

The Learning Power of WebQuests

A well-designed WebQuest combines research-supported theories with effective use of the Internet to promote dependable instructional practices.

Tom March

When the Web was still young, Bernie Dodge, a professor at San Diego State University, came up with the idea of the WebQuest, a model for integrating the use of the Web in classroom activities. He 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. (Dodge, 1995)

In the early days, Bernie and I spent many hours developing the key attributes of a WebQuest, emphasizing the importance of combining authentic tasks with Internet resources to develop critical thinking skills. Since those early days, WebQuests have become a buzzword among educators. In fact, the WebQuest Page at San Diego State University (<http://webquest.sdsu.edu>) now receives more than 1,700 hits each day.

What WebQuests Are Not

Unfortunately, the implementation of WebQuests sometimes falls short. So-called WebQuests may bear a superficial resemblance to real WebQuests in that students use Internet resources to produce a technology-enhanced product. For example,

■ A team of students plans a trip across the United States and presents its

itinerary on PowerPoint slides. One student might be responsible for budgeting, one for locating tourist attractions along the way, and one for booking accommodations and organizing meals.

■ Learners collect facts about and images of endangered species and create a poster to share what they have learned.

■ Students create a brochure, a diorama, and an audio guide for a new exhibit on an exotic animal at a local zoo.

Although the above activities may involve some reasonable degree of learning, they are not WebQuests because the information in each activity can go from the browser to the product without altering—or even entering—the learner's understanding.

What Is a Real WebQuest?

In a real WebQuest, newly acquired information undergoes an important transformation within learners themselves. Getting information—the “learning input”—is the easy part. The WebQuest gets trickier and more interesting in the next part, in which transformative learning takes place and teachers and students can realize—or fail to realize—the potential of a WebQuest. How can WebQuests prompt the intangible “aha” experiences that lie at the heart of authentic learning? The use of powerful learning strategies differentiates real WebQuests

from mere Web-based activities.

A real WebQuest is a scaffolded learning structure that uses links to essential resources on the World Wide Web and an authentic task to motivate students' investigation of an open-ended question, development of individual expertise, and participation in a group process that transforms newly acquired information into a more sophisticated understanding. The best WebQuests inspire students to see richer thematic relationships, to contribute to the real world of learning, and to reflect on their own metacognitive processes. Let us examine these powerful strategies more closely.

