

Chapter XX

Information Problem–Solving Using the Internet

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ABSTRACT

Today's students must think critically and analyze and synthesize information so that they can recognize the technical, social, economic, political, and scientific problems of the information age. This chapter describes how the vast resources of the Internet can supply communication tools and information resources that facilitate the application of a robust set of instructional methodologies in the K-12 classroom to address these skills. The development of information literacy skills in today's classrooms necessitates instructional approaches that address complex sets of learning objectives and focus on rich, multidisciplinary learning. The author maintains that Internet and information technologies provide tools and resources that enable teachers to create powerful learning environments for educating students for the information age using student-centered learning approaches, interactive communication with peers and experts, and collaborative, problem-solving methodologies.

INTRODUCTION

This year middle school students at Parkview Middle School used the Internet to participate in the Constitutional Convention, explore the Great Northwest with Lewis and Clark, visit a wounded Civil War soldier in an army hospital, and assist an astronaut in preparing to make the

first trip to the moon. The project, Back to America's Future, was designed to provide seventh graders with the opportunity to research historical events using the Internet, and to analyze and reflect upon the impact of these historical events in view of current social, cultural, and political issues.

The assignment was a collaboration between the classes of seventh-grade English teacher, Martha Montoya, and seventh-grade social studies teacher, Michael Huang. The teachers developed a WebQuest that allowed seventh graders in Ms. Montoya's English classes and Mr. Huang's American History classes to use computers and the Internet in developing research skills and creative writing skills. The project was designed to help students become more comfortable doing research on the Internet by identifying, analyzing, and synthesizing historically accurate information, and by creating a work product based on their research.

Using the computers in their classrooms and in the middle school media center, students worked in cooperative groups and searched history-related Web sites. Students were required to read at least five stories or articles about their chosen historical event. Student teams then wrote a diary as if they were a character in the event they were researching. The final assignment of the WebQuest was to produce a timeline and concept map to illustrate the impact of the historical event on current social, cultural, or political issues or events. Students used multimedia software to present the results of their projects to other students. Each student project was posted on the school's Web site so other teachers and students could view them.

The project went so well that the principal asked Ms. Montoya and Mr. Huang to work with teachers in other subjects in developing several multidisciplinary WebQuests. The principal wants every seventh grader to participate in at least one WebQuest project during the school year.

BACKGROUND

Today's K-12 students will become information-age workers who will be expected to pro-

cess large amounts of information on the job and create the knowledge needed to solve problems or make decisions. One way for K-12 schools and classrooms to address the teaching and learning of complex skills is by deploying technology in the classroom that facilitates active, resource-rich, student-centered learning environments to help students learn to think critically, analyze and synthesize information to solve technical, social, economic, political, and scientific problems, and work productively in groups (Mills, 2006). For K-12 schools and classrooms to address these skills, instructional approaches must focus on rich, multi-disciplinary learning tasks that address complex sets of learning objectives.

Using technology to support teaching and learning makes it possible to use powerful methodologies such as cases, projects, and problems that are relevant and representative of real-world tasks. The vast resources of data and information on the Internet supply tools and resources that permit application of a broader and more powerful set of instructional methodologies in the classroom. The use of these powerful instructional methodologies, however, requires teachers to design and develop learning tasks and activities that enhance the classroom curriculum. Information and Internet technologies support instructional methodologies that encourage learning in authentic contexts, collaboration, and the use of multiple primary source materials and resources (Fulton, 1997).

Internet technologies provide access to information that would have been impossible to access just a few years ago, including virtual libraries, electronic databases, and powerful search engines. This information can be manipulated to generate knowledge for solving problems or making decisions. The Internet also permits communication and interaction that facilitates information exchanges among peers and with experts outside of the local classroom, both synchronously and asynchro-

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