

WEBAGOGY IN ONLINE COURSES

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How can online instruction be facilitated to incorporate currently accepted learning principles? Is it imperative that new pedagogy – webagogy—be developed that will be active in nature, will address adult learner issues, and will take full advantage of the unique possibilities of the Internet? Ells (1999) asserts that “Webagogy is the art, craft, and science of using networked technologies, including the World Wide Web and email, to support teaching and learning. Inherent in the idea of webagogy is that carefully considered pedagogy is being implemented with technology—the pedagogy comes first!” p. 1. The purpose of this article is to describe instructional practices in exemplary higher-education Web-based courses.

But what is “exemplary”? In 1998, the Paul Allen Virtual Education foundation conducted a contest to identify outstanding online courses. It used four principal criteria: “(1) creative use of technology; (2) sound instructional design; (3) integration of active learning; and (4) evidence of educational effectiveness” (Kearsley, 1998). Because these criteria are similar to the AVLN standards (www.avln.org/standards), these courses are of particular interest as a rich source of webagogy. A total of 182 entries was received and judged by a panel of experts in education technology. One winner and seven runner-ups were identified. The entries came from 148 institutions and represented almost every conceivable subject domain. Of the seven lead course designers/instructors, six agreed to be part of this study. Each course was made available on the Web and the instructors

were interviewed. An overview and instructional design for each course provides a gestalt of the organization of the course.

Since “interactivity is a key concern for many when considering web instruction” (Lavooy and Newlin, 2003, p. 158), there is a section describing how the instructor facilitated interactions between themselves and the students and among students. This is followed by descriptions of the assessment and evaluation of learning goals and lessons learned. Three courses are described this month and three more will be described next month. It is our intent to whet your appetite with details of how these exemplary courses are organized – not to provide the rationale or theoretical ideas undergirding the exemplary practices. Upon publication, the authors will facilitate a discussion centering on the “why” aspects of these courses, the concept of “webagogy,” and ways that these concepts and ideas can be used in Adventist online courses. And now, discover the unique approach to each of these web-based courses at www.avln.org/jae.

CALCULUSQUEST™ DIFFERENTIAL CALCULUS

Overview

CalculusQuest™ (CQ) is an online, level-one differential calculus course based on a mountain-climbing metaphor. This metaphor was chosen because both calculus and mountain-climbing “are challenging, require the use of fundamental skills as well as ‘right brain’ creativity, and offer great rewards to those who take the challenge” (Eggers, 1999, p. 90). The original course authors, Robby Robson and William Bogley, along with later team member and instructor, Richard Schori, are all faculty at Oregon State University (OSU).

Instructional Design

Nationwide only 50% of calculus students pass with a C or higher. This fact forced the team to look at things differently as they sought to find ways to help more students be successful. They wanted to build a uniquely, interactive, supportive course that would create a better learning environment.

The instructional team's first major decision was not to use a text. Initially they did not realize the magnitude of this decision. They simply wanted to take advantage of the unique possibilities of the Web for interactivity and were intrigued with the potential for learning. They believed that only using a printed text would limit those possibilities. It took 6-9 months to write a hyperactive text, however, but this forced them to rethink the pedagogy from the ground up

One of the unique features of this hypertext course is glossary links that pop up in separate windows when the student clicks on the word. The authors made the decision to use these links because they wanted to keep the Web pages as short as possible. The pop-up boxes contain "short definitions of terms from CalculusQuest™, differentiation and trigonometric formulas, a few historical tidbits, and other information which can be presented in a concise format. . . and kept on-screen for reference" (Eggers, 1999, p. 93). The course has 10 stages, each with a mountain-climbing title. Some examples are: "Stage 1: Gearing Up," "Stage 3: Testing Our Limits," "Stage 7: Exploring the Landscape," and "Stage 9: View from the Top" (Eggers, 1999, p. 93).

Stage Design

Each Stage has its own cover page which acts as a guide to that Stage. An introduction ties the mountain-climbing metaphor to the week's goals and objectives.

These objectives are clearly labeled in the second section. The third section contains buttons for the Lesson, Practice, and Onward & Upward areas. Students are guided by a short description of “What To Do.” The cover page sets the learning procedures for students and helps them to navigate throughout that Stage.

Lesson

The “Lesson” area is a place where actual mathematics is explained. It is the first place most of the students will begin each Stage on their ascent up CalculusQuest™. There are no online lectures, as such, but instead there are readings that lay a foundation for the week’s concepts. The navigation Lesson Hub states the purpose of the lesson and includes other sections such as: “What’s Here,” “What To Do,” “Expected Study Time,” and “Objectives.” “What’s Here” organizes the Lesson’s internal links so students can easily access just the section that they need when they need it. “What To Do” gives a sentence or two overview of the lesson’s activities.

The Practice Area

The practice area is like an electronic sandbox where the students can “play” with functions and concepts without any of their explorations contributing toward their grades. There are activities and problems that help students to check and solidify their understanding. This area takes the place of traditional homework and laboratories. All the problems in this area have links to solutions. Students are strongly advised, however, to resist going to the answers until they first have given their best efforts to solve the problems on their own.

Onward & Upward

Onward & Upward is the graded portion of the course. The only actual requirements that are recorded for the class are all kept in this area. The Onward & Upward Hub features are somewhat different from those of the Lesson and Practice Hubs. There is a new feature called “Activities” that includes a “Sign-In” link. Each week the instructor has a few quick questions for the students to answer. Also posted here is information on when the Recorded Quiz is due. Both the date and the time are given. Another section on the Onward & Upward Hub covers any special activities such as Communication Activities (next section). The last section contains quizzes and tests for that Stage.

Interactions

Schori recounts that reading Parker Palmer (1998), a well-known authority on teaching, inspired him to develop a learning community both in his face-to-face classes and in the Web-enhanced classes. He comments:

The learning of mathematics requires much more in the way of social interaction than has been traditionally understood. The solitary student sitting in a corner studying mathematics has been a prototypical image for too long and it has hurt the public image of learning studying mathematics. (Eggers, 1999, p. 90)

One of Palmer’s points is that the subject should be at the center of attention rather than the teacher or the students, as is often the case. Schori declares,

Making the subject the center of attention is precisely what we do in CalculusQuest™, and in particular with the Communication Activities. These structured activities, represent a teaching centered class activity that fosters creativity in the process of building community. (Eggers, 1999, p. 97)

The course has threaded discussions that facilitate creating an online learning community. “Writing on a topic forces the student to really come to grip with the topic and helps them integrate into their way of knowing. In face-to-face courses, Schori contends “at most 20% of the students will respond to our questions and pleas for discussion and the evidence is that the other 80% resist speaking for fear of embarrassing themselves in front of their peers” (Eggers, 1999, p. 97). Palmer, a well-known authority on teaching, notes “Behind their fearful silence, our students want to find their voices, speak their voices, have their voices heard” (Palmer, 1998, p. 46). He further emphasizes the importance of students talking to learn: “Learning does not happen when students are unable to express their ideas, emotions, confusions, ignorance, and prejudices. In fact, only when people can speak their own minds does education have a chance to happen” (Palmer, p. 75). These thoughts and others led Schori to create online discussion groups where students can talk about the things that they are learning and also about the practical applications of calculus to their lives and future careers.

