

Using WebQuests to Scaffold Higher-Order Thinking



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BECAUSE OF ITS INTERACTIVE AND MULTIMEDIA NATURE, the Internet has been touted as an increasingly important aspect of both elementary and secondary education. "Along with word processing, the Internet may be the most valuable of the many computer technologies available to teachers and students."¹ Others have said that the Internet has the ability to break down the classroom's physical limitations, allowing students access to experiences well beyond the limited resources available in classrooms and traditional libraries.² The use of the Internet is said to develop students' inquiry and analytical skills.³ Moreover, some educators have argued that the social studies are the school discipline most likely to make use of the Internet because of the very nature of the medium—its relatively unrestricted access to information.

However, despite this perceived fit between technology and pedagogy, only a small proportion of K-5 teachers are using the Internet regularly during instruction generally,⁴ with an even smaller proportion using the Internet during social studies instruction.⁵ The two most common explanations of this non-use are (a) that most elementary classrooms still have connectivity issues (i.e., no Internet access or very slow access) and (b) that teachers lack computer training in general—and training on Internet use in particular.

A recent study, however, found that even when K-5 teachers had Internet access and computers in their classrooms and had

multiple training sessions, they were still not using the Internet in social studies instruction. As part of a larger, statewide study, 594 K-5 teachers in Indiana responded to a questionnaire that asked, among a number of other things, about their classroom Internet use. Ninety-five percent of these respondents reported that they had Internet access in their classrooms (65.5 percent reported having a "fast, reliable connection") and 57 percent reported participating in multiple training sessions. However, only 51.3 percent said that they never used the Internet in social studies instruction, and 25 percent used it only rarely.⁶

These results raise the question: Why isn't the Internet, with all its apparent potential, being used more often by K-5 teachers? One possible answer is that sorting through the vastness of cyberspace is difficult: The process of finding quality information from among the millions of websites available on many topics has been likened to trying to drink from a fire hose. This problem, in turn, makes curriculum development difficult, especially for already time-strapped practitioners.

Enter the WebQuest. Proposed in 1995 by Bernie Dodge and Tom March, the WebQuest model has become one of the predominant Internet curriculum models used in classrooms today. WebQuests can be thought of as self-contained instructional modules that scaffold Internet-based content to an inquiry-oriented process that results in a student product or project.⁷ In this way, WebQuests provide an important organizing framework for

A Selection of WebQuest Resources for Teachers

Over the last few years, the popularity of the WebQuest model has increased greatly,¹² and so have the number of WebQuest sites. Of course, as with all things related to the Internet, teachers must adopt an attitude of caveat emptor concerning the usefulness and accuracy of each of these resources. Here is a selection of a few of the better resources available:

WebQuest Background and Discussion

SOME THOUGHTS ABOUT WEBQUESTS (edweb.sdsu.edu/courses/edtec596/about_webquests.html). Bernie Dodge, one of the founders of the WebQuest model, describes its key elements in this seminal piece.

THE WEBQUEST PAGE (webquest.sdsu.edu). This site is the best resource site for teachers interested using the WebQuest model. By far the most comprehensive “one-stop shopping” site.

KATHY SCHROCK’S “WEBQUESTS IN OUR FUTURE” (school.discovery.com/schrockguide/webquest/webquest.html). An overview of the WebQuest model and resources housed at DiscoverySchool.com.

A WEBQUEST ABOUT WEBQUESTS (Elementary) (webquest.sdsu.edu/webquestwebquest-es.html). This unique activity uses the WebQuest model to analyze a number of WebQuest examples.

WebQuest Portals (Collections)

WEBQUEST PORTAL (webquest.org/search/webquestquery2.php). This database, maintained by Bernie Dodge at San Diego State University, is searchable by author, content, or keyword. It is home to more than 200 K-5 WebQuests in social studies (and more than 200 in K-5 language arts) that have been rated as either “top” or “average”.

DR. ALICE CHRISTIE’S DATABASE OF WEBQUEST (www.west.asu.edu/achristie/wqmatrix.html). More than 175 WebQuests written by pre-service students in Dr. Christie’s educational technology class.

SPARTANBURG SCHOOL DISTRICT (www.spa3.k12.sc.us/WebQuests.html). More than 100 WebQuests created by teachers in this district in South Carolina.

COLLECTION FROM PLAINFIELD SCHOOL (www.plainfield.k12.in.us/hschool/grade.htm). More than 50 WebQuests sorted by subject and grade level.

