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ABSTRACT

"Sketches of Innovators in Education" is a collection of articles in which Indiana State University faculty and staff members discuss their experiences developing courses and teaching with educational technologies. This edition features a special section written by graduate student employees of the University's Faculty Computing Resource Center. Articles are presented in alphabetical order, by the author's department. From the College of Arts and Sciences is one article: "Once a Tinker, Always a Tinker" (Lewis Sego). Articles from the Division of Lifelong Learning include: "Storyboarding: A Class Act in On-line Course Design" (Faye Bradshaw); "After Discovering Fire: Easing Into Using Technology" (Todd Harper); "The Faculty Computing Resource Center: Students Delivering Faculty Support Services" (Christine Salmon); and "The FCRC: Who We Are and What We Do" (graduate student employees). Three articles are included from the School of Education: "Virtual U: Simulating College and University Management" (Joanne Burrows and Joshua Powers); "The New School: A Fable" (David A. Gilman); and "Tips and Stress Reducers for Students and Faculty in Web-Based Distance Education" (Amanda C. Solesky). One article comes from the School of Health and Human Performance, "On-line Instruction is Here to Stay: Indiana State University Should be a Leader in the Public Sector" (Thomas Sawyer), and one from the School of Nursing: "The Evolution of Distance Education at Indiana State University" (Ann Marriner Tomey). Articles from the School of Technology are: "Technology Use in the Classroom: Advice from Experience" (R. Kurt Barnhart); and "Strategies for Surviving the Challenges of Teaching an On-line Course" (Davidson M. Mupinga). (AEF)

Sketches

of Innovators in Education

A Collection of Articles on Teaching with Technology

Indiana State University

http://indstate.edu/lifelong/sketches

Fourth edition (2002)

"In the future,
I envision a world of
computers and on-line educators.

Moving on from the current wave
of courseware tools for Web-based learning,
distance learning will soon permeate
every corner of the world."

—Jiten Mehta
Graduate Student
Electronics and Computer Technology
Indiana State University

About *Sketches*

Sketches of Innovators in Education is a collection of articles in which Indiana State University faculty and staff members discuss their experiences developing courses and teaching with educational technologies. This edition features a special section written by graduate student employees of the University's Faculty Computing Resource Center.

In support of our faculty, the University offers a variety of technology training workshops, including the Course Transformation Academy. CTA workshops are a university-wide effort with presenters from the Center for Teaching and Learning, the Cunningham Memorial Library, the Faculty Computing Resource Center, Information Technology, and the Division of Lifelong Learning. Moreover, each workshop features special mentoring sessions in which faculty pioneers from various academic departments discuss their experiences teaching with educational technologies.

In addition to CTA workshops, the University supports the Virtual Instructional Designer (VID), a Learning Anytime, Anywhere Partnership grant-funded project co-sponsored by Indiana State University, Ivy Tech State College, and Vincennes University. The purpose of the VID is to assist faculty with the integration of Web-based instructional technologies into their courses. For more information on the VID, refer to *After Discovering Fire: Easing Into Using Technology* (page 14).

As you read the articles in this edition, please contact our office if you wish more information. Our goal is to share creative approaches to teaching and learning.

—The Staff
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The Innovators

In the College of Arts and Sciences

In the Division of Lifelong Learning

In the School of Education

In the School of Health and Human Performance

In the School of Nursing

In the School of Technology

In the College of Arts and Sciences

Lewis Sego, Ph.D.

Associate Professor of Linguistics

Course

- Exploring Language

Once a Tinker, Always a Tinker

When I accepted the offer to join the Indiana State University faculty in 1965, the state of the art in instructional media dazzled my young eyes. It was the first year that Indiana State Teachers College had ventured out of its specialty, that of training teachers, into the multi-specialties of a fledgling university. Already in place was a thriving, active, audio-visual center, staffed with some of the finest media specialists in the entire United States. The recently completed Holmstedt Hall boasted two multimedia lecture halls, containing large rear-projection/front-projection screens, a roll-around lecture console with programmable controls and remote controls of the ceiling lights and speakers, and wireless FM microphones—among other state-of-the-art features. I could not resist the attraction. During 1965-1966, I became known on campus as a dedicated user of multimedia.

My office mate (Dr. Eugene Etheridge) and I designed an experimental course at the freshman level, a combined 125-student media-assisted lecture class that met on Monday and subdivided into five smaller writing classes on Wednesday and Friday, the small classes taught by teaching assistants. My colleague and I developed and wrote the materials for the multimedia lecture-presentations. The Audio-Visual Center converted our work into professional teaching aids. These aids were so good that I never could figure out how a student could fall asleep in class. (We learned that outstanding A-V presentations do not come with a guarantee.)

What we should have learned was that for every hour of scripted, automated multimedia instruction we would spend approximately 40 hours in design and production. The only cost-effectiveness realized in the experiment came from the repeated usage of our completed packages. (That factor was to become less important in the rapid changes of the information age. Updating the content was difficult. Not updating it was unconscionable.) It was time to go back to graduate school, to take on a third program of doctoral course work. At Indiana University (Bloomington) in 1970, I took the advice of one of the senior members of Indiana State University's A-V Center and enrolled in IU's Department of Instructional Systems Technology, where I majored in instructional development with an emphasis on learner analysis, focusing on research and theory in cognitive styles.

By April of 1972, I began to perceive some syntheses of ideas from my earlier doctoral course work in English, my doctoral course work in Biblical languages, and my then current linguistics field research—linguistics and cognition are interrelated—sensory modalities of multimedia (A-V) and human languages are interrelated. What was needed was a synthesis between cognition and linguistics. Also needed was what I would call "cognitive linguistics." This new area of study, "cognitive linguistics," emerged from working with ISU's outstanding staff in the A-V Center, with IU's Departments of Instructional Systems Technology and Linguistics, and with many professors of languages through the years.

Soon after I completed my doctorate at IU (1974), Dr. David Gilman, a colleague at ISU, introduced me to some new testing machines (computers). These computers not only administered and scored the tests but also gave the students feedback and recorded the individual grades in an electronic grade book. This capability spawned another idea. If I could place the testing and grading in the trust of a computer, could I link the computerized instructional sequences I had developed and piloted in 1968-1969 to this testing—and replace the classroom teacher altogether? This idea did not appeal to most of my colleagues. Cognitive linguistics convinced me that, though the replacement might be accomplished in a superficial way, the reality is that the classroom teacher does far more than what my simple model would have done. (Dr. Gilman bears no blame for this extension of a concept and technique of measurement.)

Once a tinker, always a tinker. By the following year, 1975, my experiences in technology had taken me from 2"x 2" color slides to the television closed-circuit studio in Dreiser Hall—and "chroma-key." Here Dr. Arvin Workman, then the director of the A-V Center, assisted me in the use of a teleprompter, the conversion of my scripted program into a smooth, videotaped, full-length color production, complete with sounds and stage props. He employed the relatively new (at that time)

technique of chroma-key, by which he was able to make it appear that I was on the pier at Salem, Massachusetts, during portions of the film. That tape (*A Source of Power in Hawthorne*) has been shown many times and continues to hold student audiences. (Note: This product has been cost effective.)

By 1978, overhead transparencies had become so commonplace that our audience expected participants to show rather than merely tell. Most ISU classrooms had been equipped with overhead projectors. Our audiences were jaded. The content, alone, was able to keep people awake. It seems, upon reflection, that the pattern may be repeating itself—only this time, we have carried it to a much higher level, computer animation and creative sound effects. Our student audiences are still jaded unless the content snatches them to attention.

"Cognitive linguistics" had become more than a phrase by the end of the 1970s. It was featured in a special session of the MLA convention in New York entitled *Cognitive Foundations of Language and Literature*. This progression led me to McGill University (Montreal) for a Quebec winter sabbatical in 2001. Here, other more experienced colleagues introduced me to the many facets of distance education via the Web. They showed me the good and the bad, the successful and the unsuccessful. Too often I heard them preface a remark with, "Now, I don't want to discourage you, but. . . ." When, however, they said, with animation and a twinkle in the eye, "C'était étonnant, une vraie surprise à voir. . . ." (or, as we say here in Indiana, "It was astonishing, a real surprise to see. . . ."). I knew they had enjoyed the thrill of the pedagogical chase from afar. It was contagious, enough so that I am currently developing an on-line General Education course consisting of an open-ended discovery strategy. Exploring Language (Linguistics 200) will offer distance ISU students, far removed from the Terre Haute campus, links to Web sites on the ISU campus inspired by my new friends at McGill. ISU's site was developed by the capable and helpful Christine Salmon, instructional designer, and Melissa Hughes, interim director of distance education, and supported by Dr. Ronald Dunbar, chairperson of the Department of Languages, Literatures, and Linguistics, and by Darnesha Riffe, a student participating in the Mentoring Assistance for Prospective Scholars Program. Remote links are possible thanks to my colleagues in the International Cognitive Linguistics Association. You can tell I have caught "the bug," the distance education bug that is, and will expect little relief until we launch our course on-line in January 2003. Haven't I learned anything yet?

From a pedagogical experiment using audio-visuals and instructional technologies all the way to a new field of study ("cognitive linguistics"), the route now seems direct; the destination, still ahead. The International Cognitive Linguistics Association (ICLA) will be meeting in 2003 in Zarogoza, Spain (northeast of Madrid), and the host institution is already gearing up to make available to conferees the very best technologies available. Dr. Carlos Inchaurralde, of the Universidad de Zarogoza, one of my esteemed ICLA colleagues, assures me there will be PowerPoint everywhere and Super iMacs at the ready. Good pedagogy, good tools, good thinking, and good friendships all seem to go together.

The lesson learned from working with instructional media is that the adventure is time-consuming but eye-opening, expensive but delightful when cost-effective, tiring but restorative of creative energies. The product is always more than the sum of the processes; the enlightenment of a student, always more than the sum of instructional strategies. That is why, after 37 years at ISU, my old eyes still twinkle.

In the Division of Lifelong Learning

Faye Bradshaw, M.A.
Instructional Designer

Storyboarding: A Class Act in On-line Course Design

Act I: On-line Course Design—Perils and Possibilities

Picture this. It is the beginning of summer, and you are well into your vacation when you receive a call from the chairperson of your department who informs you that one of your courses must be taught on-line. To top it off, you have got to have this course prepared and ready to go on-line by the beginning of the fall semester.

A million thoughts zoom through your head. "I have never taught on-line before. I hear that the new courseware management system is a bear to learn and use." Anxious, frustrated, and confused you wonder, "How am I ever going to get all this work done?" Your first inclination is to sit down at your computer and begin posting your syllabus and lecture notes to your new course site, all the while trying to tackle the intricate features of a courseware management system. The end result of this trial and error method is an on-line course that has all the functionality of your office bulletin board.

Now picture this. The fall semester has begun and you are finally teaching on-line. You have developed your course in record time. Plus, you have managed to learn and adapt the courseware management system to meet the objectives of your course and the needs of your students. Confidence and a sense of relief have now replaced frustration and anxiety. The key here is that you have discovered a little secret and that little secret is called storyboarding.

Storyboarding has been used most often to pre-plan films and commercials. Everyone from Leonardo da Vinci to Walt Disney has used this process. Da Vinci used storyboards—a panel of sketches—to outline his ideas. Disney is most noted for his use of storyboards to develop story ideas and as a way to manage the thousands of animated drawings associated with his films. Recently, Web-developers and instructional designers have begun using this process.

You can use storyboards to visually map out how your course will appear on-line. The storyboard illustrates the overall course design and the way students will progress through your course materials. Storyboarding helps you avoid all of the trials and tribulations of using the "hit or miss approach." Trying to make corrections is much harder on-line than off-line.

To begin storyboarding you will need to use a master worksheet to pre-plan your course; then you will create a flowchart (or use a sketch pad) to illustrate your ideas based upon your plan.

Act II: The Storyboarding Master Worksheet—Pre-Planning Your Course

At Indiana State University's Course Transformation Academy (CTA), instructional designers promote and provide training in storyboarding as a first step in transforming traditional classroom courses to on-line course formats. We actively help faculty resist the temptation to start "pointing and clicking" their way into disaster by asking them to fill out a "Storyboarding Master Worksheet." During CTA workshops, the completion of this worksheet, as well as other steps in the course pre-planning process, is scheduled for locations other than the computer laboratory—and the temptations of computers and courseware programs.

The "Storyboarding Master Worksheet" consists of three sections:

- Section I: Needs Assessment
- Section II: Organizing Your Current Materials
- Section III: Matching the Tool to the Task

At the end of each section is a checklist. Once completed, the information from each of these checklists is used to fill out the final page of the worksheet that is titled, "Your Course's Personalized Methods/Files/Tools Worksheet." To obtain a downloadable (and printable) version of these tools, refer to the *Links and Closing Credits* section of this article.