A Scaffolded Learning Structure

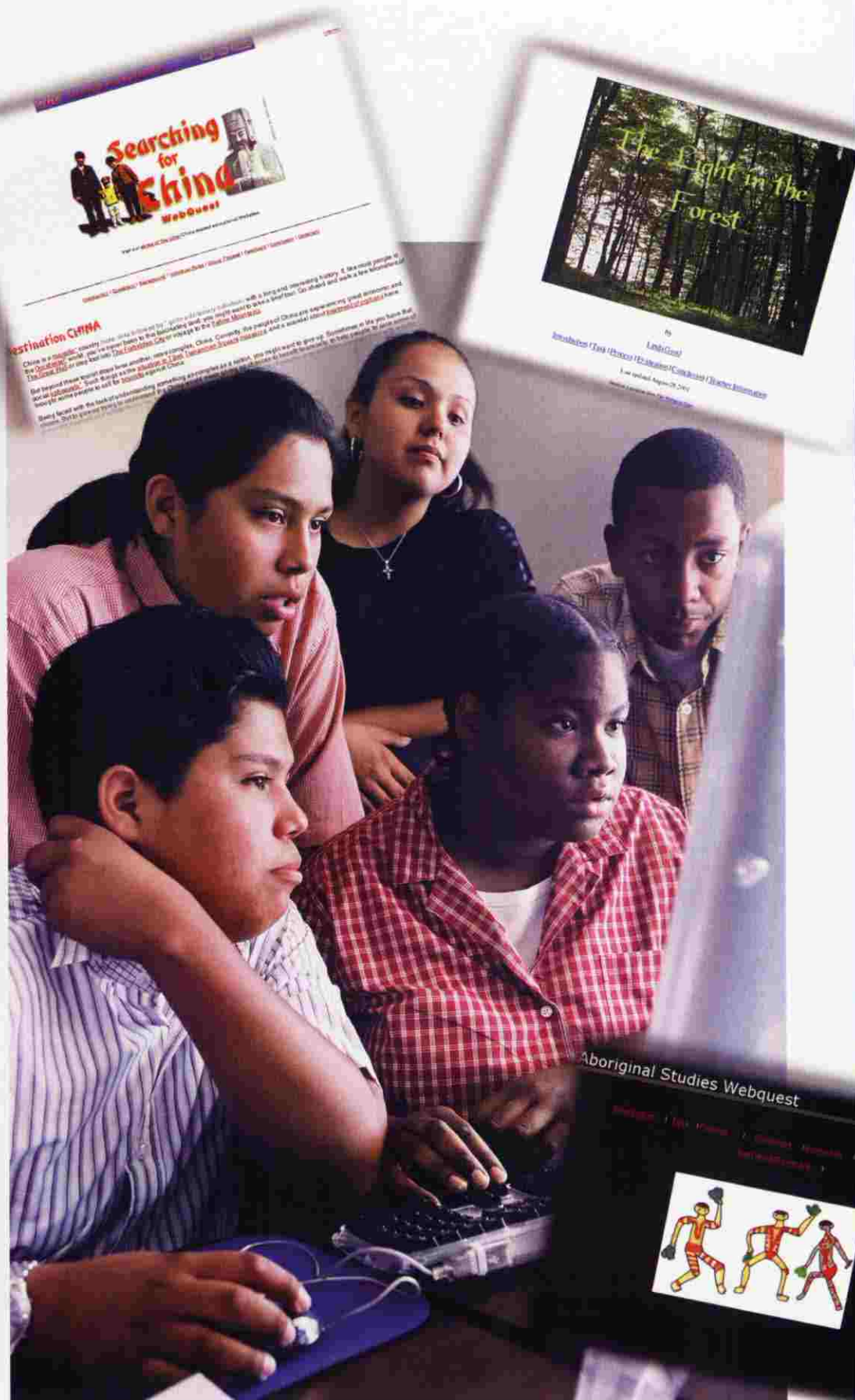
Research in cognitive psychology tells us that if we want novices to perform at more expert levels, we need to examine how experts go about their work and then prompt novices through a similar process. Teaching the writing process is a classic example. We ask students to do what expert writers do—brainstorm, draw pictures, compile lists, or make free associations—and then help them think about an audience and descriptive details. Scaffolding positively affects student achievement (Bereiter & Scardamalia, 1984; March, 1993) by providing “temporary frameworks to support student performance beyond their capacities” (Cho & Jonassen, 2002, p. 6). As students internalize more

advanced intellectual skills through ongoing practice, the teacher can gradually remove the scaffolded levels of support. Scaffolding is used to implement such approaches as constructivist strategies, differentiated learning, situated learning, thematic instruction, and authentic assessment.

Such scaffolding is at the heart of the WebQuest model. In this sense, WebQuests aren't anything new except that they provide a way to integrate sound learning strategies with effective use of the Web. The Web and related communications technologies have been able to chip away at the Berlin Wall of traditional education by making these strategies not only advisable, but essential.

If you disagree that these approaches are essential, you can stop reading now and relax. Your students will make all the adjustments: submit essays from schoolsucks.com; "text-message" one another real-time exam answers; or sit quietly in class, heads bowed over books, listening to Pink Floyd on wireless headphones ("We don't need no . . ."). This may be what is going on in some classrooms already.

When we recognize that the Web and other information and communications technologies require a more authentic, learning-centered approach, then the WebQuest's scaffolded structure enables us to put into practice the ideas that education theorists have championed for decades.



Use of Essential Internet Resources

Real WebQuests facilitate meaningful use of the Web for educational ends. Activities that point students only to encyclopedic briefs, textbook digests, or worse—word searches and coloring books—do not take advantage of Internet resources that are interactive, media-rich, contemporary, contextualized, or of varied perspectives. We should ask, Could students achieve this learning just as effectively without the Internet? If the answer is yes, let's save the bandwidth for something better.

Because the Web has matured from its early days, rich resources are more prevalent (March, 2000a). For example, the "Look Who's Footing the Bill!" WebQuest (www.kn.pacbell.com/wired/democracy/debtquest.html) invites students to participate in an interactive look at the U.S. budget, find out how to get more information about where the money goes, and then propose their own solutions for balancing the budget and reducing the national debt. In "Crool Zone" (www.kn.sbc.com/wired/nonviolence/intro.htm), a WebQuest series on creating nonviolent schools, students work on understanding the nature and extent of school violence and take on the perspectives of students, teachers, parents, or counselors to propose solutions to violence in schools.