Communication Activities

Students learn best when they thoroughly think through the process of what they are doing and of how they are applying the principles they are studying. They also have to learn how to properly evaluate or critique someone else’s process. There are two Communication Activities (CA) per stage. Schori describes the CA procedure:

We used two Communication Activities which consist of all students solving or writing a mathematical problem (step 1), the computer pairing the students and showing the other person in the pair step 1 of their partner. Step 2 consists of evaluating or critiquing your partner’s step 1. Step 3 is to rewrite your Step 1 based

on comments made by your partner's step 2 comments. Step 4 is usually just an acknowledgement that the exercise was complete. (Eggers, 1999, p. 99)

Discussion Groups

The Discussion Groups gave the students an asynchronous way to discuss various questions that helped relate calculus to their lives or helped them reflect on how they learn best. There were four discussion topics during the course, and participation in the Discussion Groups was required. The instructor set up eight academic discussion areas, but the students divided themselves into discussion groups based on their major, future career, or interests. They did not have to stay with the same group for each of the four topics.

The first Discussion Group activity was "Get Acquainted." At this time students shared information about themselves just as they would do if they were meeting face-to-face. They dialogued on things such as what year they were in college or high school, prospective major, and interesting things about themselves.

The second discussion group activity was "Getting Real." Here students discussed the question: "Where and how does mathematics fit into your future career? In response one student stated answered:

Hello All~ Here I am again, answering questions about my future. What do I want to do and what on earth does math have to do with all that? It is really rather simple, I promise. I want to work in genetic research and I want to go to med. school. (Although, all of this is ALWAYS subject to change.) Math plays a key role in all aspects of life. "Even farmers use it!" my HS math teacher used to say. Within the field of medicine, chemistry and physics are prominent. Both of these sciences require math. In fact, one must take calculus prior to physics. If I understand correctly, Calculus was written to make physics work. Any type of research requires math. In fact, math is necessary for almost anything!!! What does everyone else think of all this "math stuff." I personally enjoy it, but it sometimes makes me crazy!!! (Eggers, 1999, p. 100)

The third discussion activity, “The Proof,” dealt with the man who proved Fermat’s last theorem. Professor Wiles worked 7 years on the theorem that “had been the most celebrated mathematical problem for the past 350 years”. The solution had no practical application, so the students were to discuss whether or not such a solution was beneficial or worthwhile. One student had an metaphorical perspective on the topic:

If an artist worked on a sculpture for 7 years, and produced an inspiring, beautiful, work, we would call him a genius. So shouldn’t the same apply to a man that creates a work of...um.. math? I think this may stem from society outcasting those who make math their life. Stereotypical, catagorization, of social misfits who may not be able to tie their shoes, but can perform complex math calculations with ease, is quite comparable to artists who never leave their houses or are schitzofrenic public rejects. Some of the best works come from these peole. So, no matter how wierd they are, they too, have a place in our society, even if we don’t understand it. (Eggers, 1999, p. 101)

By creating small groups based on academic interests, the instructor set the stage for dynamic and meaningful discussion. This discussion allowed student emotion to be expressed. While many professors implement this strategy in face-to-face classes, others question the feasibility of using this method online. CalculusQuest™ is a good example of meaningful, small group discussions.

Assessment and Evaluation

A unique feature of CalculusQuest™ is the grade-free quizzes that allow students to see how well they understand the lesson concepts and skills before taking a graded and recorded quiz. Students can take these quizzes without any penalty and can get immediate feedback. The practice quizzes are where

the student is able through this Java Script in-line quiz to check their comprehension and make sure they’ve really got it. If they need some advice about why the answer

to this in-line quiz is what it is, an explanatory pop-up page is provided. (Eggers, 1999, p. 103)

QuestWriter™ allows students to do three things with quizzes: submit for grading, record them, and/or save them. When students want a quiz to be graded, they submit it, and the computer corrects their answers and sends the results back to the student along with the correct answers, feedback from the author, and the student's score. A graded quiz has been corrected but is not automatically added to the Gradebook. Once a student is pleased with her progress on the Practice Quiz, then she can take a quiz and have it recorded in the Gradebook. The quizzes—whether just graded or graded and recorded—can be saved in the Student Folder. Practice quizzes can be changed after they have been graded and saved in the folder. The recorded quizzes from Onward & Upward, however, can be saved but cannot be modified after they have been recorded. These various features encourage students to practice, to learn from their practice, and then to strive for success on the quizzes to be recorded. Plenty of time is scheduled for students to take the quizzes. They are encouraged to take the quiz well before the deadline. Deadlines are real and non-negotiable. A positive feature about QuestWriter™ is that it takes care of telling the student where she stands and when various activities are required. Schori comments that the students do not argue with QuestWriter™; however, if they were in a face-to-face classroom, they would try to get excused from deadlines with a multiplicity of stories and excuses. Students do not know how to plead their case with QuestWriter™ so they do the work before the deadlines since nothing can be made up after that time.

Three types of questions make up the quizzes: true/false, multiple choice, and essay. QuestWriter™ grades the first two types of questions automatically but sends all essay questions to the instructor to grade. QW also sends the quiz results along with feedback to the students.

CalculusQuest™ includes three proctored tests: two midterms and one final. OSU students come in at designated times for the tests; distance students have their tests proctored at their own educational institution before the prescribed deadline.

Support

To help ensure that the technology does not get in the way of learning, it is recommended that before students begin CQ that they purchase and view the video “InterQuest” User Preparation Program. This video can be purchased at the university bookstore. It prepares students for a new way of learning with Web courses. This tape is used for all Oregon State University Web courses.

