

CRLT Technical Report No. 13-00

Teaching in a Web Based Distance Learning Environment:

An Evaluation Summary Based on Four Courses

Charles Graham, Kursat Cagiltay,
Joni Craner, Byung-Ro Lim,
& Thomas M. Duffy

March 1, 2000



Center for Research on
Learning and Technology

INDIANA UNIVERSITY

W.W. Wright Education Building, ED 2201
Bloomington, IN 47405-1006

The CRLT has as its mission to promote and support a community of scholars dedicated to research on the design, use, and implementation of technology to improve learning. Three primary themes underlie the work at the Center:

- research that contributes to the development of new pedagogical models for continuing professional development in the 21st century;
- research on and evaluation of interactive distance learning environments that inform our understanding of student learning; and
- research on teaching strategies for using current and emerging technologies to support student interaction, collaboration, and engagement in the issues being studied.

This report is one of a series from our on-going research on learning and technology. If you have any questions or comments on this report, or if you would like to find out more about the activities of the CRLT, contact:

The Center for Research on Learning and Technology
W.W. Wright Education Building
201 N. Rose Avenue Room 2201
Indiana University
Bloomington, IN 47405

(812) 856-8200
crlt@indiana.edu

EXECUTIVE SUMMARY

Overview

The Center for Research on Learning and Technology at Indiana University conducted an evaluation of four online courses offered by an academic school at another major university. This report represents a summary of general findings and recommendations from the course evaluations. Reports with course specific feedback from the evaluation were previously given to the instructors of the courses evaluated.

Purpose

The purpose of this evaluation is to provide feedback regarding strengths and areas where the School can focus efforts to improve its online courses. The primary criteria used for evaluating the courses were the Seven Principles for Good Practice in Undergraduate Education (Chickering & Gamson, 1987) which guide teaching and learning in the School.

Key Strengths

Key strengths of the courses evaluated were:

- Encouraging Active Learning – All courses did an excellent job of encouraging active learning through authentic real-world assignments
- Encouraging Student-Faculty Contact – Faculty were good at encouraging students to contact them through email and phone.
- Respecting Diverse Talents and Ways of Learning – The faculty did a great job of encouraging students to express their different views in the courses. They also incorporated learning exercises filled with real-life examples that often represented diverse perspectives.

Areas for Improvement

Areas where the most improvement was needed are:

- Encouraging cooperation among students – Although there was learner-learner interaction designed into three of the four courses, often times the interaction seemed to be somewhat superficial and students did not really interact to any large degree in any of the courses (except for the initial part of one course). Following the guidelines for asynchronous conferencing should help to overcome this problem.
- Giving prompt feedback – Instructors did a good job of giving feedback to students about their work, however, feedback typically became more and more delayed as the semester wore on. Instructors should try to get feedback to students within a week of an assignment due date.

- HCI Design – Although most aspects of the design were good in most of the classes, there was one class in particular that needed a lot of improvements made to the interface to make it more usable for the students. Additionally most of the courses could use some work in breaking up text heavy pages with appropriate formatting and images if appropriate.

General Findings

The general findings and recommendations from the evaluation are:

Finding 1: Instructors are generally motivated to do an excellent job of teaching in an online environment but are not always familiar with what strategies will be most successful in the online teaching environment.

Recommendation 1: The School should provide opportunities for and encourage instructors to share best practices with each other through faculty development workshops, seminars, etc. Incentives such as awards and recognition might also be used to encourage excellence.

Finding 2: Asynchronous conferencing is being used to some extent in most of the classes with varying degrees of success.

Recommendation 2: Instructors and students should be taught how to capitalize on the strengths of asynchronous conferencing tools by using them more effectively in their courses. (This document elaborates on some principles that will help instructors to use asynchronous conferencing tools more effectively.)

Finding 3: Instructors have expressed concerns that managing so much interaction online through the bulletin boards etc. is very time consuming and may cause burn-out.

Recommendation 3: Encourage instructors to learn about and implement course management strategies that do not compromise the quality of the instruction. (Several specific strategies are presented in this document.)

Finding 4: Some instructors don't have access to the school's web development resources such as WebCT and therefore are dependent on their own HTML coding skills to develop online materials.

Recommendation 4: Give access to development resources to all School faculty members who are teaching online courses.