Section I: Needs Assessment

In this section, you must identify five things: the overall course goal; the target audience; your teaching style; your teaching method; and an assessment method.

First, you will need to identify the goal (or objective) of your course and how this goal will be met. In other words, what will your students know and be able to do by the end of the course? Second, you will need to identify your target audience. A learner analysis can be used to assess prior knowledge or knowledge requisites. This information will be important in determining how the course should be designed to provide the right level of intellectual challenge for in-coming students. Ideally, a learner analysis is always conducted prior to designing an on-line course. This tool can be used to assess areas such as the student's level of expertise with computers and software programs—specifically computer literacy. However, in the real world, it may be more practical to simply address various learning styles, skills, and (prior) knowledge sets by incorporating audio, visual, and kinesthetic activities into your course.

Third, it is important to identify your teaching style. That is, do you prefer a teacher-centered or learner-centered approach? Each approach has design implications. A teacher-centered approach would suggest that students progress through a course in a linear fashion with little user control over the sequence of course material. A learner-centered approach would be the converse of the previous approach.

Fourth, you will need to specify the learning objectives for the course and the methods by which each will be met. For example, one of your learning objectives might involve problem analysis. Your assessment methods might include an on-line class discussion. Fifth, you will need to fill out the "Teaching and Assessment Methods Checklist" that will be used to complete the corresponding section in "Your Course's Personalized Methods/Files/Tools Worksheet."

To see how this works, we will consider the plans for an introductory sociology class.

Teaching or Assessment Method

Overall Course Goal
By the end of the course students will be able to discuss and explain how social structures influence the perceptions, attitudes, and actions of individuals.

Target Audience
Undergraduate, working, and distance

Teaching Style
Socratic

Teaching Method
On-line Class Discussion

Assessment Method
Problem Analysis and Graded Discussions

Class Learning Objectives and Their Measure of Success

Learning Objectives
At the end of this unit students will be able to discuss and explain how small groups influence the perceptions, attitudes, and actions of individuals

Assessment
Ability to discuss the topic

Teaching and Assessment Methods Checklist

Teaching Method	Assessment Method
Class Discussion	Graded Discussion

Use this checklist to complete the corresponding section in "Your Course's Personalized Methods/Files/Tools Worksheet."

Section II: Organizing Your Current Materials

To complete this section, you may use your syllabus as a starting point for inventorying all course components including file documents and multimedia, along with hardware and software that you will use in your course. This includes PowerPoint presentations, audio and video files, graphs, photographs, worksheets, exercises, and lecture notes.

Next, you might include the following entry on your worksheet.

Class Activities, Assessment Methods, and Materials Inventory Checklist

Syllabus

Case Studies

Case Studies Formats—Audio/Video Files

Use this checklist to complete the corresponding section in "Your Course's Personalized Methods/Files/Tools Worksheet."

Section III: Matching the Tool to the Task

The next step involves making decisions about utilizing the appropriate communication tools, content presentation tools and features, and student participation/study tools. Base the selection of these tools upon the course objective as well

as the "Seven Principles of Good Teaching" (Chickering and Gamson, 1987). Consider the following principles as you select your tools.

- Promotes teacher-student interaction
- Promotes student-to-student interaction
- Encourages high expectations
- Provides rich, rapid feedback
- Promotes active learning
- Facilitates time on task
- Addressess different learning styles

In the worksheet for your sociology course, you would select the white board as a communication tool to facilitate teacher-to-teacher and student-to-student interaction.

You may use selective or controlled release of materials to allow students to learn at their own pace, which in turn supports the principle of promoting active learning as well as time on task.

Internet Presentation Style or Tool

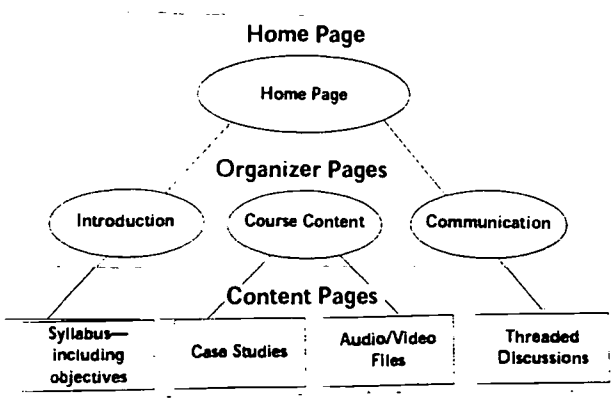
Communication Tools

Tool	Good Teaching Principle(s)
Threaded Discussions	Promotes teacher to student; student-to- student interaction

Use this checklist to complete the corresponding section in "Your Course's Personalized Methods/Files/Tools Worksheet."

Act III: The Storyboard Flow Chart Course Site Design

Instead of panels or sketches, participants in the Course Transformation Academy use a flowchart to help them storyboard their course and gain a sense of how their course would appear within the context of the University's present courseware management system—WebCT. Here is an example of what a *portion* of our introductory sociology course might look like.



The shading in this flowchart represents the course design layers in WebCT.

Act IV: Final Thoughts

Why use storyboarding? There are several reasons why you should consider storyboarding your course. Storyboarding:

- Allows focusing on the big picture; that is, the content and sequencing of course material.
- Reduces or eliminates the time-consuming process of making corrections on line.
- Makes it easier for you to adapt a courseware management system to your course rather than the other way around.

Links and Closing Credits

For additional information, the following links offer invaluable tips on on-line course design, or contact Faye Bradshaw at extbrads@isugw.indstate.edu

Chickering, A., & Gamson, Z. (1987). "Seven principles of good practice in undergraduate education." *AAHE Bulletin*, 29, 3-7.

Price, S. (1999). "The art of storyboarding." The Learning Technology Centre. Hariot-Watt University Edinburgh, UK. Retrieved May 22, 2002 from the World Wide Web: http://www.icbl.hw.ac.uk/~sprice/ctl/

Rehberg S., McQuillan, J., Stanton L., & Eneman, S. (2001). "Storyboarding master worksheet." University of North Carolina Charlotte. Retrieved May 22, 2002 from the World Wide Web: http://www.uncc.edu/Webcourse/sb/worksheet.htm

Rehberg S., Stanton, L., McQuillan, J., & Eneman, S. (2001). "Creating the storyboard." University of North Carolina Charlotte. Retrieved May 22, 2002 from the World Wide Web: http://www.uncc.edu/Webcourse/sb/storyboard.htm

In the Division of Lifelong Learning

Todd Harper, B.A.
Web Editor for the Virtual Instructional Designer

After Discovering Fire: Easing Into Using Technology

One of the crowning achievements in humanity's evolution has been the discovery of flame. Whether it happened via lightning sparking brush, accidental flint on stone, or any of a number of possibilities, to Neanderthal man, what was found was something new and unknown. But fire has always been part of our world. It is not *finding it* that was the big accomplishment; it was *discovering what to do with it* that set humanity apart from the animals.

Technology, especially instructional technology, is a great deal like the flickering orange and red blaze that started humans down their path so many millennia ago: powerful, useful, and in many ways necessary for survival. The trick to mastering technology is also fairly similar. It can be frightening and daunting, but when you take the time to experiment with it, learning pieces at a time at your own pace, it can be a powerful tool.

Sadly, many education professionals are not using technology in the classroom. There are as many reasons for not using instructional technology as there are instructors. Primarily, though, resistance to technological change is borne out of fear. Be it fear of changing methodology (why break a working formula?), of not being in control of the technology and the situation, or simply of not doing it right, there are plenty of reasons to be frightened. And none of these reasons are especially bad; there is nothing bad about approaching technology with caution.

But the key is to make small steps toward overcoming these fears. It takes time and understanding, along with some down-and-dirty work with the technology, to put them behind you. However, the potential rewards are great, and learning to be comfortable with the idea of using technology instructionally opens a huge number of doors, in terms of content resources, ways to communicate with learners, and considerably more.

How do you overcome these fears? As stated earlier, the trick is to take it one step at a time. Expecting to come from a position of knowing little to nothing and going full-bore into teaching completely on-line is ludicrous, naturally. The key is to start with your current needs, desires, and problems, perhaps for a face-to-face course, and to look at what easy technology solutions can help you solve those problems. In doing, you build the foundation for future learning and adapting of technology to your use. The old adage of "start small" certainly applies. As you grow more and more comfortable with using technology and become more knowledgeable, it is almost a guarantee that your fears and anxieties about instructional technology will melt away.

Where do you start looking for solutions? The world of educational resources is vast. Journals, Web sites, magazines, peer advice, and more are a vast sea of information to sift through. Just knowing where to start is such an intimidating step that many faculty (understandably) stop right there; unwilling or unable to devote the necessary time to finding the one bit of information they need to begin.

This is where the virtual instructional designer (VID) comes in. At Indiana State University, the VID is part of the Learning Anytime, Anywhere Partnership (LAAP) grant-funded project co-sponsored by ISU, Ivy Tech State College, and Vincennes University. The VID's goal is to provide instructor assistance with integrating Web-based instructional technology into their courses. Although originally intended for distance education, there is plenty the VID can offer for face-to-face courses as well.

To both demonstrate some of the possible steps you can take in opening up to instructional technology and to highlight some of the VID's content offerings, a step-by-step scenario of a fictional professor at a small public college, Robert Stefan, is provided here. Professor Stefan teaches an introductory course in art history and has been asked to add some technological functionality to his upcoming course. To help him, he has the VID available.

Step I: Needs Assessment

Keeping in mind the "start small" principle, Stefan decides to keep his goals low and realistic for now. Since Art History 101 is a larger lecture than average, and not all stu-

dents will get to know him personally right away, he decides that creating some sort of on-line presence students can access would be good.

Next comes the consideration of art resources for his learners. Sadly, there are very few major museums near Stefan's school, except for the school's own collection. Still, he would like his learners to be able to go out and search for more art to broaden their exposure. He lists his next goal as finding art resources on the Web.

Finally, the question comes up of e-mail. Stefan suspects he is going to be getting a lot more of it when he adds on-line functionality to the course. Not wanting to get buried in mail, he marks his third goal as developing some sort of system for dealing with the sudden influx of e-mail.

Three goals seem like a reasonable way to start. Enter the VID. The VID provides a feature called a "Faculty Needs Survey." A short interest questionnaire, the Needs Survey asks for exactly what Stefan has just formulated: his goals and aspirations. The result is what's called a "VID Plan," a list of VID modules that fit the interests expressed. In this case, Stefan only indicates those topics of need.

The resulting VID plan suggests three modules for him: Managing Course E-Mail, Introducing Yourself to Your Students, and Course Content Resources.

Step II: Prioritizing and Starting In

Now that he has the resources at hand, Stefan must decide which of his goals have priority. To him, it seems as if getting systems in place to deal with feedback before actually putting anything on the Web or directing students to use the Web is probably a good first step. Having the course resources available ahead of time to work into lesson plans and lectures seems like a fair follow-up. Lastly, he will take care of putting a Web page about himself up for students to peruse.

Like our fictional professor, it is important to give yourself enough time to take the first steps into using instructional technology, especially if you are unfamiliar with overall computer use. Nobody expects overnight mastery, so do not put that pressure on yourself. Instructors expect students to budget their time wisely to master skills at their own pace, and that standard applies here as well.

Where to begin? What steps need to be taken? The answer to that is naturally in the modules. Stefan begins reading the "Managing Course E-mail" module, looking for problems and solutions that best fit his own needs. Scanning the topics and the information, he decides to use an e-mail filter in his mail program to put student mail in various tagged mailboxes. Using the VID's search tool he locates a step-by-step tutorial on filtering e-mail.

Moving on, he checks the "Course Content Resources" module and finds an entire page of links devoted to the arts. Browsing a few that appeal to him from included descriptions, Stefan chooses one or two sites and adds the addresses to the "Resources" section of his paper syllabus.

Finally, Stefan discovers that "Introducing Yourself to Your Students" is in fact another tutorial, complete with a template and step-by-step instructions for creating a simple personal Web site. Using the tutorial, he creates an "About Me" homepage—finishing just in time for the semester to start.

Step III: Testing and Developing

The only sure test of a tool's usefulness is to actually do something with it. With his art history course beginning, Stefan now has a chance to put his newly developed technology solutions in motion.

The trick for Stefan and others is to keep their expectations low and take note of problems. If your solutions work out perfectly on the first try, then that is a bigger success than you could have hoped for—and congratulations! The reality is, most of the time situations come up where your preparations will not be enough, or something breaks down, or some other circumstance conspires against you. Use this to your advantage to learn more about using technology and technology resources to solve your problem.

For example, Stefan discovers that his attempts at making an on-line presence and being available through e-mail are very successful—more successful than he had planned. Now his learners are asking to turn in assignments via e-mail, bombarding him with questions about lectures 24-7, and generally flooding him with responses. Even with his filtering system, responding to everything would take forever.

