

## CHAPTER 4

### ENVISIONING, PLANNING, AND IDENTIFYING RESOURCES

#### Overview

This chapter begins the “how to” section of the book. The first part of this chapter describes a set of decisions that faculty need to make before launching a project to move a course to the Web. Faculty will want to consider these questions:

- What kind of Web course do I want to design and develop?
- What course or sequence of courses would attract students if offered in the more flexible environment of the Web?
- What tools and resources are needed to support this project?

In this chapter, we also address questions that department chairs and deans may want to consider:

- What resources should all faculty have in order to support effective use of the Internet and the Web for teaching, learning, and research?
- How do I effectively support the first set of Web course projects?
- How much time for design and development do faculty need?
- What technical infrastructure needs to be in place at the faculty level, the department level, and the college level?
- What institutional policies need to be in place?

Two levels of decision making can help guide the design and development of a course on the Web. These decisions segment the planning tasks and make the process more manageable. Many times we just want to “get started.” Sometimes this approach is best, but planning makes avoiding the potholes easier and helps to create more reasonable expectations. In fact, that might be the most important outcome of this chapter—helping to manage expectations about

what *can* be done, how *quickly* it can be done, with what *resources* it can be done, and *where* Web course models of delivery fit in the institution.

In addition to planning, this chapter also provides examples of types of faculty support and training programs, as well as ways of identifying and estimating resource needs. This is a readiness chapter, designed to help you envision how to plan for moving teaching and learning to the Web environment. This chapter will help you to determine if you are ready, if your institution is ready, and if your college’s technical infrastructure is ready for a course on the Web.

#### Decision Layer One: Envisioning a Course on the Web

The first step in the preparation phase is the visioning step. What does it mean to have a course on the Web? Ask yourself, “What kind of a Web course best suits my students, the content, and my teaching experience? What kind of Web course fits the image and context of my institution?”

The phrase “course on the Web” means something to almost everyone, but it can conjure up very different images in the minds of academic decision makers, legislators, college presidents, and deans. If we hear a technically experienced faculty member, say, “Oh, I put my EXE 1401 course on the Web last weekend,” what does that mean? Some people may expect that all faculty can do this, and that the entire course is on the Web. Often, however, only a few documents, such as a syllabus, bibliography, and course calendar are on the Web, and some of us may feel we will need a lifetime to put these few documents on the Web!

Managing expectations is difficult, but considering the three major types of Web courses may help:

- A **WebCourse** is available anywhere, anytime.

- A **WebCentric** course shifts the focus from the physical classroom to the Web as classroom.
- A **WebEnhanced** course looks a great deal like a campus course but is strengthened by use of the Web.

In addition to these three types of Web courses, WebPresence describes a course that includes Web activity. While not a Web course, WebPresence content is very similar to what is now included in the traditional printed course catalog. All four types of courses are described in the following paragraphs.

### *WebCourse*

A course that is truly and completely a WebCourse can be accessed anywhere, anytime via the Internet and a Web browser. The times and places for interaction and communication are flexible and generally asynchronous. There are few, if any synchronous meetings. Any course today that is fully available on the Web generally makes use of one of the popular Web browsers, and the course experience begins and ends on the Web. All instructional strategies are planned and executed around the communication capabilities and content resources available on the Web.

The primary characteristic of a WebCourse—that it is fully available on the Web—means that the faculty member teaching the course and the students taking the course can participate from anywhere in the world. This also means, generally, that location-based activities such as class meetings or gatherings at physical seminars or conferences are not required.

Many distance learning programs make use of a slight variant of the WebCourse by focusing on students within a geographic area that would enable students to gather for a one- or two-day event in conjunction with a course. But the idea of a globally available WebCourse includes no requirement for students to gather physically anywhere.

