

## What WebQuests Are (Really)

By Tom March

**A well-designed WebQuest uses the power of the Internet and a scaffolded learning process to turn research-based theories into dependable learning-centered practices.**

In February 1995, my mentor at San Diego State University, Professor Bernie Dodge, came up with an idea for integrating this new thing called the World Wide Web into classroom activities. Bernie's early and oft-quoted definition states, "A WebQuest is an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the internet..." (Dodge, 1995). Since then WebQuests have become one of the key buzzwords heard when educators discuss the Web and education. In fact, current Web statistics from The WebQuest Page record well over 100,000 page views per month, two new submissions to its database per day and 900 daily searches of the same<sup>1</sup>.

1. Bernie Dodge, email correspondence Sat Jul 26, 2003 4:25:02 PM Australia/Sydney, Subject: Re: Web Stats?

### What is a WebQuest?

A stereotypical "WebQuest" sees a team of students accessing Web sites in order to produce a technology-enhanced group product. Example "WebQuests" are:

- Students working as a team plan a trip across the US and present their 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 and images of endangered species and create a poster to share what they have learned.
- Students create a brochure, diorama and audio guide for a new exhibit on an exotic animal being introduced to a zoo.

Although the above activities may involve some reasonable learning, they are not WebQuests because in each case the information can go from the browser to product without altering (even entering?) the learner's understanding.

### What is a (real) WebQuest?

In the early days, Bernie Dodge and I spent hours a week for over two years discussing, debating, questioning and concretizing notions of a WebQuest's critical attributes. During one session, Bernie drew a graphic depicting learning inputs and outcomes with a box in the middle. This box was where newly acquired information underwent a transformation into new understanding.



recreated drawing of Bernie's chalkboard musings

The "Learning Input" is the easy piece of the WebQuest's definition – "some or all of the information that

learners interact with comes from resources on the internet." Unfortunately, this is where many educators' understanding of WebQuests begin and end. Yet it's the next bit where things get tricky and interesting – and where the potential of WebQuests are realized or not. The main critical attribute of a WebQuest is to facilitate this transformation of information into a newly constructed, assimilated understanding.

The purpose of this article is to elaborate on how a well-designed and delivered WebQuest integrates a number of research-supported strategies to prompt the intangible "Ah-Ha" experiences that lie at the heart of transformative learning. The first step in this process is to offer a revised definition of a (real) WebQuest.

### **"WebQuest," as defined by Tom March, circa 2003**

***"A 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 a central, open-ended question, development of individual expertise and participation in a final group process that attempts to transform newly acquired information into a more sophisticated understanding. The best WebQuests do this in a way that inspires students to see richer thematic relationships, facilitate a contribution to the real world of learning and reflect on their own metacognitive processes."***

### **How does a WebQuest work?**

To answer this question, let's look at each section of the definition above.

#### ***"A WebQuest is a scaffolded learning structure..."***

Underpinning the WebQuest model is an aspect of cognitive psychology that says that if we want people who may be new to an endeavor to perform at more expert levels, we should examine what experts do and then prompt novices through a similar experience. The classic example of this approach is the writing process. Rather than ask elementary school students to write to the theme "How I spent my summer vacation," we might ask them to brainstorm, draw pictures, list, or free associate before helping them think about an audience and the descriptive details surrounding one particular incident. This prompting learners to perform beyond their current cognitive skill set is known as scaffolding or procedural facilitation and has been shown to positively affect student achievement (Bereiter and Scardamalia, 1984; March, 1993). Scaffolds are "temporary frameworks to support student performance beyond their capacities..." (Cho & Jonassen, 2002). Examples of scaffolding are "activities that help students develop the right mindset, engage students with the problem, divide activities into manageable tasks, and direct students' attention to essential aspects of the learning goals" (Ngeow & Kong, 2001). Given ongoing practice tackling advanced intellectual tasks in this way, the level of support is "faded" as the skills are internalized.

