was approved by a unanimous vote of the SOM faculty in May 2001. The website was launched in late May, a brochure was designed and printed, and promotional efforts began in early June. The first two core courses – Financial Accounting and Applied Statistical Modeling – were offered during the Fall 2001 semester.

Current Status of the Program

During the first 18 months of the webMBA program, 10 online courses (a total of 20 course sections) have been offered, with 8 new courses to be added in the next nine months. Faculty have been encouraged to develop their courses as soon as possible, and several have chosen to develop their courses earlier than the original course rollout plan. To date, a total of 47 students have been admitted to the webMBA program. Counting both regular webMBA students and "crossovers" – on-campus students permitted to take online courses – a total of 95 students have taken webMBA courses. Cumulative total student credit hours totals just under 700, yielding approximately \$400,000 in tuition revenues.

Recruiting

Like most other AACSB accredited schools with online programs, the student admissions have been somewhat slower than expected. Enrollments have averaged 12 students per class. While this has fallen short of our initial expectations, the small classes have had the advantage of allowing faculty to launch their courses and build substantial interaction without being overwhelmed. We have observed the following about recruiting for the webMBA:

- 1. Two main concerns that prospective students have voiced are "Will I learn as much as I would in a traditional classroom setting?" and "Will an online MBA have the same impact on my career prospects?" We have addressed the first question by emphasizing that classes are kept small and highly interactive, and that classes are developed and taught by the same full-time regular faculty who teach the on-campus courses. The question of market reactions to online education are beyond our control, but we have stressed that the webMBA is the same accredited MBA, with the same courses and curriculum, and that there is no distinction between online and classroom MBA courses on one's transcript or diploma.
- 2. The ratio of inquiries to admissions has been much higher for the webMBA than for the traditional part-time MBA. Many of those contacting us about the web program are earlier in the process of considering, searching, and selecting an MBA program. Promotional activities and expenses may take more time to generate new applications.
- 3. The profile of students admitted to the webMBA program tends to include more graduate and professional degrees, higher GMAT scores, and more work experience. We have had inquiries and have admitted a surprising number of Ph.D. scientists or engineers, whose interest is driven by the desire to expand their career options through an MBA. Those who have already earned advanced degrees may be interested in online education because they tend to be more confident about managing their own learning and their time, are likely working full time, and may have less tolerance for returning to the traditional classroom.
- 4. It is fairly common for our on-campus students to have their studies interrupted or ended for career or job reasons. Online courses have allowed us to retain on-campus students who would otherwise have been unable to continue their degrees. Students have been able to take courses while on overseas military assignments, during terms of extensive business travel, after job transfers or employer changes, and while on expatriate assignments.
- 5. We have rigidly maintained admissions standards equivalent to our on-campus MBA. In fact, GMAT scores for new webMBA admits have averaged 594, compared with 567 for the on-campus program. The proportion of applicants denied admission has been consistent with the on-campus MBA.

Cohorts

While the initial promotional materials discussed "cohorts" of students moving through the curriculum together, the cohort concept was quickly dismissed in favor of students picking and choosing available courses according to their needs and interests. Classes are now a mixture of students entering the program at different times. Part-time students' course and schedule needs vary considerably, so keeping a group of students in lock-step through the same courses over several years would be infeasible. In retrospect, we now see that the concept of cohorts does not translate well in an online medium.

Enrollment

Students formally admitted to the webMBA have been given first priority for enrolling in online courses. When space is available, on-campus students have been granted permission to enroll in a webMBA course. Permission to take a webMBA course has been decided case-by-case, and is allowed if the students have demonstrated that scheduling conflicts, travel demands, special work assignments, or other special circumstances would prevent them from making normal progress toward their degrees. With time, we expect the distinction between the webMBA and the on-campus MBA to fade, with more students bouncing back and forth between on-campus and webMBA courses.

Administration

One of the more troublesome problems with online courses has been handling the extra administrative details involved in registering students and getting them access to their online courses, campus email, texts, e-packs, and library databases. University systems and procedures are geared for students who are able to come to campus. Our graduate advisors and the Distance Learning Coordinator have had to devote considerable time and attention to helping students obtain computing, email, and online course access codes, passwords, and student ID numbers. Registration has been particularly difficult for students taking a combination of webMBA and on-campus MBA courses in the same term – requiring an MBA advisor to hand-carry registrations to the campus Registrar's office to ensure that students were charged the correct tuition rates. As a result, a faculty

member teaching one online class might receive up to four different class rosters – each roster listing students taking a different combination of online and on-campus courses. This is being resolved by attempting to use additional software and software plugins to better integrate and coordinate the various systems involved in the entire process.

Feedback

Feedback from faculty has been consistently positive. Many faculty have reported that they under-estimated the time required to develop their online course. In general, they indicated that they are pleased with the quality of the online experience. For most faculty, it has taken several semesters of teaching the online course to fine-tune it in terms of content delivery, student interaction, and assignments. Although the learning environment is different, they feel that students are mastering equivalent knowledge and skills. Discussion forums and chat sessions have taken the place of in-class discussions. Many of the assignments and examinations are identical to those from the traditional, on-campus course. The typical pattern has been for students to log into their courses frequently throughout the week to review course materials and to read and respond to ongoing discussion threads or other assignments. Student success seems to be related to regular participation in the class activities and interactions. The occasional student who has fallen behind has had difficulty recovering.