Table of Contents

INTRODUCTION	1
CONFIDENTIALITY.....	1
METHODOLOGY.....	1
ACCESS TO INFORMATION.....	2
AIM OF EVALUATION	2
SEVEN PRINCIPLES OF GOOD PRACTICE	2
HUMAN COMPUTER INTERFACE DESIGN	2
EVALUATION	3
STUDENT-FACULTY CONTACT	3
STUDENT COOPERATION	4
ACTIVE LEARNING.....	6
PROMPT FEEDBACK.....	7
TIME ON TASK.....	9
HIGH EXPECTATIONS	10
RESPECT DIVERSITY.....	11
HCI - LAYOUT AND DESIGN.....	12
HCI - ORGANIZATION AND PRESENTATION	13
HCI - NAVIGATION.....	14
HCI - AESTHETICS	15
GENERAL RECOMMENDATIONS	16
INSTRUCTOR SHARING AND COLLABORATION	16
ASYNCHRONOUS CONFERENCING.....	16
COURSE MANAGEMENT TECHNIQUES.....	18
ACCESS TO DEVELOPMENT RESOURCES	19
CONCLUSIONS	21
REFERENCES	23

Introduction

The Center for Research on Learning and Technologies at Indiana University was asked to conduct an evaluation of four online courses for an academic school at another major university. Four graduate level online courses were evaluated.

Confidentiality

The instructors who had their courses evaluated did so voluntarily. This report will attempt to maintain strict confidentiality of evaluation results specific to any one course. It will focus on trends and issues from the evaluations that may be useful to the school's faculty and administrators.

Methodology

The course evaluations were overseen by Prof. Thomas Duffy and conducted by a team of four doctoral students from the Center for Research on Learning and Technology. Each of the four evaluators took a lead role in the evaluation of a different one of the four online courses. The lead investigator for each course evaluation was responsible for gaining a clear understanding the course from a student perspective. This was done by reading all of the course materials available online as well as reading the communication threads in the asynchronous conferencing forums. Hundreds of pages of information and thousands of student and instructor postings to bulletin boards were read by the evaluators.

Periodically during the evaluation process, the entire team would get together to exchange notes, discuss their analyses, and identify trends in the data. Additionally, in three of the four cases, the instructors were interviewed in person by a pair of the evaluators. These interviews helped the evaluators to answer questions that had surfaced in the evaluation process as well as help evaluators understand the design and structure of the course from the instructor's perspective. Finally, it is important to note that students who were enrolled in the courses were not contacted as a part of the course evaluations.

Access to Information

All of the instructors were open and willing to let the evaluators access their course web-pages. Three of the four courses used web-based asynchronous conferencing and the evaluators were given full access to these bulletin board forums to read the postings. The evaluators did not have access to the email correspondence between the instructors and the students. This was a definite limitation in the case of one course because the course primarily depended on correspondence using a listserv and private email.

Aim of Evaluation

The purpose of this evaluation is to provide general feedback to the School regarding strengths and areas for improvement in their online course offerings. The primary criteria used for the evaluations were the Seven Principles for Good Practice in Undergraduate Education (Chickering & Gamson 1987) which guide teaching and learning in the School being evaluated:

Seven Principles of Good Practice

1. Good Practice Encourages Student-Faculty Contact
2. Good Practice Encourages Cooperation Among Students
3. Good Practice Encourages Active Learning
4. Good Practice Gives Prompt Feedback
5. Good Practice Emphasizes Time on Task
6. Good Practice Communicates High Expectations
7. Good Practice Respects Diverse Talents and Ways of Learning

Human Computer Interface Design

The human computer interface (HCI) designs, including the organization and presentation of online materials, were also evaluated based on the following principles:

- HCI-1. Consistency of web page layout and design
- HCI-2. Clear organization and presentation of information
- HCI-3. Consistent and easy to use web site navigation
- HCI-4. Aesthetically pleasing design and graphics

Evaluation

This section of the report uses the Seven Principles for Good Practice in Undergraduate Education as well as several Human Computer Interface design principles as a structure for presenting strengths, areas for improvement, and recommendations to the School regarding their online courses.

1. Good Practice Encourages Student-Faculty Contact

Description

“Frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and future plans” (Chickering & Gamson, 1987).

Strengths

Email was the primary form of private communication between instructor and students. Three out of four of the **instructors were good at encouraging contact through private email messages**. All of the instructors went out of their ways to make it clear to students that they could be contacted via email and telephone.

A couple of the **instructors also invited students to have unscheduled face-to-face meetings with them** in order to help students who were struggling with the learning experience done entirely at a distance over the Internet. In fact, one instructor reported such a high rapport among her students that several of them rented a limo to take her to lunch with.

Listservs and class bulletin boards were the main source of public communication between instructors and students. Three of the courses evaluated used the WebCT bulletin board system quite heavily while the fourth class relied primarily on a class listserv for public communication. With a few notable exceptions, **instructors were respectful in the ways that they responded to students publicly**. There was at least one instance where an instructor publicly confronted a student in a way that the evaluators felt should have been saved for a private dialog between instructor and student.

Building trust with the students enhances student-faculty communication. **All of the instructors to one degree or another built trust with their students by providing opportunities for strengthening their relationship**. This was done by sharing values, attitudes, and experiences with the students and encouraging them to do the same. One instructor had the students write a short bio and send it to her at the beginning of the semester to help her get to know the students better while another instructor had each student fill in an online survey to help her better understand the students backgrounds. Several instructors also found it helpful to begin the semester with an “ice-breaker” assignment geared entirely towards helping everyone in the class (instructor included) to get to know each other better. One instructor indicated that she even got requests from the students for advice in their personal lives.

