

Respecting **diversity** in Distance Higher Education

A Multicultural and Curriculum Conference Anthology

Edited by Linda S. Neff

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Introduction

By Linda S. Neff

The primary goal of this program was to ensure faculty and staff engaged in discourse regarding the implications of delivering a learner-centered, multicultural viewpoint through online course development in an effort to promote student learning and lifelong achievement.

One of the primary goals of distance higher education in our university system should be to ensure that the multicultural student becomes an acceptable member of the dominant society while also maintaining and empowering them with regards to their traditional upbringing. Education serves as a vehicle to help preserve rather than replace ethnic minority culture traditions. A multicultural student must learn “the norms of the dominant culture while deciding whether to maintain or abandon their own ethnicity (Young and Adler 2001:10-11).” This process can be and has been a very painful experience for many of our youth especially when mainstream society has a negative perspective of a minority culture. The pressure for the bicultural children can be an extremely frustrating experience.

Using multimedia in a distance education context we can not only integrate but also deliver virtual classroom content that helps the bicultural student to identify themselves with their own culture. Consequently, that student is taught to set goals and obtain power and self-identity that ultimately encourages lifelong learning and gives that learner a true purpose.

The TECH Share Project at the Institute for Future Work Force Development (IFWFD), Faculty Development, and Center for Teaching and Enhanced Learning (CTEL) at Northern Arizona University joined in their combined 25 years experience to organize a one and a half day conference entitled, “Respecting Diversity in Distance Higher Education: A Multicultural Curriculum and Diversity Conference” to be held June 5 and 6, 2003 at Northern Arizona University. The conference modeled an adult learning community by encouraging personal faculty and learner discourse and the articulation of their findings through presentation, round table discussions, and the dissemination of this conference anthology. This publication represents the combined work of all the participants involved.

Defining the Demographics of Cultural Differences in Distance Higher Education

By Mauricio Rivera-Quijano

Policy-makers, legislators, and governors make yearly decisions regarding a variety of educational improvement plans. With increased budget cuts, Higher Education Systems struggle with class size reduction, faculty training, and educational resources. We invited all of the conference participants to help promote discourse between faculty, staff, K-12 teachers, community members, and students on how to change in their teaching practices toward a more cooperative, culturally-responsive approach.

Since 2001, the new federal statistics show dramatic changes in Arizona demographics. Consequently, we can expect to see this significant change in the demography of our schools and post-secondary institutions. The number of ethnically diverse learners will not only increase but in some areas of our State they will become the majority. In a very short period of time, the Arizona State Education System will face a culturally challenging situation.

A recent study (Moore 2000) shows for the first time the problem of on line learning and Hispanic outcomes. The same findings by the Hispanic Association of Colleges and Universities (HACU) in conjunction with IBM (2001) also support the above stated contention. The problem is not only related to minority group computer accessibility. And language translations do not appear an acceptable answer. Rather, the solution lies in the development of culturally responsive curriculum content.

This conference was designed to educate our faculty and staff on the importance of recognizing cultural backgrounds and differences and their effects on “learning styles, cognitive styles, and communication methods (DeTurk, Holley, Wong, Opitz 2001:1).” This conference formed the bridge between classroom diversity and learner-centered education. Consequently, this conference produced a workforce of professionals able to effectively utilize diversity and self identity in classroom settings to create a sense of awareness that aids students with different learning, thinking, and communicating styles (DeTurk, Holley, Wong, Opitz 2001:3).

Using distance education and multimedia as the venue, participants learned why the creation of culturally responsive curriculum leads to higher student achievement. But more importantly, students will experience an increased desire to learn, a positive classroom experience, sense of self, and overall school climate (Baker, Gearhart, and Herman 1994; Harel 1990; Harel and Papert 1991; Kulik 1994; Mann, Shakeshaft, Becker, and Kottkamp 1999; Sivin-Kachala 1998; Scardamalia and Bereiter 1996; Wenglinsky 1998).

What You Can't See Can Hurt You: Web Site Accessibility

By Trisha Fritz

This year (2003) marked the 13th anniversary of the passage of the Americans with Disabilities Act. Earlier this year the National Council on Disability issued a policy paper that stated that the ADA applies to commercial and other private sector Web sites as well. The paper explained the practical and economic arguments that should guide those who may be called upon to apply the law, suggesting strategies by which the accessibility principle can be broadly implemented without disruption and with benefit to consumers and business alike.

This paper is not a policy paper, but rather an introduction paper that addresses legal issues and reasons why accessibility is important for universities, both for students and faculty, and the public. Technology, tests and tools to correct web sites are addressed.

Section 508 and Universities

It is especially important for universities to recognize Section 508, a federal guideline that addresses web sites. This federal mandate applies to both federal and non-federal agencies that receive federal funding. As public institutions may receive federal funding, it is crucial that all web sites are accessible or federal funding may be withdrawn. While the precedent has been to investigate and fine universities, and no federal funding has been withdrawn, the threat exists.

An aging population, in combination with the demand for lifelong learning, has led to an increase in the number of users enrolled in distance education who have some degree of vision impairment or other disability. Additionally, workplace environments unfortunately have resulted in a dramatic increase in the number of learners who suffer from repetitive strain injury. Current estimates based on U.S. Census Bureau statistics (1997) suggest that approximately 20% (40.8 million individuals) of the population have some type of disability and 10% (27.3 million individuals) have a severe disability. It is estimated that 90% of U.S. colleges are expected to offer some form of distance learning by the end of 2004 (International Data Corporation, 2001). Based on these statistics, universities need to make a commitment to web accessibility.

There are five main types of disabilities that can affect web usage:

1. Visual impairments (blind/low vision/color blindness)
2. Auditory impairments (hard of hearing, hearing aids, deafness)
3. Mobility impairments (can affect use of mouse or keyboard)
4. Cognitive impairments (learning disabilities, attention deficit disorder, dyslexia)
5. Seizure Disorders

Learning online eliminates the impact of disabilities by removing transportation barriers but electronic barriers may still exist. For this reason it is important to create accessible web pages, and other technology for the distance education student. It is crucial for universities to create accessible distance education as students may miss important course information, university policies, and receive only a portion of the information other students receive. *In distance education, what individuals (students and faculty) CAN'T see CAN hurt them.*

Knowledge of design is the first step to creating accessible web pages. There are guidelines for web authors to follow as well as sites that test web pages for accessibility and many of the corrections for inaccessible web sites are not time consuming.

Guidelines

Many developed nations have guidelines and international standards for web accessibility. The standards for Canada, Australia, the European Union, Ireland, New Zealand and the United States are available:

http://saplabs.com/accessibility/aboutaccess/international_3.htm

In the United States, the tool *Bobby*, is one of the most well-known and widely accepted as a standard for web accessibility.

Available: <http://bobby.watchfire.combobby/html/en/index.jsp>

Bobby has three levels of accessibility: Phase One (beginner), Phase Two (intermediate), and Phase Three (advanced). Phase One guidelines focus on problems that are generally easy to fix but are critical to the accessibility of a web site. This paper will address Phase One guidelines only as these are deemed basic and essential to web page accessibility.

Phase One Guidelines

ALT Tags: Descriptive text equivalent should be provided for every image within the web page.

Image Maps: ALT tags must be provided for each hot spot and redundant text links should be provided.

Color: Color-coding should not be used as the only means of conveying information. When using color, visual impairments (including color blindness) should be kept in mind.

Hypertext links: Titles should be meaningful. For example, “click here” does not tell the learners why they should click there. For example, “Click here for admission procedures” is more meaningful and helpful to learners.

Frames: As a general rule, frames should not be used to organize text as older screen readers can not read them in a way that makes sense to learners. Newer tools, such as WebCT, arrange frames in a more ordered fashion and some screen readers, such as JAWS, are able to read them. However, the names of the frames that WebCT uses may not be intuitive to a visually challenged person.

An illustrative example of the use of frames in WebCT is available:

http://www.evc.edu/ada/modules/WebCT/significant_barriers/frames_example.htm

Form Labels: Tag all elements in forms with a label and provide contact information on each page of forms.

Scripts, Applets, Plug-Ins/PDF: Provide contact information on each page so that users can ask questions or request information in an alternative format. PDF is not always a good format to use as some screen readers view a PDF file as a scanned picture. Newer screen readers, such as JAWS version 4.51, can read Adobe Acrobat PDF files as long there are no restrictions for copyright protection (read only, etc.).

Legal Issues

There are several reasons why web sites should be designed for accessibility: 1) the belief that access to education is a basic human right; 2) accommodation, customer service, and ability to reach a wider audience; 3) search engines search solely on text and text equivalents; 4) individuals' future use as they age; and 5) specific pieces of legislation:

The 1973 Vocational Rehabilitation Act (Section 504) mandates that students with disabilities receive equal opportunities for a full education. This Act prohibits discrimination based on disability in federally funded or conducted programs and activities.

Available: http://wdsc.doleta.gov/disability/pdf_docs/section504.pdf

Title II of the ADA (Americans with Disabilities Act of 1990) protects the civil rights of people with disabilities. “No qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of services, programs, or activities of a public entity, or be subjected to discrimination by any such entity. “ Though the World Wide Web was not addressed in the ADA, the Internet is addressed in later interpretations of the law.

Available: <http://www.usdoj.gov/crt/ada/adahom1.htm>

Section 508 of the Federal Rehabilitation Act of 1973 (a 1988 amendment to the Rehabilitation Act went into full enforceable effect June 21, 2001) specifically addresses the accessibility of electronic and information technology and requires that they be accessible to people with disabilities, unless fulfilling the requirement imposes an undue burden. Available: <http://www.section508.gov>

Section 255 of the Telecommunications Act of 1996 requires that telecommunications providers ensure that the equipment they manufacture and/or services they sell are designed, developed, and created to be accessible to and usable by disabled individuals. Available: <http://msen.com/~duemling/telecom/act-index.html>

Section 305 of the Telecommunications Act of 1996 (implemented as Section 713) mandates that almost all television programming in the United States contain captioning. This is important for distance education as some courses are provided via television. Available: <http://www.msen.com/~duemling/telecom/act.html#sec305>

There are more federal acts and guidelines that state that all information should be accessible to individuals with different types of disabilities. Additionally, university anti-discrimination policies and Offices of Equal Opportunity and Affirmative Action work to prevent illegal discrimination and ensure compliance with applicable federal and state laws.

Technology, Tests and Tools

Many tools for testing web sites exist, including:

Bobby, a comprehensive web accessibility tool designed to point out barriers to web accessibility. *Bobby* tests web pages and generates summary reports about the Phase One problems that sites contain. Information is also given to correct the problems. Available: <http://bobby.watchfire.com/bobby/html/en/index.jsp>

The Web Accessibility Initiative, a sub-committee of the World Wide Web Consortium (W3C), in coordination with organizations around the world, pursues accessibility of the Web through five primary areas of work: technology, guidelines, tools, education and outreach, and research and development.

Available: <http://www.w3c.org/wai>

Vischeck can show the user what a graphic looks like to those who are colorblind, have glaucoma, or macular degeneration. *Vischeck* will produce a copy of the site as it would appear to someone with red/green or blue/yellow color blindness when the URL is submitted. Available: www.vischeck.com

Adobe Access Options allows you to type in the URL for a PDF file and returns an HTML document to the user's browser. The quality and layout of the PDF file will affect how well this works.

Available: http://access.adobe.com/simple_form.html

Screen Readers are software with a speech synthesizer that read aloud everything contained on a computer screen, including icons, menus, text, punctuation, and control buttons. Screen readers can work with their own touch pad instead of the regular keyboard, though many use the keypad for user commands, making them difficult to use with a typical laptop keyboard. Some examples of screen readers include the following:

JAWS by Henter-Joyce.

Available: <http://www.hj.com>

Microsoft Enable.

Available: <http://www.microsoft.com/enable>

Dolphin Computer Access.

Available: <http://www.dolphinuk.co.uk>

Home Page Reader by IBM's Accessibility Center.

Available: http://www-3.ibm.com/able/solution_offerings/hpr.html

ReadPlease offers a free version as well as versions in other languages.

Available: <http://www.readplease.com/>

Adaptive Technology

It is helpful for web authors to understand the adaptive technology that individuals may use to access the web. Following is a list of the devices as well as some of the challenges to Internet navigation faced by users of these devices.

Summary of Technology for Visually Impaired Users

Screen Readers

Individuals who are blind use software (examples mentioned above) to access Web pages, electronic text and computer applications. All text from the menu, toolbar, and

directory buttons can either be read or converted into Braille. Tab or Shift+Tab allows navigation throughout the hyperlinks on a given page.

Challenges: Frames and tables can present a problem for screen readers as some read from left to right. Text, images, and hyperlinks can be missed with screen readers, therefore text-based equivalents need to be provided for images. Additionally, a description of graphics should be provided so that the information in the graphic is not missed by the individual.

Screen Magnifiers

Portions of the screen are enlarged to allow learners with vision problems to access computer based materials.

Challenges: Pages need to be clear with easy-to-understand text and description of the layout of the site. High resolution graphics are desirable.

Scanners

Converts text into synthesized speech or a Braille printout (can be either flat bed or handheld).

Voice Recognition Software

User speaks and software converts to text.

Modified or Enlarged Keyboards

Braille keyboards are used by sight-impaired individuals and enlarged keyboards for those who cannot see standard-sized characters.