Noting that he needs some way to quickly respond to large numbers of people efficiently, he delves back into the "Managing Course E-mail" section. Looking at more information than he had before, he finds some strategies for dealing with too many replies, including the option of automatic responses and pointing students to the general "Frequently Asked Questions" (FAQ) page. He takes the opportunity to learn more about his e-mail program and institutes a few of these changes, helping to stem the tide.

In short, Stefan discovers he needs to use his technology solutions actively. He learns if the resources are helpful or unhelpful, and examines their usefulness. It is at this stage that both real and fictional professors really find out the extent of their needs and capabilities. Remember, this is a learning and development time.

Step IV: Wrapping Up and Evaluating

The term is now over and Stefan's foray into using Web-based technologies to expand his course functionality was an overall success. Problems popped up, as can be expected of any experiment, but each problem presented a learning opportunity. By starting small and keeping things simple, he was able to ease into the idea of using technology in his course.

One final step. An evaluation step, both for yourself and for your learners, is crucial. The key to using instructional technology well is to keep what works and eliminate what does not. Take the time to review your use of technology over the semester and look at what made your life easier, and what did not. Ask your learners what enriched their learning experience, and what did not. Technology is, after all, a set of tools. Tools should work for you, not the other way around.

The fictitious Stefan and his situation are perhaps idealized and glossed-over. Real life is never as easy as a paper example, but the steps necessary for easing yourself into the concept of technology in the classroom are very real. Anxiety and fear about the unknown are perfectly understandable. The greatest tragedy is losing out on opportunities because of them.

My work with the VID design team and the feedback we have received from pilot instructors has clearly shown us that when presented with sufficient helpful resources and time, any instructor can begin to use technology. By keeping goals realistic, working at a steady pace, and having a willingness to learn, we can all find ways to use humanity's latest "discovery of fire."

For more information on the VID project or to get in touch with the design team, you can contact the author by e-mail at extharp@isugw.indstate.edu or by phone at (812) 237-9653. Visit the VID public site at www.thevid.org

In the Division of Lifelong Learning

Christine Salmon, M.A.
Instructional Designer

The Faculty Computing Resource Center: Students Delivering Faculty Support Services

Introduction

In these days of budget crunches, funding is tight for course development and technology training for professional staff. Given limitations in time, staff, and money, we ask ourselves how we can maximize our resources. How do we offer champagne service when we have a beer budget? At Indiana State University, Distance Education makes extensive use of student assistants through the Faculty Computing Resource Center. This approach offers students a unique opportunity to utilize their technological expertise to provide training and support services for the University community while providing new learning experiences for the students themselves.

The Faculty Computing Resource Center

History

The Faculty Computing Resource Center originated in 1994, as a center devoted to promoting the use of information technology in the classroom. Its primary mission was to support faculty in testing and in using technology in the classroom to improve the instructional program. Its secondary mission was to provide faculty and staff with support in exploring other innovative uses of technology. In 1998, the FCRC's primary mission was expanded to include the growing needs of the University's distance education initiatives. Later, in 1999, the FCRC became a unit of the Division of Lifelong Learning, which also houses Distance Education. Since joining Lifelong Learning, the focus of FCRC services has been development and production for distance education.

Why Students?

Initially, the FCRC was staffed by professional staff. However, budgets decreased while costs increased, and it became feasible, and necessary, to use students. Students are one of an institution's "most valuable and overlooked unique resources" (Gilbert, 2002). Our FCRC students are an invaluable resource—not just a cost-effective solution to relieve fiscal woes. In his keynote address to the All-Partners Conference sponsored by the Indiana Partnership for Higher Education, Edward Cooper (2002) listed the changing needs of learners and the learning environment as one of the reasons for increased technology and faculty support. Students today are more technologically savvy users than ever before. In fact, many are more technologically adept than their instructors. These students will demand (indeed many are already demanding) more and more use of technology in their courses. Who better to aid faculty in developing and designing instruction using technology than those who are using it—students? Cooper also pointed out that we need faculty technology support to help faculty make good choices. Faculty do not necessarily have the time to cultivate in-depth knowledge of new technologies; they often may possess only a cursory knowledge of developing an instructional tool such as a Web page. Faculty may not know the capabilities and the possibilities of technology. Consequently, they run the risk of making bad choices. Face it, we have all seen and perhaps even been guilty of "PowerPoint abuse" or atrocious use of color and fonts on Web pages. Web courses often end up looking much like text-based study guides, with a few discussion questions or a multiple choice test thrown in for good measure.

Our FCRC students come from a variety of disciplines and so bring with them multiple perspectives on learning as well as a myriad of technological skills and expertise. These students close the gap that develops between technological development that faculty are capable of and content development. Students have the time to explore various technologies and gain the expertise needed for effective implementation.

To More Practical Matters

The FCRC serves several functions for the University's schools and divisions:

- Distance education design and production assistance for the instructional design team

- Instructional support for specific technology projects, including Web page development, database design and development, scripting, and audio/video
- Consultation and training for organized workshops and individual consultations
- Technical support including hardware and software installation and upgrades, and troubleshooting
- Technological research on topics that are useful to instruction such as assistive technologies, accessible Web design, voice recognition software, audio/video streaming, and writing tablets

Projects vary in size and scope, and may require a variety of technical skills—from uploading quiz questions into an on-line course, to designing and developing entire Web sites, to advanced Web-based databases.

What the FCRC Can Do

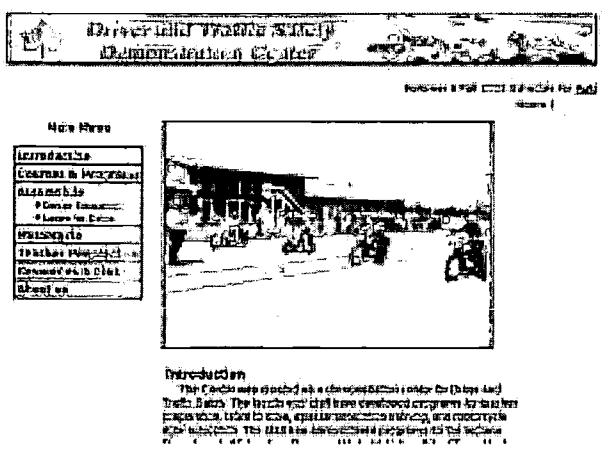
Training and Consultation

The FCRC offers individual consultations, training, and workshops to assist faculty and staff who wish to learn new technologies and new software. For one-to-one training, clients make appointments with the appropriate student consultant and come to the FCRC. Led by students, the "Taste of Technology" workshops are held during the fall and spring semesters and are open to faculty and staff at ISU. These workshops offer hands-on introductory training in such topics as HTML, FrontPage, Web graphics, Flash, and Director.

Web Page Design and Implementation

The FCRC can design, develop, and implement Web sites and home pages for academic departments and units, academic-related organizations, and faculty members (profession-related sites). The following is a sample Web site.

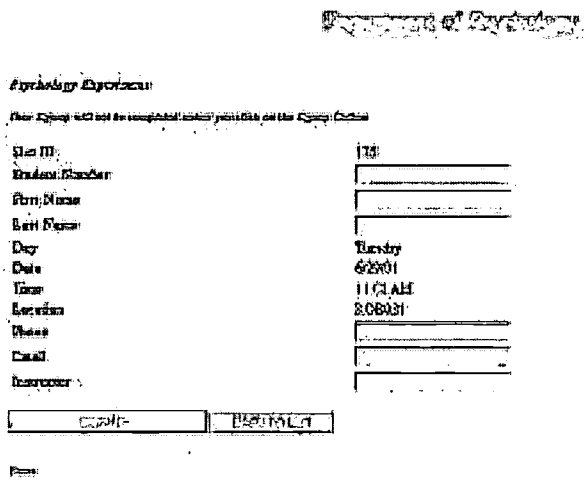
Driver and Traffic Safety Demonstration Center
Developer: Piyusha Tandon
URL: http://drivered.indstate.edu).



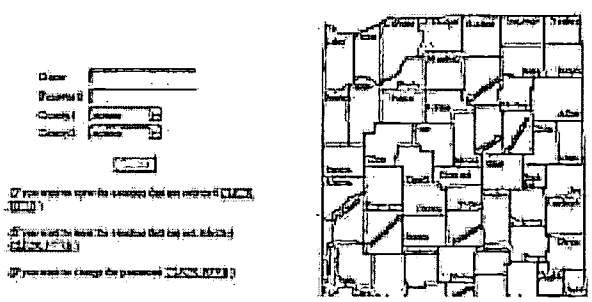
Advanced Web Programming

The FCRC can design, develop, and implement advanced Web-based programming projects including forms, database connectivity, scheduling programs, and project logs. This service is available to ISU academic departments and units. The following are sample projects:

- A secure on-line tool for scheduling psychology laboratories; developed in ASP.
  Developer: Krishna Chiruvolu



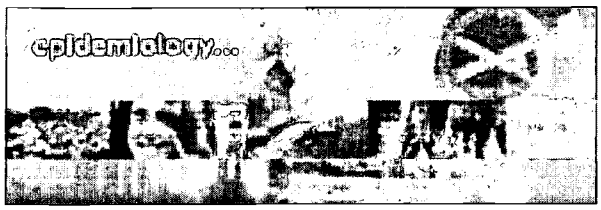
- An on-line tool for choosing Indiana counties for a course project; developed using HTML and PHP database.
  Developer: Harsha Yarlagadda



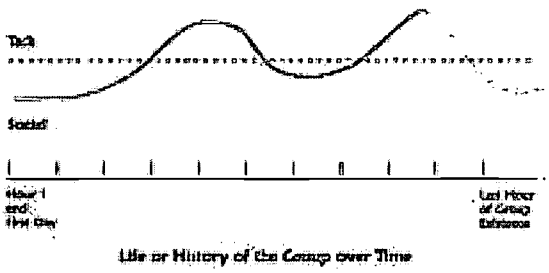
Digital and Web Graphics

The FCRC can create original graphics or adapt existing graphics in digital format to be used in CD-ROMs, PowerPoint presentations, or on the Web. The following are sample projects:

- Banner for epidemiology course.
  Developer: Young Woo Nam.



- Static graphics illustrating concepts for communications course.
  Developer: Swasati Muhkerjee.



Life or History of the Group over Time

Multimedia and Interactive Multimedia

The FCRC can create original multimedia projects or convert existing text-based or static problems, demonstrations, and illustrations into a multimedia or interactive multimedia format to be used in CD-ROMs or on the Web. The following are sample projects:

- *Stop on Nose*: This multimedia demonstration of a driving procedure for a driver education course was developed with Macromedia Flash.
  Developer: Jason Davis
  URL: http://fcrcweb.ftr.indstate.edu/M2.html

- *Introduction to Statistics*: An interactive tutorial for introductory statistics developed with Macromedia Director.
  Developers: Jiten Mehta and Piyusha Tandon.
  Faculty Content Experts: Dr. Christy Coleman and Dr. Christine MacDonald
  URL: http://fcrcweb.ftr.indstate.edu/M2.html

How It Works

There are two basic types of projects at the FCRC: walk-ins and assigned projects. Walk-ins are those projects that faculty or staff bring by or call into the FCRC on their own. These are generally small projects or tasks that may take only a few hours, such as scanning photos or documents, burning a CD, or assisting with loading a Web page. The FCRC abides by the copyright rules and laws of the United States. Student workers are not permitted to scan, alter, or adapt any copyrighted materials unless provided with a permission letter or memo from the copyright holder indicating the allowed uses of copyrighted materials.

Assigned projects derive from the instructional designers. These projects are usually large-scale undertakings, such as the development of an entire on-line course, or are tasks that are part of a large project. For these projects, selected FCRC staff serve as team leaders who work closely with both the instructional designer and the faculty member to design project components. These team leaders, or "project managers," can assign other FCRC staff to complete various tasks.

How Do We Do It? The Student Staff

The FCRC staff includes ten student workers, four of whom receive graduate assistantships. The other six student staff members are graduate and undergraduate students. A part-time office assistant manages the daily routine of the Faculty Computing Resource Center by performing duties such as scheduling student workers, maintaining the project log, organizing the FCRC meetings, and liaising with FCRC clients. A student manager fulfils these duties in the absence of the office assistant.

Two of the four graduate assistants are designated for instructional design, and work very closely with the staff instructional designers, often serving as team leaders or project managers for significant course development projects.