Another feature of the complete WebCourse is that it makes significant use of Web technology and Web applications to support the teaching and learning that make up an educational experience. A WebCourse uses electronic mail, chat rooms, bulletin boards, and online conferences to support meaningful dialogue and social communication between and among participants, including faculty and students. The true WebCourse also uses Web applications to support the use of electronic resources such as databases, simulations, current news resources, course book sites, and digital libraries. These tools and resources help support discovery learning by individual students and among groups of students. The use of all these tools supports the creation of a learning community.

WebCourses can be cohort based, involving a group of students who stay together through a series of courses. WebCourses that are part of a series of courses are best if they are cohort based because the community and the relationships created during one course can continue and deepen during subsequent courses.

Many distance courses design “gathering” activities into the program to enable students and faculty to bond with each other in a learning community. Communicating with a person may be more comfortable in the digital environment if the participants have met and talked in physical space. The online synchronous and asynchronous communication activities support both social and intellectual networking and bonding. On-campus graduate programs often use these same social gathering strategies. For example, many intensive MBA programs have beginning and ending weekend socials that include spouses.

### *WebCentric Course*

A WebCentric course has made the paradigm shift away from the classroom as the primary site of organized instruction. As with WebCourses, the WebCentric course experience is likely to begin and end on the Web. The faculty member introduces the course on the Web and specifies what is to be done and learned, and with what

resources, through Web communications. Testing and evaluation can be accomplished with examinations, projects, and reports. Like the WebCourse, the WebCentric course makes significant use of Web technology and Web applications to create an online community for teaching and learning.

With the WebCentric course the center of instruction shifts from the classroom to the Web. However, a WebCentric course may have a series of scheduled synchronous meetings, possibly on campus or at a hotel or conference center. To meet the needs and convenience of working professionals, however, the length, frequency, and the content of the class sessions may be quite different from traditional on-campus courses.

Synchronous gathering activities for a WebCentric course generally take less than one-third of the class time. Classes or meetings of a WebCentric course may total between 16 and 24 hours. This contrasts with the typical 45 hours of meetings, usually held in one to three hour weekly sessions over a 15-week semester. A WebCentric course may have one to three meetings, but each meeting may be five, six, or eight hours long. Class time is concentrated, reducing the number of times students must gather in a physical space.

WebCentric courses can also be cohort-based, and can benefit from being so, but since they include more physical meetings, the cohort is not as critical a design factor. WebCentric courses may seem to be available only within a fairly limited geographic area, but this is not necessarily the case. Working adults will often travel farther if a particular program is available in a format that requires less frequent travel. WebCentric courses may include use of other gathering events such as intensive location-based launching activities, weekend seminars, and celebratory events. Depending on the frequency and length of class meetings, WebCentric courses can look a great deal like regular campus residency courses with heavy reliance on Web technology and tools.

### *WebEnhanced Course*

A WebEnhanced course, sometimes called a Web Lite course, uses the Web to support a traditional campus course. Faculty use Web technology to present the usual course administration components such as the syllabus, bibliography of resources, course and project requirements, and project consultation. The Web is used to support the faculty-to-student dialogue and communication, often supplementing office hours with e-mail communication and interaction. The Web also provides access to content and dynamic resources easily available online.

Designing, developing, and delivering WebEnhanced courses can be an evolutionary step for many faculty, removing the dependency on paper-based and phone-based materials and on synchronous meetings and communications. A WebEnhanced course can help faculty members migrate from a dependency on a lecture mode of content presentation toward more interactive and collaborative learning. It can be an evolutionary step away from the current classroom-centric model and toward a WebCentric course. This can be an effective change strategy for both faculty and administrators. Moving to a WebEnhanced course provides a transition step from traditional models of classroom learning to the newer models of information age learning. If this transition is done over time and with good infrastructure support, it can make the paradigm shift less costly. This is a good strategy if time and planning are available to support it.

If faculty members want to experiment with technology, the best choice is probably a WebEnhanced course. Moving to a WebEnhanced course is an attractive, low-cost strategy, but it is only “almost free” from an institutional perspective if this strategy is used by technologically savvy and experienced faculty with departmental resources behind the project. For most faculty, deciding to develop a WebEnhanced course requires a realistic look at the time and the resources needed to use this strategy effectively.