Areas for Improvement & Recommendations

While instructors were good at encouraging email contact, **none of the instructors clearly and adequately communicated their email response policies to the students**. This is an important step in establishing student-faculty contact. The 24-hour availability of email to the students provides a mechanism for contacting faculty

unparalleled in the past. Students often assume that instructors have easy, constant access to their email. If they contact an instructor and don't hear back within an expected timeframe they may feel that the instructor is ignoring their request. **This kind of misunderstanding can be reduced if the instructor communicates to the students a general policy or timeline for answering student's email questions.** An example of one such policy was an instructor who made it clear to her students that she would be away from her email on weekends. However, this same instructor did not give the students any clear indication of how quickly they could expect her to respond to their email requests during the week.

Because there are not frequent face-to-face meetings, it is easy for students in an online course to fall through the cracks and to be forgotten if they don't participate in asynchronous conferencing or make contact by email. **Students who seem to be falling behind or who are not participating regularly in bulletin board discussions should be contacted by the instructor.** In the class that used a listserv, the instructor claimed, that she periodically contacted students she hadn't heard from in a while. There was no clear indication beyond that of how well she kept track of who was on task and who was falling through the cracks. The job of keeping track of students' progress in this class was difficult because the majority of the assignments were due all at once in a final portfolio at the end of the course. Thus there was no clear checkpoint for determining if a student was on track.

In the classes that used bulletin boards, there seemed to be some students that participated very actively in the discussions while others rarely contributed. It was not clear to the evaluators if the instructors ever followed-up with the less active students through private email to encourage a greater level of participation in the course.

2. Good Practice Encourages Cooperation Among Students

Description

"Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions improves thinking and deepens understanding" (Chickering & Gamson, 1987).

Strengths

One way that instructors have encouraged cooperation among students is **by including group projects and assignments as a part of the course.** Two of the four courses required student collaboration on an assignment or project. **Another course encouraged cooperation through the use of well designed discussion assignments.**

Most instructors included some kind of "ice breaker" at the beginning of the course. These were good for helping the distance students get to know each other better. One instructor included a required face-to-face

orientation class with the instructor and other class members. While this strategy is not always possible, **having the students meet face-to-face once at the beginning of the semester is a positive strategy for building a sense of community.** (Unfortunately the face-to-face orientation mentioned above was more of a lecture/tutorial on how to use the technology and didn't require the students to interact with each other.) Building a strong sense of community among class members will increase their willingness to interact and cooperate with each other online.

Areas for Improvement & Recommendations

Create activities and assignments that foster a sense of community among the students. It can be much more difficult for students at a distance to gain a sense of belonging or community with each other. One course had virtually no meaningful student-student contact during the semester while the other three classes had varying degrees of student-student contact. **The courses could begin with a *structured* activity in which students are asked to share and find out about each other's interests.** In at least two courses students were asked to introduce themselves informally, but participation was not required. Our overall impression was that traffic on the listserv during the semester was quite sparse

Peer interaction was a weak part of most of the courses. One course had virtually no peer interaction and was taught like several independent study courses. Another course had a fairly high volume of peer interaction but many of the interactions were superficial or administrative in nature (organizing projects, clarifications, posting assignments, etc.). Another course began with a fairly high volume of interaction which dramatically decreased as the semester went on and students began to get busier and only participate in "essential" or required activities. **Instructors should develop assignments that require meaningful peer interaction.** Peer interaction will help to enrich the learning experience for the students as well as take the responsibility off the instructor for being the only feedback provider. Students might take the leading role in class discussions. For example, a group of students might lead the discussion by coming up with a set of questions while another group summarizes the discussion at the end. (See section on asynchronous conferencing for additional details on developing productive peer discussions.)

Ask students to evaluate each other's work. Encourage students to praise each other for their accomplishments. None of the courses explicitly encouraged students to critically evaluate each other's work. It is easier for students to evaluate each other's work honestly if doing so is an expected part of the course. If it is not expected in the course, students may not provide critical feedback to each other because they feel like they are overstepping their bounds. Students will learn from each other if they are encouraged to openly evaluate each others work. Instructions to students should help them learn to be tactful in their critiques as well as open in their praise of peers' accomplishments.

Develop a mechanism for evaluating individual participation and contribution to group projects. The courses that we evaluated did not assess individual responsibility on group assignments and projects. If there is a collaborative project as part of the course, it is important that a mechanism be incorporated to encourage

individual accountability and responsibility. Determining the level of individual contribution can typically be done through the process of peer and self evaluations. In these evaluations students who worked with each other on a team are asked to evaluate peer contributions to the team effort. They are also asked to evaluate their own efforts using the same evaluation criteria. Some portion of the student's project grade should be based on the self and peer evaluation.