One general concern of all faculty – those teaching online and those not – has been the level of resources that have been committed to the webMBA program, given the number of students enrolled per course. The generous incentives for developing and teaching online courses have encouraged faculty to participate in the webMBA. However, covering the other graduate and undergraduate courses, as well as expanding the range of non-credit management development programs, has led to greater use of teaching overloads and adjuncts. Therefore, students in the on-campus MBA program may be suffering as a result of having more adjuncts than in past years teaching their courses. This also has a negative impact on accreditation percentages. This issue is being resolved through requesting additional faculty lines in various disciplines to cover the additional classes created in the webMBA program as well as general growth. In the short term, however, this is a recognized problem with no immediate solution.

Informal feedback from students to the SOM graduate programs office has been consistently positive. So far, students have had quite positive things to say about the online environment and the quality of learning, assessment, and instruction that they have experienced. A formal survey of students' attitudes is being planned for the near future.

IT Infrastructure

During the first year of the webMBA, the contractual arrangement with the IT services provider was changed from a "partnership" arrangement to a "fee for services" arrangement. The risk-sharing benefits of a partnership were offset by differences in styles and organization cultures – differences that were magnified by revenues that lagged behind original expectations. The IT services provider continues to provide the server, technical support, and instructional design assistance.

Success Factors

In retrospect, we believe that several factors have contributed to the successful launch of our webMBA, and position us for the future. These are:

- Having a Dean as the primary proponent for the program with the support of university administration, and ultimately, the unanimous support of SOM faculty.
- Financing development costs through external gifts and retention of tuition revenues.
- Creating a generous incentive package to encourage faculty to develop online courses.
- Emphasizing small, highly interactive classes.
- Having a clear rollout schedule.
- Forming a risk-sharing arrangement with an IT services provider to provide the online technology, training, and instructional design expertise.

Summary and Future Opportunities

The webMBA program is nearing its deployment completion. The remaining courses will be developed and taught at least once by Fall, 2004. The initial phase was designed to migrate the success achieved in the classroom to the virtual classroom. The partnership between the subject matter expertise of the UMD faculty and the institutional design expertise of the IT services provider has achieved this goal. However, online learning technology has placed limitations on us. Synchronous tools are still very rudimentary, and the connection speeds are still too slow (the design goal in phase one was to make all the courses accessible via dial-up access).

Customized Learning

To take full advantage of web-based learning requires an ability to individualize the learning experience. Individuals that learn best from reading are already well-accommodated using the web. Those that learn better from listening are challenged to pay attention to streaming video. In the future, instructors using audio and video will be able to capture and present a more interactive environment as it can be better interlaced with text to emphasize key learning points. For those that learn best through action, gaming technologies will provide a key learning activity.

Offering these as options to students with different learning styles will be the first step toward customized learning via the web. The ultimate step is to provide these options seamlessly to the students based on an assessment of students' learning styles. These technologies are being used today to customize content delivery for commercial websites, making each user's viewing experience unique to him or her. These same technologies will make web-based courses a richer and more customized experience.

Future webMBA development will specifically focus on adapting learning activities to learning styles. Online courses will be enhanced with better synchronous tools, and online instruction will be tailored to the learner's connection speed. We will begin to explore tailoring learning activities to students' learning style preferences, giving a student the ability to choose different modes of course delivery.

Software Platform

The current online educational technology will be obsolete in the next few years. Many Learning Management Systems (LMS) that dominate the landscape today will be forced to adapt or perish. New online systems are more flexible. The key functions of an LMS are course creation, course delivery, and administration. Users have been forced to use a particular LMS for all of these functions. In the future, these functions may be separated and interchangeable across systems. Flexibility in using an LMS also needs to extend to the licensing and branding. Today there is an infatuation with having the LMS name proudly displayed throughout the user interface. Licensing is too structured and does not easily accommodate school and department requirements. Market pressures may force LMS providers to move from a flat fee structure to fees based on institutional usage rates.

Pedagogical Benefits

As a result of the efforts surrounding the webMBA program, faculty in most disciplines have begun incorporating additional online, web-based components into their traditional, classroom-based courses. This has ranged from discussion forums and chat sessions to fully integrating their course with WebCT® for use with assignments, quizzes, readings, handouts, discussions, and grading. Additionally, through the physical and intellectual acts of rewriting and rewording lessons and lectures previously conveyed through overheads or via the computer, faculty have fine-tuned their courses in the webMBA and have then taken these improvements back to their associated traditional courses.

New Opportunities

Finally, the SOM and its faculty have been able to leverage their knowledge and expertise into customized corporate management education opportunities. These opportunities have, so far, been focused on individual content areas (courses and seminars) or a small set of core content areas (certificate programs), though some organizations have expressed an interest in having the full MBA program delivered to their managers and professionals. With the experiences and expertise from the webMBA program,

it has been relatively easy to create such programs for either specific organizations or specific industries, resulting in a benefit that translates into economic opportunities for faculty and the SOM.

Note

Lotus LearningSpace®, WebCT®, CourseInfo/Blackboard®, eCollege®, UM Course Tools®, LearnLink®, ERes®, TopClass®, Virtual-U®, Web-Course in a Box®, First Class®, QuestionMark®, PlaceWare®, Norton Connect®, Allaire Forum®, Team Wave®, WebBoard®, Asymetrix ToolBook®, and IntraLearn® are registered trademarks of their respective vendors.

References

- U.S. Department of Education. Degrees and Other Formal Awards Conferred, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), 1998a.
- U.S. Department of Education. Completions, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) Survey, 1998b.
- U.S. Department of Education. Postsecondary Institutions in the United States: Fall 2000, and Degrees and Other Awards Conferred: 1999-2000, Office of Educational Research and Improvement, NCES 2002-156, 2001a.
- U.S. Department of Education. Projections of Education Statistics to 2011, Office of Educational Research and Improvement, NCES 2001-083, 2001b.