### *WebPresence*

Developing a WebPresence for a course is much like creating a flyer or a brochure about a course or creating the description that might go into a college catalog. Some schools require that all course descriptions be available on the Web; such descriptions often include information about the course, instructor, requirements, and prerequisites for the course.

A 1997 initiative at UCLA promoted the project goal of “a Web page for every undergraduate course” in the College of Letters and Science (Young, 1997, p. A21). Affecting about 3,000 courses, this effort acknowledged the growing importance of the Web in instruction. UCLA officials believed that they were the first to make Web pages mandatory across an entire curriculum.

At UCLA, faculty choice about when to adopt this new technology disappeared; faculty needed to adapt to this requirement immediately. UCLA supported the faculty by hiring 60 to 80 technology consultants, most of them students, to construct Web pages and teach professors how to use them. Also, the faculty and their consultants used a Web course management template, WebCT, to create a WebPresence using the basic information about a course such as meeting time, course description, and syllabus.

Faculty received additional help from an annotated collection of links to Websites with related content. Over time, faculty are also being encouraged to add readings, slides, audio and video clips, links to related Web sites, and other resources that will help their students. A discussion area appears on every Web site, letting students chat with each other and with their professors. With these additions, Web sites start to look more like WebEnhanced courses. More information about this program is available on the university’s Web site, [www.college.ucla.edu](http://www.college.ucla.edu).

Another significant point about this initiative is that relatively few UCLA faculty had previously created Web pages for their courses. Estimates

indicated that about 6 percent of the university’s humanities courses and 20 percent of science courses had course Web sites. Although 6 percent is low, 20 percent exceeds the normal acceptance point of the adoption of new innovations.

### *Envisioning the Outcome: One Course, a Series of Courses, or a Degree Program?*

When we look at some of the recommended time requirements and resources for building courses on the Web, we become more aware that faculty time, skill, and effort represent a serious commitment of resources for a college or university. Thus, it is wise to plan for the directed use of these institutional resources toward courses that are part of a larger goal. If the course is to be part of a collegewide effort, the choice of a WebCourse, WebCentric, or WebEnhanced course project will be part of a much larger planning process.

In Decision Layer One, a faculty member needs to ask questions about the larger context for the planned Web course. Is this course on the Web going to be an isolated pilot project, or is it envisioned as part of a larger department or college program offering? For example, will the course be part of a certificate program that students will want to access away from the campus in a flexible way? Or will it be part of a redesigned core sequence of courses mostly for campus-based students? Will the new plan include delivery to a large percentage of off-campus students within a two-, three-, or four-year window?

The type of Web course that faculty will develop, if well funded, will be determined by factors much larger than an individual faculty members’ preference or, indeed, individual faculty readiness. The faculty in the program, the available resources, and the overall program and college goals will influence decisions about the course.

A program goal might be updating courses that form a concentration within an existing degree program or offering a new certificate

Worksheet for Planning and Envisioning Courses on the Web: Decision Layer One

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Discipline Focus: \_\_\_\_\_ Department: \_\_\_\_\_

Institution: \_\_\_\_\_

**Scenario:** *You are a faculty member interested in moving forward with the use of technology in designing and developing courses that make significant and effective use of the Web. Answer these questions as a way of recording what you think you would like to do with one or more of your courses.*

1. Record the course or courses here: \_\_\_\_\_

2. If these courses are going to be part of a larger set of courses or a program, record the name and size of the program here.