3. Good Practice Encourages Active Learning

Description

“Learning is not a spectator sport. Students do not learn much just sitting in classes listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves” (Chickering & Gamson, 1987).

Strengths

Overall, the instructors in all of the courses that were evaluated did a very good job of encouraging students to engage in active learning. **They were particularly good at getting students to relate the ideas that they were learning to real-world issues.** This was often done by **getting students to do real-world projects or authentic assignments.** While reading was usually required, assignments were often structured to get the students to do something with that knowledge rather than just regurgitating it.

Areas for Improvement & Recommendations

Students should be asked to present their work to the rest of the class. Class members should also be encouraged to give feedback on the projects that are presented. In the online courses evaluated, bulletin board assignments were typically available for all to see while course projects were typically not shared among students. Students will learn from seeing the work of others. While formal synchronous presentations may not be practical in an online environment, the project work can be made available for other students to review. However, in doing so, it is important that specific questions be formulated to help structure a productive asynchronous discussion about the project or assignment work. Without a specific task, it is unlikely that the students will just review the work of others.

Assignments and bulletin board discussions could be structured in a way that **enables students to challenge the ideas of the instructor, of other students, or those presented in the readings or other course materials.** (See section on asynchronous conferencing for more details.)

4. Good Practice Gives Prompt Feedback

Description

“Knowing what you know and don't know focuses your learning. In getting started, students need help in assessing their existing knowledge and competence. Then, in classes, students need frequent opportunities to perform and receive feedback on their performance. At various points during college, and at its end, students need chances to reflect on what they have learned, what they still need to know, and how they might assess themselves” (Chickering & Gamson, 1987).

There are typically two main types of feedback:

- (1) acknowledgment feedback
- (2) information feedback

Acknowledgment feedback is feedback that confirms or assures the student that some event has taken place. In a face-to-face environment this kind of feedback happens all the time and is often communicated through non-verbal cues. For example, when a student raises her hand to ask a question in class, she knows that the instructor has seen her request (even if she is not called on) because of the eye contact she makes with the instructor. Similarly when a student submits an assignment in class, he gets visual confirmation that the instructor has received the assignment when the instructor picks up the stack of assignments and puts it into a briefcase at the end of class. This kind of feedback is often not readily available to students in an online learning environment. For example, if a student sends an instructor a question via email, she has no way of verifying that the instructor has seen her question. Similarly, when an assignment is submitted electronically, a student has no way of assuring that the instructor has really received his assignment.

Information Feedback is feedback that is informational or evaluative in nature. It is often manifested as the answer to a student question or as an assignment grade and comments. This type of feedback is typically explicitly given in both face-to-face and online environments.

Strengths

With the exception of one course, the instructors were good about giving information feedback on assignments and projects in a timely manner. The turnaround time for giving feedback on assignments in all cases, however, could be improved. A good goal to shoot for is a turnaround time of one week or less. When instructors set student expectations by communicating a clear feedback response policy it reduces student stress.

Strengths in the area of giving information feedback in bulletin board discussions tended to be more course/instructor specific. **Some instructors were good about monitoring group bulletin boards regularly and giving specific information feedback to students.** These instructors were typically good about guiding students by asking questions and encouraging them to find their own solutions rather than just giving them answers to

their questions. One instructor used the strategy of providing evaluative feedback through summarizing each week's discussion.

Areas for Improvement & Recommendations

While all instructors but one were good at giving informational feedback, **improvements could be made in providing more and better acknowledgment feedback.** Instructors could alleviate student concerns by sending them a brief note of acknowledgment when they receive an assignment via email. Also, if an instructor is too busy, for some reason, to give a detailed answer to a student question in a timely manner, the instructor should give the student an acknowledgment email stating that they have received the question and will address the question later when they have more time.

All feedback does not and should not necessarily come from the instructors. **Assignments and projects should be structured so that students can provide feedback to each other on them.** Typically, as the semester progressed and instructors became busier, the amount of instructor feedback decreased. Instructors need not become overwhelmed by the amount of feedback to give the students if they are properly leveraging the capabilities of other students in the class. (For more information see section on Course Management Techniques.)

5. Good Practice Emphasizes Time on Task

Description

"Time plus energy equals learning. There is no substitute for time on task. Learning to use one's time well is critical for students and professionals alike. Students need help in learning effective time management. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty. How an institution defines time expectations for students, faculty, administrators, and other professional staff can establish the basis of high performance for all." (Chickering & Gamson, 1987). Part of this has to do with how demanding the task is, part of this has to do with the expectation the instructor sets for working. Among assignments, some tasks require much more time than others.

Strengths

Once again, strengths were not uniformly found in all evaluated courses but mixed throughout the four courses that were evaluated.