Such scaffolding is at the heart of the WebQuest model as defined above. In fact, the integrated scaffolding of specific research-based strategies is "what happens" in the mysterious "black box" of transformation. The main strategies that WebQuests prompt are:

- Motivation Theory
- Questioning - Schema Theory
- Constructivism
- Differentiated Learning
- Situated Learning
- Thematic Instruction
- Authentic Assessment
- Overt Metacognition
- Learner-centered psychological principles

In this way, WebQuests aren't anything new. What they *are* is a way to integrate a number of sound learning strategies while also making substantial educational use of the Web. Interestingly, while these educational theories have made good sense for quite a long time, it's taken the Web and related

communications technologies to chip away at the Berlin Wall of traditional education to make the above strategies not just good ideas, but essential. If you disagree with this, stop reading now and relax. It's your students who will make all the adjustments: submit essays from Schoolsucks.com, send each other real-time exam answers by SMS, or quietly sit in class, heads bowed over books, listening to Pink Floyd on wireless headphones ("We don't need no..."). From a safe distance it probably looks like what's going on in many classrooms today...

Thus, if we recognize that the Web and other information and communication technologies require a more authentic, learning-centered approach – and our own educator's instincts join the chorus – a WebQuest's scaffolded structure allows us to put the ideas that educational theorists have championed for decades into practice today.

### ***"...that uses links to essential resources on the World Wide Web..."***

It seems reasonable that a WebQuest would link to resources on the Web. However, it should be noted that these are "essential" resources. Those activities that only point students to encyclopedic briefs, textbook digests or worse, word searches and coloring books, do not take advantage of the Web's ability to present resources that might be interactive, media-rich, contemporaneous, contextualized, or of varied perspectives. A quick question often resolves whether the Web (and thus a WebQuest) is worth using: "Could this learning be achieved just as effectively without the Internet?" If the answer is yes, let's save the bandwidth for something better.

The best WebQuests, however, couldn't be done without the compelling richness of Web resources. As the Web has matured from its early days, these kinds of evocative sites are more prevalent and often create the spark that brings specific kinds of learning alive (March, 2000a). Examples of such sites that I have used in WebQuests are the excellent Budget Explorer (<http://www.kowaldesign.com/budget/>) in "Look Who's Footing the Bill!" and Editorial Cartoons on School Shootings (<http://cagle.slate.msn.com/news/schoolshooting/>) in "Crool Zone?" Although an adult might encounter such sites and intuitively engage in conjecture, students will benefit from a teacher's gentle orchestration of Internet experiences, building to the cognitive insights that yield an intrinsic motivation to learn. Otherwise, the willingness of content developers to give "us" what we "want" – in all its horror and glory – suggests a dismal future of pandering to lesser ends. A well-executed WebQuest facilitates meaningful use of the Web for educational ends.

### ***"...and an authentic task to motivate students' investigation..."***

For over twenty years, John Keller's ARCS Model of Motivational Design (Keller, 1983,1987) has provided a well-respected and reasoned approach to increasing students' willingness to expend effort in their pursuit of learning. In brief, real WebQuests should pass the ARCS filter: Does the activity get students' **A**ttention? Is it **R**elevant to their needs, interests or motives? Does the task inspire learners' **C**onfidence in achieving success? Finally, would completing the activity leave students with a sense of **S**atisfaction at their accomplishment? The best way to address Attention and Relevance is to choose some dimension of a topic that students would find compelling and then create an authentic learning task related to it. The element of Confidence is addressed by the scaffolding that prompts students at critical stages of the process. Furthermore, a benefit of WebQuests created by the delivering teacher is that he or she can augment or fade scaffolding as best suits learners. As for Satisfaction, selection of an authentic Task and establishing reliable sources for legitimate Real World Feedback increase the likelihood that students participating in the WebQuest will experience the full cycle of motivation from Attention to Satisfaction.