The FCRC is a talented interdisciplinary team. Students come to the FCRC from a variety of disciplines, including: industrial mechanical technology; radio, television, and film; mathematics and computer science; graphic design; management information systems; curriculum, instruction, and media technology; and electronics and computer technology. These students possess expertise in many areas, including:

- Courseware such as WebCT and CourseInfo
- Web development tools, including Dreamweaver, FrontPage, HTML, JavaScript, PHP, CGI, and ASP
- Multimedia tools such as Flash, Director, Camtasia, and Viewlets
- Graphics design tools such as PhotoShop and Adobe Illustrator
- Video and audio streaming with Premiere, Final Cut Pro, and RealMedia
- Server/networking Maintenance for Win2000, WinNT, Linux, and OS/2
- Hardware/software

Professional Development

We believe that our FCRC staff members are professionals in training. To that end, we encourage professional behavior in their work ethic, in their interactions with peers and with clients, and in their professional development. Student consultants are hired not only because they possess certain skills but also because they demonstrate certain qualities. Our consultants are responsible, prompt, organized, motivated, and creative. All possess time-management skills, and adhere to schedules and deadlines. They manage multiple projects at

the same time. They are self-starters. The FCRC student consultants also possess a desire and willingness to learn new technologies and skills, the ability to conduct research into technology, the ability to work in a team-oriented environment, and good interpersonal and communication skills.

To improve their knowledge of other technologies, the FCRC conducts "Cross-Field Training Workshops." These workshops allow student staff to demonstrate their own skills and knowledge while providing essential "back-up" training to their peers. To help students with their presentation skills, the FCRC sponsors the "Taste of Technology Workshops," which are designed and led by the student staff.

In addition, students must complete a semester performance review that is based on the University's performance review for support and professional staff. These reviews form the basis for further development and can serve as a basis for salary increases and further employment.

Plans for the Future

We believe that the FCRC functions well as a unit and provides excellent and necessary service. However, we also recognize the need for continual improvement. After all, the FCRC is part of the Division of Lifelong Learning. So we plan for the future. We have identified three areas that require immediate attention.

Improved project tracking using a Web-based project management log. The log will include information about the client, a better description of the project itself, the breakdown of the project into tasks, assignments of tasks, and time required to complete tasks. The project log will allow us to track the project from inception to completion, as well as permit us to create weekly or monthly reports about projects and student time.

Implementation of student training. Our students are very technically talented and skilled. One need, however, is for further training in consulting and interpersonal skills, specifically customer service. Many have never actually worked in a close relationship with faculty and lack the interpersonal skills to communicate with faculty as colleagues. We also plan to design and deliver several topic-based training sessions on such issues as copyright and ADA compliance.

Expansion of services. The FCRC will offer the "Taste of Technology Workshops" as a non-credit program—with attendance open to the community.

Conclusion

The FCRC performs a vital and essential service to the faculty and staff of Indiana State University. Certainly, the instructional design team could not perform its job without the help of the Faculty Computing Resource Center. For more information on the FCRC organizational structure or course development and training model, contact our center at (812) 237-2603 or julia@yeah.indstate.edu The FCRC welcomes visitors and collaborative activities with others.

For the FCRC experience—from the student worker's viewpoint—see *The FCRC: Who We Are and What We Do* on page 21.

References

Cooper, E. (2002). Keynote presentation. "Sharing the Learning Space", IPSE All-Partners Conference. Bloomington, IN. April 3, 2002.

Gilbert, S. (January 31, 2002). posting to TLT-SWG.

In the Division of Lifelong Learning

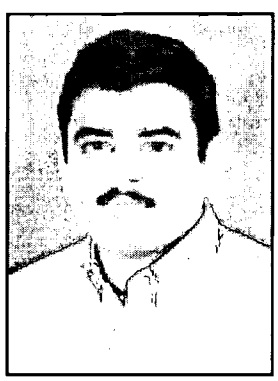
Faculty Computing Resource Center

The FCRC: Who We Are and What We Do

The Faculty Computing Resource Center offers support and training to Indiana State University faculty members who are integrating educational technologies into their courses. The graduate students featured in this article are representative of all student employees of the FCRC. This team is a talented, interdisciplinary group that assists ISU instructional designers. Without their invaluable expertise, the University would be unable to provide the level of assistance necessary to deliver successful learning experiences.

Krishna Chiruvolu

Graduate Student
(Industrial Technology)
Hyderabad, India



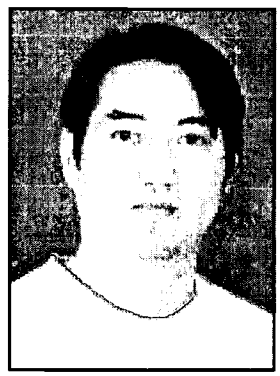
I assist faculty with their on-line courses by developing quizzes, questionnaires, and surveys using various tools. Conducting hands-on training workshops and cross-field training sessions for ISU faculty are parts of each student employee's job in the FCRC. Team effort and hard work are the secrets for every student's success. In addition, there is ample scope for interpersonal development. My job at the FCRC has prepared me to take up a challenging career in the field of information technology.

Areas of Expertise: HTML, ASP, JavaScript, Microsoft Access, Visual Basic Script Programming, Cascading Style Sheets

Vision of the Future: Technology in the classroom has undergone many changes in the past few years. Computers have a major role to play in classroom and on-line teaching. Many universities are setting up wireless networks for classroom instruction. Students and faculty members who have appropriate hardware will have the ability to connect to the college network and Internet from anywhere on campus. Wireless is the buzzword. It converts a traditional classroom into a mobile computer classroom.

Zuotian Deng

Graduate Student
(Mathematics and Computer Science)
Hu Bei Province, China



I assist in the creation of WebCT courses, including the uploading of questions to databases and the creation of quizzes and HTML documents. I also provide mini-consultations for faculty and assist the instructional designers at workshops. After I graduate, I will find a technology-related job. I do benefit from being a member of the FCRC team and faculties. I have learned a lot from them.

Areas of Expertise: HTML, JavaScript, Flash, Adobe Photoshop

Vision of the Future: Technology will be used in teaching more than now. It will change the way you teach.

Muhammad Rezwan Islam

Graduate Student
(Mathematics and Computer Science)
Dhaka, Bangladesh

Working in the FCRC is like a slide. You start off at one place—and your mass and energy take you to another. Our main job is to assist instructional designers with course development. We all have our own specialties. Mine are multimedia and video. To assist instructional designers and faculty, I not only provide consultations but also deliver mini-training workshops titled "Taste of Technology." I try to make these workshops as useful as pos-

sible by including handouts that are "jargon free" so that the faculty can try things at their own convenience and actually benefit from the workshop material.

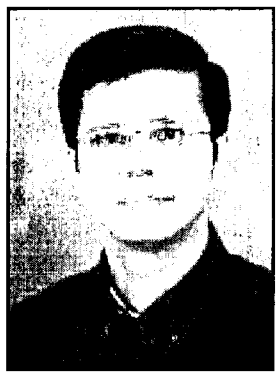
Working in the FCRC requires knowledge of various software and programming languages. In addition to server maintenance and working with multimedia, I write programs and help faculty with my favorite topic—security issues. The FCRC also allows opportunities for research and independent growth. The experience and expertise that I have gained have been invaluable. I believe that my experience in the FCRC has given me a better understanding of the applications and implications of a piece of code and how it works in the world.

Areas of Expertise: UNIX System Administration, CGI, Perl, Multimedia, Web Development

Vision of the Future: The future of multimedia? It sounds clichéd, but still I think it is quite limitless and possibly more speculative than the weather forecasts on television. If the human mind can visualize it, someone will someday write a program for it. The bottleneck step will not be technological but more biological. We may be using 3-D video that can be ordered instantaneously over a network to play in sunglasses, ensuring privacy and extremeness of portability. Or we may be using intelligent multimedia that plays sounds and images depending on our mood, based on our neural signature, or maybe just based on whatever we tell it to play.

Jiten H. Mehta

Graduate Student
(Electronics
and Computer
Technology)
Bombay (Mumbai),
India



I am closely involved in the development of WebCT courses. I design Web databases and recently created an animation segment in statistics. I also assist in faculty development by conducting hands-on training sessions on a variety of topics and software programs. My responsibilities include preparing handouts and creating demonstrations for these two-hour sessions. Other responsibilities include faculty consultation sessions. Based on my experience in the FCRC, I have learned to work both independently and in a team. My interaction with faculty and instructional designers has boosted my confidence and communication skills. This experience has enhanced my computer competencies, improving my future job prospects in the field of information technology.

Areas of Expertise: JavaScript, HTML, ASP, Microsoft Access, Macromedia Director, Adobe Photoshop, Cascading Style Sheets

Vision of the Future: I envision a world of computers and on-line educators. Moving on from the current wave of courseware tools for Web-based learning, distance learning will soon permeate every corner of the world. The use of technology will be greatly enhanced with computers, audio books, CDs, and other tools.

Swati A. Puranik

Graduate Student
(Mathematics and
Computer Science)
Miraj, Maharashtra,
India

As a graduate assistant in the FCRC, my role includes assisting instructional designers and ISU faculties with on-line course development. I upload course materials, a task that often involves programming, and the creation of forms and databases. I also assist with faculty development workshops and cross-field training sessions, and was a co-presenter at the 2002 All Partners Conference hosted by the Indiana Partnership for Statewide Education. It has been exhilarating to work in the FCRC as part of a great team. We all have our own specializations; therefore, when we work as a team, ideas are shared, and we learn new things from our colleagues. Even though I am a graduate student in computer science, there are projects such as audio/video streaming, graphic design, and server maintenance skills that I learned after joining the FCRC. The instructional designers always motivate us with new ideas and encourage all to learn new technologies. After graduation I want a job in a computer-related field that involves my experience in the FCRC.

Areas of Expertise: HTML, JavaScript, CourseInfo, WebCT

Vision of the Future: As a graduate student in the field of computer science, I always feel that teaching should turn to the massive task of making more accessible our bewildering store of knowledge in technology-related areas. Some faculties are still not in the forefront of this movement of network education, even though they know that item-by-item electronic replacement of their classroom is possible. The teacher's physical presence in the classroom can be reproduced on CD-ROM or made available over the Internet. Exciting computer-based graphics can replace dull textbooks. Research on the Internet can substitute for hours spent in libraries. Testing and grading can be done on-line. Even essay tests can be graded by powerful programs for textual analysis. This is how technology can be used for future teaching.

Piyusha Tandon

Graduate Student
(Educational Media)
Pune, India

As a graduate assistant for instructional design, I am involved in the design and development of on-line courses. One of the supplementary roles of all student employees is to conduct hands-on training sessions on a topic of interest and expertise. I have presented at cross-field training sessions and at the "Taste of Technology" workshops. Leading these training sessions was an experience, with tasks ranging from creating the demonstrations, to preparing handouts, to conducting the two-hour sessions. Some of my other faculty development tasks include assisting the instructional designers in the Course Transformation Academy workshops. In addition to these duties, I also offer consultations for faculty. The career that I am working towards is instructional design; hence, in my one year at the FCRC, I have gained hands-on experience for my future job prospects.

Areas of Expertise: WebCT, HTML, Cascading Style Sheets, Adobe Photoshop, Macromedia Director, Microsoft Office 2000, FrontPage

Vision of the Future: I think virtual education will be the order of the day. We have already come a long way from traditional distance education to distance education via virtual universities. Moreover, technology seems to be completing a cycle, moving from a luxury item to necessity, and back to a luxury commodity. This is especially true of advanced features like voice recognition, where the user just talks to a computer to type out a memo. Hence, I foresee a world where computers will take over all other instructional mediums, including face-to-face interaction with the instructor. Collaborative learning and teamwork will be restricted to chat rooms, listserves, discussion boards, and audio-video conferencing. The instructional designer will play a very important role, as on-line instruction will be the order of the day.

Harsha Vijaya Yarlagadda

Graduate Student
(Electronics
and Computer
Technology)
Hyderabad, India

I assist in the creation of WebCT courses and course components, provide mini-consultations for faculty, and serve as a facilitator at training sessions and workshops. My special skills include programming and database management. I also create graphic designs, including banners. As a member of the FCRC team, I have learned how to share work with others. Through my interaction with instructional designers, I have learned exactly what a client wants. And, as a facilitator for mini-training workshops, I have improved my interpersonal skills further. After my graduation, I want to work with technology rather than teach.

Areas of Expertise: CGI, Perl, PHP, JavaScript, MySQL, Microsoft Access, Photoshop, HTML

Vision of the Future: Technology will be so useful that a full-time student and a student taking distance education will get the same practical knowledge.

In the School of Education

Joanne Burrows, Ph.D.

Chairperson,
Educational Leadership, Administration,
and Foundations

Course:

- Resource Management in Higher Education

Joshua Powers, Ph.D.

Assistant Professor,
Educational Leadership, Administration,
and Foundations

Course:

- Academic Leadership in Higher Education

Virtual U: Simulating College and University Management

As former higher education administrators now teaching the craft to aspiring mid- and senior-level professionals, we have been eager to find ways to help our doctoral students understand the complex and interrelated elements of institutional leadership. Although some of our core mechanisms in the higher education program—case studies, problem-based learning activities, and internship experiences—have each helped in this regard, we felt the students were still not fully grasping the systemic and, at times, seemingly irrational way that cause and effect relationships in higher education seem to work. Believing that technology could be harnessed in some way—our students take many of their classes via interactive television—we began to investigate what other programs across the country were doing with technology to enhance student learning around management issues in higher education. We were especially interested in those programs utilizing a Web or interactive television format.

