Twelve Important Questions to Answer Before You Offer a Web Based Curriculum

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The rapid development and adoption of the World Wide Web offers exciting new vistas in the delivery of educational and instructional materials. Many organizations, ranging from commercial concerns to educational institutions, are forging ahead with plans to exploit these opportunities. Yet while the opportunities available are enticing, there are a myriad of pitfalls to avoid. This paper outlines twelve key questions that those responsible for developing and offering Web based education at academic institutions will need to address. The questions presented herein were arrived at by examining the experiences of pioneers in the area.

From an academic perspective, offering courses through the web raises challenging new issues regarding intellectual property, pedagogical rigor and methods, course management, and instructional compensation. Some of these issues have been tackled to some extent in distance learning programs, whereas others have been seen in correspondence programs. Although some of the lessons learned from these types of programs are directly applicable to web based education, the Web and its technologies introduce new and sometimes subtle nuances that must be addressed.

Will the Web curriculum offered be congruent with the institution's mission and strategy?

A Web based curriculum requires a significant commitment of institutional resources. Instructional and staff resources are usually a scarce commodity, and their commitment to this type of program may detract from other programs. Prior to committing to a Web based curriculum, it is important to realize this is but one of many ways of achieving institutional goals, and should, therefore, be designed to operate in concert with those goals. In summary, as with

other programs, a Web based program should have clearly defined goals and objectives.

An example of this is one institution whose goal is increasing its reach and foreign student enrollment. It is exploring partnerships with firms to permit their foreign employees to take core courses via the web before they come to the resident campus. This creates a win-win situation, with the firm minimizing costs and the institution gaining access to their employees. In this case, creative application of web technologies allows an institution to achieve its goals.

Although web-based programs are an attractive way for academic institutions to increase their reach, this may come at the cost of diluting their core programs and reputation. In fact, there is the strong potential for "cannibalizing" existing programs and classes, as participants switch to web based instruction. With this in mind, thought should be given to developing web-based programs that supplement or complement existing offerings. Finally, in order for any web-based program to represent the institution well, care must be taken to craft programs that echo the institution's core values and competencies.

Do you have administrative support?

In many regards developing a web based curriculum shares many similarities with the development of new information systems. An important common attribute is the degree of administrative support necessary to successfully undertake a project. This support is vital to securing adequate resources and to successfully nurture the project through its early stages. With regard to web-based education, a commitment must be made to fund the technical and human resources to develop and deliver the course content. This commitment must be strong enough to weather initial setbacks and problems in putting the program in place. Part of this commitment should include the definition of realistic goals and performance measures through which program progress may be evaluated.

Another potential role of administrative support is influencing potential participants. Without administrative support, a web-based curriculum may not get the opportunity to mature into a successful venture. Administrative leadership is also crucial in influencing instructors and other potential participants into committing their time and efforts developing and implementing a web based curriculum. In this regard, at one institution, senior administration has waived out of state tuition for foreign students taking web courses prior to their coming to campus.

Are there institutional obstacles to adopting a Web curriculum?

Institutionally, adopting a Web based curriculum may represent radical change to the traditional academic model. Not all institutions and faculty are ready or capable of accepting this new paradigm. This change may require instructors to spend a significant amount of time familiarizing themselves with the Web and its technologies. Furthermore, instructors must adapt their instructional techniques and materials to take advantage of distance learning opportunities and to minimize the impact of a remote teaching environment.

Students must also be prepared to accept the demands that are imposed on them when enrolled in web courses. In particular, Web based classes require that students exert a high degree of self-discipline and motivation. After three years of experience at the University of Akron, the school's administration believes that student motivation is a significant problem. This problem manifests itself in students falling behind and withdrawing from web courses late in the term.

Beyond the student's motivation however, web delivered classes change the nature of the student-instructor interaction. Typically, this type of environment limits the amount of

face-to-face and verbal interaction, while increasing the use of written communications. Students must quickly grasp the need to use web and e-mail resources to achieve the interaction level required to meet their needs.