Braille Display

Hardware converts text to Braille symbols and allows individuals to read and navigate Web sites and computer documents.

Summary of Technology for Physical Disabilities and Repetitive Strain Injuries (RSI)

Enhanced or Modified Keyboards

These keyboards can be Braille, enlarged, ergonomically designed, single-handed configuration, “touch” keyboard on screen itself, etc. Some examples of modified keyboard include:

- “Sticky keys”- allow single finger/pointer operation of multi-key functions.
- “Mouse keys” - cursor movement and mouse functions can be controlled by the keyboard.
- “Repeat keys” - allow users with limited dexterity time to release keys as a delay in registering key repetition.
- “Slow keys” – keys must be held down longer so that inadvertent key pressing by individuals with limited dexterity are not recognized.
- “Bounce keys” – requires a delay between keystrokes to prevent system from registering inadvertent keystrokes.

Challenges: Mouse emulation can be somewhat slow and frustrating.

Voice Recognition Software

Individuals who have disability in their hands can speak navigation commands and input which the software turns into text.

Challenges: If there is no clear navigation system and large target areas on click-able images a voice recognition user has difficulty moving through the pages efficiently.

Technology for the Hearing Disabled

Closed Captioning

Spoken material is translated on video or audio clips into text that can be read on screen. Individuals who are hearing disabled may not be able to read the lips of the presenters on screen, therefore course designers must provide closed captioning. Also of concern is the Internet connection speed, which can make videos jerky and lip reading difficult or impossible. Voice-over narrations, sound effects, lyrics, etc. may also be missed. Without captioning, hearing disabled individuals may not be able to accurately interpret course content.

Show Sounds

This software translates non-speech audio (beeps, buzzes, signals) into a visual manifestation (blinking light). Course designers should not make audio signals a sole means of alerting an individual to something important.

Telecommunications Device for the Deaf (TDD)

Hearing impaired individuals can use text over the telephone by allowing them to type and have text output on the other phone in a window. Hearing individuals' type back and the deaf person reads the text.

Challenge: It is difficult for a student to participate effectively in a "real time" class discussion via TDD.

Conclusions

In addition to the federal regulations concerning web site accessibility, there are four additional reasons to make sites accessible: 1) Many of the techniques used to make web sites accessible are not difficult; 2) Making websites accessible is the right thing to do as it makes a huge difference to users with disabilities; 3) Accessible web sites work for everyone regardless of the type of software or computer they use; 4) Sites won't look different as making simple changes are often enough to make a site accessible without changing its appearance.

In addition to regulations, policies, and other reasons listed, a personal quote from a computer aficionado friend stresses the importance of web accessibility for universities and other public agencies/companies:

"For me however, computers are my GATEWAY to the outside world. Like many other deafblind and blind people on the Net, I can access information, such as the newspapers, magazines....The Net to us is like our public library, and it is our corner shop to get our newspapers as well."

James Gallagher (www.deafblind.com)

Bringing It Home: Personalizing History

By Penelope Walters Swenson

Students seldom are engaged in the series of culture clashes that define the history of education in the United States. They sit on the sidelines, unengaged. How do we make this history meaningful?

This project placed online students into an interactive experience with each other and a piece of historically accurate and engaging literature. Initially, they discussed four characters who were confronted with racism and conflicting values. Assignments were a blend of anonymous and signed. Participants transcended their own racial, educational, and ethnic backgrounds and sought to feel and understand what each of the characters felt and how history impacts people.

Foundations of American Education (EDCI 516) is essentially a social history course with philosophy additions. It is a required core for some Education MA programs and a pre-requisite for Education Administration. All the students in the class are post-baccalaureate and the course is taught in a traditional, text-based manner.

In an effort to create a dynamic learning experience, we attempted to personalize the course by offering it online and through distance modes while also adding a human touch. We developed compelling activities to create an active learning community and enhance the social and emotional intelligence of our students. We also wanted to encourage the development of insight, understanding, empathy, and an increased awareness of the impact of discrimination in the school and community during the past and in the present.

The challenges of online courses often include the lack of personalized human touches, a flat and dispassionate delivery, an over emphasis on electronic workbook-based activities conveyed within a generally insular and insolated context. We were concerned about this Foundations course because it was viewed as “just another history course” and all together boring. It was another hurdle that appeared to not help the teachers or administrators do their jobs better.

With these challenges in mind, we came up with the following reasons to change the overall structure of the course. First off, students today have a wide range of educational options including a variety of access possibilities. We wanted to tap into the new ways to teach, learn, and engage our students. Students typically regurgitated what they thought we wanted versus having them learn in a deeper, personal level.

We chose to design and develop the course for an online delivery. In doing so, we hoped to enhance the participation of all students in discussions and presentations. We also provided an increased number of resources to the students, developed an effective forum for group participation, as well as changed the discussion and participation dynamics via the online environment. We also selected the online tools that matched our desired outcomes. Additionally, the online environment increased flexibility regarding personal choices about when professors and students chose to participate but did not reduce the overall time demands for class participants. The instructional design of the course was highly student centered, effectively utilized pedagogical tools, addressed multiple learning styles, and engaged and motivated students. More hallmarks of the online environment resulted in the development of a community of practice, stimulating whole group discussions, and enhanced group work.

Students' comments on asynchronous discussion follow:

"I prepare more."

"I can't skate."

"I can't look at a person and assume what he or she will say based on how he looks."

"It is more interesting because no one person or group dominates."

"I spend more time on the discussion because I keep thinking about the points."

"I go back a lot to see what is new."

However, stimulating whole group discussions was not enough to support change. Consequently, we decided to create a constructivist learning environment (CLE). A CLE encourages students to become immersed in a case, situation, or problem using prior knowledge in an effort to gain new knowledge and create new understandings. A CLE typically has the following characteristics:

- Active/manipulative
- Intentional
- Complex
- Contextualized
- Constructive
- Collaborative
- Conversational
- Reflective

In our CLE, we provided the students with a shared experience through literature. All the student's read Chapter 1 of Mildred Taylor's Roll of Thunder, Hear My Cry. Through the literature we were able to offer a common understanding based on a historical situation focusing on minority children and teachers in rural South during the Depression. Next we had the participants post, anonymously, three to ten word descriptions of the emotional impact experienced by each of the four key characters regarding hand-me-down texts from the white school to the black school. The following table provides some sample term sets from the participants.

| | |
|--|---|
| <p>Mary Logan Organizer, numb, insulted, annoyed troubled Hurt, concerned, embarrassed Proud, level-headed, strong leader Thoughtful, reflective, sad, aware, independent.</p> | <p>Daisy Crocker Pompous, grateful, accepting Thankful, resigned, appreciative Governed, monitored, useful, needed Contentment, impersonal, formidable, unconcern Contemptuous, prejudicial, complacent, raucous, disdainful</p> |
| <p>Little Man (CC Logan) Frustrated, indignant, shocked, Disturbed, indignant, hurt, offended Exuberant, excited, proud, sensitive, distraught, disappointed Upset, rejected, belittled, lied-to, misled Offended, degraded, angry, disappointed, dismayed.</p> | <p>Cassie Logan Angry, embarrassed, humiliated Concerned, resentful, wounded Bored, tired, upset, disappointed, influenced Distraught, offended, mislead, misbelief, lied-to Humiliated, indignant, shocked, hurt, sad</p> |

List generation helped construct the CLE with the participants as active observers. Each list was developed without reading the lists of others to assure individual responses. Once the lists were generated they were shared with the class. "Gut level" responses written by the participants occurred after they had read the lists as a whole.

Some interesting aspects of this activity included that many of the participants did not know anyone else in the course. The posts of lists were anonymous and represented an individual's thoughts and feelings. The posts were devoid of keys and cues regarding age, race, gender, and stereotype. However, the "gut reactions" were attached to names. One student commented, "So many emotions... Swirled around those old books. I think the lists really captured the complexity of such a situation..." More participant comments follow:

"Similar words, some surprises, wondered if we all read the same passage..."

"I am rediscovering that words alone can in fact illustrate great suffering."

"I had never stopped to think of Daisy as "thankful." We all have different opinions. Thanks."

"I also found it exciting that many of us had the same reactions."

This activity begs the question, why the variation, especially about one character? The two adults, both teachers, were very different. One seemed to many of the participants as lacking courage while others saw her as sad about the situation, but happy to have books for the children. Daisy, the character with the greatest variation from the lists, was more complex than students initially thought. Daisy's complexity caused students to be uncomfortable, then to go on and move to a different level of understanding regarding the time, place, and circumstances. Students began asking themselves what would they have done?

For the next assignment students participated in a role play. They took on the role of the white school superintendent who brought the books. They were asked to respond as the superintendent to the teacher regarding the question, "What happened that enabled us to get those texts and what is your plan for their use?" All the responses were gathered so students crafted theirs without seeing the responses of others. Names were attached as all the responses to Mary Logan were published. Because the demographic details were not well known about each student and other factors that we are researching, the responses appear to be very direct, within the period, and intense.

Another piece of the CLE introduced a local story about a school superintendent who championed the cause of another group of unwanted students during the Depression. I had the students compare this situation to the last. As a result, the class had intelligent and probing, lively discussions ranging from capitalism to power!

Throughout the entire online course interactions, my role as the professor kept me primarily out of the discussions except to provide encouragement every now and then. I avoided commenting in such a way that indicated a correct response (i.e., "great idea"). I also found myself supporting the students constructing their own knowledge while also exploring alternative views.

A student reflection on the course follows:

"I guess the sad reality is that we don't care for people that are different. We get upset, as teachers, at those that are more challenging. I have yet to hear a teacher say that they would like to have more of those hard to handle children.."

"I went into the office at the beginning of the school year and complained because I had the majority of the low readers in my class. We would like to think of ourselves as civilized and compassionate, and yet to some extent, we are still discriminatory."

Interesting, she trusted her colleagues to the point that this reflection was attached to her own name.

So where did we go next? We continued reading and discussing historical material, often referring back to the characters and to the insights developed. Sometimes we asked about how one of the characters might have seen an event, other times these references were introduced by the students.

As a product of the CLE, we recognized several changes in the course climate. The students were actively engaged, accepting and appreciating of different perspectives, understanding of roles people play to survive, and willing to suspend earlier judgments as colleagues posit other ideas. In addition, a wide range of emotions regarding prejudice and perceived wrongs toward children were expressed. In a more general sense, students showed a heightened curiosity about historical events, reflection on personal attitudes and goals, and expressions of wanting to be fair, just, and compassionate.

On the closing survey many students reflected thoughts such as, “It (the CLE) helped me understand...more clearly. It put me in their shoes. I think that in order to avoid negative situations that happened in the past, one must be able to feel what the situations might have done to people. Having emotions about a situation will impact whether or not it will happen again.”

Within the community, students discussed sensitive issues, sometimes anonymously, and sometimes with their names attached. Students explored, collaborated, shared, and constructed new understandings from these experiences. We couldn't have created the CLE within a face-to-face classroom. In a face-to-face classroom, students look to the instructor for cues. Additionally, students expect certain responses from people based on their appearance. Sometimes appearance dictates roles in the face-to-face situations.

The essentials in planning for success include understanding your audience and their needs, clearly defining your goals and objectives, have readily available resources, match the needs, resources, and pedagogies, provide support for and preparation of instructor vis-à-vis the technology, and avoid allowing technology to dictate aspects of the course. In closing, teaching about diversity online has great challenges and some risks, yet the potential for success is great.

A Model to Share: Using Technology to Support Endangered Tribal Languages and Cultures

By Susan Penfield, Garry Forger, Phil Cash, Maureen Salzer

Background

The Colorado River Indian Tribes Reservation (CRIT) is located on the Colorado River, just south of Lake Havasu on the Arizona California border. CRIT is home to four culturally and linguistically different tribes: Mohave, Chemehuevi, Hopi and Navajo.

Support for Mohave language work at CRIT has typically been through grants obtained by linguists. Three years ago, the Bill and Melinda Gates Foundation provided tribal libraries in Arizona and New Mexico with state-of-the-art computers. The CRIT library, under the direction of Mrs. Amelia Flores, received four new computers and began to train tribal members in their use. This made it possible to experiment with technologies for preserving and teaching the Mohave language. Mohave was particularly adaptable to computer work because the orthography developed by Pamela Munro in 1976 contains no diacritics, other than the glottal stop easily represented by the ‘apostrophe’ on any computer keyboard.

The Need

Mohave, a Yuman language, is spoken by just 40 fully fluent speakers at CRIT (there are approximately 25 more fluent speakers at the Fort Mojave Reservation near Needles, California). Most of these speakers are at least age 70 or older. A number of efforts are currently underway aimed at both the preservation and revitalization of Mohave in this community. Most previous work on the Mohave language was accomplished by Pamela Munro who completed a book, *Mojave Syntax* (1976), and the dictionary, *A Mojave Dictionary* (1992). The tribal members rely on these sources of language information consistently when working on all language projects. Chemehuevi is currently spoken by only about 10 fluent speakers, and as with Mohave, they are 60 years or older. The need to take action on these two most critically endangered languages of the four CRIT cultures was apparent.

