Enhancing interaction in a graduate-level online certificate program in field epidemiology using wikis, blogs, and Web conferencing

Lorraine K. Alexander DrPH,[1,2] Debra E. Irwin, PhD, MSPH,[2] Amy L. Nelson, PhD, MPH, CPH,[1] Karin B. Yeatts, PhD,[2] Rachel A. Wilfert, MD, MPH, CPH,[1] Victor J. Schoenbach, PhD,[2] and Jennifer A. Horney, PhD, MA, MPH, CPH[1,2]

[1]North Carolina Center for Public Health Preparedness, North Carolina Institute for Public Health; [2]Department of Epidemiology, UNC Gillings School of Global Public Health

Introduction

The online Certificate in Field Epidemiology sponsored by the North Carolina Center for Public Health Preparedness (NCCPHP) and the North Carolina Institute for Public Health at the University of North Carolina Gillings School of Global Public Health was launched in the fall of 2005 to provide a comprehensive educational program in field epidemiology for practitioners at federal, state, and local public health departments.

This program is delivered via a tuition-based, 12-credit, 4-course, graduate-level program that is taught completely online by UNC Department of Epidemiology faculty and NCCPHP staff.

The courses in the certificate program include:
- Principles of Epidemiology for Public Health;
- Methods in Field Epidemiology;
- Principles and Methods of Applied Infectious Disease Epidemiology; and
- Fundamentals of Public Health Surveillance.

Upon completion of the program, students receive a graduate certificate in field epidemiology from UNC-Chapel Hill. Overall course evaluations indicate a high level of satisfaction (90-96%) with all 4 courses.

Instructors recently incorporated Web 2.0 technologies such as wikis, blogs, and Web-based videoconferencing into the courses:
- To provide more faculty-student and student-student interaction as desired by previous students; and
- To introduce public health practitioners to these technologies, which are becoming indispensable tools for communication and collaboration between individuals and groups.

Various technologies were used for each course depending on instructor technical ability and interest, and course content.

www.sph.unc.edu/nciph/fieldepi

Methods

Web Conferencing

For all courses, faculty and teaching assistants used the Web conferencing program Adobe® Acrobat® Connect™ to give course orientations, present guest lecturers, hold help sessions, and have live office hours. One instructor also conducted a journal club with interested students, while another used Web conferencing to meet with students as part of a group project.

Web conferencing allowed students to see and hear instructors live over a Webcam and "chat in" questions. Attendance at Web conferences was optional in all courses. Archives of each instructor meeting were posted on the course Web site.

Faculty and teaching assistants holding a Webcast for students in the *Principles and Methods of Applied Infectious Disease Epidemiology* course
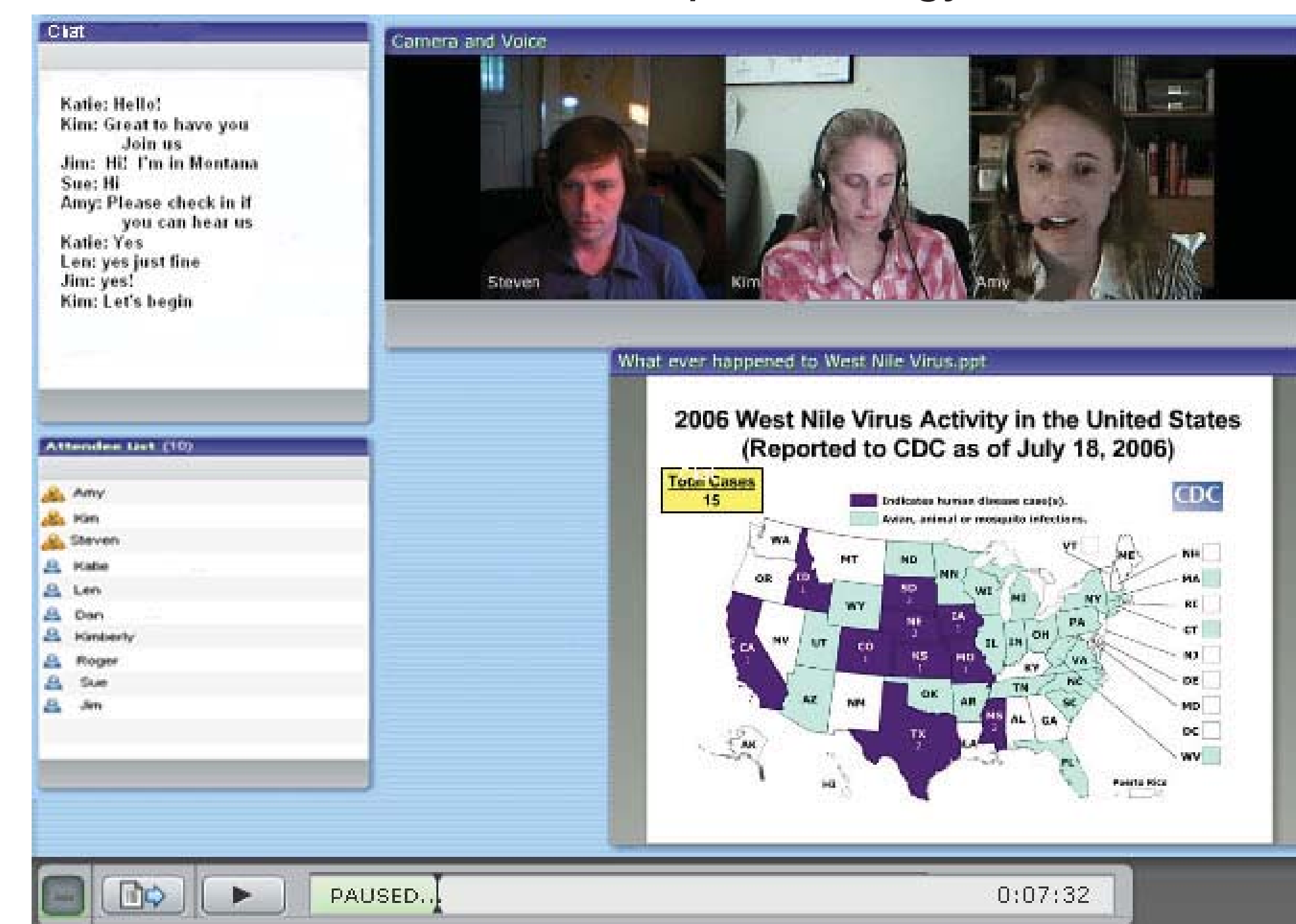
All courses in this program used the cooperative learning model of instruction. Students worked in small, fixed groups of 8-9 individuals on structured activities.