WEBQUESTS WRITTEN BY MEMPHIS CITY TEACHERS (www.sea-kindzone.org/webquest/Webquests/WebQuests.htm). More than 40 WebQuests for early and upper elementary grades.

WebQuest Creation (How to Build Your Own)

CO-NECTS’ WEBQUEST WORKSHOP (www.co-nect.net/legacy/sregion/webquesttrain.shtml). Four day online workshop designed to provide an overview of the model and provide specific skills and resources for developing WebQuests.

WNET SCHOOL CONCEPT TO CLASSROOM WEBQUEST WORKSHOP (www.thirteen.org/wnetschool/concept2class/month8). This video is a self-paced overview of how to create a WebQuest. It includes interviews with teachers.

INTERNET EXPEDITIONS: CREATING WEBQUEST LEARNING ENVIRONMENTS (eduscapes.com/sessions/travel). Annette Lamb explores four ways to build a WebQuest learning environment: use existing resources, adapt or modify a WebQuest, create a new WebQuest, or co-produce materials.

harnessing the deep resources of the Internet. What’s more, the WebQuest model allows teachers to control and preview Internet content that students will be exposed to. (The problem of children gaining access to inappropriate material on the Internet is another “barrier” often mentioned by K-5 teachers.) Finally, thousands of WebQuests for K-5 students already exist on the Internet. While not all of these are good examples of this model, many are excellent. The best of these (see examples that follow) provide a ready-made, curriculum model that can help K-5 teachers foster higher-order thinking by integrating the power of the Internet in their classrooms.

WebQuest Building Blocks

Bernie Dodge, one of the founders of the WebQuest model, has defined a WebQuest as an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet.⁸ Because Dodge questioned the benefit of having students (or teachers) engage in activities that require exhaustive “surfing” on the Internet, he designed WebQuests to be entirely self-contained instructional modules. Dodge outlined six key elements that should be in any WebQuest:

1. An introduction that sets the stage and provides some background information for the learner.
2. A task that is doable and interesting.
3. A set of information sources needed to complete the task. The resources that students will need are embedded in the WebQuest site itself or can be found through links on that site to a limited number of other specific sites on the World Wide Web. By using such links, the learner is not left to wander aimlessly through the Internet. Information sources in a WebQuest might also include experts available via e-mail or real-time conferencing, as well as more traditional media such as books and other documents typically available in a school classroom or from a school library. (We would not recommend using any quest-type Internet activity that involves students themselves using a general search engine or randomly surfing the Web.)
4. A description of the process the learners should go through in accomplishing the task. The process should be broken down into clearly described steps.
5. Guidance on how to organize the information acquired. This can take the form of guiding questions, or directions to complete organizational frameworks such as timelines, concept maps, or cause-and-effect diagrams. This is the scaffolding that allows learners to extend themselves in producing new products or projects.
6. A concluding activity that helps the learners review what they’ve learned, and perhaps encourages them to extend the experience into other domains, such as the school itself, the family, or the wider community.⁹

Dodge also described several additional pedagogical elements that might contribute to the success of the activity: WebQuests might be most valuable when (a) small groups of students work through the WebQuest as a team, and (b) when the learners have a role (for example, a scientist, detective, or reporter) and a scenario

to work within (for example, “You have been asked to develop a new commemorative stamp for the U.S. Postal Service”).

The most important element of a successful WebQuest is the task. In this section, students are asked to consider the end results of their efforts. The task should be a concrete activity that is a scaled-down version of a real-world task.¹⁰ The task should appear interesting to students, who should be able to complete the task using only the specific resources (on the Internet and elsewhere) that are provided (or specifically cited) on the WebQuest site. A general recommendation to “look in the library” or to “search the web using these key words” should not be part of a WebQuest.

A WebQuest is not simply an online version of a traditional classroom-based lesson. In other words, a WebQuest is not a set of blackline masters posted on the Internet. In order to be a true WebQuest, most of the resources students need to be successful should be gleaned from WebQuests site itself and the specific sites that it links to.

Example 1: Journey to Japan

A third grade social studies curriculum based on the expanding environments model will often focus on a comparison of students’ local community with a community from the past or from another country. Such a “Communities: Here and There; Then and Now” approach is often limited by the resources provided in the third grade textbook or by the teacher’s personal travel history. The Internet provides access to exciting resources that can augment (or even replace) this textbook-driven study of communities and cultures. Through the Internet, students can experience—virtually—much about life in another community by examining online resources such as photographs, video clips and/or personal narratives from members of that community.