“First Aid” is a section for technical help when the Web site does not perform as it should or if there are other technical difficulties. This is a FAQ (Frequently Asked Questions) list and it covers topics such as:

- What if I get the message 404 Not Found or File Not Found when I try to load a page?
- What if my computer freezes up and nothing I type or click on has any effect?
- What if I get an Authorization failed error?
- What if I get a bad-cookie error? (Eggers, 1999, p. 104)

CalculusQuest™ incorporates several features to assist the student in the learning process. All of Stage 1 is set up to help students learn how to navigate in CQ, to understand the course structure, and to get help with some technical matters. The Lesson

Hub includes two objectives for Stage: for students to be able to use proficiently the CQ Web site and to “demonstrate familiarity with the Field Guide to Functions and its content” (Eggers, 1999, p. 96). A quick reference called “Important Pages” is available for those who need to refresh their memories on the purpose of the different sections of the course and where to go to do various things.

Sample tests are also provided. The Sample Final Exam includes a link at the end of each problem that says: “Mail solution to the class.” When students study for the test, they are to send the solution to the class for group discussion and input to compare, contrast, defend, and amend their solutions. The Sample Final Exam directions clearly establish that “a **solution** is an explanation of an **answer**”. Students are encouraged to write out the solutions in detail and to discuss them with their classmates on the class listserv. The instructor notes that well-written solution reveals understanding. Just knowing the correct answer is not enough in this course.

CalculusQuest™ Help is a section designed to help students find solutions for any problems encountered throughout the course. Contact information is given for the support team, which is led by the instructor. Furthermore, various on-line and written resources are linked as well as on-campus and Math Department resources. Even more help is provided to ensure student success. Each week Schori posts Tips that review activity deadlines, review sessions, and similar benefits.

Lessons Learned

1. Developing online courses gives the opportunity to rethink pedagogy. Robson believes that this new platform for learning introduces an opportunity to reconsider the epistemology of the learning process in general. He asserts that “the

learning takes place where ever the STUDENT is. If we stop viewing ourselves as the center of the universe, we see that the TEACHING can be distributed as easily as the students can be distributed” (Eggers, 1999, p. 110). Be creative with the course’s pedagogy. Schori states there were two things that were especially meaningful to him: “Being able to creatively experiment with pedagogical ideas. Also learning the technology needed to implement the pedagogy we wanted” (Eggers, 1999, p. 114).

2. On-campus students will at times take their own university’s online courses rather than face-to-face courses. This course was originally designed to be strictly an online course for distance students and was delivered that way exclusively in the beginning. However, when Schori discovered that almost all of the enrolled students were not distance students but were local OSU students, he decided to modify the course to take advantage of some face-to-face advantages. There were some distance students, but they were all people who already had established connections with some type of connection to Oregon State University.

3. Start small and gradually build a course to become completely online; then be sure to market the course. The CQ team members were not marketers so most students did not know about this class as a result of marketing efforts, either on or off campus.

The university also did no marketing of the course. Schori reflects:

There’s a philosophy I developed and have been promoting around the country that . . . if we can go ahead and build up incrementally web sites that self-support a standard course and eventually push it to a point where you can then teach distance students, then this makes more economic sense than just putting a lot of money [into totally online courses]. (Eggers, 1999, p. 110-111)

4. Students like to be meaningfully involved in online discussions. “Students are much more willing to express themselves by typing into a computer than speaking up

in a classroom, even if their comments are exposed for the whole world to see,” Schori notes. (Eggers, 1999, p. 114). He adds that this is a potential research topic. “Students pay attention to what other students say and are often willing to speak very clearly in either supporting the others’ points of view or criticizing them,” Schori discovered (Eggers, 1999, p. 98).

He also observed that students work harder in the Web course because it requires more focused attention. It is usual for students to take calculus without realizing how much work it is going to take no matter whether it is face-to-face or on the Web.

5. Make sure the pedagogy drives the technology and not the other way around. The course authors were adamant that technology should only be used to support pedagogy.

Robson asserts,

But there’s really one theme that we want to stress, and the first theme is to use the technology to support the pedagogy. The second theme is to use the technology to support the pedagogy. The third theme is to use the technology to support the pedagogy. And finally, we really wanted to use the technology to support the pedagogy. (Eggers, 1999, p. 91)

Comment: I know that this quotation is redundant, but it shows how strongly the authors believed in this principle. We can drop it and just keep the point before it.

FOREIGN LANGUAGE MYSTERY SIMULATION

Overview

This mystery simulation is a unique approach to foreign language instruction that capitalizes on using email and World Wide Web resources. Students work collaboratively in this intermediate-level course, functioning as specific characters, to solve a murder mystery. All of this is accomplished through four two-week rounds of email where students develop their characters, ask questions, and solve the mystery, all while using the target language. Between rounds there is instruction on grammar, vocabulary, speech, and other language essentials. This simulation is taught during the third quarter of the

first year of French/Spanish which means that students come to the course with some knowledge of the target language and have beginning writing and speech skills. There are French and Spanish versions of the course “Un Meurtre à Cinet” and “Misterio en Toluca”, developed by Terri J. Nelson and Walter Oliver respectively. Both instructors are at California State University, San Bernardino.

Instructional Design

The instructional goal of this course is “to give students practice at reading and writing the target language in a contextualized environment”. The simulation forces students to read and write much more than in more traditional language courses. Nelson states that “grammar was subservient to everything else” in “Murder on the Internet” (Eggers, 1999, p. 65). Reading for the gist of things is typically a difficult skill to develop in the more traditional and limited method of doing word-for-word translations. This authentic-context instructional strategy helps to build good reading strategies which means that the instructors do not have to “dumb down” lesson materials. Each student is given a character role to play during the game. Characters are part of a complicated story line that is revealed to them only a small portion at a time. There are many smaller mysteries that need to be figured out before they try to solve the larger mystery. Students have email discussions on a listserv to probe and prod each other in trying to find more clues. They also use evidence and clues that are embedded in authentic documents on the World Wide Web. At the beginning of each round, the instructor sends each student a personal email message that includes “secret information” that the student *must* be willing to reveal during the round. When the discussion begins, students question each other to discover clues.

There are two kinds of branches or portals in the web design of this course. One portal takes you to the inside information and the other portal takes you outside to authentic places in Spain, Mexico, or France depending on the course. These authentic sites are places where students try to gather useful information and clues. Both French and Spanish versions have stylized maps of the towns where the crime was committed. These maps are clickable. When students want to find out more about the hospital, they simply click on the hospital icon. The link takes them to a photo of a real hospital in the target French or Mexican town. The site possibly provides some additional information for solving the mystery.