Partners

In addition to the CRIT members, partners at the University of Arizona were enlisted to provide assistance with the technology and language instruction tools. The Critical Languages Program at the University of Arizona has developed the MaxAuthor program, a free resource for creating instructional modules for uncommonly taught languages. The Learning Technologies Center at the University of Arizona provided the specifications for the laptops that were ordered, and customized and configured the laptops once they arrived. The Learning Technology Center also provided the space to hold the initial training sessions. Also contributing to the project are the Departments of Linguistics, Anthropology, and English at The University of Arizona.

Technology Used

With the funds provided by the Bill and Melinda Gates foundation, technology was purchased that was distributed to the six CRIT tribal representatives; three fluent Mohave speakers, and three fluent Chemehuevi speakers. The laptops that were purchased for the grant were distributed to the six tribal members for the duration of the grant, and will then be housed at and managed by the CRIT Library in Parker, Arizona after the formal conclusion of the grant.

The laptops that were purchased were Dell Latitudes with the following hardware: External mouse, mouse key pad and ‘eraser’ mouse, Network Lan Port, Modem/phone port, Removable floppy drive, Removable/extra battery, DVD player/CD read write drive, External power supply, Video adaptor, Built in microphone and speakers, Headphones with microphone.

In addition to Windows XP OS and Microsoft Office programs and Internet Explorer that were installed on the laptops, specific software was acquired to support the goals of the grant. The following software was installed on the laptops:

Max Author. This program is a computer-assisted language learning software program for language languages that are rarely taught, created by the Critical Languages Program at the University of Arizona. MaxAuthor has been used to create language lessons in more than forty-seven languages, including Navajo, O’odham, Southern Paiute, Mojave, Yaqui and Ojibwe. Lessons can use audio, video, footnotes and graphics. This program is well tested and provides many useful modules for language teaching and preservation, and is free.

The MOO. The MOO is a “multi-user, object oriented” meeting or conference space that is accessed through the Internet. People can log in at the same time and send each other messages about the project. This is used for discussions of how the work is going-anyone on the project will be able to talk to some or all of the others from any Internet connected computer. People need to be logged in at the same time for the chat functions to work.

Our project's MOO work will be based in the University of Arizona's licensed OldPuebloMOO.

WIMBA. WIMBA is a voice based message board software that is web based. This software was originally developed as a second language acquisition teaching tool, and provides for an online recreation of a language lab situation. The technology is asynchronous, so that students do not have to be online simultaneously to participate. The structured environment of a WIMBA Voice Board enables language lessons to be created where instructors post written and spoken instructions for student assignments, and students respond by recording their own voice to the board. The auditory feedback provided by WIMBA is an important teaching concept, and can recreate the functions of a language lab through distance and distributed education.

CoolEdit2000. CoolEdit is a commercially produced software program that is used to record and edit sound files. This easy to use software was installed on the laptops to provide for an environment that could be used by the participants to create their own voice recordings. Cooledit can also be used to digitize sound files from cassette or reel-to-reel tapes. Once digitized CoolEdit can then be used to remove static and to do other editing functions.

This software enables speakers of the endangered languages to record, preserve and digitally manipulate examples of their language in use. The video component adds important visual and cultural context. Project participants will be able to create audio and video files for the website and CD ROM versions of the language lessons for members of the CRIT community.



Figure 1. Customized desk top of a laptop provided to participants.

Before the participants arrived at the Learning Technologies Center of the University of Arizona for the first part of the training, the Dell laptops were customized by installing software that would be used in the training (Figure 1). CoolEdit and MaxAuthor were

installed on each laptop, along with Adobe Photoshop, and icons for these were placed on computer desktops, along with MSWord, Internet Explorer, Windows Media player, My Computer and the Recycle bin. A customized manual was developed for the participants, containing basic information on the laptops and tutorials for each of the computer programs that were being used for the project. The logo of the Colorado River Indian Tribes was also placed on the desktop as the background image. Each of the six laptops, and the seventh for the PI, Sue Penfield, was given a different desktop background color.

Training Schedule

The training schedule was planned as follows: three days of hands on training at the University of Arizona Learning Technologies Center at the beginning of the grant. This would be supplemented by follow up training at the tribal library in Parker, Arizona in the subsequent six months. Parker, Arizona is about a four-hour drive from the University of Arizona in Tucson, Arizona. The tribal participants in this program are community members, all of whom work at least part time, and therefore would have to take time off of work and away from their families to participate in the training in Tucson. Transportation and housing costs for the training in Tucson were covered by the grant.

The training at the University of Arizona took place on January 30th, 31st and February 1st. The presentation area of the Learning Technologies Center that was used for the first training is not totally closed off from the rest of the Center. Prior to the arrival of the CRIT participants, PI Sue Penfield sent a message to the members of the Learning Technologies Center to outline some considerations when the CRIT members were in the training. This memo outlined showing respect for the CRIT members by respecting their space and privacy, and by not interrupting them during discussions.

The first session began with one of the tribal members invoking a Chemehuevi blessing for the project. The first morning involved introductions of all participants from CRIT and from the University of Arizona. The participants were provided with an overview of the project and then were given the Dell laptops to unpack. Many of the participants were novices at using computers, and in order to provide them with a feeling of competence the sessions were begun with them setting up the laptops: turning on the power, plugging in external power and the mouse, along with the headphones with microphone.

The training in Tucson provided information on basic computer skills, while at the same time training participants to use the technology that would allow them to create language lessons on their own when they returned to their communities. The first training issues that were addressed were on using PowerPoint to create language lessons. CoolEdit was used to create sound files. The sound files were then integrated along with images into a PowerPoint instructional lesson. Print copies of coloring books of Mojave and Chemehuevi were available from the Tribal Library, and the images in these were scanned and made available to the CRIT participants.

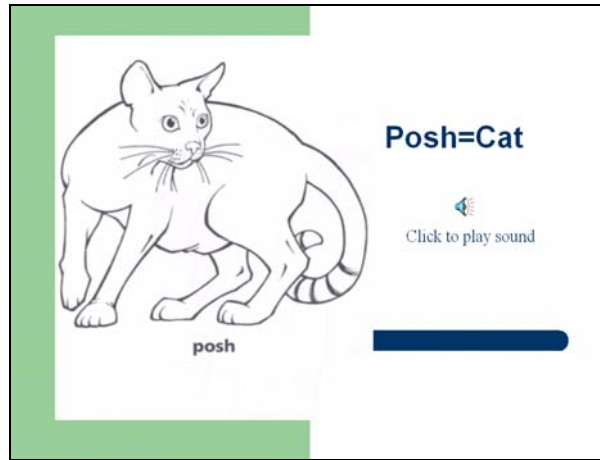


Figure 2. Mohave coloring book image and sound file created with CoolEdit in a slide created using PowerPoint.

The applications of these basic technologies to create immediate successes for the participants provided for a high level of morale and motivation. In planning for the initial training it was considered to concentrate on more basic computer skills, instead of concentrating on the tools to create basic language lessons from the outset. In retrospect this was the correct decision. The ability for participants to record and hear their own language as an audio feedback had a great impact on the participants' motivation. Throughout the initial training session we continued to demonstrate and instruct on more advanced tools for the creation of language lessons, while letting the participants to proceed at their own pace with their hands-on instruction (Figure 2).



Figure 3. Participants at the Tribal Library in Parker, Arizona.

Follow-up sessions for training and updating CRIT participants took place in Parker in March 2003 with members of the training team traveling to the Tribal Library in Parker, Arizona (Figure 3). It was found that participation by Tribal members at the training sessions in Parker was not as viable. With the demands of family and work so close at

hand, it was much harder for CRIT members to attend the sessions in Parker. It was decided to hold another training session at the University of Arizona in June 2003 as a way of maintaining a high level of involvement.

What We Learned

While the project has not yet completed, the general consensus is that the program is a success and will have an impact on the teaching and preservation of Mojave and Chemehuevi. As a conclusion here are some of the observations of the trainers and support personnel:

Having the CRIT participants begin to immediately use the recording and imaging technology created a high level of interest and was a successful strategy. It is the consensus that if we had begun with basic computer skills (file systems, using right mouse clicking) that we would not have been as successful.

Providing material to the participants that was familiar to them and in their own language was also an important motivating factor, such as the Mojave and Chemehuevi coloring books.

Letting participants concentrate on the technology that they were comfortable and successful with and interested in was an important motivation factor. One of the participants created on his own video recordings of himself speaking in his language providing basic language information.

Support for the technology could have been better planned. While the library in Parker has been providing support, we found that some participants were not asking for help with technology problems once they had returned to their homes, and only informed us of issues at the first follow-up session, almost 2 months after the initial training. Providing support from the University of Arizona was also not practical, considering the distance to being able to have a face-to-face consultation. To assist with this, the University of Arizona team made sure all CRIT participants had email accounts. Communication between participants and the University team was facilitated with email, and some questions were answered using email. A project listserv supports both teams and serves as a clearinghouse for information, questions and progress reports.

Conclusion

The participation by highly motivated individuals to use technology for the teaching and preservation of their language can be done using the latest, but fairly simple and inexpensive technology. The quick successes that happened using the technology allowed for more training time to be spent on discussing and illustrating the issues around language instruction. The dissemination of information is being accomplished through

the web site, a listserv for discussion of indigenous languages and technology ILAT@listserv.arizona.edu, and a course offered at the American Indian Language Development Institute (AILDI) in the summer of 2003 which may result in an on-line course for college credit. This summer institute (AILDI) brings together members of many different Native American communities for the purpose of receiving training in linguistics, language learning and language teaching for the purpose of language revitalization.

Differences in Synchronous and Asynchronous Interactions among Bilingual Hispanic Pre- and In-service Teachers within an Online Distance Learning Experience

By Luisa Lara, Richard Howell, Jeronimo Dominguez, Jose Navarro

The rapid development of online instruction finds that as many as 1000 U.S. universities are currently providing online degree programs, an increase of 72 percent between 1995 and 1998. The number of students enrolled in distance education as a percentage of total postsecondary enrollments are projected to triple to almost 15% by 2002 from just 5% in 1998 (NTIAA: Dept. of Commerce 2000). This rapid development has spurred interest in a number of critical issues associated with distance teaching and learning including overall effectiveness, efficiency and pedagogical considerations. A key area of interest involves the use of distance learning with various cultural and linguistic groups of learners. Specifically, are there instructional design features that should be incorporated into online course designs to accommodate the different learning styles of diverse learners? Primary among these instructional design concerns are the use of asynchronous and/or synchronous discussion and chat options for interactions between and among students and faculty. It has been proposed that these interactions evidence a number of advantages over traditional classroom interactions including more flexible time arrangements, continuous and automatic archiving, and the ability to reach a more diverse student body (Guri-Rosenblit 1999).

Research in telecommunications suggests that certain social inequalities, including gender, class and ethnicity, present a challenge to traditional classroom interactions. However they may be mediated in part through new forms of networked communication in the form of e-mail, chat rooms, and web courses (Cole 1996; Hollenbeck 1998; Vasquez 1993). Vasquez (1993) discussed the difficulties of developing high level literacy skills within a multicultural society that induce excellence and support the diversity of the US. Through online interactions, her team was able to create a learning environment that reproduced students' cultural and linguistic experiences and encouraged them to perform in a wider arena. She also noted that teachers cannot create such environments in isolation, therefore, global telecommunication projects can be a major help for these teachers.

Fubos and Young (1999) explained that one of the main advantages that telecommunication exchanges have as tools for cultural understanding is the notion of an “invisible” online environment. In other words, it is possible that this environment could be more comfortable and equitable for participants because many of the traditional social cues are covert.

Lai (1996) states, “In face-to-face interactions such as in a small group discussion it is often difficult for people to have an equal chance to contribute, especially when the interacting persons are of unequal status. However, in online interactions it is more likely that people will pay more attention to the content of the message, thus creating an environment of equal opportunity and reciprocity in roles.”

Another aspect of the discourse established in telecommunication exchanges is the importance of a distant peer community to reinforce the relevance of any school or college project in writing assignments. The behavior of this audience is apparently different than that found in other traditional writing situations. It is significant because these telecommunication audiences can initiate and respond both synchronously and asynchronously. Rather than employing a self-contained, non-interactive text that is finite, e-mail text can be interactive and evoke a more fluid and dynamic conversation. This telecommunication environment may provide a more individualized and yet collaborative learning process.

Variations in social and cultural contexts and diversity in the classrooms pose challenges for the curriculum and instruction of classrooms. It is necessary for teachers to be prepared to analyze situations, solve problems, and make decisions in a thoughtful and reflective manner. McIntyre (1995) expressed in her study that many teacher education programs have lacked both the curricular organization and the instructional technology needed to encourage pre-service teachers to be reflective. Her study showed that electronic mail was a useful educational strategy for developing reflectivity. In addition, it can improve the interactions between student teachers, cooperating teachers and faculty. Another advantage referred to in this study was the possibility of having students substantively interact although they were located in various locations, far from the university. An important finding was the relationship between technological literacy and the students’ online interactions. Some students reported being unfamiliar with the technology and these feelings became a factor and topic for their interactions. However, this situation changed with the continuous use of messages, after which they started to have more confidence and this sense of confusion decreased considerably, almost disappearing by the end of the study.

Two important factors should be considered by teachers and administrators when designing educational strategies for Hispanic students: (a) almost 50% of Hispanics do not graduate from high school and, (b) Hispanics as a group are very young; and will constitute the largest percentage of growth within the school age population for at least

the next decade (De la Rosa and Maw 1991). In fact, as of the 2000 Census, Hispanics are now the largest minority group in the United States (U.S. Census 2000). Consequently, educational institutions should work closely with Hispanics and consider their needs when creating their educational agendas.