A teacher's gentle orchestration of Internet experiences like these helps students develop their active understanding of the problem.

Authentic Tasks That Motivate

For more than 20 years, John Keller's ARCS Model of Motivational Design (Keller, 1983, 1987) has provided a reasoned approach to increasing students' willingness to expend effort in their pursuit of learning. Real WebQuests should pass the ARCS filter: Does the activity get students' Attention? Is it Relevant to their needs, interests, or motives? Does the task inspire learners'



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Confidence in achieving success? Finally, would completing the activity leave students with a sense of Satisfaction in their accomplishment? The best way to address attention and relevance is to choose a topic that students find compelling and then create an authentic learning task related to it. Prompting students at crucial stages of the process inspires confidence. Differentiating tasks and establishing reliable sources for real-world feedback from people outside the classroom increase the likelihood that the student will experience the full cycle of motivation from attention to satisfaction.

Open-Ended Questions

As constructivists Savery and Duffy (1995) point out, "puzzlement" is "the stimulus and organizer for learning" (p. 31). A teacher can challenge students by "posing contradictions, presenting new information, asking questions, encouraging research, and engaging students in inquiries designed to challenge

current concepts" (Brooks & Brooks, 1999, p. ix).

When a WebQuest poses an open-ended question, students must do more than "know" facts. Open-ended questions activate students' prior knowledge and create a personal curiosity that inspires investigation and brings about a more robust understanding of the material.

Individual Expertise

Once students have focused on a question and an authentic task, they begin the process of acquiring information. A preliminary stage, which we call Background for Everyone, helps all students gain a common foundation of knowledge in the general subject before developing expertise from one perspective. Without a common background of knowledge, students argue from preconceptions and stereotypes rather than from critical analysis of a wide range of sources. The Background stage also paves the way for differentiating

student activities in such a way that all students can master required knowledge and then pursue different levels of individual expertise. Of Tomlinson's (2000) four ways to differentiate learning tasks—by content, process, products, and learning environment—WebQuests support differentiation of content and process and give teachers the flexibility to vary final products and classroom routines as needed.

Typically, each student participating in a WebQuest assumes a role that helps a team of learners investigate an issue from more specialized perspectives. Students may work individually, in pairs, or as members of a "role team."

Is this WebQuest real, rich, and relevant? These questions form the three Rs for assessing the value of a WebQuest.

These role-plays—personifications of particular viewpoints, such as businessperson or environmentalist—provide different perspectives from which to view an open-ended question. Students develop expertise in the subject from within a situated learning environment—that is, one in which "knowledge and skills are learned in the contexts that reflect how knowledge is obtained and applied in everyday situations" (Stein, 1998). Because students grapple with real issues that have no prescribed solution, we don't expect everyone to develop the same kind of expertise. Individual variations in understanding reflect the fact that all learners contribute different degrees of prior learning, effort, and ability as they construct personal meaning.

Transformative Group Process

A quick litmus test for the WebQuest's group process is to ask two questions. First, we ask, Could the answer be copied and pasted? If the answer is no,

then we ask, Does the task require students to make something new out of what they have learned? Students must develop a substantively new concept and product, not merely provide a new compilation of information or an "original" mishmash of unprocessed facts. Scardamalia and Bereiter (1999) point out that

Doing experiments or tramping the bushes collecting plant samples in no way guarantees that [students are engaged in solving knowledge problems]. Trying to make sense of information about a topic of interest almost always ensures that they are. (p. 278)

Simply activating pre-existing knowledge or accumulating information is significantly different from developing new knowledge and skills; students need problem-solving activities that require the use of critical thinking skills to develop new concepts (Bransford, 1985).

One way to transform the group process is to ask students to apply lessons from global problems to local issues. For example, students might address the classic question, How should we save the Amazon rainforest? Because potential answers to this question abound on the Web, leaving the question at this level invites a copy/paste solution. Shifting the focus during the group process to a global-to-local approach, however, encourages students to apply information they have gained from the global examples to a local scenario. For example,

Use what you know about the Amazon rainforest to provide a solution to what should be done about

the threatened habitat in our region or community. Be sure to justify your answer after considering the interests of the following stakeholders: ecologists, future generations, local inhabitants, and government officials.