### ***"...of a central, open-ended question,..."***

In an early paper on constructivism, Savery and Duffy (1995) noted that "Puzzlement is the factor that motivates learning." Thus beyond links to compelling Web sites and implementation of the ARCS Model, attempts to motivate students are furthered by the use of probing, open-ended questions. Although the first iteration of WebQuests called for a clear statement of the task, it did not ask teachers to frame the task as a question. I advocate using a question for two main reasons. First, when a WebQuest poses an open-ended question, it's clear that students must do more than "know" facts (which usually translates as "control-C, control-V"). Further justification for questioning comes from schema theory and constructivism. Because we want to support students as they transform information into new understanding, using a

question can access prior knowledge, thus activating pre-existing cognitive networks of meaning. In addition, questions can create the cognitive dissonance that leads to investigation and assimilation of a more robust understanding. A more learning-centered teacher might challenge students by "posing contradictions, presenting new information, asking questions, encouraging research, and/or engaging students in inquiries designed to challenge current concepts" (Brooks & Brooks, 1999).

***"... development of individual expertise ..."***

Once attempts are made to motivate learners through the WebQuest's Introduction and Question / Task, students begin a process of acquiring information to develop a body of knowledge. I advocate a preliminary stage of "Background for Everyone." This allows all students the chance to gain a common foundation of knowledge in the general subject before developing expertise from one single perspective. We found that many students were happy to engage in debates and group decision-making without the benefit of a solid knowledge base. This saw some students arguing from preconceptions and stereotypes rather than critical analysis. The Background section also allows for differentiating student activities in such a way that all students can master required knowledge acquisition and then pursue different levels in affective or critical thinking domains. Of the four aspects that teachers can alter to differentiate learning tasks – content, process, products and learning environment (Tomlinson, 2000) – WebQuests explicitly support differentiation of content and process and allow delivering teachers to vary final products and classroom routines as they see fit.

Typically, students participating in a WebQuest assume a role that allows a team of learners to investigate an issue from multiple perspectives as represented by a sub-set of Web sites. While the Background phase is designed to firm-up a knowledge base and allow for differentiation of content, the Individual Roles prompt students to 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" (Kirshner and Whitson 1997). This personification of a viewpoint (e.g., business person, environmentalist) contextualizes one set of related values from which to view the open-ended question. Because students grapple with real issues of an ill-defined nature, we don't expect everyone in a Role to develop the same level of expertise. Individual variations in understanding reflect the reality that learners contribute different degrees of prior learning, effort, and ability as they construct a personal meaning.

***"... and participation in a final group process that attempts to transform newly acquired information into a more sophisticated understanding."***

Based on personal experience developing my own WebQuests as well as facilitating teacher workshops, I have come to think of a WebQuest as a two-part activity: the building up of expertise and the application of it. This is why I have come to distinguish between the original template's "Learning Advice" and a separate phase I call the Group Process. The quick litmus test for the Group Process is to ask two questions: "Could the answer be copy and pasted" and if the answer is no, "Does the task require that students make something new out of what they have learned?" The key to this "something new" is that it must be substantively new, not merely a new compilation of information or an "original" mishmash of unprocessed facts. We also need to be careful that we don't confuse "active" with "active learning." As Scardamalia and Bereiter state in regard to student participation in active learning, "Doing experiments or tramping the bushes collecting plant samples in no way guarantees that they are [engaged in solving knowledge problems]. Trying to make sense of information about a topic of interest almost always ensures that they are" (1999). Furthermore, Bransford (1985) distinguishes between activation of pre-existing knowledge and developing new knowledge and skills. His research suggests that we provide learners with problem-solving activities that include critical thinking to support schema construction.

Perhaps the best way to communicate how WebQuests support this transformative learning is through several examples. First, students might address the classic question "How should we save the Amazon rainforest?" Because potential answers to this abound on the Web, leaving the question at this level invites a copy/paste solution. Better to shift focus during the Group Process to a Global-to-Local approach where, after learning from a variety of perspectives, students use information they have gained from the global examples to apply it to a local scenario: "Use what you know about the Amazon Rainforest to provide a solution to what should be done about the 'Your-regional-threatened-habitat-here.' Be sure to justify your answer after considering the interests of the following stakeholders: ecologists, future generations, local inhabitants, and government officials." A second example of a transformative Group Process is to have students learn about the many aspects of some current or upcoming event (Y2K, the War in Iraq,