This is especially important since Hispanics must exist between two cultures, an Hispanic world at home and a European/American world at school. Several authors have recommended implementing the following strategies for instructional practices for teachers of Hispanics students (Arreaga-Mayer and Perdonmo-Rivera 1996; Jimenez and Gersten 1999). First, it is considered essential to initially establish rapport with the students. Second, teachers should be encouraged to create an atmosphere of trust and respect among students and teachers. Finally, the students need to be encouraged to have a strong sense of involvement and be shown that their achievements matter to their teachers. Foster (1993) explained that in order to facilitate the educational performance of minority students it is not essential to share ethnicity, it is essential to share and respect cultural and social norms. Educators have to find ways to engage the community and parents in the schools' life.

This study sought to determine whether there were qualitative and quantitative differences in the synchronous and asynchronous interactions of bilingual, Hispanic pre- and in-service teachers. It specifically investigated differences in interactional content and style, including the preferences that participants expressed regarding the two forms of interaction.

Method

Participants

The participants in this study were a self-selected sample of six (6) U.S. and International pre- or in-service teachers, including students in the field of education. The subject recruitment was solicited through contacts with professor of Education and Psychology from Spain and Venezuela, and finally with Hispanic-American students from a large midwest University. All of the participant's ethnic backgrounds were Hispanic, either because they came to the course from a Hispanic country (Spain and Venezuela) or they were originally from a Hispanic minority group and currently living in the US. In addition, all students were bilingual in both the Spanish and English languages.

Setting

This study took place within the context of a web-based learning environment (the Internet). As such, the experience was a completely online process with no physical contact between, or among, instructor and students.

Definition of Independent Variables

(a) Asynchronous discussion group: This was an ongoing, instructor-moderated, online discussion in which the students were given a topic to discuss with an established time period in which to respond (approximately one week). They did not have to meet or respond as a group at the same time; in other words, the response was delayed.

(b) Synchronous discussion group: This was a simultaneous, instructor-moderated, meeting online with the whole class on a established day. Students had to respond spontaneously concerning the topic of the lesson for that week; in other words, the response was immediate.

Definition and Measurement of the Dependent Variables

(a) Interaction content was determined within each setting/condition as determined by a count of the total frequency of interactions. This was measured within each online-discussion group setting during the duration of the course experience.

(b) The length of interactions was determined by counting the total number of words per interaction per participant.

There were two different measurements taken to determine the participants' interaction styles during the study:

(a) Interaction effects by nationality, gender, and age in each setting/condition as determined by a count of the frequency and number of words in messages, and the amount of time online.

(b) Specific topic(s) or situation(s), which evoked a higher frequency of responding and/or that required more time spent online by pre- and in-service teachers.

A qualitative analysis was also conducted to determine the participants' attitudes and preferences regarding the use of online instruction as a professional development medium. Formal and informal questionnaires and interviews were used to measure the students' attitudes and preferences relative to the two different types of interactions presented in this study. The social validity of the overall method of information delivery and interactions among participants was determined in this manner.

Research Design

This study used both quantitative and qualitative analysis techniques. An alternating treatments design (Tawney and Gast 1984) was applied in the quantitative analysis because this design could accurately demonstrate the effects of the independent variables. In this design, experimental control is demonstrated if different data paths develop for

each condition and show no overlap, evidenced by either stable levels or opposing tendencies in the data. A questionnaire and an interview online developed by the experimenter was implemented for the qualitative analysis of the attitudes and preferences of the participants in this thesis about their experiences in an online course.

The order of interactions was alternated between the two interaction/discussion conditions. The order of interactions began with the asynchronous discussion group condition after the lesson was made available on the web page every Sunday. The synchronous discussion group occurred every Saturday of the following week for five consecutive weeks.

Hardware and Software

The basic hardware used in this project was a computer (both PCs and Macs) used to explore virtual sites linked to the class web site and for e-mail use. All were modem-based, and able to connect to the Internet and provide e-mail access. The browser software used by the group was primarily Netscape or MS Internet Explorer. The e-mail software was predominantly Eudora, used to communicate, send out questionnaires, conduct interviews and distribute basic weekly information between the experimenter and the participants.

General Procedure

The online experience in this study used the web pages designed for the course PAES 669 “Integrating student with Disabilities into School Settings” (see Figure 1). The course was divided into 10 lessons that were designed by 8 different faculty members of the Special Education department from The Ohio State University.

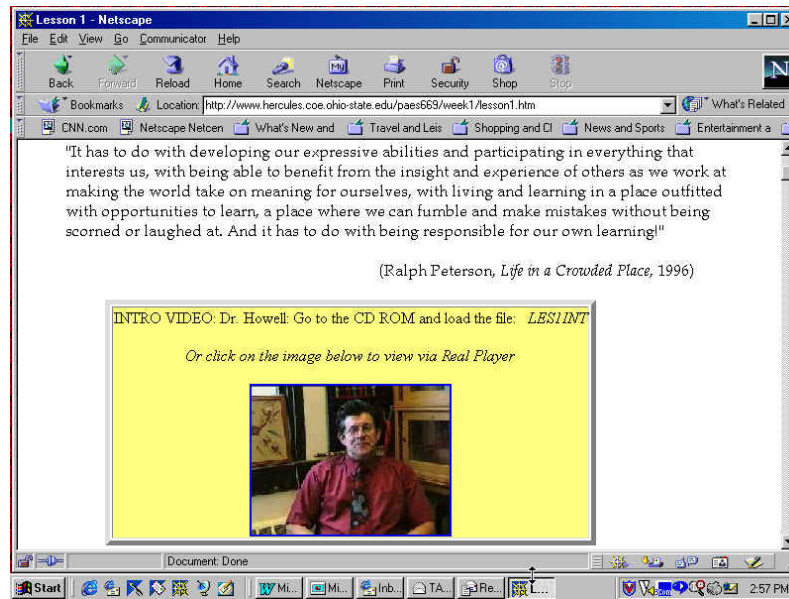


Figure 1. Introduction to Lesson 1. PAES 669

Each lesson was designed to be an interactive learning environment adapted to the differing needs of students in a distance learning course (Figure 2). The main features in each lesson were:

- A topical lecture in which the student was able to encounter the main concepts, vocabulary and strategies being taught in that lesson.
- A "readings" section, giving the student the opportunity to read selected online articles and chapters assembled by the instructors.
- Video- and audio-clips from actual classes featuring classroom teachers and students performing the strategy being taught in that lesson.

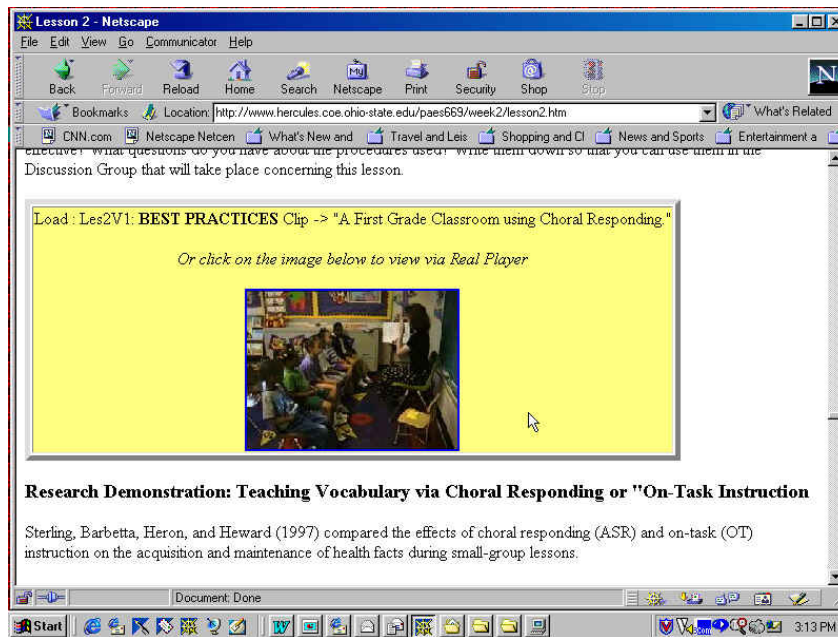


Figure 2. Best Practices Classroom Demonstration

Video clips of the professor in charge of each lesson. These two last sections are on a CD that included all the relevant audio- and video-clips referred to throughout the Lessons.

Another important feature was the immediate access students have to two sections. One was the "frequently-asked-questions" (FAQ) where they could receive help for operational and conceptual questions they might have. The other was an "interaction area" that provided students an opportunity to interact, either by going to the threaded discussion group or by going to the chat room.

In addition, the lessons were developed to be self-instructional and to be used independently by each student enrolled in the course, including the participants of this study. Participants were provided a user name and a password, which allowed them to access the web site from anywhere around the world. During each Sunday of the week during the second half of Winter quarter, 2000, students were given access to a subsequent online lesson (e.g. week 1=lesson 1, week 2=lesson 2, etc). This allowed students to access that particular lesson at anytime during the course of a given week. The two different types of interaction tools available during this online experience were threaded discussion, and e-mail. The synchronous type of threaded discussion engaged the whole class, with everyone online at the same time and interacting within a contiguous space. The asynchronous type of threaded discussion involved the posting of a response to a question and responding to the other students' or instructor's messages over a week's time. During the first week of class, the group established the meeting time and days. At this point, discussions were alternated from asynchronous to synchronous interactions. There were five - 1.5 hour interactions using each type of interactional

format, synchronous and asynchronous for a total of fifteen (15) hours of interactions across both conditions. At the end of the study, students filled out a questionnaire and participated in an interview by e-mail to assess their attitudes and preferences.

Data Collection and Analysis

The data from the two conditions, “asynchronous” and “synchronous,” was collected in the following manner. The inputs from each interaction that were posted in the threaded discussion group on the web site were downloaded into a file, and then onto two floppy disks, one for the experimenter and the other for the inter-observer. Each person separately recorded the scores resulting from the interactions. Each person also independently scored the results - overall inter-observer agreement across both conditions was 100%.

The data analysis was done using both tabular and graphic formats for each dependent variable in relation to the two independent variables, synchronous and asynchronous. In addition, the experimenter conducted a final interview using open-ended questions and a questionnaire with directive questions. This supported the measurement of the dependent variables of interaction style, and the participants’ attitudes and preferences regarding the social validity of this study.

Results

Significant differences were found in the total number of words generated by subjects in the synchronous and asynchronous settings, with the synchronous condition eliciting an average of 406 words per session as compared to an average of 230 words per session in the asynchronous condition (see Table 1). This difference is graphically illustrated when the average number of words per session across all interactions are compared (see Figure 3).

| Topics-Interaction | Type of discussion | |
|----------------------------|--------------------|--------------|
| | Synchronous | Asynchronous |
| Inclusion- Interaction | 427 | 268 |
| Choral Respond-Interaction | 409 | 236 |
| Technology-Interaction | 342 | 223 |
| Tutoring-Interaction | 418 | 140 |
| Social Skills-Interaction | 436 | 282 |
| Total number of words | 2032 | 1149 |
| Average number of words | 406 | 230 |

Table 1: Average number of words per session in the asynchronous and synchronous discussion by all subjects.

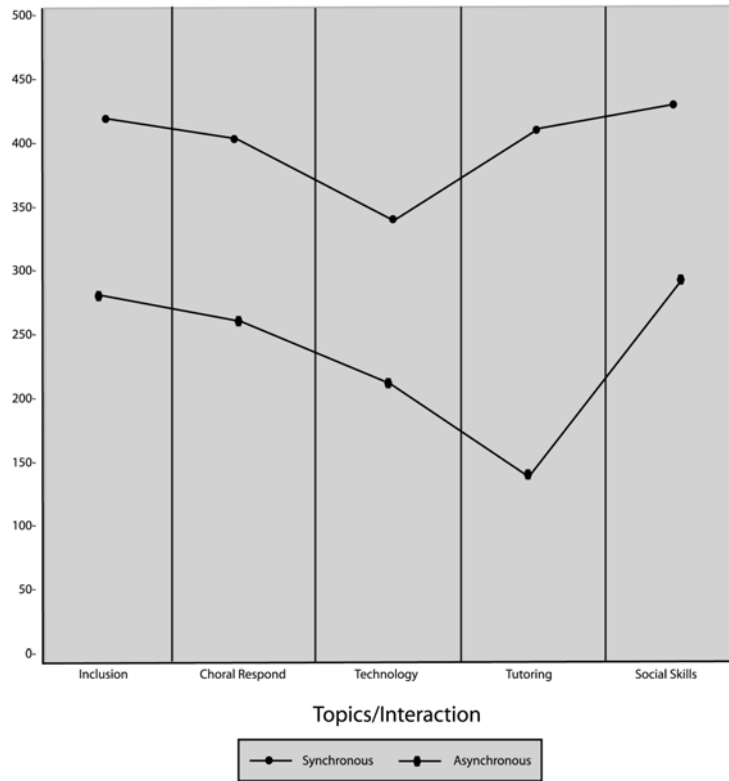


Figure 3: Average of number of words per session in the asynchronous and synchronous discussion across all subjects.