\_\_\_\_\_ Name of program \_\_\_\_\_ Number of credits/courses

3. What type of course on the Web do you envision?

\_\_\_\_\_ WebCourse: Fully available anywhere \_\_\_\_\_ WebEnhanced:  
Enhanced campus course

\_\_\_\_\_ WebCentric: Central focus of the course  
is on the Web; flexible, fewer  
synchronous meetings \_\_\_\_\_ WebPresence: Provide  
information about the  
course on the Web

4. Where does this effort to put a course on the Web fit within your department's plans?

\_\_\_\_\_ A single pilot course \_\_\_\_\_ Part of an undergraduate major  
or minor (5 to 7 courses)  
\_\_\_\_\_ Part of a certificate program (3 to 5 courses)  
\_\_\_\_\_ Part of a graduate degree concentration \_\_\_\_\_ Part of a full master's degree  
(3 to 5 courses) program (10 to 16 courses)

5. Where will the students be? How often will they be there?

\_\_\_\_\_ Will the students be on campus regularly? \_\_\_\_\_ Will the students be within a  
single time zone?  
\_\_\_\_\_ Will students meet synchronously in the  
same physical location for 16 or more  
hours? \_\_\_\_\_ Will the students be across  
multiple time zones?

\_\_\_\_\_ Will campus facilities be needed to support this class? If so, identify them:

6. Who are the students? Why do they want this program? What do you know about these students? Do they all have easy access to the technology?

\_\_\_\_\_ Working professionals who want to upgrade skills \_\_\_\_\_ This is what you know about these students.  
\_\_\_\_\_ Working professionals dependent on a new certification requirement \_\_\_\_\_  
\_\_\_\_\_ Lifelong learners \_\_\_\_\_

program for upgrading skills of working professionals. WebCourse or WebCentric certification programs might be an excellent fit for students who are employed but need to update or enhance their skills.

### *Beyond the Course Level*

Just as faculty need to think about the larger context of degree programs, program leaders, department chairs, and deans also need to think about the larger context of the mission and image of their institutions. Many colleges are creating distance learning program committees to examine their options for distance learning.

Ideally, decisions about moving courses to the Web should be made in the context of the mission of an institution and its goals for the next 5 to 10 years. While institutions often plan for physical infrastructure 10 and 20 years in the future, curricular and academic program planning also need to be refreshed continuously. This planning should allow for flexibility to deal with opportunities that can enhance the institution academically. The programs that are offered externally in a community and in a field reflect on the image and mission of the institution. Therefore, decisions about external outreach programs need to be carefully planned and developed.

Another important question also concerns students. One of the most common questions from students about courses on the Web is, "Is the entire program of study—such as a master's degree, a baccalaureate degree, an associate degree, or a certification—available on the Web at a distance?" Students who are place-bound are particularly concerned with the availability of the entire program of study at a distance. They want to ensure that they can complete all components of each of the courses from a distance, and that no location requirements are made in any part of the program.

The two decisions about "What kind of Web course?" and "Is this course part of a larger goal?" are very interdependent. A seemingly simple question becomes one that could impact the

institution's mission, faculty, and students. The Decision Layer One worksheet is designed to assist faculty in determining the kind of Web courses to build.

Once this level of initial planning is complete, it is time to move to Decision Layer Two.

### **Decision Layer Two: Envisioning the Process**

Planning the movement of a course to the Web also requires thinking about at least five other areas of readiness, planning, and resources. These areas, Decision Layer Two, cluster around five topics:

- Faculty readiness
- Design and development time
- Types of faculty support
- Infrastructure support
- Mission and policy readiness

In examining these areas more closely, we identify decisions that are needed about each of these items and determine a readiness level for the journey to the Web. Although everything need not be absolutely ready before starting the journey, thinking about these areas helps us discover where trouble spots might be and helps ensure that we are open to opportunities for addressing weak spots.

#### *Faculty Readiness*

Moving courses to the Web requires a set of skills and resources on the part of the faculty member. The types of skills needed by the faculty member fall into two large categories: a knowledge of technology tools and a knowledge of the teaching and learning process.

The basic types of technology skills that a faculty member needs are listed below.