droughts / floods / volcanic eruptions, etc.) and then predict near future outcomes or effects. When students must base their opinions on evidence from predetermined perspectives (scientist, politician, student, principal, etc.), we know that all group members must contribute to this hypothetical answer. A final example of a transformative WebQuest strategy is when younger students learn about the 50 States. A typical so-called "WebQuest" asks students to retrieve information on natural resources, social policy, main businesses, climate and history, then compile it into a slide presentation. This frequently-used strategy becomes what I've termed "Tag Team PowerPoint," where students present what they have gathered from "research" without ever pooling the team's knowledge base or processing new insights. A true WebQuest on the same 50 States topic could begin with similar retrieval, but students are then challenged with a Group Task such as: "Based on its natural resources, social policies, main businesses, climate, and history, which state of those you've studied is most likely to be successful in the later 21<sup>st</sup> Century? Decide what criteria you will use to define and evaluate what it means for a state to be 'successful.'" By tweaking the final group task, we can engage students in a pursuit that requires them to use the acquired information and expertise in a new way, thus constructing a deeper understanding. With a step such as this, WebQuests fulfill a needed transitional phase toward a more autonomous learning-centered educational process. Without it, wasted bandwidth is the least of our worries; more fundamentally, we misuse mind and time – the most precious commodities of classroom life.

***"The best WebQuests do this in a way that inspires students to see richer thematic relationships, facilitate a contribution to the real world of learning and reflect on their own metacognitive processes."***

It's conceivable that a learning activity could stop here and be a pretty good WebQuest. But why not go for the best? In attempting recently to define a "BestWebQuest,"<sup>2</sup> it became apparent that some WebQuests leverage more learning by integrating several additional strategies.

When developing a WebQuest, either for myself or in a supporting role with others, I review the work-in-progress through a lens of the "3 Rs of WebQuests:" "Is it Real, Rich and Relevant?" 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. By applying our adult's wisdom and lived experiences to the topic, we stand a better chance of engaging students in personally meaningful tasks that entwine thematic and interdisciplinary relationships. As educators writing WebQuests, our main contribution is contextualizing the topic with what makes it worth learning. It's our wealth of experience that might 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). A substantial research base that supports this intuitive stance is offered by Lipson et al. (1993). They suggest that among the reasons for thematic teaching are helping students understand why they are engaged in the current study; making logical connections among disciplines and thus increasing the chance for transferring learning from one context to another; and facilitating the development of a sound knowledge base.

Second, we support development of outstanding WebQuests through clever applications of authentic assessment. Because "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 against real world feedback. Educators play a vital role in lining up mentors, experts, collaborative classes, policy makers, etc. who would be willing to give students the benefit of their informed positions. The golden days of shooting an email blindly into the maelstrom of cyberspace and hitting the target are over. This also provides an opportunity for students to pursue such worthy initiatives as service learning, school-to-work, and partnership academies.

A final integrated approach is to raise students' awareness of their thought processes and the scaffolded activities they have been pursuing. Research shows that when students are aware of their own thinking patterns - after making metacognition overt - independent use of these strategies eventually develops in learners (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 ultimately to fade use of such scaffolding so that in the end what remains are self-initiated, expert learners.

2 - *BestWebQuests - Celebrating the Best in WebQuests: <http://bestwebquests.com>*

**WebQuests, Research and "Secret PD"**

The intent of this article is to encourage a renewed understanding of WebQuests and to address "The Research Question" sufficiently so that educational leaders can advocate use of the model with informed vigor. Now for an admission and a confession. Lying beneath the surface of this article is a hidden agenda and subversive ploy. First, I share with many others the belief that a learner-centered approach needs to move from the realm of noble idea to daily practice. Even a cursory look at "The 14 Learner-centered psychological principles" (APA, 1997 - <http://www.apa.org/ed/lcp.html>) reveals a resonance with those principles and structure of a WebQuest. As the first WebQuests predated publication of the Principles, one doesn't spring from the other, and yet as the sympathetic pedagogies described in this article suggest, many in education draw inspiration from the same winds of change. So much for the hidden agenda of promoting learning-centered strategies. Now for the subversive ploy. The secret of WebQuests is that students aren't the only learners who benefit from their use. As teachers facilitate the implementation of well-designed WebQuests, they gain in-process, professional development, moving them toward a truly learning-centered practice. As they internalize and share their experiences, we will all benefit.