Serendipitously, we came across a feature article in the *Chronicle of Higher Education* describing a new interactive computer "game" called *Virtual U* that simulated the management of colleges and universities. Modeled after the highly successful *SimCity* game, an interactive software program in which the user attempts to build and run a city, *Virtual U* placed the user in the role of president at one of four different types of institutions in which he or she must respond to various board directives and institutional needs. With a full cadre of academic departments and administrative support units, the user must make a variety of decision choices based on a wide array of financial and non-financial data in areas such as budgeting, faculty hiring and time allocation, admissions and financial aid, facilities planning, and endowment management, among many others that have short- and long-term consequences just as they do for real colleges and universities. Powered by a sophisticated algorithm developed from real institutional data, *Virtual U* represented the first tool of its kind for realistically simulating college and university management in all of its messy complexity, something we felt had the potential for greatly advancing our students' understanding of the collegiate enterprise.

Emboldened by our find, we set out in the spring of 2001 to plan exactly how we would integrate this tool into our curriculum for fall 2001. After a number of conversations, a demonstration session with our students on how they might find it helpful, and a training session in Washington, D.C. that one of us attended, we decided to take the plunge and do something that no program in higher education had yet done—integrate *Virtual U* in a distance format across two courses simultaneously in one semester. Our purpose for doing this was four-fold. First, the nature of our two classes, a finance in higher education and an academic leadership course respectively, had many potential simulation applications within *Virtual U* such as managing an institutional budget, initiating revenue enhancement or expense reduction efforts, addressing faculty productivity issues, and responding to faculty morale concerns. Second, playing *Virtual U*, especially in a way that one would not quickly bankrupt the institution or get oneself fired by the board, took time and practice with its many decision options, something that we could more effectively do by specializing the training offered around the respective course topics. Third, we wanted to be true to our belief that institutions of higher education, whether a community college, a research university, or somewhere in between, are really unique organizational forms that behave as interconnected internal and external systems. For example, finance related choices clearly would have multifaceted impacts on such things as the core academic mission of an institution, something that could be best simulated and discussed

in the context of both courses. Finally, we were intrigued by the challenge of making this work in a distance medium out of a belief that place-bound students who purposefully entered our program desirous of using technology to make their education possible would potentially be especially receptive to the *Virtual U* tool as a learning device.

Knowing that it would be critically important to provide adequate time for students to become acclimated to the tool and to de-emphasize their proclivity to frustration for not being able to easily win (we regularly reminded them that winning was not the goal but rather what they learned about how institutions work), we embarked on a three-phase effort to advance the learning benefits of *Virtual U*. First, we provided a two-hour orientation session in which we explained the various windows and decision options as well as took them through a few fiscal years of activity. Second, we paired them up for a *Virtual U* scavenger hunt, one in and the other out of class, in which they were required to: find particular points of information about the institution: make some key decisions; and analyze the overall health of the institution. Finally, approximately four weeks into the class, we moved them past an orientation and institutional analysis phase to a scenario phase where they were given hypothetical situations faced by a chief financial officer, chief academic officer, or president who had to achieve a particular set of strategic goals that they and/or the board had set. Our work with *Virtual U* culminated at the mid-semester point where the students came to ISU for a weekend to present team projects. The goal of the team project experience was for them to discuss the different and often legitimate ways of achieving an end state but within an ambiguous and frustrating decision making environment that regularly characterizes management at the senior institutional level.

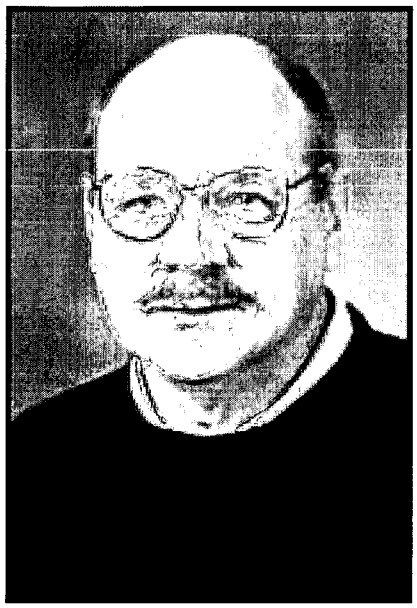
In retrospect, we learned a lot from this experience in terms of what worked and what we would likely do differently next time. In terms of the positives, we were very pleased that for the most part, it worked across two courses simultaneously, made possible in large degree to our commitment to regular communication. Students clearly benefited by taking a big picture view of an institution and struggling with the regular trade-offs required in an environment of limited resources. Additionally, the gradual approach to student orientation to the tool seemed to pay off in terms of their ability to understand and use almost all aspects of *Virtual U*—whether it be about student credit hour generation, course mixes, admissions and financial aid decisions, the impact of deferred maintenance, the investment choices for an endowment portfolio, or the myriad of other elements embedded in *Virtual U*. We also were able to help our students immensely by offering a mechanism for transferring saved games via a CourseInfo Web site since a game played out over multiple years could get quite large and hence clog one's e-mail when passing games around to classmates or to us as instructors.

As regards lessons learned, we had a number of those as well. As ubiquitous as the game was, it was still just a simulation of reality. Thus, students (and we as instructors) were at times frustrated by some of the variables that were not manipulable or the scale choices made when the game was produced to keep it of reasonable computer processing speed (research universities, for instance, were limited to about 7,000 students). A few of the students also suffered from technology compatibility problems when using *Virtual U* on their own computers. Furthermore, try as we might, we still struggled to help students see beyond success measured solely in terms of how many points they scored or if they achieved all of their goals rather than the more important question, "what had they learned from their decision choices?" Lastly, it required a considerable amount of time investment on our part in preparing saved games with data played out over a few years, creating workable scenarios, and preparing value added post-exercise sessions to help students understand the implications of their choices via our own simulation.

The limitations not withstanding, we were glad we took the risk with this piece of technology to enhance the learning experience for our students. Our intention is to use it again in one or both of these classes in the fall, possibly to integrate it into the student internship experiences, and ideally, to offer it as a training tool for practicing administrators at ISU or other institutions in the region who are not enrolled in our graduate program. One very nice and unexpected benefit of our use of this tool has been recognition of our program at the national level since we are one of the first programs to try it and the only one to use it across two courses.

Interested persons can visit the Web pages of the firm that markets *Virtual U* at www.virtual-u.org Best of all, this game is free; the costs of production are borne by a major grant received by the inventors. Individuals who wish to sit in our course(s) to see how we use *Virtual U*, may contact either one of us. Contact information and links are located on the departmental Web site at www.indstate.edu/soe/elaf

In the School of Education



David Alan Gilman, Ph.D.
Professor of Education

Courses:
- Research in Education
- Measurement and Evaluation in Education

The New School: A Fable

Time was when tribes taught their young braves survival skills—hunting, fishing, homeland defense, and growing of grain—by word of mouth. One day, a tribal elder noticed that burning leaves and twigs created smoke that could be controlled by waving a heavy animal hide over the fire. The tribe could readily observe signals that the smoke created, and to their surprise braves from other tribes reported that they, too, had seen the rising puffs of smoke.

Someone, nobody remembers who, reasoned that smoke signal lessons could be sent in such a way as to teach survival skills to young braves of many tribes. A council of tribes was formed to create and supervise training through a network of lessons providers. Some of the tribes were skilled fishermen, some knew how to grow grain, and others were fine hunters. Still others were proficient at defending their homes. In this way, each of the tribes offered its own training specialty through an intertribal network of smoke signal creators.

The tribal elders praised their invention saying, "Surely, our New School is a state-of-the-art school. There is nothing like it in the world." Word quickly spread about the convenience and economy that could result from teaching survival lessons at a distance.

Wisely, the elders anticipated that their Internet would experience technological problems. On rainy days, fires could not be built. On windy days, the smoke was wafted so that signals became garbled and confusing. There were logistical problems; records of training were hard to keep because nobody knew for sure who was watching the signals at any given time or what progress the many students were making toward completing their training.

But another problem became the intertribal network's dirty little secret. Everyone knew about it, but nobody would ever talk about it. The tribal elders had become divided into three factions.

Some were "Sophists" who proclaimed that this was an idea whose time had come. They made outrageous claims about just what the inter-network was accomplishing and its unprecedented potential for teaching young braves. Their battle cry was, "hot damn! Everybody must have our Internet, and they must have it now."

Other elders, the "Luddites," were doubtful that anything as complicated as survival skills could be taught at a distance. "Smoke and mirrors," they proclaimed, "can never teach the sacred content that is contained on yellowed papyrus notes. We have always done it this way. It was good enough for our ancestors, and nothing could or will ever be as good as the old school." The Luddites, threatened by the changes that the New School foretold for them, set about to overthrow the New School and even hindered the progress of its students.

The third group, the "Obfuscators," was the most dangerous of all. They had acquiesced to the reality of the tribal council and condescended that survival skills were going to be taught through the council's Internet. But deep down, they believed that everyone in the tribes would come to believe that Internet training was "superficial " and the New School was giving "cheap degrees." So, they sought to make Internet training difficult to complete. Because of their limited abilities, the only ways that the Obfuscators could imagine to accomplish this was to make the lessons more ambiguous and to introduce endless delays. Through bullying of their students and pettiness, they did succeed in making the distance learning more turgid. The Obfuscators told young braves that teaching was a low priority for which there was not sufficient payment.

Each of the three groups, through its own arrogance, contributed to the demise of the New School. The Sophists were not able to create lessons quickly enough to satisfy the needs of students, who quickly became impatient because they were unable to progress due to lack of materials.

The Luddites' persistent sabotage and their claims of the inadequacy and failure of the New School caused students to say to each other, "We shall not touch the New School with a ten-foot spear."

The young braves came to see the Obfuscators as rigid, anal retentive, petty, and frustrating. Many braves left the tribe

so that they could continue survival training elsewhere, and others gave up the study of survival skills altogether.

Now the tribal chiefs, who never understood the complexity of the Internet, could have solved this problem through meetings of the three groups. However, because of tribal rules, jurisdictional disputes, and territorial imperatives, each of them was reluctant to become involved in the struggle. The chief of fishing could not be bothered with student problems caused by difficulties in hunting training. The hunting chief did not want to hear problems that had anything to do with growing of grain.

The grand chief of survival training said, "Don't dump these problems in my lap. Find yourself another chief to complain to." The young braves noted that there was no place they could go for help or guidance.

Students went from one chief to another only to find that their complaints always seemed to fall into black holes. This made progress toward their training goals impossible to attain. An ever-increasing number of them abandoned Internet lessons; others sought refuge in more traditional training offered by other councils and tribes.

One day, the elders noticed that there were no students in the New School. There were chiefs, elders, and would-be teachers, but the smoke signals were no longer being sent because young braves were no longer watching the skies. Slowly but surely, it became readily apparent that the New School had died.

The moral of the story is that for a New School—even a state-of-the-art school—to survive and prosper, the smoke has to blow both ways.

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In the School of Education

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Courses:

- Survey of Communication Disabilities
- Clinical Methods and Procedures in Speech-Language Pathology
- Topics in Communication Disorders: Supervision of Speech-Language Therapy Service Providers

Tips and Stress Reducers for Students and Faculty in Web-Based Distance Education

This is my fourth semester teaching Web-based classes. I have to say that I enjoy this format and continually strive to make the Web class as interactive and fulfilling as my on-campus classes. I enjoy learning and being challenged by the technology aspect of delivering information through the Web. However, regardless of the format utilized—Course Info or WebCt—I find myself increasingly frustrated by the student's lack of awareness of what a distance education course entails, and also the student's lack of the basic skills necessary to function in the class. This semester I have been planning a self-survey, a basic skills tutorial, and list of hardware/software requirements to be linked on our departmental Web site. Upon enrollment, or prior to enrollment (if I am the advisor), students will be directed to these links to start them off on the right foot in our distance classes.

The Self-Survey

This survey was created after I had several experiences with students thinking that a distance education class would be an easy grade, and also for students who lack the self-discipline to effectively participate in an on-line class. The survey includes introspective questions for the students to ask themselves. Information about the reality of on-line course work is included after each self-question.

The following questions are included.

Face-to-face interaction with instructors and classmates is very important to me.

Some students learn best through in-person interaction with other students and instructors. Others learn better by listening, reading, and reviewing on their own. The CD Web courses do not provide face-to-face interaction. However, you will get to know your classmates and instructor through e-mails, discussion board talks, and chat rooms.

I have adequate to good organizational skills and turn assignments in on time.