- Knowledge of and competency in the basic productivity suite of software: word processing, spreadsheet, and presentation tools. Database knowledge is a plus, but not required for the first year or so.
- Knowledge of and competency in the basic uses of a Web browser such as Netscape

Navigator or Internet Explorer. This includes knowledge and use of the search engines and the ability to find and evaluate information on the Web.

- Knowledge of and competency in the use of e-mail applications and their own e-mail communication system.
- Knowledge of and competency in building and maintaining course Web sites. This skill is less common among faculty now, but the new Web course management tools and the capabilities within word processing and presentation software packages to save text as HTML files will make this skill easier to acquire.

To develop these skills, faculty must have their own personal technology tools. We used to say that faculty needed their own technology on their desktop; however, because faculty are mobile information age professionals and consultants rather than stationary professionals, we now favor faculty members owning their own portable laptops or mobile technology. While initial costs for faculty portable computing may look high, the cost reduction comes in eliminating duplicated equipment and software in classrooms, offices, and libraries. Focusing on one good portable machine for each faculty member can also provide a significant productivity boost as the tools can be available anytime, anywhere.

Faculty need help and support in learning new technology skills. The opportunity for increasing faculty knowledge about technology also provides the chance to initiate a rethinking of the teaching and learning processes and the application of this knowledge to the new paradigm. Faculty programs that integrate technology skills with fundamental communication and discovery processes of teaching and learning are generally very well received. Faculty can learn these skills through a variety of training and support opportunities:

- One-day programs can be held as collegewide or small regional events.

- Hands-on, half- or one-day programs in the specific use of the various tools is a very cost-effective and efficient way to learn.
- Brown bag lunches are good for sharing stories. If designed carefully, these lunch gatherings can also be good for a structured set of skills. One college scheduled a series of brown bag events and invited speakers and trainers for groups of fifteen faculty members on various skills and topics.
- Preconference sessions at most higher education conferences offer good opportunities for integrated learning in technology and instruction or for straightforward technology introductions.
- Tutorials that accompany many software packages are remarkably effective.
- Other computer-based tutorials and videotapes are effective and portable.

### *Design and Development Time*

Once the decision is made about the type of Web course to be developed, the next question involves the amount of time a faculty member needs to redesign the course for this mode of delivery. Another question concerns other types of necessary resources and support. As might be expected, few hard and fast rules dictate the amount of time and resources necessary for developing a Web course.

Budgeting and planning for these steps is particularly difficult within the context of our current academic structures. When a faculty member is given the task of teaching a campus course, that faculty member is responsible for all phases of the course: design, development, recruitment, and delivery. Often, these tasks are done within the time frame of one semester.

With Web course development we need to “unbundle” the time for design and development from the delivery of the course, particularly if the course or series of courses will be marketed to a cohort of students and delivered by a faculty

member other than the designing faculty member. The only exception to this is the WebEnhanced course. Because that course is an enhanced version of an existing course for on-campus students, some of the tasks of moving it to the Web can continue to be bundled with the usual course responsibilities. There is one big caveat, however; time and resources are always needed to assist faculty in this process.

To arrive at reasonable time and cost estimates, consider the distance learning program model of design and development. Many of the distance learning programs offered before the Internet became widely available were able to reduce costs by taking highly paid, highly expert research faculty out of the delivery phase of the program.

For example, during the design and development phase of the U.K.'s Open University distance learning model, faculty experts are responsible for preparing and packaging course content. When a student registers for a course, the full package of materials is sent to the student; the cost of course materials is usually included in tuition fees. The student completes the course experience by interacting with the materials and with a tutor or facilitator who specializes in course delivery. While a tutor is delivering the course, the faculty expert is often developing a new course or updating the materials of an existing course.

Based on much anecdotal evidence, plus real experience over the last 10 to 15 years of building computer-based material, we can say with some level of certainty that creating one hour of Web instruction takes an average of about 18 hours of faculty time. This time is needed to ensure that the instruction is structured and developed to be delivered independently of the designing faculty member, but the ratio can quickly produce a negative reaction on the part of faculty, department chairs, and deans. Faculty who have done this kind of work either nod sagely, having known this all along, or nod vigorously as if to say, "that's about right."