A second research question regarding differences in the frequency of responses as determined by the total number of messages posted by the type of teacher (pre- or in-service) reveals significant differences between synchronous and asynchronous groups. A general trend can be observed wherein synchronous interactions produced higher rates of message posting than the asynchronous interactions (see Table 2). In addition, the number of messages posted by the veteran in-service teachers were significantly greater than the number posted by the pre-service graduate students (see Table 3 and Figure 4).

Table 2: Average frequency of messages posted in synchronous discussion by teacher type.

| Topics-Interaction | Service Status | | Average per topics |
|----------------------------------|--------------------------|-------------------------|--------------------|
| | Syn.Teacher (in-service) | Syn.Grad. (pre-service) | |
| Inclusion- Interaction (1-S) | 10 | 8 | 9 |
| Choral Respond-Interaction (2-S) | 13 | 8 | 10 |
| Technology-Interaction (3-S) | 8 | 6 | 6 |
| Tutoring-Interaction (4-S) | 10 | 9 | 10 |
| Social Skills-Interaction (5-S) | 10 | 7 | 9 |
| Average per teacher's type | 10 | 8 | 8.8 |

Table 3: Average frequency of messages posted in asynchronous discussion by teacher type.

| Topics-Interaction | Service Status | | Average per topic |
|----------------------------------|---------------------------|--------------------------|-------------------|
| | Asyn.Teacher (in-service) | Asyn.Grad. (pre-service) | |
| Inclusion- Interaction (1-A) | 1.66 | 1 | 1.33 |
| Choral Respond-Interaction (2-A) | 2 | 1 | 1.67 |
| Technology-Interaction (3-A) | 1.5 | 1.33 | 1.4 |
| Tutoring-Interaction (4-A) | 1.67 | 1 | 1.33 |
| Social Skills-Interaction (5-A) | 1.5 | 1 | 1.25 |
| Average per teacher's type | 1.67 | 1.08 | 1.4 |

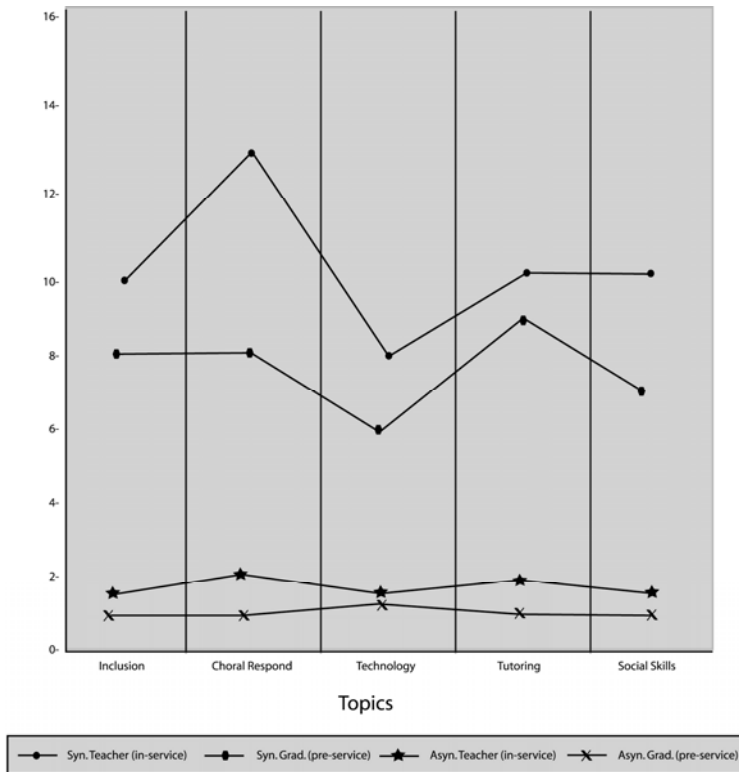


Figure 4: Average frequency of messages in asynchronous and synchronous discussions by teacher type.

Another research question investigated differences in interaction style as evidenced by the participant's characteristics, including gender, nationality, and age during asynchronous and synchronous discussions. There were no discernible differences between the response rates or patterns when gender was the critical variable. However, when the nationality of participants was the critical variable, there were noticeable differences between the response rates of non-U.S. and U.S. participants, with the U.S. participants responding at a higher frequency across all but one topic area. The inverse was found true in the asynchronous condition, with non-U.S. participants responding at a minimally higher rate than the U.S. participants (See Table 4 and Figure 5).

Table 4: Average frequency of messages in synchronous and asynchronous by nationality.

| Topics-Interaction | Nationality | | | |
|----------------------------|-------------|------------|---------|-------------|
| | Syn.US | Syn.Non-US | Asyn.US | Asyn.Non-US |
| Inclusion- Interaction | 14 | 6 | 1.33 | 1.33 |
| Choral Respond-Interaction | 12 | 8 | 1.5 | 2 |
| Technology-Interaction | 5 | 7 | 1 | 1.67 |
| Tutoring-Interaction | 14 | 6 | 1 | 1.67 |
| Social Skills-Interaction | 13 | 7 | 1 | 1.5 |

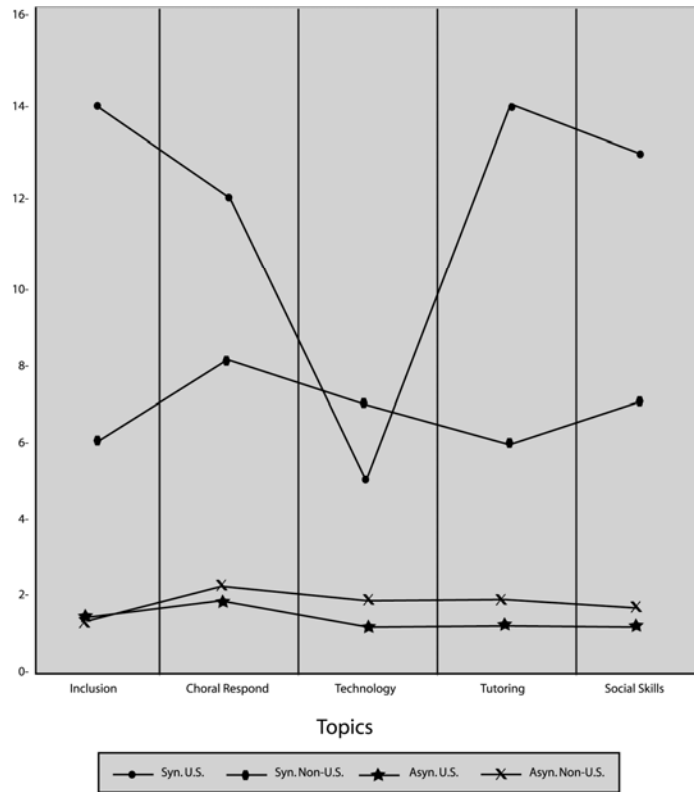


Figure 5: Average frequency of messages in Synchronous and Asynchronous groups by nationality.

The final area of interest in the determination of style differences was the analysis of responses by different age groupings. The group of subjects over 30 years old spent significantly more time online compared with the group of subjects under 30 years old. In addition, there appears to be a clear separation between these two groups in the last three interactions (See Table 5 and Figure 6).

Table 5: Average length of time online – synchronous discussion by age.

| Topics-Interaction | Age | |
|----------------------------------|------|-----|
| | > 30 | ≤30 |
| Inclusion- Interaction (1-S) | 68 | 68 |
| Choral Respond-Interaction (2-S) | 73 | 67 |
| Technology-Interaction (3-S) | 41 | 138 |
| Tutoring-Interaction (4-S) | 49 | 158 |
| Social Skills-Interaction (5-S) | 40 | 141 |

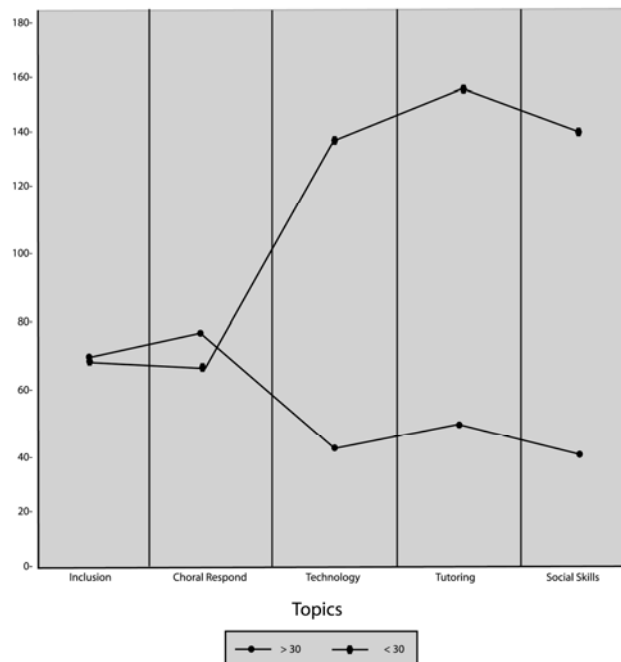


Figure 6: Average length of time online – synchronous discussion by age.

The final research question investigated the participants' attitudes and preferences in regards to their engagement in an online special education instructional offering. Responses gathered in a formal survey revealed that 100% of the participants preferred the synchronous interactions over the asynchronous interactions. Some of their responses included: "It is better because you have an immediate feedback"; "The simultaneity condition implied a great motivation"; and, "You learn from each other's feedback and perspective when everyone is together."

The participants' attitude at the start of the online experience was generally positive with only one subject expressing a neutral attitude. Furthermore, the group expressed enjoyment of the course at the end as it apparently met their initially high expectations. They also expressed satisfaction with their interpersonal interactions during the experience.

The entire group of participants indicated that this type of online course was important for their training or work as a special education teacher. One reason was that it allowed them to learn different strategies and points of view than in a regular class because of the perspectives people brought from different places. They all agreed that it was easier to participate in the online course than in a traditional course. Some of the reasons they gave included: flexibility of time and location; ability to meet different people's needs; easier to express themselves; and the saving of time, energy and money. Five of the six participants mentioned that it was very important for them to previously have Internet skills in order to participate in this type of online course.

Discussion

In general the findings of this study indicate that Hispanic pre- and in-service teachers prefer synchronous interactions over asynchronous interactions. This finding is consistent with the literature reviewed in the study and the questionnaire and interview results that found synchronous interactions appear to fulfill all the requirements of a successful group interaction. Creating rapport and having an environment of trust where Hispanic students feel that they are important to their instructor are some instructional practices that researchers have recommended when working with Hispanics. Furthermore, the synchronous interaction condition facilitates more immediate and simultaneous responding that can be used to build an environment of trust Hispanics need in order to feel secure and be motivated to participate.

There were important findings regarding pre- and in-service teacher preferences and attitudes that merit further discussion. In-service teachers had the highest frequency of messages and number of words posted per interaction compared with the pre-service teachers. The findings of this study are consistent with the Gallagher, Malone, Cleghorne and Helms (1997) study in which they expressed a need for new and alternative curriculum programs for in-service teachers. It was confirmed that the teachers in this

study recognize and appreciate this online experience as an important part of their training as educators. Finally, these results could reflect the life conditions of pre- and in-service teachers in relation to their availability of time and the expectations of their environment.

Finally, it was observed that the subjects preferred to write in Spanish when they wanted to express personal comments to another participant, or to establish rapport with each other, although they always used English to fulfill the formal expectations of the online class (see Figure 7). It is interesting to point out that both groups of native and non-native speakers preferred the synchronous interactions. This result is consistent with the socio-cultural behavior of Hispanics in that they participate more if they feel motivated and that their contributions are considered to be important.

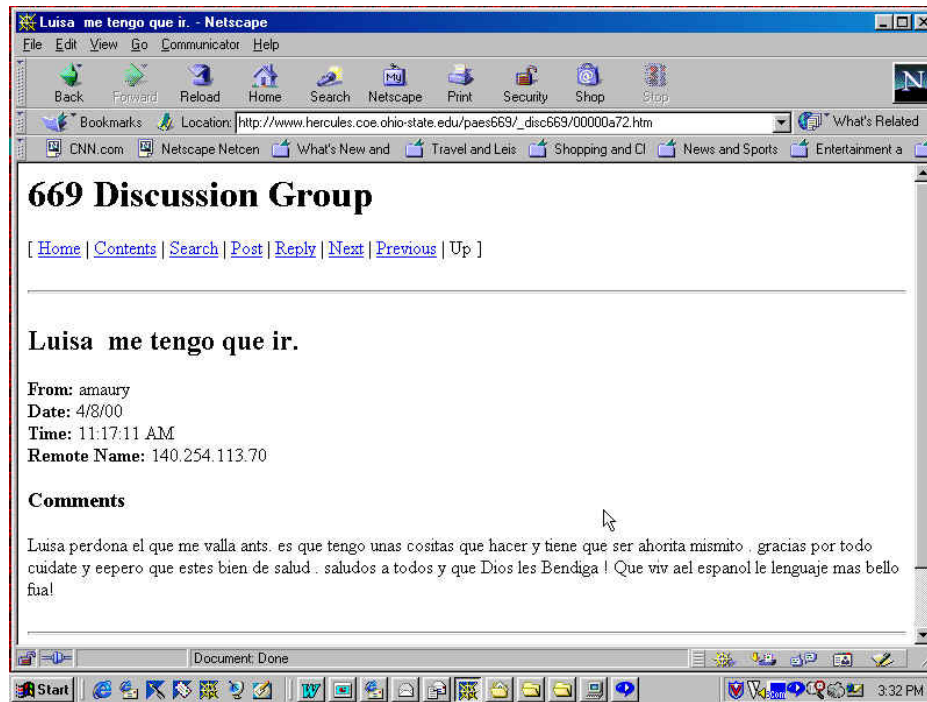


Figure 7. Spanish Language Personal Comments

There were several limitations within this study: finding participants for the study, length of the study, and language barriers.

