WebQuests: Changing the Way We Teach Online

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ABSTRACT

This paper introduces WebQuests as potential teaching tools for HCI and software design educators. Based on our daylong observations of a high-school class, we believe that WebQuests can be adapted for use in online as well as classroom-based education and for use with adults as well as children. The WebQuest model offers three advantages for HCI educators. One is that the students construct their own knowledge and meaning, and thereby learn the material more thoroughly. Another is that a WebQuest, if done correctly, takes advantage of more learning styles. We observed aural, kinesthetic, and visual learning styles, for example. The third advantage is that, since WebQuests are team projects, students learn to work in teams.

Keywords

Education, computer-mediated communication, Internet, e-learning, WebQuest, distance learning, usability.

INTRODUCTION

The authors of this paper observed ninth-grade students at the Wardlaw-Hartridge school in Edison, New Jersey, do a WebQuest called "Cyberganda", which explores ethical issues in advertising [1].

The WebQuest methodology may fundamentally change the way students learn and teachers teach. As Tom Hunt, director of Wardlaw-Hartridge's Project Agora says, teachers are transformed from being the "Sage on the Stage" to the "Guide on the Side."

"Anywhere Anytime Learning"

Wardlaw-Hartridge has a program that the school calls "Anywhere Anytime Learning." Each student has his or her own wireless laptop computer. The program enables students to do research, create projects, and communicate with each other and teachers using the laptops.

WebQuests

A WebQuest is a web page on which most or all of the information to be used by the students is drawn from the Internet. WebQuests are not treasure hunts. Rather, students are encouraged to analyze, synthesize, and evaluate information, as well as look for it. Bernie Dodge and Tom March, professors at San Diego State University, developed the WebQuest model in early 1995 [2].

WebQuests have a six-part structure: an introduction that poses an interesting or important problem to be solved, a description of the task or end-product, process information that may include steps, web (or other resources), and help organizing the information, evaluation information that tells the students how their results will be judged, a conclusion that summarizes what the students will have learned, and a teacher's page that helps other teachers use the Web-Quest themselves (this is not given to the students) [2].

Besides the structure, what differentiates WebQuests from most online teaching methods is that they are based on constructivism, which encourages students to construct understanding from the information they collect [3]. Another significant difference is that the projects are not designed for individuals working alone. The students work in teams.

Figure 1. Students working on Cyberganda WebQuest

OBSERVATIONS

The entire day of October 30, 2001, "Project Agora Day," was devoted to WebQuests and other special projects. We closely observed approximately 50 ninth-grade students. The ninth-grade class was divided into nine teams, each of which had to develop a new product and also determine what type of advertising they would need to successfully market their "dream" product.

From 8:30 a.m. to 1 p.m., the students collected and synthesized information. From 2 p.m. to 3:30 p.m., the teams presented their products and ad campaigns to the teachers (who acted as mentors rather than leaders throughout the day) and the entire ninth grade.

General Observations

In analyzing our own observations, we found these themes:

Responsibility: Who is responsible, when does responsibility shift, and how is responsibility agreed upon?

Pedagogy: What makes a WebQuest interesting and useful, and what, if anything, did the students learn?

Appropriate output: Whether the students' product design and advertising campaigns were valid, creative, and/or attractive?

Use of the technology: What effect does the technology have on the results?

Responsibility

At the beginning of the sessions, the mentors helped the group members get started. Using a coaching style, they did not instruct but asked questions to facilitate inquiry about the selected topics, such as "What is 'implied' advertising?" Mentors also kept the students on task by reminding them to check the WebQuests instructions. By mid-morning however, responsibility had shifted and the students were keeping each other on track.

Research tasks were initially divided among the group members but soon became a collaborative effort, with the students brainstorming and sending each other to pages that they found especially useful. Because of the small size of the grades, the students were already familiar with each other and knew each other's working styles. They themselves decided how to divide the labor according to the team members' interests and talents. For example, in the lingerie group, one student prepared a set of sophisticated fashion drawings, another found music clips, a third wrote the text, and a fourth concentrated on constructing the PowerPoint presentation from the pieces.

Pedagogy

Constructivist projects pose real problems, challenging students to generate and test ideas for significance and usefulness. The open-ended inquiry leads the students, not to conclusive answers, but to further questions and insight into why those further questions are important.

It was clear by the end of the day that the students thoroughly understood the premise of the WebQuest. In their presentations, the groups demonstrated both ethical and unethical advertising practices and clearly recognized the differences between the two concepts.

Appropriate Output

A defined end product can take many forms, as long as it is useful and authentic for the participant. Having a defined end product organizes the work throughout the sessions. It also provides products for participants to share and discuss at the end of the workshop, and to apply to their own professional practice. When needed, these end products can also serve as a means for participant evaluation.

Observations of the final results indicate that the students had a clear idea of what a good advertising campaign should be. Within the time constraints, the student's product designs and advertising campaigns were both attractive and professional (as well as entertaining).

Use of Technology

We went into the project expecting to observe usability problems and intending to develop usability recommendations for WebQuests. However, usability issues per se were minimal. For example, in the first hour, we noticed that access problems prevented some teams from being on the same page at the same time. Some students were already doing the research while others were still trying the open the WebQuest. But the mentors and other team members resolved these problems quickly, and after the initial confusion was resolved, we found technology playing a supporting, not a primary, role.

Although the research could have been done in the library, the graphics in the art room, and the music in the music room, the laptops expedited the process. The students used email to pull all of the pieces together and to communicate and share results with other group members; the Internet to get music clips and graphics; and PowerPoint to prepare and display the presentations.

Without the wireless laptops, the students could still have done the presentations, but it would have taken a lot longer to finish the projects—a week, perhaps, instead of one day.

CONCLUSIONS

There are now literally thousands of WebQuests published at Internet sites. However, most are directed toward primary and secondary school students and very few address human factors or usability questions. We found none for software design questions.

Nevertheless, based on our experience, we believe that human factors educators can easily adapt the WebQuest method to their own classrooms. WebQuests could be used during consecutive classroom sessions to solve tricky usability problems and incidentally show the students how to work well in teams. WebQuests should be effective tools for daylong professional training sessions. WebQuests would be suitable for online courses as well, provided that the class had suitable collaborative software (chat, mailing list, instant messaging, and so on).

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