At the end of the clue page for each of the four Rounds there are different subjects of related resources and links to the Web. These flexible resources directly relate to that particular clue page. This course feature provides extended learning opportunities, as well as basic support needed to solve the mystery.

There is a plethora of information and resources in the course, including over 1,500 pictures. Nelson explains that there are pictures in typical language texts but usually not very many and certainly not enough to satisfy students' needs and interests. Students need to see an abundance of detail and real-life connections. It is helpful for them to have many photos from the target countries to help create a more authentic learning environment. For textbook publishers, including many color pictures in printed texts is cost prohibitive and takes up valuable space. On the Web, however, as many pictures can be posted as are needed. The pictures in "Murder" look professional and have drop shadows on two sides. Nelson and Oliver traveled to France and Mexico respectively to take all the pictures.

Interactions

Interactions are the critical substance of this course, and the art of asking good questions is most important for the students. Students ask questions while in character and must always tell the truth. Further, they must be very careful about what they say and what they do not say “so they won’t look guilty!” (Eggers, 1999, p. 67).

Nelson explained that there are a required number of messages students must post within each of the four two-week rounds. The instructors do not leave round participation up to students’ choice and motivation alone; even though the mystery theme is motivating, students are busy and may still need some “encouragement” to keep up. Each course scenario requires a minimum of seven and a maximum of twelve or thirteen students. Limiting the number of students per scenario is for the protection of students; otherwise, they would get too many e-mail messages. In fact, one round— with only 10 students in it—had an average of 280 messages. Answering this many messages is demanding. To address this problem instructors limit the number of students per scenario. For example, a class of 14 would be broken into two groups of 7. During some quarters, two or three scenario groups could be going on in one class at one time. Although this approach is more demanding on the instructor, it is very effective for students. More language-proficient students are given less fleshed-out characters because they are able to develop the characters as they desire. Oliver describes,

We normally assign the lesser fleshed out roles to more advanced students because they can improvise and because we allow students to create their role within the confines of what we tell them. (Eggers, 1999, p. 69)

Even though they are encouraged to flesh out the characters, students cannot change anything that is given to them initially by the instructors in the original character

description—all of this information must stay the same. Students can, however, go above and beyond the original descriptions to make the characters more interesting. Instructors give more well-developed character roles to students with less-developed language skills. This helps ensure that students are not overly stressed while trying to learn a language and to creatively participate in the simulation, all simultaneously.

Emphasis in the course is on content not form, on meaning rather than on accuracy. Nelson and Oliver do not intervene directly when there are mistakes in “Round” messages. Instead, they deal with mistakes outside of the mystery environment. Oliver shared a message that one of his weaker students had sent out on his course listserv. It was not grammatically correct.

Pregunta a Alberto beltrán:

¿Por que estaba tú con Dolores el sábado por la noche de su muerte? y ¿Qué estaba tú hecho allá?

Question for Alberto beltran:

Why was you with Dolores on Saturday on the night of her death? And what was you done there? (Eggers, 1999, p. 70)

Oliver explained the philosophy behind how they handle such mistakes:

This is a sample message from one of the “weaker” students. Although her message is not grammatically “accurate,” she is able to communicate meaning. That is our focus; as long as the messages communicate, we allow students to proceed uninterrupted. We’ve found, though, that students do self-correct and peer-correct without teacher intervention. And, as their messages become more complex, they begin integrating more difficult grammar concepts without teacher prompting. (Eggers, 1999, p. 70)

Oliver further asserted that this student would have been functional in Mexico or Spain, even though it would have been easy for people there to realize she was struggling with the language. In addition, her accent would have given her away as a novice Spanish

speaker. Nevertheless, she would have been functional and would have communicated.

Nelson gave an example of how the teacher intervenes in this environment.

It's real easy for me to check by their messages that they're having difficulty and to just write them a little note and say, 'I noticed that you're having some trouble remembering or that you're confusing the two of them, why don't you go back and look at these two pages in the textbook and do a couple of exercises and see if that helps.' It really allows you to individualize the instruction to the needs of those particular individuals. (Eggers, 1999, p. 71)

In this way the student knows what is incorrect and also knows where to go for review troublesome concepts. The instructor may also provide additional personal help.

Assessment and Evaluation

Nelson explained that "students also completed 'oral interrogations' once each Round (where they met face-to-face and asked each other questions). Students remained 'in character' while interrogating" (Eggers, 1999, p. 71). Nelson further describes the unusual process of assessing with these oral interrogations: "Besides the in-class, student-to-student interrogations, the final exam was a one-on-one interrogation with the instructor where students were expected to explain 'their' whereabouts at the time of the murder and also possible theories for whodunit" (Eggers, 1999, p. 72).

Most professors look forward to final projects to see how their students have applied what they have learned in the course. Students in these French and Spanish courses created innovative projects. Nelson and Oliver explained,

We've elected NOT to solve the murder for the students. Instead students are asked to submit a project in which they determine who committed the murder and why. Submissions have included: a legal brief indicting one of the characters, a hidden diary of the victim, letters, essays, and a videotaped confession. (Eggers, 1999, p. 72).

All of these final projects were written and/or spoken by the students in the target language. The students' task was to solve the mystery and present their reports to the class. Each student solved the mystery in his or her own way, and then found a creative way to share with the class his/her solution to the murder mystery. One girl watched French news shows for hours and then developed her own 15-minute news program complete with advertisements that all had relevance to solving the mystery. One of Oliver's students, a music major, wrote a song with lyrics that explained who had done it. The student then sang the song for the class.

Students can choose their project format and can ask to work in teams, if their rationale is worthy of this. One team created an eight, full-page newsletter with many articles, right-on-the-topic reports, and advertisements where each item was in the target language and each contributed to solving the mystery. When the team handed the newsletter out in the class, other students appeared surprised and delighted. Because of the intense efforts put into these final projects, instructors and students look forward to the presentations as a highlight of the course.

When asked if they thought that their course could be completely delivered online without having face-to-face interrogations, Nelson responded:

You have to keep in mind that this course is just one course in many courses, and it is not supposed to teach you everything about the language. So what they do not get in the pronunciations, they will probably get either before this course or after this course. (Eggers, 1999, p. 87).

Therefore, in the big picture puzzle of learning a language, this course is only one piece. All the courses together should provide a well-rounded learning experience. Oliver remarked that there are ways to do everything online. This is particularly true in a case

such as a class in Wyoming, for example, where the need to help students is driven by constraints created because of remoteness of location. A phone bridge conference could be set up for the interrogations and also for a session at the beginning to get started. Oliver said you could also do videoconferencing. Both instructors agreed that the final projects could also be completed at a distance. Students could send their videos; then Oliver and Nelson would digitize them and post them on the Web for everyone to see. They believe that there are all kinds of things that can be done to promote creativity and sharing in a vibrant learning community.