- Finding the sample: It was a difficult process to find Hispanic pre- and in-service teachers who had the time and equipment to participate in an online experience and who were also bilingual. As such, the final sample included only 6 participants, three teachers and three graduate students.

- Length of the study: Time limitations only allowed for a five week study with ten total interactions across the two conditions. In addition, it was not possible to know the length of time that the participants spent online when they were interacting and posting their messages in the asynchronous discussion group interaction.
- Language barrier: Even though most of the interactions were in English, that is not the first language of the experimenter or any of the participants. Thus, some instructions may not have been clear to the participants. Moreover, this might have influenced the amount and quality of the interactions.

Regarding the nationality of the participants in this study, it can be inferred that the asynchronous interaction evidenced a type of accommodation process between the U.S. and Non-U.S. participants regarding the number of words written per interaction. These increased steadily in amount as they interacted more frequently during the course of the study. However, these interactions were not fluent. They were considered minimal responses because the subjects usually did not interact among each other, but only posted an answer to the lesson question on the discussion page without really engaging in an interactive discussion with members of the group. The high frequency of messages by the U.S. participants was expected because of use of English as the primary language for interactions. On the other hand, the Non-U.S. participants also preferred the synchronous interactions over the asynchronous. An important finding was that in the synchronous discussion group the number of words in the messages was almost the same between Non U.S. and U.S. subjects.

In regards to the age of the participants, a 1984 survey of tele-course participants found that about two-thirds were women, and about half of the students were at least thirty years old. Over half had at least one dependent and two-thirds were married. Eighty percent were employed, and over half of these were working full-time while pursuing their studies (Sheets 1992). It is plausible that these students have an advantage over new students because they already have imbedded study habits necessary to be successful in any academic setting. It is not surprising that researchers have found that students who had prior experience with nontraditional education were more likely to persist than those with exclusively conventional experience (Rekkedal 1983). Finally, older students (those over 50) appeared to have had higher course completion rates (Rekkedal 1983). This makes sense in that older students probably have greater coping skills in dealing with the problems of distance learning. The style of interaction related to the size and frequency of the messages was similar between the two groups. However, there was a small difference in favor of the older participants in synchronous discussion group interactions. It can be inferred that the synchronous interactions are the most preferred type of online interaction, especially for people over 30 years old.

The results of this study support the contention that synchronous discussion group interactions are an important feature of successful online courses with Hispanic students. This is an important consideration that web-course developers should take into

consideration when they design the interaction strategies of online courses in order to enrich and engage a wide range of students' attention and participation.

In addition, online courses seem to meet the needs of pre- and in-service teachers in regard to their professional development needs, as well as facilitating the participation of teachers who could not be actively present in a traditional classroom. Online courses may serve as an important instructional strategy in four fundamental ways: (1) to support the delivery of instruction, (2) to facilitate the educational process, (3) to access information, and (4) to facilitate communication. Finally, the subjects of this study made it very clear that participants should have basic Internet skills in order to be successful in these courses. This might indicate that either a pre-requisite or an initial lesson should be dedicated to teach navigation skills in order to feel comfortable using the Internet for formal learning experiences.

Further research is needed in this new area within the pedagogy of distance learning and teaching. Online courses are important alternatives allowing educators to reach a wider range of students and can enhance the teaching and learning process. Therefore it is necessary to do research that not only determines the effectiveness of this type of learning, but also to determine how course interaction strategies can be developed and implemented to accommodate different learning styles of minority groups in online courses.

Integrating Diverse Perspectives in Archaeology Undergraduate Web-Enhanced Curriculum

By Linda Neff, Geraldine McCabe, George Gumerman IV, and Joelle Clark

Introduction

The archaeology of the Colorado Plateau and Grand Canyon CD-ROM and associated website supplement the undergraduate Liberal Studies Anthropology curricula. The main goal of this project was to produce an interactive, multimedia CD-ROM and website to increase learner-centered education in statewide undergraduate archaeology courses. Students explore a virtual museum allowing them to interpret and present data from real archaeological sites and develop an understanding of the culture history of the Colorado Plateau.

Typically, students learn about the archaeology of the Colorado Plateau from a more traditional undergraduate lecture, multiple-choice and essay test teaching strategy. Moving away from this generalization of student skills, professors can more accurately focus and assess student outcomes through meaningful tasks and interactive methods that prepare learners for a successful future.

Their mission is to explore who lived in the Grand Canyon and how they existed. The unit challenges students to create a virtual museum by interacting with and manipulating the data. Learners use the hands on, problem-based CD-ROM and accompanying website to explore archaeology as a science, while conducting virtual archaeological research and learning Hopi, Zuni, Havasupai, and Hualapai views of their ancestral sites.

Using interactive multimedia, students learn to invite and listen to the multiple voices and perspectives that enlighten our understanding of the ancient and present culture traditions of the Colorado Plateau. Digital video taped interviews with archaeologists and Native American Elders provide multicultural voices creating an environment that is receptive to the needs of our diverse student population while also addressing different learning styles. Our Hopi, Zuni, Havasupai, and Hualapai partners share their present day perspectives regarding the importance of the Grand Canyon and archaeological work in the Four Corner's region. Besides the student's interactive, multicultural understanding of the archaeology of the Colorado Plateau and Grand Canyon, the CD-ROM and website

help to develop important, lifelong science, mathematics, and technology skills necessary for students of the new millennium.

Project Description

For thousands of years Native Americans have lived in and traversed across the Colorado Plateau and Grand Canyon. Today, many Native American nations hold the Grand Canyon as a sacred place for various religious and historical reasons. These Native American groups and abundant archaeological sites provide a stimulating arena for teaching archaeology and cultivating an appreciation of diverse cultural perspectives. With the assistance of our Native American partners, we utilized the Grand Canyon's magnificent archaeological and cultural resources as the basis for the development of a technology-based teaching tool. The CD-ROM and website are data rich and the lessons require the students to interpret and manipulate both the quantitative archaeological data and the qualitative data presented in the digital video footage of archaeologists and Native Americans.

Working individually and as a group, the whole class is involved with a variety of learning experiences defined by the classroom's participants. Guided by the CD-ROM, students define a museum focus and their associated research problems. To fulfill their mission, students collect data by virtually traveling to various places on the Colorado Plateau (such as Elden Pueblo, the Colorado River, and the Navajo, Hopi, Zuni, Hualapai, and Havasupai reservations). The data is then used to create their museum displays. Using the CD-ROM and web data, students create virtual exhibits based on a minimum set of criteria that includes text, video, and graphical displays of the quantifiable data. Possible displays include architecture, food, pottery, stone tools, trade, modern cultures, and preservation. Students follow the scientific method by completing a series of lessons to produce each display. The lessons allow students to compare, quantify, and visually graph the data from three different archaeological sites.

To create the prehistoric pottery display, for instance, students form a question about pottery. After researching ceramics by completing several lessons, students are prompted to develop their question and hypotheses. Some possible questions include; what were ceramics used for? Who used a certain style of ceramics? How are ceramics similar or different among the three sites? What time periods do the sites date to? By completing the interactive lessons, the students virtually collect their data to answer their question and test their hypothesis. A virtual museum pottery display represents the results of student research. The primary performance task – the creation of a virtual museum – embodies a variety of skills directly applicable to real tasks performed in every day life.

Clearly, our project is ideal in terms of incorporating learner-centered education into our curriculum. We situate the student at the center of education by creating an environment that is receptive to different ways of knowing, different abilities, and different cultural backgrounds. Indeed, one of the project's strongest assets is the presentation of a variety

of Native American voices. The various learning styles of the students are met because the delivery is not just “the sage on the stage.” Rather, students use the variety of voices and media presented in CD-ROM and web site to develop their interactive virtual museum.

The hands-on, interactive use of the CD-ROM and web site actively engages the student in problem-based learning. Students have a primary problem (to define...), but are also able to define for themselves their research questions and themes for the museum and exhibits. The student makes choices. Depending on the student’s needs, the flexible format of the CD-ROM allows students to collaboratively work in groups or individually to solve their research problems and questions.

In response to student learning needs, continual assessment is built into the lessons providing prompt feedback. Assessment measures are diverse reflecting the student’s multiple styles of learning. Embedded assessments are incorporated into each lesson and focus on higher-order thinking skills such as problem solving, self-directed thinking, and general synthesis. A variety of scoring rubrics help assess the museum display, and all of the scientific and mathematical lessons.

Importantly, the project is competency-based. Using rubrics, the learner decides if they have met the content objective of each lesson before they continue with their research. The student is also assessed in science, mathematics, and technology. Students therefore develop important, lifelong skills—not only in science, mathematics, and technology but also in terms of a multicultural perspective.

The CD-ROM and website were already in production for a 4th to 6th grade environment prior to additional funding through the Arizona Board of Regents. With ABOR monies we modified the primary curriculum for use as a module in the following university courses: World Prehistory, Southwestern Prehistory, and North American Prehistory.

Our extensive project partnerships provided us with the capability and resources to develop pedagogically sound strategies for increasing student learning in a learner-centered environment. Our primary partners include the Museum of Northern Arizona, the Hopi Tribe, the Navajo Nation, The Society for American Archaeology, Bureau of Land Management, the National Park Service, the US Forest Service, and the Grand Canyon Monitoring and Research Center. At NAU, the project is a result of the collaboration between NAU’s Department of Anthropology, the Science Teaching and Learning Center, and the Institute for Future Workforce Development. We are also working with Electronic Media students from the School of Communications who performed the videotaping, editing, and computer programming. Additionally, professors from Arizona State University and the University of Arizona have agreed to use and test our CD-ROM and web site in their courses. Many of the appropriate courses are also taught at Arizona’s community colleges and therefore the project presents an articulation

opportunity helping to prepare community college students for University level courses. The project aimed to increase student learning throughout the state.

Conclusion

Using a learner-centered approach, we integrated technology and incorporated multicultural perspectives and learning styles into the Liberal Studies curriculum as well as took a systematic approach to classroom instruction and management through embedded assessment and evaluation in an effort to measurably improve student achievement. We are currently in the evaluation stage of the project. The purpose of the project evaluation is to find out the extent to which the CD-ROM and web site meets its intended outcomes. Both quantitative and qualitative measurements will be used in the project's formative and summative evaluation.

Our formative evaluation plan consists of the following:

- alpha tests on the content, design, format, lessons, and usability of a draft CD-ROM and web site with educators;
- focus group interviews with students testing the CD-ROM and web site on their content understanding and use, design, and format of the CD-ROM and web site;
- performance assessment with students to test their application of the knowledge and technology skills gained by using the CD-ROM;
- specific evaluation forms for detailed feedback on the use and applicability of the draft CD-ROM; and
- external evaluations by archaeologists, technology experts, and educators with expertise in science, mathematics, and technology.

Our summative evaluation will include all aspects of the formative evaluation with the substitution of beta testers with educators on the final draft of the CD-ROM. Beta testing will involve a more extensive test group of educators and students.

In conclusion, the learning outcomes will be evaluated by collecting data showing that the assessments are reliable and yield consistent results. Do we have inter-rater agreement on scoring and is there evidence that students are performing better on related topics or tasks? Is there internal consistency and correlations on how students perform on similar skills presented in a variety of ways? Most important, by combining multiple measurements of student performance, we avoid the generalization of skills that often result from a formal collection of technical quality data.

Multi-Ethnic Literature Online: Equity Concerns and Best Practices

By Jeff Berglund

I teach an online course titled Multi-Ethnic U.S. Literature. My course is academically focused on the literary traditions of people of color, and is rooted in an interdisciplinary mode that is socio-historical. While students of different ethnic backgrounds have different relationships—perhaps more meaningful ones—to various histories and literature, I try to establish that we are engaging in a scholarly mode of inquiry that is at once literary and social, important to us all.

My primary concern in this brief forum is to demonstrate how equity concerns are further complicated by an entirely virtual forum, where the tangibles of physical appearance, voice, and gesture are eliminated from the teaching context. While equity concerns are important in face-to-face classrooms, in my classes a general sense of politeness and decorum reigns and students seemingly choose to “tow the line” rather than dissent and run the risk of offending a student who (rightly so) would seem targeted to become the “object of the lesson.”

In an online environment there are trade-offs, both benefits and risks. Benefits are difficult to determine, of course, in personal, racialized political terms. Certainly, there seems to be an illusion that race-lessness is liberatory. For students of color, to move beyond the socialized scripts that limit, that pre-judge, is indeed revolutionary. Anonymity for some creates a comfort zone, a zone where individuals will not be expected, even implicitly, to be spokespersons for an entire group. Yet, in maintaining such anonymity, such students often feel as if they are masquerading, leaving one of the best parts of themselves out of the mix.

Other students may decide to opt for identity tourism, taking on entirely fictitious backgrounds because they may wish to engender sympathy and the personal interest of their fellow students, or, even more likely, their instructor. How often this happens is not known to me, but I work with the sense that students’ lives are virtually self-fashioned according to their rules of logic, not mine.