In addition to these changes, institutions may face other obstacles. One of the most significant is the development of new competitors. Traditionally, higher education institutions faced competition from other similar institutions in close geographical proximity. Recently, publishing companies and other private firms, as well as high profile higher education institutions are investing in web-based educational programs. These developments may make it difficult for smaller institutions to offer competitive web curricula.

How will you handle intellectual property issues?

In most institutions, class materials are generally considered to be the intellectual property of the person teaching the course. Course delivery through the web opens up a new range of options in how class materials are authored and used. For example, someone other than the person that developed the course materials may administer the course. In addition, course materials may be used for many sections of the same course with multiple instructors. There are many unresolved questions about the ownership of this intellectual property, and its continued use. Solutions range from ignoring these intellectual property issues to proactively addressing this issue, by specifically compensating instructors for developing web class materials that then become the institution's property. The proactive approach to settling intellectual property issues will avoid future problems and the potential for litigation.

Intellectual property issues also arise when supplementary materials are used as part of a course's pedagogy. Indeed, arranging for the use of another's intellectual property or copyrighted materials should be part of the initial web-based curriculum development effort. A mechanism for acquiring and administering intellectual rights to these materials is important, since part of the administration of these materials may require restricting the dissemination of the materials. Putting in place the policies, procedures, and technologies to administer this area is an important part of a web-based curriculum. A good example of this dilemma is the restrictions some publishers place on supplemental materials.

How will you compensate instructors for offering or administering Web courses?

Even upon satisfactory settlement of the intellectual property issues, there is the issue of compensation for those teaching or administering these courses. In educational institutions, the traditional model of compensating instructors for a set class load may no longer be appropriate. To begin with, a definition of what constitutes a class must be established. In most institutions there are minimum and maximum class size limits arrived at through pedagogical, economic, and physical facilities constraints. Course delivery through the Web can radically alter these time-honored definitions and require new and innovative solutions.

Further complicating the compensation issue is the wide range of latitude in determining how classes are conducted. Theoretically, web classes could range in size from very small to extremely large. Or, it may be possible to conduct a class that ignores the traditional academic calendar. Emphasis should be placed on defining these parameters early on, since these issues have a direct impact on course revenue and compensation. For example, one Canadian school recognizes the increased instructor involvement in delivering web courses, and compensates instructors on the basis of one web class being equivalent to two traditional courses. In contrast, at another institution, web classes are treated as a standard class and enrollment is capped at the

traditional class limits. To summarize, good management practice suggests that instructor compensation should be defined well before offering web courses to minimize misunderstandings and future problems.

Do you have clear, well-defined criteria for selecting the classes to be offered through the Web?

Before selecting courses to offer through the Web, it is important to evaluate them for their pedagogical requirements as well as the desired degree of student interaction. Course delivery though the Web imposes some limitations on the pedagogy and student interaction used when offering a course. These limitations should be considered when selecting courses for the Web. Classes requiring strong, personal instructor interaction will probably be more difficult to offer through the web. Courses that might fall into this category are those that require the development of hands-on skills or problem solving. While all courses are not as suitable for Web delivery, taking a creative approach to pedagogy can overcome may of the inherent limitations imposed by this medium.

In this vein, development of a web-based curriculum is in many ways a learning experience for most institutions. To promote early stakeholder acceptance of Web courses, some thought should be given to selecting those courses with the greatest potential for success. Courses that appeal to a larger audience and have less rigorous pedagogical requirements may be more appropriate initial selections.

What facilities or capabilities are available to assist in the preparation and delivery of course materials?

Few instructors have the technical expertise necessary to prepare class materials in the appropriate format for Web delivery. Furthermore, once the materials are in the right format, there is no guarantee that students will be capable of using them. It is crucial then, that adequate provisions be made for technical support of both course instructors and students. Among those provisions required, course design expertise must be available to help instructors develop and organize their course content.

Preparing materials for web delivery requires facilities for the collection of graphic, video, voice, and text content. Hardware and software capable of doing this are readily available, but require some investment in adequate facilities. It is unreasonable to expect the development of adequate course materials without providing adequate support. While these technologies do not have to be "cutting edge", they should be current. It is also important to understand that new technologies are continually being introduced, and therefore *require* continual update of course materials and methods.