Each student group also had access to this program with audio and video privileges, which allowed them to meet and interact with other students in their groups to work on group projects and case studies or hold study sessions.

Course Blogs

Instructors in the infectious disease and surveillance courses added weekly blogs using the WordPress publishing application. Reading the course blogs was optional for students.

The infectious disease blog, titled "My Favorite Disease," included a disease of the week, weekly polls, news events, and related epidemiologic studies. Students were invited to participate through responses to a question of the week or by recording relevant information from their work experiences to an audio file posted in the "In Their Own Voices" section.

Blogs from the *Fundamentals of Public Health Surveillance* and *Principles and Methods of Applied Infectious Disease Epidemiology* courses

Wiki Tool (Group Web Sites)

Student groups used the wiki tool in the Blackboard Academic Suite™ to collaboratively build a group Web site. This exercise, done at the beginning of the semester, was designed to develop team building skills to enhance the group work required in the course.

Students chose a group name and designed group Web sites. Each group researched an infectious disease, studied an outbreak, or solved a mystery, then they designed an informational Web page to display the research. Once completed, groups could view and comment on each other's sites.

Results

Based on course evaluations, 90% of the 178 students who responded had viewed either the live or archived Web conferences.

Of the 66 students who answered how often they read the weekly course blog, 32% read it once or more a week and 38% read it once per 2-4 week module.

Course evaluation results on the usefulness of each technology*

Technology**	Very Useful N (%)	Useful N (%)	Somewhat Useful N (%)	Not Very Useful N (%)	Don't Know N (%)	Total N
Web Conferencing	38 (24)	70 (44)	43 (27)	7 (4)	2 (1)	160
Course Blog	7 (13)	22 (41)	17 (32)	4 (7)	4 (7)	54
Wiki Tool	0 (0)	13 (32)	12 (29)	5 (12)	11 (27)	41

* Combined results from course evaluations from the 2008 and 2009 school year
** Not all technology used in all courses

Student feedback on the Web conferences included:
- It made the class more personal and the live interaction was exciting
- Hold more frequently during the semester
- Schedule at more convenient times (nighttime versus daytime)
- Liked that meetings were archived for those who could not meet live
- Need to address technical issues such as intermittent poor audio quality and lack of technical ability for both students and faculty