Support

In the course Nelson and Oliver use email to work one-on-one with students. They believe this strengthens student learning. On the other hand, working one-on-one with students precludes the scalability of the course. This language simulation is dynamic with just-in-time grammar. The teachers spot error trends in e-mail messages and in the class dialog and then create appropriate lessons to help address the problems. Because the course design is not “set-in-cement,” the instructors adapted often to the needs of each unique group of students. This contributed to meaningfulness of the material students were able to use.

Lydia¹, one of Nelson’s students elaborated:

The instructor was a character also. If she saw that we were having problems in certain grammatical areas she would send us an e-mail with suggestions on other words we could use or ask us questions (in character) about something we wrote. She would make sure all the characters were giving each other correct information. (Eggers, 1999, p. 67)

¹ Not her real name

The navigation system in these courses ensures the users will not get lost and will be able to function efficiently within the site. Navigation sidebar icons help students know how to get around within the course Web site. The “Murder Logo”—eyes peeking out from behind flames—is a visual clue that they are in the course Web site. This button takes students back to the course index page.

To help students to access information at the “Mystery” Web site, several icons serve to make navigation clear. Whenever students see a particular icon, they know what to expect. The toolkit icon is for “Helper Software.” This section includes all information and links about how to download any necessary software that students will need to function in the course. The icon of stapled pages is for “Internet Activity,” where the activities are “based on images and text”. A headphones icon is for “Internet Activity” which has text and graphics but also adds audio information. A pen and scroll icon indicates a “Writing Activity” whose only help is a picture. The clipboard icon signals a printable worksheet to use to complete the assignment. These visuals are key to the ease of navigation in the courses.

Lessons Learned

1. The course targeted written skills, yet the students made unexpectedly good progress with speech skills as well. Nelson explained,

It seemed that students were able to master the past tenses in French with less hesitation and more accuracy in the murder class, as opposed to classes in the more traditional format. Once the conversation switched to another context, however, they reverted to more typical speech. This has important implications for foreign language instruction, however, since it proposes that, given a variety of contexts, even students without a study abroad experience can master these tenses (it’s generally assumed that most students will need a year abroad in order to speak with 50%+ accuracy in the past tenses). (Eggers, 1999, p. 85)

2. Engaged students doing meaningful activities will work long hours: “They’ll complain about the work, but they won’t **not** do it!” Nelson shares (Eggers, 1999, p. 86).

3. Students need to be self-disciplined in order to be successful when working alone.

Many students attended the optional face-to-face class session in order to have direct contact with others. Of those who chose to “work asynchronously, about half completed the work well; the others needed to be prodded” (Eggers, 1999, p. 86). Nelson pointed out “It takes a while to get students to understand the benefits of non-traditional classes. A number of students walked out on the first day without even attempting the course”. Once Nelson taught the “Murder” course when high-school students were enrolled along with university students. She had required all students to attend one face-to-face meeting at the beginning of the year. All further instruction and communication were done via email, phone, and online contacts. The secondary education students worked on the French course in their own high-school lab. The main problems with this group were discipline, staying on task, and motivation.

4. Flexibility is the key to success. The teachers in this course were flexible – often adapting the course materials in the middle of the course. For example, at the beginning of Round 1 the students focused on a newspaper article as a review of some of the previous clues and scenarios. It refreshed their minds with available details and clarified the current scene with short articles and advertisements. Everything in the newspaper article was relevant to the Round. The students enjoyed this feature so much that when they came to Round 2 and discovered that there was no newspaper article, they immediately asked for one. Now there is a newspaper with short articles at the beginning of each Round. Students’ feedback helped change the course and actually made it better.

If the instructors had been rigid or had believed that there was something sacred about their design and content, they would have ignored students' suggestions and would have missed a unique course-improvement opportunity. Another evidence of Nelson and Oliver's flexibility occurred when they sold this course to a publisher. They note "We decided to adopt an open architecture in the Instructor's CDs published by Heinle & Heinle" (Eggers, 1999, p. 81). Because institutions who use "Murder" can customize the Web sites, they believe an open architecture course will be better for both instructors and students. Hopefully, there will be more of these kinds of courses in the future.

5. Start small. Nelson and Oliver started incrementally, piece by piece, testing it, making revisions, testing it, moving to the next piece, and so on. They started out with only typed directions before moving to email and photocopies. They did not move to the Web until the photocopies got too expensive. Oliver wanted to work with the Web about that time anyway, so the move was natural. In this phase, also, they started out small and just put up a few resources on the Web to enhance the class. Students asked for more pictures at the Web site; so Nelson and Oliver put up more pictures. Once, due to students' requests, Oliver scanned in 30 pictures the following weekend and posted them at the course Web site.

6. Online teaching is a 24 hours, 7 days a week job: Nelson and Oliver say they are never off. When they travel, they virtually take the course and students with them wherever they go. This is both wonderful and horrible. Although it is convenient to be able to travel and keep a class going, they can never take a break from it.

7. Collaboration with others is beneficial in course development. Nelson and Oliver made a great team for many reasons, including their shared vision, interest and skills in using

technology for learning, and perseverance in getting the work done. After attending the “Creating Effective Online Instruction” Conference at University of Kansas, Lawrence, Nelson comments,

One of the most revelatory things about the Kansas conference that I found was the number of projects that were team projects. Universities tend not to create environments that encourage collaboration: we’re expected to go out and write our journal articles (sitting alone in our library carrels (sp?) or offices). Even the grant applications we filled out only had room for one person’s name! Yet, it is by sharing our ideas, by having a good sounding board, by having someone in the office next door that can help you problem-solve (or even to go to lunch with when you’re working on Sundays!) that brings joy, enthusiasm and success to such huge projects. Without Walter, this project would have never gone beyond the “experimental” stage. So, collaboration has been a key to success—and collaboration means, too, collaborating with students to build something together. (Eggers, 1999, p. 79)

It took years for Nelson and Oliver to develop their courses to the current level. Slowly they have been growing, learning, and experimenting.