These reactions should not be surprising, but the cost consequences are problematic. If we multiply 18 hours times the current 45 hours of in-classroom lecture and discussion time, we have an investment of 810 hours to design and develop a WebCourse that can be delivered without the presence of the designing faculty member. And this only represents the time of the faculty member. If we assume some time for startup with learning technology and instruction in teaching and learning in this new environment, plus arranging for any copyright and other issues, we can rapidly approach the 1,000-hour mark for developing a WebCourse.

Although release time varies among institutions, the average amount of release time in a semester is about 198 hours. This figure assumes a 15-week teaching semester with a week before and two weeks after for a total of 18 weeks, averaging about 11 hours per week working on the course. Using these figures, the resulting 198 hours of faculty time spent on developing a three-credit course represents 25 percent or less of the faculty time needed to create a WebCourse.

Faculty have reported working 60 to 80 hours a week while moving a course from the classroom to the Web. These faculty members are usually motivated by interest, enthusiasm, and dedication. In addition, the materials being produced are not generally being used by other faculty so the designing and developing faculty member is still part of the academic delivery process. This suggests that the bundled strategy can work at some level as a way of making possible our journey to the Web. This makes the process more affordable, but it results in little significant productivity gains for higher education since very little is being changed.

This ratio of 18 hours of WebCourse development for every hour of instruction is supported by research on the design and development of distance learning programs and the development of computer-based programs. Using estimates from research done by J. J. Sparkes in 1984, Rumble (1997) shows estimates of the hours of academic effort required to produce

one hour of student learning in different media forms (p. 79). See Table 4.1.

**Table 4.1. Academic Work to Produce One Hour of Student Learning**

<u>Media</u>	<u>Hours of Academic Effort</u>
Lecturing	2-10
Small group teaching	3-10
Teaching textbook	50-100*
Broadcast television	100*
Computer-aided learning	200*
Interactive video or CD	300*
*Requires support staff as well	

Note that the number of hours listed as the amount of academic work to produce materials for one hour of student learning refers to faculty time required. The amount of time for support staff to assist in the materials development is not included in these figures. The data suggest that if faculty are going to be successful in moving courses to the Web, we need to look at how to support their effort.

***Types of Faculty Support: Time, People, and Technology***

The types of support faculty need for doing this work fall into two broad categories: time and technical expertise.

The most critical success factor is time. If faculty members and department chairs truly expect to have Web courses, then faculty members need time to make this change. Part of this involves the time needed to learn new tools. Time is also required to review new sources of content for a course. The Web is a rich source of content for almost every discipline, but just as a faculty members must review textbooks and journals for appropriate course content, they also need to review a portion of the available sources of digital content for a course.

Faculty members also need time to learn new Web technology and to change their ways of conducting the academic work of teaching and learning. Incorporating new methods requires time to learn the tools, time to apply them, and

time to implement them. In essence, faculty must develop new habits.

Learning via the Web with technology tools is also new to students, and their questions, problems, and habits may require more time from faculty members. Obviously, as both faculty and students develop experience with new tools, some of these questions will go away. However, we can expect more tools to be introduced in the future.

A faculty member’s transition from classroom-based courses to WebEnhanced courses can be supported in several ways. Time and resources for the WebCentric and the full WebCourse will be proportionally greater, but the following suggestions apply to all Web-based courses.

- Provide a semester of release time as a minimum. Two semesters of release time over the course of a year is even better. Or, consider dedicating a full summer plus a semester of release time.
- Provide time for training and learning. This can be one to two weeks of concentrated time in the summer, or a semester of release time solely for the purpose of learning a subset of skills, such as basic productivity tools.
- Provide support for changing the curriculum if necessary to use some of the new book sites now available.
- Provide funds for hiring content researchers who work with faculty members to identify and review quality learning materials on the Web. Students who have either taken the course or are majoring in the discipline can be excellent content researchers.
- Provide training in new Web course management tools that can smooth the process of the first Web course experience. These tools are not perfect yet, but a thoughtfully selected Web course management tool can be used by everyone for at least the first set of Web courses.