Consider the WebQuest “Journey to Japan: A Day in the Life of a Japanese Child” (www.cusd.chico.k12.ca.us/libraries/elementary/japan). This WebQuest asks third graders to “journey to Japan and find out how Japanese children live ...” and to “choose a Japanese name and tell (the class) about your family, your school and your favorite things to do.” In other words, students are asked to take on the role of a “typical” third grade student in Japan. Students demonstrate their learning by using the results of their exploration to complete a seven page book; with each page presenting a different aspect of daily life in Japan. Instructions at this WebQuest ask students to:

make pages for your book with a picture and text for each question.

On each page, write at least two sentences describing your answer to the question. Tell what your favorite is and *why*. Remember! you are a Japanese child in your book, so write in that ‘voice.’ Draw a picture that shows what you are describing.

While this may appear much like a traditional cross-community comparison, the main difference lies in the process by which students complete this task.

At this WebQuest, students are provided with online resources that introduce students to Japanese foods, schools, holidays, folktales, and movies. By way of illustration, the resources links used to answer the question “What is your favorite food” include a Japanese cookbook for kids, a tour through a virtual restaurant (with

A Case Study of WebQuest Development

Can WebQuests be used successfully in K-5 classrooms to teach social studies topics and content? Fourteen elementary teachers from across Indiana met for a week of intensive workshops during the summer of 2003. They developed a WebQuest for teaching citizenship, with a focus on the core values of democracy. Participants were required to develop WebQuests that were appropriate for their particular grade level. Each WebQuest was related to the topic of citizenship or to one of the core values of democracy. Participants are piloting these WebQuests with their students during the current school year, collecting data on the impact of these WebQuests on student learning with the use of assessment instruments developed during the summer.

As of this writing, in classes in which WebQuests have been used, the majority of students indicated, on an opinion survey, that they thought that they learned more using the WebQuests than they would have using a traditional lesson (71 percent), felt “a lot more” involved in their own learning (69 percent) and found the WebQuest more enjoyable than a traditional lesson (51 percent).

These preliminary results indicate that students may be more engaged in lessons that involved WebQuests than they would have been during a more traditional lesson format, such as a lecture.

questions about dining etiquette), popular foods among Japanese children, and even a link about how to hold chopsticks!

The resources provided for answering the question “what is your favorite class at school?” include a site that takes students through a typical day in a Japanese elementary school (jin.jcic.or.jp/kidsweb/japan/b.html#qa). This resource site includes a “frequently asked questions” section with questions such as: “What kinds of homework do Japanese students have?” “When do Japanese kids start studying foreign languages?”

Once completed, each student’s book is displayed during a school-wide Japanese Festival, at which students are expected to share what they have learned with all who attend. Because students experience (virtually) elements of Japanese culture that would be difficult to experience through textbook-based study alone, this type of community comparison is much richer and has more depth. It is all made possible by the use of the Internet-based resources that were mined at the site of this WebQuest.

Example 2: Monument on the Mall

In many states, the fifth grade curriculum in social studies is some form of study of the United States: history, economy, government, etc. Often these standards require students to have an awareness of each of the three branches of the federal government. Monument on the Mall: A WebQuest on the Three Branches of Government (schoolweb.missouri.edu/nixa.k12.mo.us/sullivan/GovernmentQuest), one of the more creative elementary WebQuests I have seen, tackles this topic in a very inventive way. Students are first given a scenario:

A law was passed last week approving the building of a new monument on the National Mall in Washington, D.C. Because of your interest and knowledge of the U.S. government, they have chosen you to research and design this new monument. The law states that the monument must represent one branch of our nation’s government and cannot be taller than the Washington Monument. The design idea is up to you.

Students are then told that, in teams of four, they will be

researching all three branches of the federal in adequate depth to be able to develop an intelligent design for any one of them. The “task” for students in this WebQuest is to create a scale model of the group’s monument along with a visual display explaining to visitors the reason for the monument’s design and location.