8. Be creative to find needed resources and more time to develop online courses. Nelson found it “extremely difficult to find the time to develop courseware” (Eggers, 1999, p. 85). She added that CSUSB faculty “have a teaching load of 9 quarter classes per year” (Eggers, 1999, p. 85). This leaves little time for developing innovative online courses. Nelson, however, is fortunate that her work “has been recognized in terms of ‘professional development’ (i.e. research) for reasons of retention, promotion & (hopefully) tenure” (Eggers, 1999, p. 85). CSUSB allows the faculty “to ‘buy out’ one course release” in order to gain more course development time. This is usually done by securing a grant to develop the course. “The grants are local but extremely competitive,” Nelson reported (Eggers, 1999, p. 85).

9. Keep experimenting with ways to improve the course even after you are done. Nelson is satisfied with the course; she has used the “Murder” mystery in five classes with good

success. She noted “It has evolved from an ancillary activity to the primary course activity” (Eggers, 1999, p. 86). One thing she would like to experiment with, however, is a threaded discussion list to determine if this would make it easier for the students and her to keep up with the high volume of email. Seeing the messages visually arranged would likely make it easier to keep track of the dialog.

10. Develop spiraled redundancy to promote learning. One key to the success of “Murder” is *redundancy*, going over and over things in new and different ways but always in ways that keep students motivated. Many different kinds of resources, scenarios, and such are needed to keep the curriculum both motivating and reinforcing. This simulation approximates what it is like to learn a language in the target country; therefore, the potential for authentic learning is increased. Oliver suggests that other contexts beside “Murder” could get people to go further and deeper in learning the language.

CURRICULUM DEVELOPMENT

Overview

Streaming audio lectures help to make Curriculum Development a special, content-rich course. It is designed to encourage robust student interactions with content, instructor, and other students and is a completely asynchronous, online course. Students apply what they learn about collaborative curriculum development by actually participating in cooperative teams in an eight-step curriculum development model to create a curriculum product. This unique course is offered through two departments at

University of Kansas (KU), Lawrence: Special Education, and Curriculum and Instruction.

The course was developed by Ed Meyen, Paul Tangen, and Cindy Lian. Meyen, a professor at KU, had already taught this course for 20 years when Tangen, a graduate student, talked him into developing and teaching the course completely online. Lian, another graduate student, completed the team. Tangen and Lian did most of the technical work and collaborated on some of the instructional design with Meyen who developed the content and most of the instructional design. A big question always surfaces concerning the kind of support that was given to the development team. Since many Web-based course development teams are funded, Meyen clarifies their team's situation:

I want you to know that we too are funded . . . in a little different way. . . . The Lord gave me all the nervous energy required and then the department gave me all the free time I could get from Paul. . . . That was our institutional support. (Eggers, 1999, p. 133)

Instructional Design

Meyen maintains that online teaching is a pedagogy as well as a delivery system; it “is a continuous process versus scheduled sessions” (Meyen, Lian, & Tangen, 1997b, p. 12). Although at first glance it might appear to be based on the old paradigm of the “sage on the stage” method of teaching, the course actually is based on active learning. The RealAudio lectures are time-sequenced with visuals that enhance the students’ understanding of the lecture, and it all works well. Forty-five activities are built into the course, and students are required to participate in all activities.

Syllabus

The online syllabus is more detailed than the regular face-to-face syllabus because it needs to answer the inevitable questions that students are sure to ask. Meyen comments about the student tendencies: “The first thing they print out is the syllabus” (Eggers, 1999, p. 121).

Lesson Schedule

The Lesson Schedule is the “main directory to the course,” Meyen declares (Eggers, 1999, p. 122). The course schedule divides the 16 lessons into three units. Each lesson is described with a sentence or two and includes a target due date. Each lesson has links that go to the lesson index. The regular lesson activity schedule dates are recommended only; however, the graded items—mid-term exam, final, focus presentation, cooperative project—all have definite due dates. Meyen discussed the effect on students of not having a strict lesson schedule:

They do what is best for them, which means that I have activities coming in and communications coming in at all hours of the day. So they now go through an entirely different shift in terms of how they participate in instruction. They’re not going to class on a schedule. They can get ahead or they can fall behind. The typical pattern is they get ahead. (Burgos, 1998, p. 4)

Listserv

The course listserv was the key means of group discussion. The course syllabus, however, describes the differences between other various types of communications that are possible in the class:

If you wish to communicate with a fellow student or all members of the class, this is the mechanism you use. While E-mail Prof is confidential, Course List Serve is public in that messages can be accessed by all students. This approximates a

traditional class discussion in that other students listen to the comments of students and respond. They can do that in this course through Course List Serve. (Eggers, 1999, p. 122))

Roster

A feature that promotes student interactions in the course is the class roster which “allows students to enter demographic information along with biographical data. Photos, phone numbers and addresses are optional. The student’s email address is required” (Meyen, Lian, & Tangen, 1998, p. 3) because this is the main method of communication. Tangen further explains about students supplying personal information in the roster: “Probably 95% of the people submit it, and we haven’t had any problems with privacy” (Eggers, 1999, p. 123).

Lesson Page

The Lesson Page “is an index containing a listing of all lesson elements and a method for navigating to those elements” (Meyen et al., 1998, p. 3). It is designed simply and clearly, making it easy for students to find the lesson components whenever they need them.

Advanced Organizer

Before each lecture Meyen provides an Advanced Organizer which is a 2-minute mini-lecture that briefly reviews the previous lecture’s content as well as “describes the major components of the lecture” (Eggers, 1999, p. 124).

Lectures and Visuals

Meyen had taught this course for a number of years face-to-face, then “in the Spring of 1995 he taught it on television in an interactive model from this campus to other campuses” (Eggers, 1999, p. 124). When Tangen persuaded him to develop an online version of the class with streaming audio, they already had all the taped lectures from the television course to pull from. They also had every activity, every assessment, and everything else that was used in the course. Meyen reflects that it was difficult to watch himself lecture for 3 hours at a time. Like most professors he integrated various non-content material throughout the lectures; he figured that most lecturers only teach about 1 hour and 20 minutes of content for every 3 hours of presentation. He determined to refine the lectures for the online course so they were focused on content only.

Most online courses do not have full streaming audio lectures. Meyen describes the process that he used in developing them:

I wrote scripts for every lecture. There’s a tendency for professors when they write, to write like they’re writing an article. What I wanted to do was to write lectures like I lecture. I use a lot of transparencies and such in my lectures in the traditional course. So I wrote the scripts for the lectures in an informal type of language like I was giving a lecture. Then for all of the content I created graphic illustrations. (Eggers, 1999, p. 125)

The audio lectures drive the visuals which means that the visuals are timed to come up at the correct time to match the lecture content. It works smoothly. When the team did a pilot study, however, they discovered that the students wanted to see a picture of the professor. When there was no picture, they had the feeling that the computer was teaching them rather than a human instructor. In response to this feedback, the course authors took the video lecture tapes from the 1995 television course, selected various

frames and poses of Meyen, and put these pictures online. Although it was not streaming video, the effect is similar because the action photos of the professor are next to the content graphics and all are perfectly timed with the audio lectures.