**Worksheet for Planning and Envisioning Courses on the Web: Decision Layer Two**

**Scenario:** You are a faculty member preparing a plan to move a course to the Web. You are planning to do this more or less on your own time, but you need to have some support in the area of technology resources. Answer these questions as a way of identifying the resources that are essential to you.

Access to Tools and Support During the Design and Development of a Course

1. What is the state of your own desktop or laptop technology? Is it satisfactory? Do you need a new computer? Are your storage solutions appropriate? Do you need to update your software? Do you need specialized discipline software? Do you have access to printers, scanners, and cameras? Do you need them? Do you have access to e-mail away from campus and at home?

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List below the items and the cost of resources you need during the design and development stage of moving your course to the Web.

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Access to Tools and Support During the Delivery of a Course

2. List items you think you will need during the delivery stage of your course, including such items as a stable, reliable Web server and Web support in case of difficulties.

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3. List the training resources and time you will need to become technologically knowledgeable.

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4. What other types of support are important to you? Prioritize and quantify the following items. Note that this support is highly variable and depends on the type of Web course you are planning.

_____	Time	_____	Amount of time
_____	Content researcher	_____	Amount of time
_____	Web support/Webmaster	_____	Amount of time
_____	Web developer/graphics	_____	Amount of time
_____	Instructional designer	_____	Amount of time
_____	Editor, writer	_____	Amount of time

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5. It is important to develop a plan for what you will do and when you will do it.

_____	Start of planning	_____	Date
_____	Plan complete	_____	Date
_____	Start of design	_____	Date
_____	Design complete	_____	Date
_____	Start of development	_____	Date
_____	Development complete	_____	Date
_____	Semester of first delivery	_____	Date

6. When you are finished, what will the result look like? Be specific here about content of the Web site and the general overall resources used by the student. Would another faculty member be able to deliver this course?

- Assign Web support personnel to help faculty with the initial work of using the Web for teaching and learning.

In addition to these categories of time and people support, Web courses require infrastructure and technology support.

### *Infrastructure Support*

Before beginning a project for moving a course to the Web for delivery, the faculty member must have support from the administration of the department or college. The Web is a new environment for teaching and learning. Just as our current teaching and learning tools of books, classrooms, testing, and grading have supportive infrastructures, the new environment of the Web for core teaching and learning processes also requires support and integration into the administrative processes of a department or college.

Common support structures for the WebEnhanced programs include Web course management templates, Webmasters, Webservers, student access programs, and training. In addition to these support structures, WebCentric courses need support for flexible meeting arrangements and facilities and for other media access such as library materials. Common support structures for the WebCourse programs include structures for marketing, recruiting, counseling, student advising, library support, and media support.

Faculty may decide to offer a course on the Web without significant infrastructure or adminis-

trative support, but doing so takes time. Some of the vendors for course management templates offer free experimental Web servers for faculty, and support from technical staff on campus can be helpful in selecting an appropriate vendor.

### *Mission and Policy Readiness*

Since moving teaching and learning to a new environment consumes time, talent, and resources, the full support of the institution is helpful. Faculty who are willing to experiment and work in these new environments, and who are interested in helping to define and evolve these new environments, should have the explicit support of colleagues, chairs, and deans.

### **Major Constraining Factors**

The major constraining factors for most faculty interested in moving to these environments are a lack of time, technical assistance, and moral support. Academic administrators are constrained by the need for planning, vision, and additional faculty expertise. Teaching and learning take time, and the current faculty workload supporting the traditional paradigm is fully booked.

We are seeing, and will continue to see, many alternative modes of teaching and learning emerge to meet learners' needs. We must reconfigure teaching and learning strategies to take advantage of the new paradigm and to support faculty in the process.