Most courses had assignments with specific deadlines that required students to participate in the class on a regular basis. Having regular assignments due throughout the semester helped to encourage students to spend time on the course and not to procrastinate. One course had due dates every week on the same day to help students remember and plan time to participate each week. Another course with a large course project,

required students to report on intermediate milestones during the project to ensure that students were remaining on task and not procrastinating.

Overall instructors did a good job of underscoring the importance of regular work, steady application, sound self-pacing, and scheduling. This can be communicated explicitly through email etc. as well as through the structuring and due dates of the assignments. Most of the courses structured their assignments in a way that required students to stay on task and work weekly throughout the semester. Only one of the four courses had a very loose assignment structure in which almost all of the due dates fell at the very end of the semester.

Areas for Improvement & Recommendations

The students should be given a structure with deadlines that are spread throughout the semester. This rule was not followed in one course. The instructor only required all projects to be completed by the end of the semester offering the rationale that this gave students more flexibility in completing the course. While flexibility can be provided by allowing the students to sequence the assignments the way they wish, courses should not allow students to turn in all of their assignments at the end of the semester. This does a disservice to the students by encouraging them to procrastinate and spend time off task because of other commitments in their busy lives.

Asynchronous Conferencing can be a good way to improve student time on task. (See section on asynchronous conferencing for details.)

Use easily accessible resources. At least one course required the use of materials found only on campus. If the course assignments need some campus based resources (e.g. CDs, videos, books) instructors should try to make arrangement with the related university department (library, AV center, etc.) for the students' to easily access the resources. It would be preferable if it could be arranged for the resources to be available at a distance.

6. Good Practice Communicates High Expectations

Description

“Expect more and you will get it. High expectations are important for everyone—for the poorly prepared, for those unwilling to exert themselves, and for the bright and well motivated. Expecting students to perform well becomes a self-fulfilling prophecy when teachers and institutions hold high expectations for themselves and make extra efforts” (Chickering & Gamson, 1987).

Strengths

Once again, strengths were not uniformly found in all evaluated courses but mixed throughout the four courses that were evaluated. Three of the instructors did a great job of setting high expectations to motivate the students.

Most instructors clearly listed their expectations from the students on the course Web site. In addition to listing the assignments, due dates, and expectations, often the grading rubrics were provided for the students.

Instructors were good at publicly calling attention to excellent performance by the students. Instructors did a good job of balancing the praise given with the advice offered to the students. Giving positive attention to the students provides motivation as well as feedback about the kind of excellence that the instructors are looking for.

Areas for Improvement & Recommendations

Instructors should periodically discuss how well the class and individual groups are doing during the course of the semester. Giving the class feedback as a whole can help to motivate them to reflect on their performance and improve it.

Instructors should provide examples of exemplary performance to students. In three of the four classes the instructors did not provide examples of good performance at the beginning of the course for students to use as a guideline. Once course did an excellent job of providing examples of different qualities of student responses. Providing this kind of feedback is especially important when the students are asked to participate in bulletin board discussions as part of their grade. It is helpful for them to have some models to pattern their postings after.

7. Good Practice Respects Diverse Talents and Ways of Learning

Description

“There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio. Students rich in hands-on experience may not do so well with theory. Students need the opportunity to show their talents and learn in ways that work for them. Then they can be pushed to learning in new ways that do not come easily” (Chickering & Gamson, 1987).

Strengths

This was a strength of all of the courses. All of the instructors were conscientious about trying to incorporate diverse viewpoints and methods of learning into their courses.

The instructors for the courses that were evaluated used many different methods to bring diverse talents and ways of learning into the course. **One method used was to allow students to shape their own coursework by choosing project topics.** Instructors also **attempted to learn about the different backgrounds and interests of the students** through online icebreaker activities at the beginning of the semester. Instructors also were good about **encouraging students to express their diverse points of view.** Additionally instructors **often included learning exercises filled with real-life examples that represented diverse, unique perspectives.**

Areas for Improvement & Recommendations

No general recommendations in this area.

HUMAN COMPUTER INTERFACE DESIGN EVALUATION

Three of the four courses used WebCT, so there are certain aspects of the human computer interface (HCI) design that the instructors did not have control over. This portion of the evaluation will attempt to focus on those aspects of the design that the instructors could change.

HCI - Layout and Design**HCI-1. Consistency of web page layout and design.***Description*

Consistency in the interface allows people to easily learn and recognize the graphic language of the interface. It also allows them to transfer their knowledge and skills from one application to another. It also makes repeated visits and information retrieval from the same site easier.

Comments

Three of the four courses had fairly consistent layout designs and did not have any glaring consistency problems. One course needed extensive work to make look more professional and internally consistent.

One course had PowerPoint presentations available for the students on the site. However, the presentations did not look at all consistent. They had different color schemes, fonts etc. This can be distracting to the students.