Before I developed some particular strategies for addressing the way that race and ethnicity operate in the virtual world, during my first term teaching this course, I realized that many students presumed their colleagues were white. I came to such conclusions when offensive statements were made with no sense of apology or fear of full disclosure. Presumptions of normative whiteness put students of color at further risk, perhaps at jeopardy. In creating a comfort zone for white students to say anything, students of color were potentially isolated and traumatized. This phenomenon is compounded by the time-lag in e-mail reading/writing and written discussions (bulletin boards). Unlike a face-to-face classroom, an asynchronous course makes it difficult for instructors to address hate speech or hurtful, naïve comments (this is true, even, for the chaotic space of synchronous chats, or virtual office hours).

To counteract these concerns, I subscribe to some of the following practices within an opening unit of the course:

Without the face-to-face interactions of a real-time classroom, students must grow comfortable discussing race and ethnicity (without running the risk of inflicting harm on others). I require an initial e-mail/journal assignment that is sent to me privately about their own comfort levels.

I follow this up with a real-time/virtual office hour chat about terminology to further address questions (in other semesters I've assigned specific essays on the subject). I even give lists of preferred terms and offensive terms. In a recent term this virtual/real-time discussion raised questions about the impact of names on individuals, the white privilege of not worrying about names, as well as the shifting use of terminology because of historical movements. At its best this assignment ensures that students are exposed to language practices which accurately and sensitively address the subject; at its worst, the assignment establishes the instructor's "party line" and limits of tolerance to best ensure the safety of students of color.

During this virtual chat, I have my students process with each other a brief, but intriguing essay by E.R. Mason titled "Resisting Erase-ism on the "Net" -- <http://www.brillomag.net/No3/erasism.htm> . Mason warns against eliminating gender, sexual and racial difference because doing so minimizes the social and historical realities that have shaped and still affect real-world interactions.

To conclude, I always remind students that no one is required to identify racially unless they choose to do so; this allows me a chance to repeatedly remind students that for all they know, the majority of students are of color (which, by the way, is more and more likely in the demographic taking online courses from Northern Arizona University). During this opening unit of the course, we discuss the ways we self-present and the various ways that language codes or conceals our sense of our relationships with others.

E-Mentoring Hispanic College Students through the Virtual Learning and Support Plaza

Dr. Nitza M. Hernandez and Rene Sainz

This presentation summary highlights the development of an e-mentoring program for Hispanic college students who are enrolled in any of the partner institutions of the Hispanic Educational Telecommunications System (HETS)*. This **e-Mentoring Program** is part of a major HETS online initiative called *The Virtual Learning and Support Plaza*, funded by a FIPSE/ Learning Anywhere Anytime Partnerships (LAAP) Program (1999-2004), of the US Department of Education; and by in-kind contributions of HETS institutional and corporate partners.

The current objectives of this project are to help increase college retention among Hispanic students through online mentoring and to support institutional collaboration for the development of cooperative online offerings among HETS partners. College retention is essential for Hispanics as statistics show that only 16% of Latino high school graduates ages 25 to 29 have earned at least a bachelor's degree, compared with 20.6% of African Americans and 36% of white non-Hispanics. Also Hispanics represent 10.3% of the private sector labor force but only 4.5% of the manager positions and 3.8% of all professional jobs. The e-Mentoring Program overall pursues to improve student's knowledge about the world of work, by learning much more about their field of professional interest through online support relationships with mentors in the workforce who serve as successful role models.

To honor the value of supportive relationships within Hispanic culture, mentors in this program (who are called cyber-*padrinos* and *madrinas*), provide an extended *familia* for mentees (here called cyber-*ahijado-as*). Students can find a mentor by registering at the Virtual Plaza and making a search for a professional through an automated Mentoring Matching System. Mentors during this past semester were IT and business professionals from the IBM Corporation and the Banco Popular of Puerto Rico. The program runs each semester and is coordinated by the HETS staff by supplying training materials and e-mail structured activities to promote interaction between mentors and mentees. Faculty

* HETS is a consortium for distance learning constituted by 18 colleges and universities in California, Florida, New Mexico, New York, Texas, Puerto Rico and Latin America.

involvement has been crucial in the students' recruitment and their on-going participation in the program. At the end of each semester HETS evaluates the program via surveys, phone interviews and testimonials from participants. Current outreach efforts to more than 20 Hispanic Professional Associations and additional corporations will gradually expand the availability of mentors in other specialized fields.

The Virtual Plaza is a pioneer effort to provide Hispanic students with a virtual community for learning, collaboration & support. Students, faculty, professionals, educational institutions and corporations can have access to this bilingual interactive portal offering student support services, such as e-Mentoring and Career Exploration, and providing a catalog with information about online course and programs from HETS partner institutions.

Empowering through Empowerment: Internship Programs that Work

By Geraldine McCabe

The TECH Share Project at Northern Arizona University has integrated internship positions into their educational development program. The internship program emphasizes computer imaging, 2D and 3D animation, and project management for School of Communication students. The program ensures the interns are learning on the most recent and widely used multimedia software programs. In addition, the internship focuses on the learning process. Thus, intern skills' are strengthened to a level of proficiency necessary for later career goals. More importantly, the interns share their innovative ideas and common interests with other technical artists thereby learning in a peer-to-peer learning environment.

The multimedia internship program is not only challenging but also exciting. Interns learn to respect cultural differences as they develop culturally-relevant, standards-based, online curriculum that primarily serves the Navajo Reservation K-12 school districts. Interns learn to appreciate cultural similarities and differences by either learning more about other cultures and/or strengthen their own cultural knowledge and traditions.

Moreover, interns work in direct contact with the richness of culture -- traveling to the Navajo reservation and interacting with the people and communities. Often the program provides the opportunity for an intern to talk to and work with a Navajo elder -- a once in a lifetime experience. Interns have learned the significance of how the Navajo language is being lost from generation to generation. I have personally found the lessons exceptionally motivating for myself and to the Navajo children, especially since Navajo is my first language. I am grateful to contribute my skills as a digital media designer to help educate the Navajo children, and when I am talking to a Navajo elder about our goal to continue teaching the language, they are supportive and very happy. Consequently, I

think the kids can be proud of their heritage.

The world of digital media in this era of learning seeks opportunity and allows the multimedia designer to explore their imagination, with a common goal of teaching. This internship program is empowering for a variety of reasons. We have the opportunity to socialize with other digital media designers at various workshops/conferences and share the excitement of the latest creations and swap technology skills to enhance my personal work style.

The Beauty Way, Lessons and Considerations of Culture

By Don Fischer

The poster presentation covered lessons learned designing culturally relevant curriculum standards based learning activities supported by multimedia and web-based technologies. The presentation provided examples of products created by the University of New Mexico, Northern Arizona University, the Dine College, and Arizona State University. This document outlines the lesson development process used by the Navajo Education Technology Consortium. The Lesson Development Cycle consists of 4 Levels of development: 1) Initial Lesson Development Phase; 2) The Detailed Lesson Development Phase; 3) Beta Test and Initial Classroom Application Phase; and 4) Fully Cleared and Approved for Access and Use Phase. Below I describe the nature of implementation for each phase.

Level 1: Initial Lesson Development Phase

Lessons may come from teachers, institutions, through the professional development training, the TECH Share Request For Proposal process, or anywhere generating a learning activity of interest to teachers, students, and the fulfilling of curriculum standards requirements. The TECH Share process uses teacher, student (if applicable), Content Development Specialist, partner studio, the TECH Share dissemination capability, and stakeholder review to develop a high value curriculum standards-based learning activity.

The Content Development Specialist (CDS) and the TECH Share partner multimedia studio assigned to develop the learning activity review the initial input. The CDS and studio, in communication with the submitting teacher as necessary, develop the lesson and multimedia approach. The CDS and studio:

1. Ensure that appropriate standards, benchmarks, and performance objectives are applied (CDS).
2. Ensures that copyright clearance has been accomplished (CDS).
3. Ensure that learning outcomes are determined and identified and that they drive assessment (CDS, studio input as necessary).
4. Ensure that the cultural component is identified and included (CDS).

5. Develop the pre and post-test assessment approach (teacher, CDS, studio input as necessary).
6. Develop metadata for submitting (CDS, studio input as necessary).

The studio posts the lesson to the NETC listserv to announce the lesson and the beginning of development. The following information is included as a minimum:

1. Purpose of the lesson
2. Submitting school
3. Responsible CDS
4. Responsible studio
5. Studio point of contact.

Stakeholders (CDS, studio, NETC Project Office, districts, schools, etc) review the document. Comments must be submitted within two weeks. No comment implies concurrence. Responses with concerns or suggestions are managed by the studio in coordination with the CDS. When concurrence is established, the process moves to Level 2, which is the lesson development phase. Responses will be submitted by e-mail to the designated studio point of contact.

Level 2: The Detailed Lesson Development Phase

The studio begins work on the lesson.

1. Scripts and storyboards are developed.
2. CDS signs off on script and storyboard.
3. CDS informs NETC Project Office of script and storyboard approval and secures NETC approval. CDS informs studio of NETC approval, who approved, and the date of approval through e-mail to the lesson point of contact. The studio notes who approved and the date in the lesson journal.
4. The studio, in dialogue with CDS and other stakeholders as appropriate, modifies or stops lesson development as required.
5. With NETC Project Office approval, development continues.
6. CDS and studio, following the lesson development flowchart and lesson templates and practices developed for the process, review and revise, develop pre and post assessments, and staff the project as necessary.
7. The partner studio ensures copyright clearance and the meeting of all NETC requirements.
8. When studio and CDS agree that development objectives, to include pre and post assessment, have been met, the process moves to Level 3. The CDS will sign the Internal Review Sign-Off sheet, which will be posted on-line in order to advance the lesson to Level 3.

Level 3: Beta Test and Initial Classroom Application Phase

The lesson reaching Level 3 will have been developed collaboratively with teacher, CDS, and partner studio. Partners outside the ETIP project without assigned school districts will work with an assigned CDS. A Level 3 lesson is fully useable and copyright cleared.

1. Final metadata is prepared.
2. The lesson is posted as a beta test lesson for 45 days.
3. Stakeholders review the lesson. No response implies concurrence. Use of the online lesson evaluation rubric is the preferred input device.
4. The NETC Project Office must review the lesson and submit a concurrence or a response with concerns.
5. The partner studio, working with the CDS and stakeholders, resolves concerns.
6. The responsible CDS signs off with the studio upon completion of Level 3 testing and modifications.
7. Prior to posting as a Level 4 lesson, the lesson is reviewed by the NETC Project Office and a designated quality control team. The quality control team consists of NETC, partner, district, and school designated representatives. Non-participation by any representative other than NETC and the developing CDS and studio implies concurrence.
8. Upon approval by the NETC quality control team and the NETC Project Office the lesson is posted as Level 4.

Level 4: Fully Cleared and Approved for Access and Use Phase.

1. Full access as determined and licensed by NETC
2. Review of existing lessons by the NETC quality control team for correctness, quality, appropriateness, and currency.

NETC quality control team meets in conjunction with the ETIP/TECH Share Overview and Review meetings (part of first day activities). (See Figure 1 for Overview of Lesson Development Process).

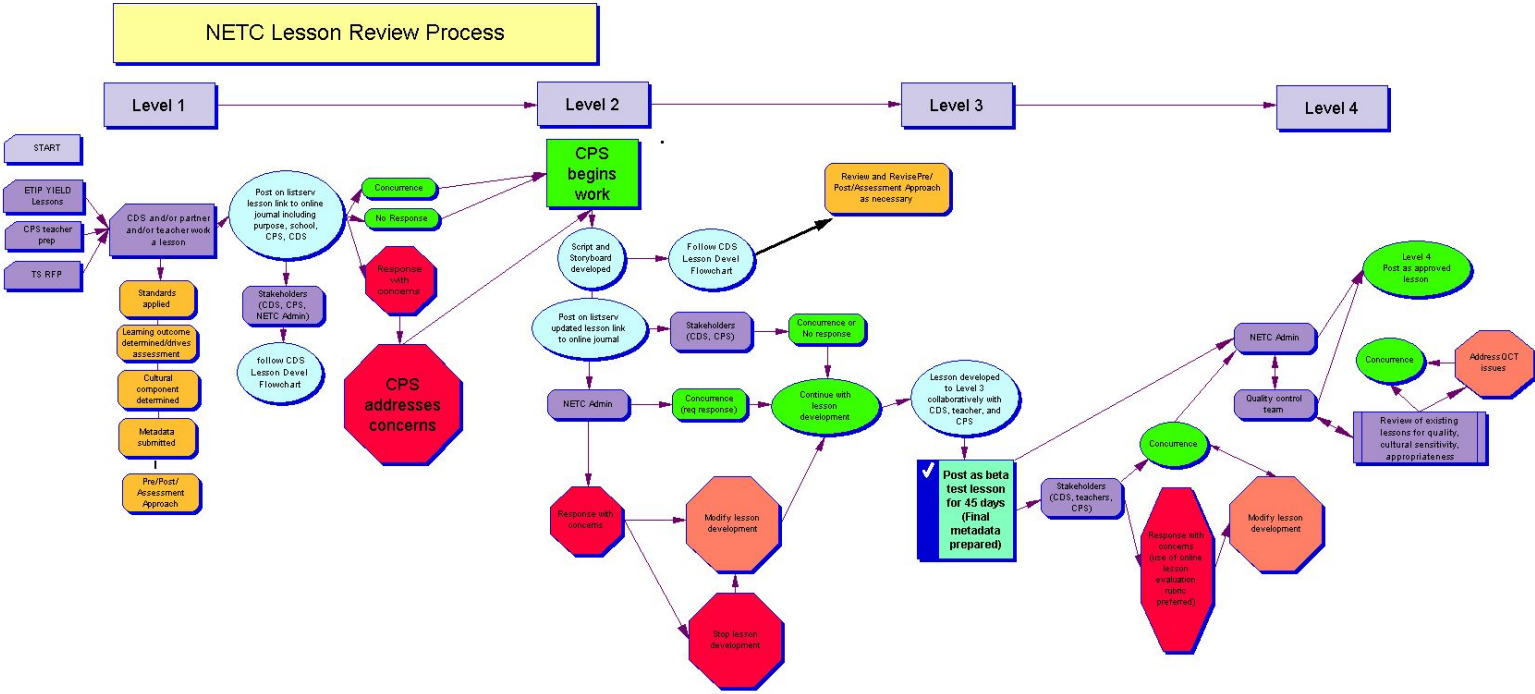


Figure 1. Navajo Education Technology Consortium Lesson Development Process.