One of the most unique features of this WebQuest is the use of roles within cooperative groups. Within each four-person team, students take on one of four roles. The “process” section of the Monument WebQuest, provides a description of each role:

- The **research specialist** gathers and records text that will be part of the visual display. This person will oversee the creation of the final copy, which will be on view at the monument for the public to read. The qualifications for this job are: knowledge of sentence and paragraph structure; attention to detail such as punctuation, capitalization, and indentation; and a strong spelling or dictionary usage background.
- The **architect** uses the input from others on the team to draw a design for the monument. The architect must have good communication skills and be able to work well with others, accepting suggestions from members of the team. The qualifications for this job are: strong drawing skills, neatness in work, ability to work well with others while accepting suggestions from them.
- The **project supervisor** makes sure that all of the materials to build the scale model are supplied at “the work site,” making a list of needed materials and being sure that there is a “supplier” for each one. (For example, “Cardboard boxes—Jim S.”) This person will oversee the actual construction of the project, helping the members of the group work cooperatively. The qualifications for this job are: organization, good communication skills, and the ability to help others work together cooperatively.
- The **cartographer** will draw a map of the National Mall including the proposed monument that the team has designed. This person will make sure the map is accurate and complete, and reflects the ideas of the team. The qualifications for this job are: close attention to detail, knowledge of the parts of a map, neatness, and ability to follow directions.

All of the students are responsible for learning in detail about the three branches of government. They use Internet resources provided in the “process” section of the website to learn about the three branches. Then they select one branch to be represented in their monument and to complete detailed research on that branch. Students then develop a plan, “build” a model of their monument, and prepare a multimedia presentation to give to the class about it. Finally, a scoring guide is used to rate student products from “beginning” to “proficient” on the monument’s design, on student knowledge of the branch of government selected, on the group’s map of the monument’s location, and on the group’s on-task effort as displayed during their work on the WebQuest.

Both of these examples of WebQuests anchor student experiences in “complex, authentic issues”¹¹ that take place in the world

outside the school walls. Further, both of them provide significant scaffolding for students. While the teacher determines the task (with the use of significant supporting resources), students remain in control (to a large extent) of how the tasks are accomplished and how the outcomes take shape. In each of these examples, the tasks challenge students to engage in higher-order thinking. Students must transform in some way information that they have selected from Internet-based resources. The final student work might be a storybook about student life in Japan, or it might be an informal proposal for a new monument on the National Mall in Washington, DC. The WebQuest format allows teachers to sequence higher-order thinking process into manageable steps built around interesting and motivating problems.

At the heart of a good WebQuest is a challenge to students to exploit the Internet as a resource while using skills that will help them navigate the real world. One thing is clear—WebQuests, if they are properly selected and used, can provide students with carefully planned access to the vast learning resource that is the Internet without overwhelming them—or the classroom teacher. 🌐

Notes

1. Henry J. Becker, *Internet Use by Teachers: Conditions of Professional Use and Student-directed Use* (Irvine, CA: Center for Research on Information Technology and Organizations, 1999): 32, archived at (www.crito.uci.edu).
2. J. Wilson, “Social Studies Online Resources,” *Social Studies and the Young Learner* 7, no. 4 (1995): 24-26.
3. Joseph Braun; P. Fernlund and C. White. *Technology Tools in the Social Studies Classroom* (Wilsonville, OR: Franklin, Beedle, 1998).
4. C. Williams, *Internet Access in U.S. Public Schools and Classrooms: 1994-99*. NCES 2000-086 (Washington, DC: National Center for Education Statistics, 2000).
5. Henry J. Becker, “How are Teachers Using Computers in Instruction?” Paper presented at the American Educational Research Association annual meeting, 2003, (www.crito.uci.edu/tlc/FINDINGS/special3).
6. Phillip J. VanFossen, “Reading and Math Take Up so Much of the Time: An Overview of Social Studies Instruction in Elementary Classrooms in Indiana.” Paper presented at the College and University Faculty Assembly of the National Council for Social Studies, Chicago, IL, November 12, 2003.
7. Bernie Dodge, “Some Thoughts about Webquests.” San Diego State University (1998), edweb.sdsu.edu/courses/edtec596/about_webquests.html.
8. Scaffolding is defined as system for sequencing or organizing content, materials, tasks, and teacher and peer support to optimize learning. See, for example, K. Hogan and M. Pressley, *Scaffolding Student Learning: Instructional Approaches and Issues*. (Cambridge, MA: Brookline Books, 1997).
9. B. Dodge (1998).
10. Philip Molebash and Bernie Dodge, “Kickstarting Inquiry with WebQuests and Web Inquiry Project,” *Social Education* 67, no. 3 (April, 2003): 158-162.
11. *Ibid.*
12. A standard Google search for “WebQuests” resulted in more than 491,000 URLs.
13. In the summer of 2003, the James F. Ackerman Center for Democratic Citizenship in the School of Education at Purdue University sponsored a week-long summer institute focused on integrating technology into citizenship education. For an example of the group’s work, see research.soe.purdue.edu/ackerman/participant_webquests_frame.html.

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