Guidelines

We include here a few guidelines for details that can be used to improve the web page layout and design consistency:

Include standard information on each page.

The following basic information should be included at the bottom of each web page:

- last update date and time of page
- contact information
- copyright information

Use consistent styles on pages

Pages (and PowerPoint slides) should include consistent/complimentary backgrounds, font type, font size, icons, logos, banners etc.

HCI - Organization and Presentation

HCI-2. Clear organization and presentation of information.

Description

A well-organized interface allows the user to work efficiently. Users benefit from functions that are easily accessible and usable. A poorly organized interface cluttered with many advanced functions distracts users from accomplishing their everyday tasks. Effective categories should be used to describe the information available at the site and the interface should be designed to inform the users about available information.

In a well organized site the relationships between elements on the page should be easily understood.

Some rules of thumb are:

- (1) Information should be well organized and structured to support scanning and locating.
- (2) Navigational aids should be supplied for users. (3) Internal document links should be used for long pages.

Comments

This is the area in which there was the most need for improvement in the courses that we evaluated. Additional attention in at least three of the courses could be paid to formatting edits which could make the materials easier for the students to scan through. Instructors could do a better job of breaking up large blocks of text on pages through the appropriate use of headings and other formatting features.

Also, the number of accidental postings to incorrect discussion areas in a couple of the courses indicated to us that the bulletin board discussion structure may have been either too complex or not explained clearly enough.

Guidelines

Below are some general guidelines that can be used to evaluate individual course materials.

Use text formatting to organize information on the page.

If a lot of textual information is being presented on a web page, that information should be broken up and organized by the systematic and appropriate use (but not overuse) of bolding, italics, colors, etc. to set off main ideas and important information.

Limit amount of scrolling on each page.

Ways to limit the amount of scrolling required by the learner will improve the usability of the site. One method for doing this on text rich pages is through the appropriate use of internal hyperlinks and anchors so that the user can easily jump around within a page.

Maintain consistent organization of material.

Attempting to keep the format of assignments (including clearly defined objectives, requirements, due dates, etc.) will make the information easier for the students to find and use.

Make organization of group forums clear.

It is important to clearly specify the difference between group bulletin boards and public bulletin boards as well as information about when students are to post in the public vs. private bulletin boards. Some of the courses had problems with students posting to the wrong forums. In these cases the organization and number of forums should be evaluated to determine the optimal organization.

HCI – Navigation**HCI-3. Consistent and easy-to-use web site navigation.***Description*

Navigating hypertext can place heavy mental loads on users. In order to orient users and minimize the disruptive effects of jumping from one place to another, visual support and context should be supplied.

Descriptive headings should be supplied in each page. Dead-end pages without navigational options should be eliminated. Standard navigational aids (text and graphic) should be supplied in each page. Users should have more control using the site navigation.

Comments

Although the WebCT environment has an inconsistent navigational structure, changes to the standard WebCT navigation may not be possible or practical. However, instructors should keep links up-to-date and replace or remove broken links.

A strength of the School's program is that many of the courses use the same course management tool, WebCT. Three of the four courses evaluated used WebCT. This is good for the students because it decreases the learning curve that must occur when taking a second or third distance course from the school.

Guidelines

Below are some general guidelines that can be used to evaluate website navigation.

Standard navigational bars, icons, and links should appear in a consistent location on each page.

Navigation icons should be consistent and location of navigational bars or buttons should appear in a consistent spot on each page for ease of use. It is generally a good idea for pages to have a link back to the homepage or the main menu page.

The look and feel of navigational icons should be consistent.

Consistent navigation design improves the usability and learnability of the site's navigation.

Take advantage of web environment to link related information.

The instructor should take advantage of the strengths of the web to link related information so that it is easy for the students to access.

HCI – Aesthetics

HCI-4. Aesthetically pleasing design and graphics.

Description

Aesthetic integrity means that information is well-organized and consistent with principles of visual design. Users will be more engaged by a task if the information presentation is both well-structured and aesthetically pleasing. Since users spend a lot of their time working while looking at the computer screen, the visual interface should be designed to be pleasant to look at on the screen for a long time. In such an interface the graphics of the display should be kept simple and arbitrary graphic images should not be used.

Comments

With the exception of one course there was not a problem with the aesthetics of the course web sites. In the one course mentioned, there were a couple instances in which animated graphics were used that detracted from the professional look and feel of the course.

*Guidelines***Eliminate unprofessional or distracting images and icons.**

Icons and images used in the site should all be professional in nature and appropriate to the content of the course. Unrelated and distracting animated images should not appear on the course web site because they make the site look amateur.