Internet Dialogues as Teaching Devices for Promoting Cultural Diversity: A Case Study

By Barry Berger

Approximately 200 honors students at the University of South Florida enrolled in sections of the seminar "Geographic Perspectives: Israel in the Context of the Middle East"(Berger, 1996; 2002). In a pilot program using general internet technology (1996) or a WebCT interface (2002), participants participated in email dialogues on didactic and personal issues among themselves and with counterparts from Israel. The email dialogues were particularly salient as learning tools, motivational devices, and for promoting cross-cultural understanding. The format used in this case study might be adapted to similar academic courses or other frameworks that foster cultural diversity, respect, and appreciation.

Enhancing Cultural Competence Through Online Education

By Joan Johnson

This session focused on distance learning pedagogical strategies designed to enhance cultural competencies among students and, in particular, for those enrolled in teacher education programs. The presenters will share the opportunities, as well as challenges, associated with facilitating attitudinal change through online learning. Utilizing an analysis of students' pre-and post-philosophy statements on multicultural education, the presenters will demonstrate the possibilities of distance learning pedagogy to affect change in both the cognitive and affective domains, and assessment of student learning. This session should particularly benefit those who are interested in creative online teaching methods to enhance cultural competence among students in various academic disciplines as well as first year seminars.

Identify and discuss how we can transfer face-to-face student services to the online learning environment

Facilitator: Rene Sainz

In an effort to provide the same quality in the online environment as we do in the face-to-face environment, distance educators need a way to transfer face-to-face student services to the online learning environment. This roundtable discussion summary identifies some of those services and the advantages and disadvantages of each.

To ensure the quality of the courses taught in the online environment, it is imperative that the overall student portal has a number of different online options available. Student registration, financial aid, advisement and the admissions process need to run in a faultless manner. Moreover, textbooks, course materials, and educational resources along with extensive library services need to be available. Perhaps developing a tele-campus, similar the University of Texas, is the answer.

Educational resources might include a variety of learning object repository links, K-12 and Higher Education Lesson Plans and examples of course syllabi. Other educational resources would be separate learning modules covering technology topics such as, How to use the Online Student Services, How to participate in Online Advising, How to edit video, and How to ensure success on your exams.

One particular area where online student services could be developed revolves around the very nature and role of the Librarian. The digital library interface would be delivered through Blackboard or WebCT. A digital library might include a synchronous option to “Ask a Librarian.” In addition, the “Ask a Librarian” would be an option available to faculty for their online courses. Overall, librarians would be doing a lot of face-to-face training.

Another area of importance regarding online student services is student advisement. Currently, most student advisement takes place via email. However, Blackboard and WebCT have an advising component that provides advisors with a virtual room that offers privacy and record keeping both synchronously and asynchronously. WebCT Vista may have a plug-in module for advising. Another big question came up with

regards to Financial Aid Advising – how do you package this product if the students are not going to visit the campus?

Some solutions to many of these issues are already in place at many higher institutions. For example, working with the Hispanic Educational Telecommunications System or HETS, Rene Sainz helped to create the Virtual Plaza. The Virtual Plaza is an online meeting place for students who are searching for a better future through online education, mentoring, and career exploration. The idea of the plaza comes from the Hispanic culture. The Virtual Plaza website (www.virtualplaza.org) is a place where students, faculty, professionals, corporations, educational institutions, and advisors meet to share ideas and establish relationships. By visiting different Placitas, services are offered to the entire user audience. Mentoring and tutoring are examples of the student services the Virtual Plaza offers. Outsourcing to the company SMART Thinking at \$35/hour, the Virtual Plaza offers an online student tutoring program that includes a writing lab.

The Virtual Plaza also includes an online mentoring program. HETS did a pilot study matching up Hispanic Engineering students with IBM employees. The results of the study demonstrated that both sides benefited. Cost is \$5000 per year to participate in the Virtual Plaza.

In addition, the Coconino County Community College is experimenting with Net Meeting, and has incorporated an online writing center available both synchronously or asynchronously. The CCC wants to provide math assistance via Net Meeting with Whiteboard. Another solution involves outsourcing to a company similar to that provides tutor services. UT Brownsville serves as both a community college and university where students can enroll in courses from other community colleges. The host college that offers the course gets the instructional fee. The Coconino Community College had a system like that but it collapsed handling the money is always a problem. Campus students also want the online options. As we can see many areas exist in and need to be developed regarding how we can transfer face-to-face student services to the online learning environment.

How can we promote cultural awareness through online communication Strategies?

Facilitator: Barry Berger

In an effort to promote cultural awareness on a daily basis, participants offered a variety of different strategies for faculty to use and integrate into their online course design. Strategies focused on self-exploration, diverse community representation, curriculum content, student services, and effective communication.

In an effort to respond to peoples' identity as ethnic minorities, extensive discussion revolved around the benefits of anonymity in the online environment as well as the resulting drawbacks with regard to cultural awareness. The on-line environment needs to build relationships, honesty, and trust. Videoconferencing is a common tool used to help promote a honest student-student communication environment.

Another topic of involving intensive discussion revolved around the anonymous nature of the online learning environment. Anonymity gives the educator and student the opportunity to ask more questions without fear of problems associated with each student's identity. Self-exploration with the accompanying anonymity helps to suppress the initial stereotyping that takes place in the physical classroom and helps students to understand themselves and their relationships to others in their learning community. Consequently, participants emphasized the use of self-exploration activities such as a personal biography, auto-poem, or a culture quilt activity that could be presented via the internet, interactive audio, video or a live chat session.

What is more the curriculum content should include diverse perspectives regarding different topics across the curriculum. Moreover, data sets could draw out cultural difference as well as similarities if chosen in the proper context. The overall discussion revolved around the idea that the online student needs to learn to identify with each themselves and peers by humanizing issues through cultural diversity units.

Bridging the gap between home, school, and community in the online learning environment

Facilitator: Linda Neff

Bridging the gap between home, school and community in the online learning environment helps to ensure student success. Demonstrating the significance of education in the home and across the community helps to develop a support system that follows the student throughout their education career. The group discussed the significance of individual introductions, traditional education systems, avoidance of ethnocentrism, and making use of community resources in the online classroom.

Individual introductions help the students to establish a virtual relationship (again self exploration and sharing). Moreover, educators need to respect and value the traditional educational systems brought to the classroom. Group discussants were very sensitive to the role of culture in education and suggested teachers avoid delivering an ethnocentric viewpoint. Ethnocentrism in the schools propagates the dominant worldview as the right, correct, and only way to proceed in this world. Typically, this lack of understanding has led to unsound educational policies, ineffective school practices, and unfair assessment of learners. It is our job to ensure students are not robbed of a respect for and appreciation of all cultural ways. In the end, this approach gives each student the opportunity to choose from a variety of perspectives regarding a wide range of problems they may face in the future.

We have learned to invite and to listen to the ‘multiple voices’ and perspectives that can enlighten our understanding of the many culture traditions. We are learning to recognize that different groups, as a consequence of their socio-cultural contexts and backgrounds, possess ‘ways of knowing’ that, although different from Western traditions, are every bit as valuable and worthwhile as those to which we are accustomed. Education in our higher education systems is the attempt of a group to pass on their cultural norms to the next generation and teach our children how to become full members of society. So, our focus should not be on replacing the Western tradition, but rather on trying to expand our understanding of education. As we open our minds to gain a better understanding of traditional educational systems of all societies and cultures, we will also be forced to reexamine and to reflect on our Western tradition in somewhat different ways.

An effective route to take involves inviting the community and family into the classroom, assignments, or through documentary video. Group discussants suggested we send students into the community to interview with local community members and present their results via video or a report. Other possibilities might include developing a mentoring program that engages community members to work with students. Another simple alternative is to have mixed age group assignments thereby invoking student empathy with different generations. Student Cohorts, groups of students that work through an online program from beginning to end, seems to be an extremely effective method that encourages group bonding, empathy, and the development of a respectful learning community. Furthermore, graphic and instructional design elements delivered via the Internet course materials should adopt a variety of culture traditions to promote awareness through visual representation. Group discussants agreed that the educator's role is to provide all of the perspectives in a somewhat objective fashion and to serve as a facilitator of culture not a dominant oppressor.

Understanding and integrating educational traditions of all cultures

Facilitator: Florian Johnson

This group focused on the different ways we can understand and integrate educational traditions of all cultures in the online learning environment. It was agreed that self exploration activities along with the accompanying anonymity helps to suppress the initial stereotyping that takes place in the physical classroom and helps students to understand themselves and their relationships to others in their learning community. The group also felt strongly about have a diverse community at the higher institution both in faculty and student representation. Mentoring services that matched multi- and bi-cultural backgrounds and interests was also seen as a possible step in the right direction. Overall, the group felt another important topic of consideration dealt with communication and how important it is for faculty to be aware of the language that they use in the classroom. And finally, the curriculum content should integrate and reflect diverse perspectives regarding different topics.

Moving toward a Culturally-Responsive Learning Object Repository

Facilitator: Laura Rose Taylor

Imagine being able to create a Web-based training course within minutes, or drill down to one particular training unit, circumventing the pieces of the course that you do not need... These components, or learning objects, are fast becoming the hottest thing in training... learning objects are pieces of content deliverable over the Web. Video, audio, text, interactive content – or a combination thereof—are all examples of learning objects.

-- Wayne Hodgins, “All about Learning Technology Standards”

A learning object repository is a database that contains digital, reusable learning content. Users tend to include students, researchers, educators, and a variety of groups of people. This round table discussion focused on four primary areas: 1) technology, 2) content, 3) organization, and 4) the process of implementation. Overall, the group discussion resulted in more questions than answers. However, it provided the participants an opportunity to explore the many issues learning object designers and developers face during the initial planning stages of a learning object repository.

Taking a look at the technological infrastructure here is a list of questions, the round table participants felt were a necessary first step in the overall design of the system:

- 1) Who will create the technological infrastructure at a higher institution?
- 2) Should we buy a product off the shelf and build our own using open source software applications already available?
- 3) How will the information be archived – on and off servers?
- 4) Who will be ultimately responsible for the maintenance of the entire repository?

The next area explored dealt with standards and the types of metadata collected in the database. Should the database serve both as a tracking system similar to a library archive as well as an on-line dissemination system for use by faculty, staff, and students? What will the process of capture, storage, management, and distribution look like? How will the repository be searched and exactly who are the audiences? Technological

considerations regarding connectivity, interoperability, openness, and scalability were also considered during this initial discussion.

Regarding the actual learning content, the group focused on issues of quality control. For example, the qualities of a learning object should clearly define its timeliness, appropriateness, accessibility and usability, technical stability (plug-in requirements), and uniqueness. Someone needs to coordinate the types of objects added to the system and take the latter quality issues into consideration. It was also thought that the objects would also consist of a peer pool for a mentoring program for both faculty and students. Furthermore, learning content development should be considered during faculty evaluations to give credit where credit is due regarding the amount of time and energy that might go into the development of a quality learning object.

The organization overseeing the repository needs to identify the stakeholders and be sure to adopt a review process with those stakeholders. In addition, the process of learning object development, design, and dissemination needs to clearly define who will be involved from the learning community, what their roles are, and how intellectual property and copyrights will be managed. Discussions also revolved around the possible misuse of objects.

The final portion of this roundtable discussion focused on where do you start the process to even begin to think about developing such a system for a higher education institution. By reviewing the work of others – existing learning object repositories and content and identifying the potential impact of the repository on curriculum development and delivery, developers are in a better position to design standards, procedures, protocol, and a pilot project for further evaluation and refinement of the system.

In conclusion, the group felt the learning object becomes a platform of communication and collaboration for student participation as well as for the faculty and teachers. It is a way for faculty to devote more time to students and less time developing without always reinventing the wheel. A culturally-responsive repository would share the richness of all cultures as well as the similarities between cultures. The repository provides and opportunity for peers to talk with others (or cultural partners) to dialogue about gaining a broader understanding of all cultures.

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