Distance courses are best for students who are self-motivated to keep themselves on schedule and who can complete assignments on time with little to no reminders.

I enjoy reading and understand most of what I read.

Most course work is delivered through chapter readings, journal articles, lecture notes, and written directions for assignments. Good reading skills are a plus.

I am comfortable expressing myself in writing.

Good writing skills are necessary for assignments and papers. You also need to be able to express your thoughts and ideas through writing. Being able to write responses to questions can be seen as a plus as students have time to compose their thoughts before submitting an answer. Also, some students feel freer sharing ideas through the written mode.

I can dedicate a minimum of five hours a week to course work.

Distance classes take as much, if not more, time than on-campus classes. You need to be able to set aside time to read all materials and complete assignments.

I am self-motivated to keep up with course work.

Distance courses take initiative and self-direction from the student. You need to be independent in setting up a schedule for studying and following the syllabus.

I prefer to receive feedback on assignments right away.

Instructors try to give timely feedback, but due to the

nature of distance learning, it may take a week or two to get comments back.

I am comfortable with e-mail, computers, and technology.
Basic computer skills are necessary to take a Web-based course. These include creating, opening, naming, moving, and saving files, copy/paste, using the browse feature, knowledge of Internet navigation, ability to use a word processing program, and ability to send, receive, and open e-mail and attachments.

I am considering this course because I think the work will be easier than a "live" class.
Past students in our Web classes state that distance courses are as hard or harder than on-campus classes.

I am comfortable working independently.
Some students prefer the independence distance courses allow. Others find this independence uncomfortable and miss being part of a live classroom experience.

Having freedom to choose when to access class materials and study is very important to me due to my personal schedule.
As long as assignments are completed on time, the time of day and amount of time you spend on the class site and assignments are up to you.

I am able to follow written instructions for assignments.
Distance courses require that you be able to complete assignments and gain information from written directions. You need to be willing to ask if you do not understand.

Class discussions are important to me.
Distance courses usually provide less opportunity for group interaction. However, if you are active in the course you can get to know your classmates through e-mail, discussion board talks, and chats.

I am open-minded about sharing life, work, and education experiences as part of the learning process.
Actively participating in the course discussions will allow you to gain more from the class. Discussion topics are kept open and friendly. Without face-to-face contact some students feel freer to share experiences.

I am willing to ask for help if there are problems or I don't understand the material.
The instructor is not a mind reader. Although comments and feedback are given freely, it is the student's responsibility to ask when they do not understand.

The Basic Skills Tutorial

This tutorial was developed after I spent numerous hours explaining the basic functions students would need in order to participate in the on-line class. For example, I would go through the steps with a student individually on how to copy and paste. I created instructional folders on the course site for several skills specific to Course Info and WebCt. However, I feel some students need to access this information earlier to give them practice time. Although other skills are needed, I have found these to be the most problematic.

Copy/Paste within a Document

- Choose the section of your document that you want to copy.
- Highlight this section by holding down the left mouse button and dragging the cursor over the sentence, paragraph, or word you want to copy.
- At the top of the document, click on Edit.
- Scroll down and click on Copy.
- Move your cursor to where you want the text you selected to go. Click the left mouse button.
- Go back and click on Edit.
- Scroll down and click on Paste.
- You have now copied text to a new location.

To Copy an Entire Document to a New Location

- Go to Edit and click.
- Scroll down and click on Select All
- The Entire Document will now be highlighted.
- Go back and click on Edit.
- Scroll down and click on Copy.
- Click the "Minimize" button in upper right corner of screen.
- Open the program or other file you want to copy your original document into.
- Move your cursor to where you want the document you copied to go. Click the left mouse button.
- Go to Edit and click.
- Scroll down and click on Paste.
- You have now copied your entire document to a new file or program.

Saving a File

- Open your word processor program and type your document.
- At top of page, click on File.
- Scroll down and click on Save.
- A pop-up box comes up.
- Type in a file name for your document that you will understand later.
- At top of pop-up box is the "Save in" directory. Click on the down arrow. You can choose from this list where you want to save your file. You should save your files to either "My Documents" (on the Desktop), or on 3 1/2 inch floppy (disk).
- After choosing where to save the file, click on Save.

Using Dropbox on WebCt

- Complete your assignment in a word processing program. Save your file.
- Go to the class site. Click on Assignments.
- Click on appropriate assignment to submit.
- Click on Student Files.
- Click on Upload.
- Click on Browse (find the file you saved and click on it).
- Click Upload.
- If more than one assignment has been uploaded, select the one you want by clicking in the box to the left.
- Click Return to Assignment Hyperlink.
- Click Submit Assignment.
- Click Submit Assignment again.
- Click Ok.

Seems like a lot of steps, but once you have done it, it is pretty quick.

Hardware/Software Requirements

This link was created so that potential students could know what computer hardware and software was needed for the class.

Hardware

Easy access to a computer and printer.

Software

Access to Internet (preferably able to access Internet Explorer or Netscape). WebCt is not equally compatible with all Web browsers. For example, If you are using AOL or Comcast as your browser and you are having difficulty accessing certain WebCt functions, try the following. Log onto the Internet using your Web browser as usual. In the upper right corner of the screen click the "minimize" button. You will now see the desktop. Open Internet Explorer or Netscape, and type in the WebCt class Web address. Access the class as usual now.

Word Processor Program. If you have any word processor program other than Microsoft Office 2000 (Word 2000), or Word Perfect 8.0, please save your files to be sent to the instructor in Rich Text Format only. How do you do this?

- Click on Save to save the file
- On the bottom of the pop-up box is a selection box that says "Save as Type." Click the down arrow and select "Rich Text Format." Proceed to name file and click Save.

Adobe Acrobat Reader 5.0. There is a link on the class site for free download.

E-mail Access: Need e-mail address outside of the WebCt class site.

Where to Find Information Relayed in This Discussion

The above information will be linked on our departmental Web site and updated as student needs change. Individuals can visit our Web site at: http://web.indstate.edu/soe/cdse/DistanceEdPage.html

Please feel free to link this information to your class Web site or direct students to our Web site to read the survey and tutorial. Hopefully this will assist you and your students in the Web-based class experience.

There are other good sites available to help students decide if distance education is for them.

- Illinois On-line Network has the following helpful articles:
  "What Makes a Successful Online Student?"
  "Tips for On-line Success"
  You can access these links at www.ion.illinois.edu
  Click on Online Education Resources, then Online Learning Overview.
- Terra Community College also has a helpful article titled:
  "How to Succeed in Distance Learning Courses"
  You can access this link at www.terra.cc.oh.us/detips.html

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In the School of Health and Human Performance

Thomas Sawyer, Ed.D

Professor and Distance Education Coordinator, Department of Recreation and Sport Management; Director, Office of Academic Partnerships and Services

Courses:

- The Nature of Play, Games, Leisure, and Recreation
- Marketing Applications in Recreation and Sport
- Governance and the Standards of American Sport
- Legal Aspects of Recreation and Sport Management
- Risk Management in Physical Activity, Recreation, and Sport
- Sport Management Seminar
- Foundations of Conditioning
- Scientific Aspects of Physical Education and Coaching
- Research in Recreation and Sport Management
- Recreation and Sport Facility Development and Management
- Human Relations and Communication in Recreation and Sport Management
- Financial Management and Development in Recreation and Sport
- Law of Recreation and Sport
- Marketing for Recreation and Sport
- Aquatic Facility Development and Management
- Management of Recreational Sports in Higher Education
- Recreation and Sport Management Seminar
- Health, Fitness, and Sport Club Management

On-line Instruction is Here to Stay: Indiana State University Should be a Leader in the Public Sector for Teaching Students How to Learn through On-line Courses

Introduction

Mark Twain once said, "A lie can travel halfway around the world while the truth is stilling putting on its shoes." This analogy can be modified and used when talking about on-line instruction. On-line instruction can travel around the world in seconds while traditional instruction, although global in context, does not even have a pair of shoes to wear.

Generation X students who are just leaving higher education, have been demanding in regards to technology. But the Generation Y students are and will be different since they have been exposed to technology and the Internet for most of their lives. Like the Baby Boomers, who were the first generation to be exposed to and immersed in television, the Generation Y students will make a big impact on virtual instruction. Traditional instruction will not meet their needs for flexibility, convenience, and economy. It will be boring for them at least. The Generation Y students will be even more demanding in these arenas than their predecessors. After all, they have been immersed in the virtual world all their lives and will want to log on when it is convenient for them, not when it is convenient for the university.

A Few Queries To Set the Stage

Before you stop reading, answer the following questions. Why does a class need to meet twice or even three times a week? Why does the class need to be 50 minutes, 75 minutes, or 150 minutes in length? Why can there not be another type of activity that substitutes for a class? What is magical about a mid-term and final examination? Why do we equate the number of lessons to the number of weeks in a semester—if we have ten weeks, there are ten lessons and 15 weeks, 15 lessons? What is so magical about a quarter or semester system? Why can't a student start a course when he or she wants and not chose to follow the traditional schedule? Might it be more effective and productive to replace some traditional instruction with on-line instruction or at least develop a variety of hybrid courses composed of traditional and on-line components? Would it be possible to give students a choice between traditional and on-line instruction? Could a student select a course from an on-line inventory and start and finish on demand rather than using the traditional schedule?

Importance of On-line Instruction

Those of us who teach (facilitate) on-line courses have learned that students who rarely take part in classroom discussions are more likely to participate in on-line discussions because they have time to think before they enter into the discussion. These students are more relaxed and do not feel they have been put on the spot. They are more focused and disciplined learners. Further, they become better thinkers, information gathers, and writers throughout the process.

J.R. Young, in an article in *The Chronicle of Higher Education* entitled, "'Hybrid' Teaching Seeks To End the Divide Between Traditional and Online Instruction," points to a bold experiment by Fairleigh Dickinson University (a well-known private college in New Jersey) which requires all of its students to take at least one course on-line each year. This bold new direction is fostered by the belief that students should learn how to take on-line courses and become more comfortable with on-line instruction. On-line instruction is fast becoming the preferred delivery method for both traditional and continuing education. It is important to assist the student in becoming successful with virtual instruction. Further, the Generation Yers will expect to find opportunities for involvement in virtual instruction. Many future students will have had experiences with on-line course materials prior to entering the University.

One of the main goals of the Farleigh Dickinson on-line project is to use the campus environment to teach students how to succeed in the virtual classroom. Catherine Kelly, assistant provost for educational technology, indicates that for some students it will be like taking medicine. "They may not like it, but they need it—like a basic composition course." Further, Kelley suggests, "it's like learning a foreign language. The best way to learn it is to immerse yourself in it." The beauty of this project is the student who is having problems can go directly to the professor on-campus for assistance.

Administrators should not limit on-line instruction to only new students off-campus but rather open the door to a new learning tool for on-campus students as well. Institutions should consider requiring all students to take at least one course per year to learn how to take on-line courses. It should not be a problem for a student in the residence halls to take an on-line course. Administrators and faculty should ignore the temptation of characterizing students in the residence hall who become involved in on-line courses as lazy. It may be true these students opt to sleep in and not go to a traditional class. These students are not necessarily lazy. They have chosen a different pathway to gain their education.

Indiana State University has a window of opportunity to take the lead in the Indiana public arena, as well as the Midwest, by developing a project similar to the one undertaken by Farleigh Dickinson. It is the responsibility of higher education to expose and immerse students in new instructional methodologies so they can be ready for and successful in the real world. Therefore, it is the responsibility of faculty to develop "hybrid" and "pure" on-line course materials to assist students in becoming successful in the virtual lifelong learning arena.

Hybrid, or Blended, Instruction

Many campuses, from Harvard and MIT to Georgetown University and Pennsylvania State University to hundreds of community colleges, are experimenting with hybrid or blended models of teaching that replace some face-to-face meetings with virtual sessions. This is only the beginning of the curve in this instructional arena. It is easily the single greatest trend in higher education and on many campuses it is unrecognized. Hybrid or blended courses are the best of both instructional methods. There are a number of courses, particularly laboratories, which are extremely difficult to offer 100 percent on-line. These courses are prime candidates for blended delivery. Quoted in Young's earlier mentioned article, Mr. Dede, of Harvard, suggests that there is "a strong case beginning to be made on the basis of research evidence that many students learn better on-line than face-to-face, and therefore the mixture is the best way." However, "what proportion that mixture should be would vary from course to course." Many on-line courses that have failed in the past can be made successful by transforming them into hybrid courses. Students learning how to take an on-line course do better in hybrid courses initially. These courses reduce stress caused by the students' procrastination and lack of focus. When students do not have a class to attend they forget they have assignments to complete and deadlines to meet. Traditional classroom meetings focus students because that has been the format since kindergarten. Therefore, a hybrid model that blends traditional and on-line instruction can assist the student in learning how to take a 100 percent on-line course.

What Should Indiana State University Do?