General Recommendations**ENCOURAGE INSTRUCTOR SHARING AND COLLABORATION**

Just like students learn from each other, instructors can learn from each other. We recommend that the School provide opportunities and incentives for instructors to share and discuss with each other what kinds of strategies they are using in their online courses. The following are few ways in which the school might do this:

- **Faculty Development Workshops** which highlight the work of one or two different instructors and their online courses.
- **Brown-bag Lunches** in which a faculty member demonstrates his/her online course and faculty can discuss best practices.
- **Awards for Innovations in Teaching** might be awarded to faculty who are on the forefront in developing and delivering online courses.
- **A School Newsletter** which highlights a different online course each quarter or semester.
- **Faculty Seminars** which bring in guest presenters and/or discuss literature in the area of online learning.

USE ASYNCHRONOUS CONFERENCING EFFECTIVELY

One of the key components of an online course is its use of asynchronous conferencing tools. The way in which the asynchronous conferencing tool is used can have a dramatic effect on the student learning in the course. Instructors who will be teaching online courses should be given some guidelines for effectively using asynchronous conferencing in their courses. Below are some general principles that have been developed at the Center for Research on Learning and Technology for effectively using asynchronous conferencing tools:

Require student participation (make grade dependent on it)

If participation is not required, students will generally disregard using the tool for meaningful types of tasks. At least a portion of the final grade should be based on the student's participation in the asynchronous discussion.

Students need a task to focus their discussion

A common mistake that is made when using asynchronous conferencing tools is that students are just asked to use the tool to “discuss” a topic. This often results in shallow “talking around” the topic in question. The instructor should provide a specific task to the students to help focus their online discussion. One practice that has been used in the past to get students started into a discussion task is to assign specific roles (e.g., pro vs. con position, etc.) to students in the discussion.

The task should have a product or something that brings closure

The focus task given to the students should result in a product that represents the core ideas from their discussion. This could be as simple as a document that synthesizes the main arguments from the discussion.

The task must engage the learner in the content

The task that is chosen must strive to engage the learner in critically thinking about the content material and issues.

The discussion structure should be carefully thought out

Instructors should appropriately structure the physical discussion space to facilitate the discussion and minimize potential confusion. In the courses that were evaluated there were some discussion structures that made it very difficult for the students to remember where they were suppose to be posting at which times during the semester. The discussion structure (including public, private, topical, team forums, etc.) should be simple and easy for the students to understand. Multiple postings from students in the wrong discussion space is a clear indication that the discussion structure is too complex.

Discussion must be evaluated based on quality of content and not length of posting or number of postings

Evaluation of postings based on number or length of postings encourages students to contribute trite and thoughtless information to the discussion just to be “counted.” Discussion postings should be evaluated based on quality of content. This might be done by evaluating the synthesis or final product developed from the discussion.

Instructors should post examples of expectations for discussions

Instructors can improve the quality of student discussions by explicitly giving exemplars to the students. For example, in one course students were given example scenarios for three “types of postings”. One good example, one from a student who thought she knew everything, and a third from a student who was just agreeing with other posts and not adding anything substantive.

Students must get some kind of feedback on the discussions

Receiving feedback on the discussions is crucial in helping the students learn. Feedback can come from various sources including instructors and other students.

Discussion groups should remain relatively small

Experience dictates that if the number of students in a discussion group gets too large that meaningful discussion is less likely. If there is a large number of students in an online course it is more productive to divide them into several smaller discussion groups which work in parallel.

IMPLEMENT COURSE MANAGEMENT STRATEGIES THAT DO NOT COMPROMISE THE QUALITY OF THE INSTRUCTION

One of the dilemmas that is faced in giving feedback in an online discussion environment is that instructors want to encourage and increase of quality discussion because that increases time on task. At the same time the more discussion that is generated the more difficult it is for the instructor to keep up with it in a timely fashion. This is especially the case if a class is broken up into several small discussion and project groups because the instructor then has to monitor the discussion threads for multiple groups while student group members only have to monitor one group's discussion. The following are a few suggestions of strategies to help in managing online courses:

Increase emphasis on peer evaluation and feedback.

Increasing the emphasis on peer evaluation does not absolve the instructor from the responsibility of providing feedback in the discussions. However, it can alleviate much of the stress. The more quality feedback students get the better off they are. Peers can provide much of the needed feedback with the instructor monitoring and providing guidance at critical times rather than all of the time. Students can be encouraged to give meaningful feedback by making it a requirement for the grade or by providing other incentives. (Students also need to be taught how to give appropriate feedback in order for this strategy to work effectively.)

Increase the emphasis on group work.

Another way to improve the manageability of a course without compromising its effectiveness is to place a greater emphasis on group work. Creating assignments that encourage student collaboration can improve the quality of the learning for the students as well as reduce the number of final products that must be graded.

Selectively evaluate discussions.