Students appreciate the streaming audio lectures because they are in full control of how they want to listen to them. They can pause the lecture or repeat a small section or even the whole thing as often as they want.

Notes

Meyen prepared notes for the students on each lesson. These notes can be printed out either before or after the lecture. The syllabus describes the notes further:

As you listen to the lecture and view the graphic illustrations, brief statements will periodically appear on the top monitor screen. These represent brief notes much like those you would record while listening to a lecture in a traditional course. (Eggers, 1999, p. 126)

Activities

Students like to print out the activities before listening to the lecture. This helps them to stay focused and to know for what they should look. The forms can be simple or fairly complex, but each one has adequate directions to guide the learner through the activity. When they click on the “Send to Dr. Meyen” button, all the box’s contents are sent to Meyen in one email message. He then personally responds to each student’s activities.

Outline

An extensive outline is provided for each lesson. These are the actual outlines from which Meyen wrote his lectures. Students like to print out these outlines before listening to the lecture. The outline helps them better understand the lecture and the

relative importance of the various items. It is not meant to be “a substitute for the lecture, rather, it is designed as a supplemental instructional aide” (Eggers, 1999, p. 126).

Glossary

Meyen insists on having an online glossary because “I think it’s very important to teach the language of the subject matter”. Each lesson has its own glossary page, and all of the lessons’ words are combined for a full-course glossary. He explains the nature of the glossary:

The terms are not unique but, rather, represent concepts important to the lesson. . . . The definitions provided will not be of a dictionary nature, instead, they will be descriptive of the way the term applies to the focus of the lesson. (Eggers, 1999, p. 127)

Readings

There are 10 required readings and 15 recommended readings. All of the required readings are articles that are posted within the course on the KU server. None of these are outside links, so students can always access the articles. One-time copyright fees of approximately \$500 were paid to get permission to use these articles inside the course. The recommended readings, however, can be found in common academic journals but are not posted on the Web. A link to the Reading List is provided on the Course Introduction page. Meyen keeps a notebook filled with copies of the recommended articles at the University of Kansas, Lawrence, campus library. This benefits only local students; however, distance students can access the articles from their local libraries.

Focus Presentation

Each student must read in the content literature and write a report to be shared on the class listserv. The student must send her topic submission to the professor to get approval before writing and submitting the report. Both the topic proposal and the Focus Presentation itself are based on CGI scripted forms with text boxes where students fill in the appropriate information. Although these structured reports are sent out to all students in the class, the instructor's feedback is sent directly to each student as a private communication.

Collaborative Project

The collaborative group project is one of the most difficult things to do online. Meyen explains that his method of working with groups is never to put groups together himself. When he has done the assigning, the students tended to blame him even though he tried to make heterogeneous groups this way.

Meyen tells students at the beginning of the course that by a certain date everyone has to be on a team and by another date the group project is due. Students have an online class roster so they get to know each other in class as soon as possible. Next, they start emailing each other with project proposals that meet the given parameters, and they try to develop a team. They may get together because of common interests, regional areas, or friendships. Students negotiate to get certain people to work together on a team. The bad side of this method is that some people are so busy that they do not get into the team negotiations early enough and thus miss out on getting onto a team that best suits them. Sometimes Meyen has ended up with a group of only one when the group should have included three. Occasionally, he has allowed a group of one when there were special

circumstances not due to missing the team negotiations. Meyen is flexible and sensitive to student needs. Once the teams are formed and each has designated a team leader, Meyen communicates only with the team leader about the group project. He asserts:

The reason I do that is not just to cut down the work for me but to build collaborative behavior on the part of the teams, the students . . . not knowing where they are, they're not going to be beside each other, they're going to be communicating. That's how I try to build that communication across students. (Eggers, 1999, p. 129))

“Students’ prior experience in using the Internet will influence their readiness for engaging in collaborative projects during the course,” comments the development team concerning student success in online collaborative groups (Meyen et al., 1997b, p. 10).

Interactions

Interactions are a key to the success of the course. For learner-to-content interactions there are 16 lessons in which students participate in one to two activities per lesson, take a non-graded quiz, and evaluate the lesson itself. They also prepare literature reports and share them with the class. Learner-to-learner interactions include a class listserv for group discussions, for sharing Focus Presentations, and for negotiating team formations.

Equally important, there are rich instructor-to-learner interactions that are private. Meyen averages 50 responses per student for an average of 598 minutes (9.67 hours) per student in personal communication throughout the course. The first time he taught the course he averaged 959 minutes (15.98 hours) per student. This is much more direct and private time between instructor and student than is typically achieved in a face-to-face course. The development team had a favorite quotation from Sherry (1996, p. 5): “The most important factor for successful distant learning is a caring concerned teacher who is

confident, experienced, at ease with the equipment, uses media creatively, and maintains a high level of interacting with the students” (p. 5). They added their own item to Sherry’s list: “. . . and is tolerant of changing technology, policies and expectations” (Meyen et al., 1997b). The teacher makes the difference in this course with all his personal interactions with the students and with the content design.

These interactions make the course much more personal than one might expect. “It is extraordinarily personal the way I designed the course,” Meyen discloses “because there’s lots of interaction. And you become acquainted with your students. You’re communicating with them almost daily” (Burgos, 1998, p. 4). Most of the time graduate courses are in the late afternoon or evening. Students frequently are tired after a day at work, plus they have other responsibilities facing them once the class is over. Consequently, they often do not stay by after class for personal and private conversations with the instructor.

In online instruction, every question that they ask and every activity that they submit is theirs and you’re responding only to them and they begin to realize and sense that. I think that one of the real strengths of online instruction is the personal nature of it. (Burgos, 1998, p. 4)

This is not, however, what most students expect when they think about taking online instruction. They are often fearful about the whole situation “My goodness I’m going to sit here looking at the monitor and hit a few keys and be expected to learn” (Burgos, 1998, p. 4).

The interactions in this course were asynchronous. “It is technically possible to communicate in real time, but to some extent that defeats the advantages of online instruction,” observes Meyen (Meyen et al., 1997a, p. 162). However, the use of the

telephone—a synchronous communication—is acceptable to use whenever students want to do so.