The American Council on Education (ACE) recognized early the importance of on-line learning and developed a number of guiding principles for on-line learning in a "learning" society. Indiana State University is striving to be the best comprehensive university in the Midwest with an emphasis upon becoming a "global learning community." If Indiana State University is to become a "global learning community" it must engage the greater learning enterprise—including but not limited to individual learners, institutions, corporations, labor unions, associations, and government agencies—in order to produce a high-quality education with outcomes that can clearly be assessed; and prepare its learners to be successful in the virtual lifelong learning arena.

Indiana State University needs to ensure that on-line learning contributes to and is a key component of the global learning community concept of education and learning in a democratic society where learners have choices. Further, Indiana State University should subscribe to the following ACE values for on-line learning: learning is a lifelong process; diversity of learners, learning needs, learning contexts, and modes of learning are recognized; accessibility to learning opportunities is guaranteed; learning experiences should support interaction and the development of learning communities; and participation in a learning community involves rights and responsibilities of learners and providers.

Further, Indiana State University should accept the following ACE principles for on-line learning: on-line learning activities are designed to fit the specific context of learning; on-line learning activities are effectively supported for learners through full accessibility; learning activities must be backed by an organizational commitment to quality and effectiveness; and on-line courses organize learning around demonstrable learning outcomes, assist the learner to achieve those outcomes, and assess learner progress by reference to those outcomes.

Implementing On-line Instruction at Indiana State University

Indiana State University should become the leader in the public sector implementing on-line instruction by taking responsibility for preparing learners to successfully engage in on-line courses. Many students do not complete an on-line course simply because it is a new experience, and they fail to understand how to take an on-line course. Therefore, Indiana State University should require each student to take at least one course on-line each year.

Secondly, Indiana State University should encourage students to take on-line courses beyond the required four. The more immersed in on-line instruction the students become, the better prepared they will be in the lifelong learning community after leaving the university learning community. Learning how to use this new methodology—on-line instruction—will be critical to their future success in their careers.

Perhaps the mix between traditional and on-line might be as follows: freshman—75 percent traditional and 25 percent on-line; sophomore—50 percent traditional and 50 percent on-line; junior—25 percent traditional and 75 percent on-line; and senior—100 percent on-line. Allowing for this mix will gradually acclimatize the student to on-line learning and increase the retention rate in on-line courses and provide an avenue for continued learning.

Further, it is clear that between 80-90 percent of courses in the future will become hybrid courses. It is the simplest and least expensive way to establish a mentor-scholar relationship. Indiana State University should encourage the faculty to begin developing a number of hybrid or blended courses. The Generation Y students will demand that classes be more flexible and convenient. It is the best of both worlds—a combination of traditional and on-line instruction.

Moreover, graduate education is going to move quickly over the next decade to on-line degrees. The students graduating today (Generation X and Y) will force graduate schools into offering more and more graduate programs 100 percent on-line. This delivery format increases accessibility and reduces costs. It is convenient and will not require students to give up their jobs and move to campus. This will become the single-greatest unrecognized trend in higher education before this decade comes to a close. Indiana State University should encourage departments and the School of Graduate Studies to develop as many as possible on-line programs at both the master's and doctoral levels to meet this future demand.

Finally, continuing education after graduation will be nearly 100 percent on-line courses. These courses may be for credit but the bulk will be non-credit courses meeting certification requirements in the various professions such as Continuing Education Units (CEUs) or Certification Renewal Units (CRUs). Future professionals need to become comfortable with on-line instruction. It is the responsibility of higher education to prepare the future professionals to be successful with on-line instruction. It is the responsibility of Indiana State University to be a leader in teaching students how to become successful on-line learners.

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In the School of Nursing

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Courses:

- Administrative Practices in Nursing
- Educational Practices in Nursing
- Curriculum Process in Nursing
- Nursing Leadership
- Theories of Nursing Administration

The Evolution of Distance Education at Indiana State University

Introduction

I taught courses over the Indiana Higher Education Telecommunications System (IHETS) through the 1980s. Before I started transforming courses to the Web, I interviewed 48 of my colleagues who were involved with distance education to find out: how faculties were motivated to do distance education; what faculties need to know and have in order to prepare courses for distance education; what faculties have done to adjust to the new challenges; and what faculties still need to know and have in order to continue improving teaching methods. A funnel-based interview approach was used to do this qualitative research. The interviews were tape recorded, and content analysis was done on the interviews.

Motivation to Do Distance Education

Faculty members expressed a variety of reasons for their motivation to teach via distance education. Some had studied by distance education themselves or had a relative who benefited from distance education. Several were familiar with other institutions that were using distance education with desirable outcomes, such as doubling their enrollment, teaching laboratories, and teaching at remote locations. Others noted business and industries that were doing distance education with success. One faculty member specified that students want, "flexible, accessible, affordable, and effective" education. Another stressed the importance of, "availability, practicality, and convenience" of education. Faculty members wanted to reach new markets, mainly nontraditional students in more distant locations in Indiana and around the world. They wanted to reverse declining enrollments and increase stable enrollments.

During this time, the University initiated DegreeLink, a baccalaureate degree-completion program with courses slated for delivery via distance education. The Office of Continuing Education offered a Course Transformation Academy and the University's Center for Teaching and Learning offered other workshops. A flyer was circulated that "started perking ideas." Faculties attended development workshops with colleagues. Some department chairpersons went out of a sense of duty and/or to role model. Other chairpersons encouraged faculty to attend. Some faculty, departments, programs, and schools made a commitment to distance education.

The Commission for Higher Education, local citizen leaders, and University administrators stressed the need for distance education. Some faculties said they were "required to teach," "assigned to teach," or "asked to teach." One faculty member said she did not want to do it, did it, survived, and felt stronger because of it. Another faculty member said, "I will do it because I think it is the thing to do." Some faculties were seeking opportunities to do distance education, some resented being asked or required to do it, and many faculties were not yet involved with distance education.

Preparation for Distance Education

Correspondence courses have been available through the University for a few decades. Approximately 60 to 65 courses are offered, on an on-going basis, by 40 to 45 faculty members. Over 1,200 students were served in 1997. Until 1998, faculty worked with the director of Independent Study to learn how to create correspondence courses.

Teaching by television has also been done by the Indiana State University faculty for about a decade. For the most part, faculties were content providers and served as talking heads in these courses. Faculties said these television courses took longer to prepare, there were technical problems, and it was cumbersome.

Some of the first faculties to teach on television said they had to teach themselves how to do it. They indicated they had to: "learn on own," were "self taught," did "self study," and "learned by mistakes." Some faculties taught themselves by reading books and professional journals, attending professional conferences, and by talking to colleagues from other locations. To better their teaching, they taped live, watched the tape, and then self corrected. If they wanted to know "how it worked," they went to the studio and asked about the buttons. Two said they felt resistance from colleagues and administrators. No one else in the department was knowledgeable about what they were doing. To receive the support they needed, faculties contacted faculty members in other departments. Faculties who were teaching on television became faculty mentors for each other. They watched other faculties teach on television, watched others videos, called and e-mailed mentors, and swapped ideas with colleagues. Faculties indicated that networking was important, and that it was good to hear stories of what other faculties had done.

In the late 1980s, the approach to distance education on campus changed. The University sponsored a workshop for faculties teaching on television. New faculty in the correspondence program attended the Course Transformation Academy for faculty development and worked with instructional designers when they developed a new correspondence course.

During the 1990s, faculties indicated that there was "lots of help on campus." The Center for Teaching and Learning was opened in April 1995. Faculties said it was, "one of the best things campus has done." Because there was no formal preparation to help people teach on television, a new manager for planning and program development and the manager of televised class production prepared and offered half-day distance education orientation workshops for August 1996 and January 1997. The Course Transformation Academy (CTA), a 12-week course for faculty, was started spring 1997 and has been offered ever since. Most of the faculties interviewed identified the CTA as important to their learning. It whet the appetite, taught what was available and how to do things, and was cited as, "what pushes you over the edge to want to do something."

With funding for DegreeLink, in spring 1998, all media technology and resources were expanded to include two new instructional designers, a graphics designer, computer animation specialist, video producer/director, video technicians, coordinator and editor, and other professional staff. Help was available for computer/graphics design, film/video library, instructional development/faculty technology resources, photographic/digital imaging services, audio recording, video production, and televised classroom services. Academic Computing and Networking Services provided numerous computer workshops and documentation.

Faculties were using more PowerPoint presentations, using some videos, and adding Internet components to their television courses. They were starting to use other tools such as Web pages, e-mail, listserves, and chat rooms. Other new technologies used included telephone calls, telephone bridges, conference calls, voice mail, fax, e-mail, audiotapes, audio conferencing, video conferencing, virtual instrumentation, interactive video, and multimedia. A few Internet courses were offered during 1996-1998 and more were developed and presented later.

Transformation from Traditional to Television Classes

Many faculties identified the following as major changes when transitioning from traditional teaching to television classes: lack of eye contact with students; feeling confined by needing to stay in front of the camera and by a microphone; and the need to be extra organized. Presentations became more formal, more structured, carefully timed, and backed up—activities that all required more preparation time. Faculties had to get used to talking to students they could not see instead of talking to the camera. A chalkboard was not available so faculties used an overhead camera and supplemental PowerPoint presentations to show written material. They had to experiment with what visuals would look like on television since the appearance could be quite different than in the traditional classroom. They had to adjust to different time scheduling—from three 50-minute classes to a two-hour time slot. Instructions had to be carefully written to keep on a time schedule. Content needed to be divided into small pieces with a careful allocation of time. A lot of activities were needed to fill two or more hours. Time needed to be broken into segments with a variety of topics and activities. Some faculties outlined the lecture and gave the outline to students. Faculty found that it was important to call students by name and to forewarn them that they would be expected to answer certain questions in class.

Faculties also changed testing strategies. They did not want to use television time for students to take tests. Some decreased the number of tests, increased take-home tests, had proctors at distant sites, or had students come to campus one to three times a semester to take tests under close supervision. Others used assessment methods, did Internet assignments, used team simulations, had students e-mail articles and comments, and did more with open book tests. Some faculties started to consider computer tests.

Student presentations were another challenge. Some students did their presentations on television. Others sent videotapes and materials for the overhead camera. Faculties sometimes showed a picture of the student as the student presented and showed other materials as directed by the student.

Transformation from Traditional to Internet Courses

One faculty member tape-recorded lectures, transcribed them, and then put them onto the Internet. Faculties indicated they had to be well-organized, articulate, able to anticipate where students might boggle down, use powerful clear statements, use short bursts of information, and put the main idea on each page. One recommended remembering the principle that simpler is better. Faculties indicated that they could "raid" ideas from what people were teaching all over the country, post articles on a Web site, post questions on the Internet,

and have students submit assignments by e-mail. It was recommended that assignments be practical. Work was front-loaded. The whole course needed to be well-planned before it began. Experienced faculties found that they could, "get closer to the student through the machine." They formed different relationships with students, had fewer problems with students, and formed better relationships with students. As a result, they gave more individualized attention to the students. Once the course was set up, the machine could do much of the teaching, thus freeing the teacher to give students individual attention, to do scholarship, and to provide service.

Planned Change

Faculties had a variety of ideas about how they wanted to change their television and Internet courses. Some were transforming courses from traditional to television to video to Internet. A couple of people were moving from Internet courses to television courses. Most wanted to use more multimedia and wanted to add more materials, visuals, graphics, cartoons, video, PowerPoint, and Web site links. Some wanted to add reflection and small group activities.

Faculties expected to review and revise their course syllabus each time the course was taught. They wanted to identify the bottlenecks, open them up, slow down, give support, add examples, and carefully script the hard spots. One faculty found that giving all assignments up front took away some fear and gave students more self-confidence. Others found it was important to give students questions in advance of calling on them. Another recommended that each student in a course receive a complete set of videotapes. One found the value of copying a Web page to a disk to use in class. A couple of faculty identified the need to develop materials for mentors and to design a system for monitoring mentors in the field. One planned to call students more often, encourage students more, and simplify lessons while keeping the critical elements. Many planned to use more multimedia, wanted to transform more courses, and some wanted to go world-wide.

Faculty Needs for Doing Distance Education

Faculties wanted re-assigned time, usually equivalent to three credit hours, to prepare a distance education class. Comments on the need for more time included, "I start early and stay up late." Most worked evenings, weekends, and summers to transform courses. However, they felt that this work took time away from their research, service, or family life. A few had been fortunate to be able to use a sabbatical to develop a course. Many believed that the extra effort was, "coming out of our hide." They unanimously wanted time versus money for the development of courses. In addition, they were interested in being paid to deliver distance education courses as part of a regular workload. Another need was equipment to do their jobs. Many wanted laptops loaded with non-standard software and PowerPoint that they could take into their classes and to meetings. More needed computers at home to communicate with students during evenings and weekends. They wanted allocations to purchase materials, to make phone calls, and to visit other universities and conferences. Many indicated that they would appreciate having a graduate student to load Web pages. Most expressed appreciation for the instructional designers and other services available on campus. They appreciated the continuing education available on campus. They suggested one day per semester, one day during spring break, two days the week before the start of classes in January, and a week during the summer as best times for workshops. Work teams across disciplines, collegial models for sharing, and having faculty present after they return from continuing educational activities were recommended.