What methods will be used to deliver class content?

The Web offers a wide range of methods for delivering content. These methods range from simple text based formats to audio and video formats. Although this wealth of methods exists for delivery, not everyone may be able to receive content in all forms. For example, the student's choice of ISP (Internet Service Provider) may play a role in this, as well as the computing platform that they are using. It is therefore important to understand the facilities available to students who may enroll in these courses, and select content that they will be able to receive and comfortably use.

The choice of content delivery methods should also be periodically analyzed. As more people

acquire high speed Internet access, and new, more capable hardware and software becomes widespread, content delivery should be altered to present a richer learning experience. This may also be necessary if programs are targeted at selected audiences, for example corporate programs, that already possess high-speed access and more advanced capabilities.

How will student progress be assessed?

Depending on the class being offered and its pedagogy, choices in how student progress is assessed are important. While student assessment may not be a critical issued for classes not granting academic credit, it is an important one for credit granting institutions. Choices range from Web delivered assessment instruments to requiring that students attend the institution or a surrogate for testing. Decisions in this area are important, as they speak to the class's rigor and pedagogy. For degree granting institutions, there is the additional concern of making sure that assessment methods and practices are acceptable to their accrediting bodies.

Probably the most troublesome issue with administering assessment instruments is insuring that those being assessed are who they say they are. It is difficult if not impossible to reliably ascertain a participant's identity when communicating over the Internet. If reliable identification is necessary to maintain course integrity, arrangements must be made to administer assessment instruments through a proctored arrangement. This may require that participants meet periodically at a central location, or that arrangements be made at a reliable institution near the participant's vicinity.

Do your students have the skills necessary to use the Web and participate in class?

Not all potential students can be expected to possess a high degree of technical skill. In this regard the Web is both a blessing and a curse. It is easy for many people to learn enough to connect and make rudimentary use of the Web. But once you go past these essential skills, it may be difficult for students to take advantage of more sophisticated delivery methods. This makes it crucial to develop programs that train students in delivery methods as well as provide course content.

Some institutions have addressed this by requiring that students enrolling in web-based courses attend a class where they are taught the necessary skills. Other institutions have made a conscious effort to design their instructional materials so that participants of all skill levels will be able to use them. Either way, it is the institution's responsibility to develop an effective mechanism to help their students develop the technical skills necessary for their participation. It is also necessary to provide students with ongoing assistance, either on-line or over the telephone, as they work their way through the course.

What course delivery platform will you use?

A number of companies have developed course delivery software that facilitates the organization and transmission of course materials. Selection of one of these products can greatly simplify the task of delivering and maintaining course materials. Although adoption of these platforms is attractive, it may also impose constraints on what you can do in delivering course materials and conducting a class.

A needs assessment should help guide the selection of a course delivery platform. One factor making this process difficult is the continuing developments in this software niche. Nevertheless, each software package has strengths and weaknesses that must be assessed. An additional factor to consider is the technological infrastructure required to effectively implement the software.

Where will the class materials be maintained?

The question of where course materials are physically maintained is important to the extent that you must have appropriate facilities to store and deliver the materials. Theoretically the Web allows us to maintain our course materials anywhere in the world. For practical purposes, however, it is important to select a site that can adequately deliver materials to the intended audience. Adequate facilities will insure that course content is delivered in a timely fashion, and that demand for these materials will not overwhelm the delivery site's capabilities.

Although institutional facilities are usually assumed to be available to host a web-based curriculum, they may be inadequate. Depending on the mix of content that is offered in web-based courses, it may be more economical to use commercial facilities that guarantee an appropriate level of service. Thoughtful consideration should be given to this decision, since course participants may be negatively impacted by poor or unreliable delivery of course materials.

Conclusions

Offering Web based classes is a wonderful opportunity to extend the reach of an institution's programs by better serving current students or by exploring new markets. In essence, it may allow you to reach a group of people who otherwise would not be able to further their education. Exploiting this opportunity requires careful preparation and thought. Although there are no guarantees of success, thoughtful answers to the questions outlined in this paper can help you avoid some of the major pitfalls and program omissions.

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