Assessment and Evaluation

Curriculum Development includes informal student assessments as well as formal ones. Tangen recounts that “it’s just a multiple choice quiz as is quite common but this has the unusual feature of immediate feedback” (Eggers, 1999, p. 131). These quizzes are not graded and can be taken as many times as students want, which students often do because they are not satisfied with a poor score. The first score is captured, however, for every student and then is sent to the instructor. This allows the instructor to ascertain if there are trends of confusion in the class that need to be addressed.

More formal student assessment is done in several ways. There are only four graded activities: mid-term test, final test, focus presentation, and group project. The first two items evaluate the individual’s knowledge and ability to explain and apply what she has learned. The tests are distributed by email, and once taken, the students email them to Meyen for evaluation. The Focus Presentation is actually an article review, which gets students to read the literature on the topic and share what they learned with the other students in the course. The collaborative group project is the most important assessment and the most challenging. Even in face-to-face courses it can be challenging to get collaborative groups to work together effectively, so it is easy to understand how much more difficult this is when all work is done via email. There are times, however, when students get on the same team together because they live near each other and can get together face-to-face to work on the project. Those who do not live near each other, however, simply have to develop good collaborative email skills. “I have found that as

students take more courses online they become far more adept at collaborative projects,” Meyen testifies (Eggers, 1999, p. 131). This is good news for the future of online instruction.

Formative and summative evaluation are significant whenever developing a new course. This team integrated formative evaluation into every lesson. Meyen observed that students gave feedback: “At the end of every lesson they had a little 10-item questionnaire about the quality of the lesson, did they learn anything, clarity of instruction, encounter any problems”. The instructor never saw the student’s name with the feedback. In fact, all these anonymous formative evaluations were sent to a “separate source,” and then the “aggregate data” or group information was sent to Meyen for each lesson. Students are “very willing to give that kind of feedback”. Students also were open and frank in emailing Meyen when something was confusing or when they needed more information. These private messages from students were also useful to the instructor. At the end of the course the team also provided the obligatory, standard, university student questionnaire for the course summative evaluation.

Support

Technical support is a critical item in online instruction. Meyen declares “We didn’t want the problem with the technology to interfere with the content, with the pedagogy. Paul made a major effort to design the course in terms of technology in such a way that we could minimize the problems” (Eggers, 1999, p. 123). In fact, during their most recent version of the course, there was only one technical support call, and it involved a problem with a firewall at the woman’s work rather than with a problem at the

KU end of things. Overall, the careful design and rigorous testing of the course have reduced the problems with technology.

Lessons Learned

Already some changes have been made in the course. For instance, originally all the activities were embedded within the lectures, making them difficult for students to find when they wanted them. They could not look at them before the lecture so they could listen to the lecture more productively. Consequently, they have moved the activities “up front so they could click and look at the activities in advance” of listening to the lecture. In addition, Meyen went through and “took notes” for the students and then put them all together so students can print them out. He related:

I identify the key points maybe in ten word statements and as the media aided presentation is operating those will appear in yellow . . . they'll just appear, be on the screen for a second just to kind of remind them pay attention, what I'm saying is important at the moment. Also they can print out and they've got the key points which is a very brief perspective of the course. (Eggers, 1999, p. 138)

He added that by giving the students the notes “in advance, they anticipate what those discussions are going to be” (Eggers, 1999, p. 138). These notes are in addition to the extensive outline that is also provided for the students' learning benefit. Meyen had some surprises as he developed and taught this course. He had not expected “the value placed on the personal nature of the instruction by students” Nor had he anticipated “the quality of the student work” (Eggers, 1999, p. 142). Further, most students adhered overall to the suggested schedules. On the average, 86% complete the course within the prescribed time frame of the semester and 95% eventually completed the course. What is more, Meyen did not anticipate the students' desire to take more courses like this one.

Certainly there were challenges to face as this team developed and delivered their online course. Probably Meyen's biggest challenge was "the extraordinary amount of time required on my part to develop and to teach the course". He and Tangen kept detailed records of their time and experiences in developing the course and found that Meyen on the average spent 40 hours per lesson in development time. This totals 640 hours for the course itself or approximately 4 months of dedicated, full-time work. Tangen spent 16 hours per lesson for a total of 256 hours to do the technical development for the course.

However, the invested time paid off, Meyen declares, because of the "reaction of students to the course" (Eggers, 1999, p. 143). A number of students have since taken additional online courses from Meyen and others, and they "have gone on to dl[distance learning] theses etc. on technology" (Eggers, 1999, p. 143).

Meyen has practical advice for others who want to develop fully online courses. First of all, he believes that "any teaching principle can be applied online" (Eggers, 1999, p. 144). "Make the courses content rich," he urges. "Don't begin developing the course until you've worked out an instructional design and planning strategy" (Eggers, 1999, p. 144).. Expanding this concept, he urges:

Develop a design that will fit and work well online and maintains the integrity that the instruction has to offer and creates the level of communication with students that you want. Don't compromise a bit on content, you don't have to. Don't compromise a bit on quality of the student performance, you don't have to, you can get better performance. (Eggers, 1999, p. 144).

Meyen further observes that using URLs to sites outside of the course was risky because "unless you monitor them carefully they tend to disappear" (Eggers, 1999, p. 144). "Plan to work hard," he details as he remembers the long and hard hours he put in

on course development. He encourages others to “approach the development as an R&D project. Research what you do and use the results” (Eggers, 1999, p. 144).

What effect will online instruction have on traditional education? Meyen declares: I think that online instruction will have a very significant positive effect on traditional instruction, because of the fact that it does focus on engaging students. It focuses on making good decisions about content, structuring content, and providing assessment that’s really relevant to what you taught. . . . I just think that the instructional accountability that’s placed on you in teaching online eventually will splash over to traditional instruction and will drive the quality of traditional instruction up. (Burgos, 1998, p. 6)

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REFERENCES

Eggers, M. R. (1999). *Web-based courses in higher education: Creating active learning environments*. Ann Arbor, MI: UMI Dissertation Services.

Kearsley, G. (1998, August, 1998). Online education: New paradigms for learning and teaching, (On-line). Horizon: The Technology Source. Available: <http://horizon.unc.edu/TS/vision/1998-08.asp> [1998. October 2]

Lavooy, Maria and Newlin, Michael (2003). *Computer Mediated Communication: Online Instruction and Interactivity*. Journal of Interactive Learning Research. Vol 14, No. 2. ppg. 157-168.

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