Conclusions

Faculty indicated that nontraditional students were a new breed who were more competitive, sharper buyers. These nontraditional students wanted to know the degree plan up front, and would ask, "What are you going to do that is relevant?" They wanted faculty to "give real nuggets."

One faculty member said that he was surprised at how easy it was to teach on television. He was surprised that students had not found technical difficulties to be an issue because they were so appreciative of having distance education available to them. Independent learners loved distance education. Some faculties found they could give more individualized attention to students, and once Internet courses were up and running, they found more time for research and service.

The initial analysis of the data seems to suggest that faculties go through stages of development. The innovators worked alone and at their own expense. The early adapters were involved with the Course Transformation Academy and the Center for Teaching and Learning. Both of these resources helped them rethink their approaches. Transformation from traditional classrooms to teaching on television was a period of adjustment when multiple dimensions were changing. Faculty members tended not to rethink pedagogy much, but they did learn that new strategies worked. As faculties transformed courses to the Internet, they organized and front-loaded many factors, went through a sharp learning curve about the use of technology, and rethought pedagogy. After their initial adjustment, they focused on specific elements and so the transformation process went on and on. Faculties had many policy concerns they wanted addressed. Time was their most critical need. They also needed professional development, technical support, and the tools to do their jobs. They did formative and summative evaluations, and generally found that distance education students do well. They used the evaluation feedback to continue the transformation.

Since interviewing my colleagues, I have transformed four courses to Internet courses. The courses are of good quality, offer flexibility to the students and faculty, and get remarkably thoughtful work from the students. Students appreciate being able to learn on their own time.

In the School of Technology

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Courses:

- Aviation Operations
- Aircraft Systems I

Technology Use in the Classroom: Advice from Experience

I have had the privilege of using and incorporating several types of instructional technology in a variety of classes offered by the Department of Aerospace Technology at Indiana State University. Most of my experience involves using computer technology to enhance the student's in-class experience. In this brief article I will describe a few of my experiences with the incorporation of technology in the classroom, and also will share a few of the lessons that I have learned as a result.

I was exposed to the use of educational technologies early in my collegiate teaching experience. It was during that time that I was privileged to attend the University's Course Transformation Academy, a six-week course held one afternoon per week during the academic year. At the CTA, I learned about the various technologies available to me and gained an appreciation for what initially seemed to be an insurmountable amount of work and the commitment it would take in order to incorporate technology into my teaching. However, after going through the CTA, I realized that while the initial learning curve is steep, there were those available here at the University to help make the transition achievable. This brings me to my first point. *Don't attempt to go into the process of transforming your course into a technology-based course alone.* Be willing to admit your own technological limitations and be willing to accept help. Not doing so is a sure recipe for spending large amounts of time getting little accomplished. Remember, the technology is there to enhance the experience for the student, and the job of a professor or lecturer is to take care of the course content and let the experts take care of the technology. This is a point to administrators. *Not providing faculty with adequate support structure and load consideration when developing technology-based courses is a sure way to invite faculty frustration, especially early in the experience.* Fortunately that has not been part of my experience here at ISU, and I am glad for it.

Initially, back in the late 1990s, I began setting up Web sites for my on-campus classes in order to enhance communication among students and between the class and myself. I used a software program called CourseInfo to post weekly assignments and make notes available to the students. Initially there was a lot of frustration as many students had difficulty logging in to the site and some even had difficulty gaining on-line access, a process that has gotten a bit easier in the 21st century. This brings me to a second point. *Provide students with clear, easy-to-follow instructions in this type of situation.* Provide information for how to deal with common mistakes and provide clear instructions so that students can get prompt attention should they have trouble. Write these instructions so that you feel an average third-grader could get it done. This is not meant to be condescending to the students; rather, we must recognize that not all students are nearly as comfortable using computers as some of us are. Adding technological frustration to students who may already be apprehensive about enrolling in a particular course only exacerbates the frustration of students. *Additionally, you must have a framework for making the students accountable for the technology use when it is supplementing the in-class experience.* Initially, my on-line content was merely a duplication of information presented in the classroom. Thus, few students had the incentive to log on. Have assignments and notes that are only posted on the Web site. This will free up class time for more important interaction with the students.

One mistake I made early on was using technology for the sake of the technology being available. I decided to record 15 to 30 minutes of course lecture each week with the intent of freeing up additional class time. This file was then linked to the course Web site, and students had to get that lecture material on their own time. I would not do this again. First of all, I assumed that all students had access to a computer that could handle the size of these files. This was clearly not the case at the time. Second, the students said they had trouble following along in their printed notes as they found it too easy to get side tracked while in the residence hall room or the computer laboratory—issues over which I had no control.

Certainly the motivated student could get through this way; however, I feel you lose the majority, especially when dealing with undergraduates.

In closing, this article contains a few of the most salient points related to my experience using technology in the classroom. My hope is to encourage others to pursue the use of the vast array of tools available to faculty in this information age. Technology truly can help make you more effective in the classroom.

In the School of Technology

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- Instructional Technology and Delivery Systems
- Developing Teaching Materials for Vocational Technical Education
- Post-Secondary Technical Education Training
- Rationale and Evaluation of HRD Programs

Strategies for Surviving the Challenges of Teaching an On-line Course

A Description of the Course

Web-enhanced or Web-assisted courses offer instruction partially on the Internet and partially in the classroom. Web or computer-managed (on-line) instruction uses a computer to control and guide the learning process and to analyze and report learner performance (IEEE, 2002). In fall 2001 I taught "Post-Secondary Technical Education Training" in three formats: Web-enhanced (television); Web-managed (on-line); and videotape. The on-site group in the Web-enhanced section connected to other students at various locations in Indiana via satellite television offered through the Indiana Higher Education Telecommunications System. Students in the on-line section logged onto CourseInfo, a courseware program, to access the course material; 58 students selected this format.

My experiences teaching a Web-managed on-line course at Indiana State University were different despite having previously taught a Web-enhanced course. It was a challenge to accommodate the needs of my students without physically seeing and talking to them. This paper outlines the challenges I encountered and provides some strategies for surviving. These strategies were gathered from communication and interaction with students and fellow instructors, and from texts on on-line instructional strategies.

Common Nightmares for On-line Instructors

Defining the On-line Student

Who is the on-line student? According to S. Moncada (2001), a successful on-line student ". . .must have good written communication skills and enjoy corresponding through writing and must be able to 'speak-up' when problems arise." However, contrary to expectations, students sign up for on-line courses to suit their social and work commitments and not their learning styles (Richards and Ridley, 1999). Another observation is that not all on-line students can clearly express themselves, are self-disciplined or self-motivated, enjoy reading, and are able to meet the deadlines (Moncada, 2001). These observations leave a lot unknown about on-line students and present a challenge when designing an on-line course that fully meets students' needs.

Designing Instructional Material

A second nightmare was the experience of designing instructional material as the semester progressed. While the development of instructional material for an on-line course should be done well ahead of time to allow debugging and posting the material to the Web (White and Weight, 200), this does not always happen. I had to develop and teach an on-line course at the same time. Linked to inadequate time for course development is a lack of information on what is considered adequate and which formats are preferable to on-line students. In the end, the challenge was balancing between developing the course while performing other instructional duties—including meeting the needs of my on-line students.

Communicating with On-line Students

On-line instructors receive large volumes of e-mail messages by virtue of the mode of on-line communication. While it is crucial to respond to communication from on-line students immediately, circumstances such as class size and course load make this unfeasible. I received an average of 35 e-mail messages per day in addition to telephone calls from students who preferred to call rather than e-mail—or who did both. Responding to telephone calls removed me from the "on-line

help desk," and attempting to provide quick responses to e-mail and telephone messages proved stressful. Added to this nightmare was the challenge of providing academic advisement for on-line students.

Strategies for Surviving On-line

Developing On-line Courses

If possible, follow this strategy.

- Develop the on-line course well in advance—at least a semester before the course is scheduled to be taught.
- Take advantage of instructional development assistance offered to faculty within the school or university. For example, Indiana State University offers numerous faculty development programs, including the Course Transformation Academy.
- Visit other exemplary sites delivering courses via the same course platform.
- Collaborate. Share ideas and problems with other faculty teaching on-line.

Sending Advance Instructions

Send a welcome letter to students as soon as they sign up for an on-line class. In the letter include instructions on how students get started in the course and who to contact for technical problems associated with the course management platform. It also is helpful to include background information on experience, interests, family, and hobbies (Schweizer, 1999).

Determining Students' Readiness for On-line Instruction

I survey my on-line students to determine their readiness for on-line instruction. Several readiness surveys are available on the Web. An example is accessible at http://isu.indstate.edu/mupinga/olready.html If students are not ready for on-line courses, I incorporate the prerequisites in the orientation session, which familiarizes students with the course management platform and navigation buttons. An example of an orientation assignment can be found at: http://isu.indstate.edu/mupinga/olorient.html

Posting Information On-line

Some instructors prefer to post the entire course on the Web by the first day of class; others activate course files two weeks in advance. I found the latter method ideal, partly because I was developing and teaching the course at the same time and also because this ensured that students in the class progressed at almost the same pace. I always informed my students when the Web files were activated, and I stuck to my schedule.

Communicating with On-line Students

The following strategies are helpful when communicating with on-line students.

- Develop an e-mail protocol for constant communication with students. One way is to let students know when to e-mail the professor. I found it helpful to allow students to post questions on the *Discussion Board*, from which I could monitor and respond. In most cases, other students answered the questions posted, and this greatly reduced the volume of e-mail that I received. A word of caution: make sure the "post your question forum" is not transformed into a griping arena for the course.
- Encourage students to use stable e-mail addresses and to update their address under *Student Information* (in CourseInfo) to an account frequently checked.
- Use graduate assistants to respond to e-mail.
- Set times or days to respond to e-mail or return telephone calls. Post this schedule for your students.
- When teaching several courses, ask students to write the name of their course in the subject column of e-mail messages. This makes tracking easier. *Example*: ITE 695: Assignment #3.
- Ask students to include their actual names at the bottom of the messages. This is important because some students have hotmail and yahoo e-mail usernames that present problems of deciphering the author of the message.

Responding to E-mail

The following are helpful strategies for responding to e-mail messages.

- It is essential to respond to students' e-mails immediately. According to Shimabukuro (1990), "if you don't, the sender will assume (a) you didn't get it or (b) you don't want to respond." He adds, "Remember that you're invisible to the writer and by responding you are saying 'I'm here.'" When time does not allow for a comprehensive response, Shimabukuro recommends sending a quick one-liner: "I rec'd your message and will reply this evening."
- Where possible, add emoticons (or typographical cues) to messages to signal attitude and mood (White and Weight, 2000).
- For similar questions from two or more students, e-mail the answer to the entire class.

Assignments

The following are tips for managing assignments in an on-line environment.

- Provide clear instructions and due dates for class assignments.
- Post a grading rubric and samples of the assignments.

- For tracking, grading on-line, and returning assignments, ask students to submit assignments electronically. I usually insist all assignments be submitted through the *Student Drop Box*. Due to technical problems, assignment deadlines may be difficult to enforce.

Conducting Course Evaluations

To resolve problems that arise as the on-line class progresses, allow evaluations during and at the end of the semester. These evaluations may focus on: accessibility and adequacy of material posted on the Web; audio files; communicating with the instructor; and what the students like and/or dislike about the on-line course. Follow up on the evaluations by making the necessary adjustments to the course. As the semester progresses, create a "parking lot" or a list of frequently asked questions for use when making revisions to the course.

Resources for Developing On-line Courses

Numerous resources are available on preparing and developing on-line courses. The Public Broadcasting Service offers an interactive videotape titled *Surviving Your First On-line Course*. This tape, which features three instructors who discuss surviving on-line courses, is an excellent reference material for both novice and experienced on-line instructors. Also available are valuable texts on on-line instruction. (See reference list.)

Conclusion

Throughout my teaching experience at ISU, I have found several helpers down the corridor who made on-line instruction challenges surmountable. I am sure other people have experienced wonderful first semesters teaching on-line courses. However, even enthusiasm and years of teaching experience are not always enough when teaching in an on-line environment (Wertheim, 2002). Jumping onto the "teaching on-line courses bandwagon" without the necessary preparation and knowledge of the expectations of on-line students may produce the "semester from hell." On the other hand, knowledge of what to expect and some strategies to teach an on-line course will guarantee survival.

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