Student feedback on the course blog included:
- Should be made required
- Enjoyed blog content, liked how it remained pertinent to course work but still fun
- Liked to read blog but unsure how to post comments
- First time reading/tracking a blog
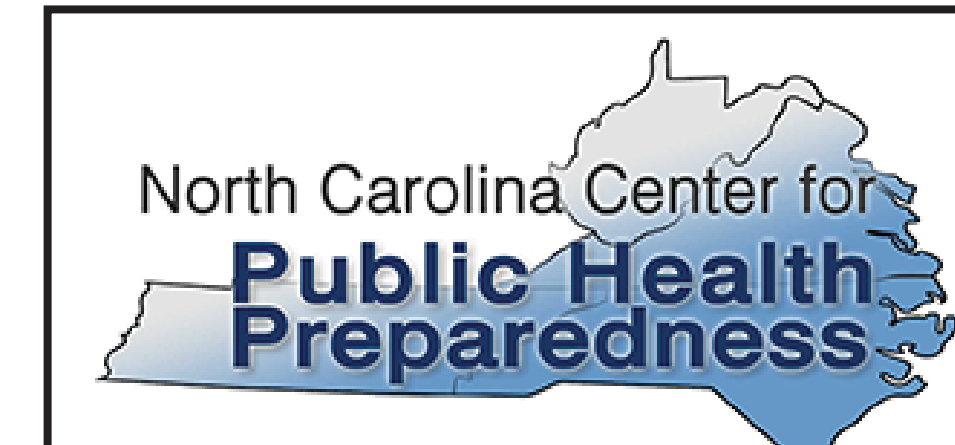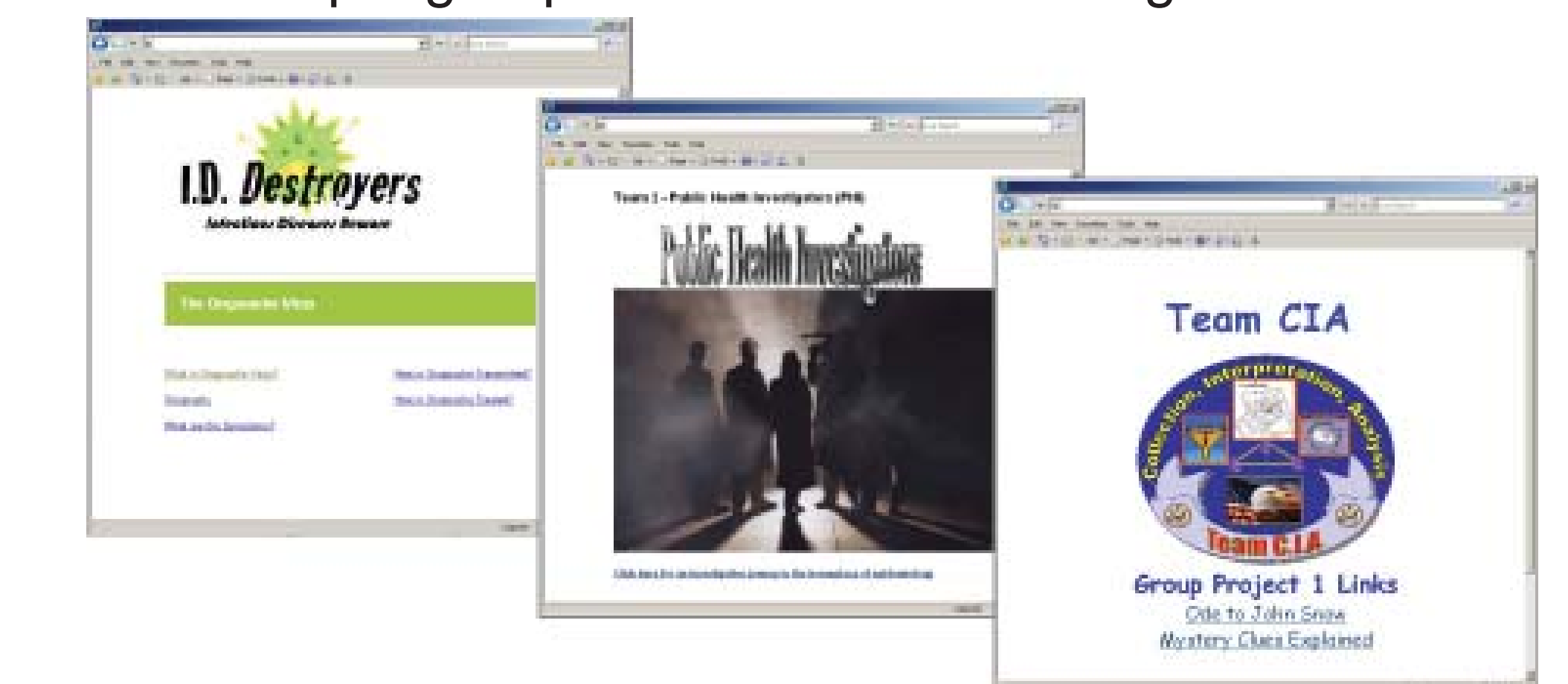
Student feedback on the wiki tool included:
- Use throughout course instead of one project
- An excellent tool that allows different groups to integrate and to find out what they are thinking in relation to the subjects
- Wiki tool was cumbersome to use

Lessons Learned

Lessons learned from using these new technologies included the following:
- Incorporate technology only if it enhances a course activity.
- Provide training, including detailed instructions (with images) on using the new technology, and technical support to both instructors and students.
- For each activity with a technology component, provide instructions to students on how they are expected to use that technology.
- Always archive Web conferencing for those who cannot meet live.
- Repeated use of a technology reinforces its usefulness and allows students to become more proficient.
- Due to positive reception of these new technologies, incorporate other Web 2.0 technologies like Twitter into future offerings.

Example group Web sites made using a wiki tool