Another way to maintain a high level of expectation for student participation in discussions without overwhelming the instructor is to selectively evaluate the discussions. There are several possible methods for doing this. First, the students could be informed that they are required to participate actively in all the discussions but that the instructor will evaluate everyone's participation quality for a grade only at a certain number of (unspecified) times during the semester. A second possible method would be assigning a group discussion leader for each topic or assignment and making that person responsible for encouraging and

stimulating quality group discussion. The discussion leader would then be the only one graded for each discussion. The discussion leader would then be rotated for each new topic until each student has had a turn.

Set clear feedback expectations.

It is important to set clear student expectations from the very beginning about how you plan to provide evaluation and feedback to them in their class discussions. Instructors who do not establish clear expectations often have to deal with a higher level of student stress due to unmet student expectations regarding evaluation and feedback.

GIVE ACCESS TO DEVELOPMENT RESOURCES TO ALL SCHOOL'S FACULTY WHO ARE TEACHING ONLINE

In the process of our evaluation, we found that not all School's faculty who are developing online courses have access to course development resources such as WebCT. We recommend that all faculty in the School who are teaching online courses be extended access to resources which will increase the likelihood of creating successful online courses. There are three main reasons for this recommendation:

Need for asynchronous conferencing

While faculty may be able to develop web pages on their own, it is beyond the capability of most faculty to develop and support their own system for asynchronous conferencing. This is such a key component in successful online courses that the School should do everything it can to facilitate its use.

Standard Interface

Allowing all online courses to use the same general interface (WebCT) decreases the learning curve for students who are taking online courses. Instead of having to familiarize themselves with a new interface for each course, students will be able to jump right into learning and participating in the course after taking their first course.

Need for technical support

To overcome the technical problems of the course, strong technical support should be supplied by the School. Instead of dealing with technical problems, the instructors should be able to focus their energies entirely on teaching their courses.

Conclusions

Overall the courses that were evaluated were well done. The key strengths of the courses evaluated are:

- *Encouraging Active Learning* – All courses did an excellent job of encouraging active learning through authentic real-world assignments
- *Encouraging Student-Faculty Contact* – Faculty were good at encouraging students to contact them through email and phone.
- *Respecting Diverse Talents and Ways of Learning* – The faculty did a great job of encouraging students to express their different views in the courses. They also incorporated learning exercises filled with real-life examples that often represented diverse perspectives.

Areas where the most improvement was needed are:

- *Encouraging cooperation among students* – Although there was learner-learner interaction designed into three of the four courses, often times the interaction seemed to be somewhat superficial and students did not really interact to any large degree in any of the courses (except for the initial part of one course). Following the guidelines for asynchronous conferencing should help to overcome this problem.
- *Giving prompt feedback* – Instructors did a good job of giving feedback to students about their work, however, feedback typically became more and more delayed as the semester wore on. Instructors should try to get feedback to students within a week of an assignment due date.
- *HCI Design* – Although most aspects of the design were good in most of the classes, there was one class in particular that needed a lot of improvements made to the interface to make it more usable for the students. Additionally most of the courses could use some work in breaking up text heavy pages with appropriate formatting and images if appropriate.

Four additional areas of general findings and recommendations are:

Finding 1: Instructors are generally motivated to do an excellent job of teaching in an online environment but are not always familiar with what strategies will be most successful in the online teaching environment.

Recommendation 1: The School should provide opportunities for and encourage instructors to share best practices with each other through faculty development workshops, seminars, etc. Incentives such as awards and recognition might also be used to encourage excellence.

Finding 2: Asynchronous conferencing is being used to some extent in most of the classes with varying degrees of success.

Recommendation 2: Instructors and students should be taught how to capitalize on the strengths of asynchronous conferencing tools by using them more effectively in their courses. (This document elaborates on some principles that will help instructors to use asynchronous conferencing tools more effectively.)

Finding 3: Instructors have expressed concerns that managing so much interaction online through the bulletin boards etc. is very time consuming and may cause burn-out.

Recommendation 3: Encourage instructors to learn about and implement course management strategies that do not compromise the quality of the instruction. (Several specific strategies are presented in this document.)

Finding 4: Some instructors don't have access to the school's web development resources such as WebCT and therefore are dependent on their own HTML coding skills to develop online materials.

Recommendation 4: Give access to development resources to all School faculty members who are teaching online courses.

References

Chickering, A. W., & Gamson, Z. F. (1987). Seven Principles of Good Practice in Undergraduate Education. *AAHE Bulletin*, 39, 3-7.

- Chickering, A. W., & Ehrmann, S.C. (1997). Implementing the Seven Principles: Technology as a Lever. *American Association for Higher Education*. WWW URL: <http://www.aahe.org/technology/ehrmann.htm>
- Nielsen, J. (1999). Jakob Nielsen's Web Site for Usable Information Technology. WWW URL: <http://www.useit.com>
- Shneiderman, B. (1998). *Designing the user interface: Strategies for effective human-computer-interaction*. Addison Wesley Longman.