Another way to transform group work is to ask students to use their assigned perspectives to predict near-future outcomes of current events. Students begin by learning about a current or upcoming event—such as the war in Iraq, El Niño patterns, or presidential elections—and then predict outcomes and effects. When students must base their opinions on evidence that comes from assigned perspectives—for example, a scientist, politician, student, or principal—we know that each group member contributes to this hypothetical answer.

Another transformative WebQuest strategy is to ask students to argue why a particular option will thrive best in a given situation. All too often, when younger students learn about the 50 states, a so-called WebQuest might ask them to retrieve information on natural resources, social policy, main businesses, climate, and history and then to make a slide presentation. This strategy becomes "Tag Team PowerPoint," in which students present what they have gathered from "research" without ever pooling the team's knowledge or processing new insights. A real WebQuest on the same 50-states topic begins with similar information retrieval, but students then face a more interesting challenge:

On the basis of what you know about its natural resources, social policies, main businesses, climate, and history, which state of those that you have studied is most likely to be successful in the later 21st century? Decide what criteria you will use to define and evaluate what it means for a state to be "successful."

By engaging learners in a pursuit that requires them to use the acquired infor-

mation and expertise in a new way, WebQuests help students construct a deeper understanding and move through a crucial transition phase toward a more autonomous, learning-centered educational process. Without such engagements, wasted bandwidth is the least of our worries; more fundamentally, we misuse mind and time—the most precious commodities of classroom life.

What the Best WebQuests Do

A learning activity could stop here and be a pretty good WebQuest. But why not go for the best? Some WebQuests (see <http://bestwebquests.com>) leverage more learning by integrating other powerful learning strategies.

Students see richer thematic relationships. Is this WebQuest real, rich, and relevant? These questions form the three Rs for assessing the value of a WebQuest. I have yet to hear of any topic that couldn't be made more authentic, interconnected, or up-to-date through strategic selection of Web sites and creation of personally meaningful tasks that entwine thematic and interdisciplinary relationships. Contextualizing the topic makes it worth learning: We can relate Picasso's *Guernica* to inner-city graffiti, *The Lord of the Flies* to street children in Angola, or the war in Iraq to school violence (March, 2000b). Research has shown that thematic teaching helps students understand the value of the subject, make logical connections across disciplines, transfer learning from one context to another, and develop a sound knowledge base (Lipson, Valencia, Wixson, & Peters, 1993).

Students contribute to the real world of learning. Innovative applications of authentic assessment increase the value of WebQuests. When "students have been involved in an authentic task involving 'ill-structured' challenges and roles that help students rehearse for the complex ambiguities of the 'game' of

adult and professional life" (Wiggins, 1990), it makes sense to encourage learners to test their newly constructed knowledge with real-world feedback.

Educators play a vital role in securing in-person or online mentors, experts, collaborative classes, and policymakers who are willing to share their informed positions, and teachers can help students pursue such worthy initiatives as service learning; school-to-work programs; and partnership academies, in which students become interns for related partnering organizations. In addition to this real-world feedback, teachers construct rubrics to authentically assess student achievement. Qualitative descriptors for varying levels of achievement in a range of criteria guide student progress rather than simply measure completion.

Students reflect on their own metacognitive processes. Research shows that when students are aware of their own thinking patterns, they can develop independent use of effective

learning strategies (Blakey & Spence, 1990). After all, the goal is not for students to do WebQuests forever or to blindly jump through these new and improved hoops, but rather to develop as independent, expert learners.

Learner-Centered Professional Development

WebQuests bring learner-centered principles from the realm of noble idea to daily practice. As the American Psychological Association (1997/2003) articulated, the implementation of these principles benefits both students and teachers. When teachers facilitate well-designed WebQuests, they gain in-process professional development, moving them toward learning-centered practice. As they internalize and share their experiences, we all benefit. ■

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Look Who's Footing the Bill!

www.kn.pacbell.com/wired/democracydebtquest.html

Cool Zone?

www.kn.sbc.com/wired/nonviolence/intro.htm

The Big Wide World WebQuest

www.kn.sbc.com/wired/bwww

Searching for China

www.kn.sbc.com/wired/China/ChinaQuest.html

Little Rock 9, Integration 0?

www.kn.sbc.com/wired/BHM/little_rock

The Tuskegee Tragedy

www.kn.sbc.com/wired/BHM/tuskegee_quest.html



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