## References

- Blakey, E. & Spence, S. (1990). Developing Metacognition. ERIC Clearinghouse on Information Resources. Syracuse, NY. ERIC Digest. [ED 327 218]
- Bransford, J. (1985). Schema activation and schema acquisition. In H. Singer & R. B. Ruddell (Eds.), *Theoretical models and processes of reading*, 3rd ed. Newark, DE: International Reading Association, 385-397.
- Bereiter, C., & Scardamalia, M. (1984). Teachability of reflective processes in written composition. (180). *Cognitive Science*, 8, 173-190.
- Brooks, Jacqueline Grennon and Brooks, Martin G. (1999). *In Search of Understanding: The Case for Constructivist Classrooms* (revised edition). Association for Supervision and Curriculum Development (ASCD).
- Cho, Kyoo-Lak & Jonassen, D. (2002) The Effects of Argumentation Scaffolds on Argumentation and Problem Solving. *ETR&D*, Vol. 50, No. 3.
- Dodge, B. (1995) "Some Thoughts About WebQuests" [http://edweb.sdsu.edu/courses/edtec596/about\\_webquests.html](http://edweb.sdsu.edu/courses/edtec596/about_webquests.html)
- Keller, J.M. (1983). "Motivational design of instruction. In C.M. Reigeluth (Ed.). *Instructional design theories and models: An overview of their current status.*" Hillsdale, NJ: Erlbaum.
- Keller, J.M. (1987). Strategies for stimulating the motivation to learn. "Performance and Instruction," 26(8), 1-7. (EJ 362 632)
- Kirschner, D., and Whitson, J., eds. *Situated cognition: social, semiotic, and psychological perspectives.* Mahwah, NJ: Lawrence Erlbaum Associates, 1997.
- Lipson, M., Valencia, S., Wixson, K., & Peters, C. (1993). Integration and thematic teaching: Integration to improve teaching and learning." *Language Arts* 70 (4), 252-263. [EJ 461 016]
- March, Thomas A. (1993). *Computer-Guided Writing: Developing Expert Characteristics in Novice Writers.* Masters Theses. [ED 366 983]
- March, T. (2000a) "Are We There Yet?: A Parable on the Educational Effectiveness of Technology. *Multimedia Schools Magazine*. Vol. 7 #3. <http://www.infotoday.com/MMSchools/may00/march.htm>
- March, T. (2000b) "The 3 R's of WebQuests: Let's keep them Real, Rich, and Relevant. *Multimedia Schools Magazine*. Vol. 7 #6. <http://www.infotoday.com/MMSchools/nov00/march.htm>

Ngeow, K. & Kong, Y. (2001). Learning To Learn: Preparing Teachers and Students for Problem-Based Learning. ERIC Digest. [ED 457 524]

Savery JR, & Duffy TM. Problem Based Learning: an instructional model and its constructivist framework. Educational Technology 1995;35(5):31-38.

Scardamalia, M., & Bereiter, C. (1999). Schools as knowledge-building organizations. In D. Keating & C. Hertzman (Eds.), *Today's children, tomorrow's society: The developmental health and wealth of nations* (pp. 274-289). New York: Guilford.

Tomlinson, C.A. (2000). Differentiation of Instruction in the Elementary Grades. ERIC Digest. ED443572

Wiggins, Grant. (1990). The Case for Authentic Assessment. ERIC Digest. [ED 328 611]

### **WebQuests by**

"Look Who's Footing the Bill!" - <http://www.kn.sbc.com/wired/democracy/>

"Crool Zone?" - <http://www.kn.sbc.com/wired/nonviolence/intro.htm>

The Big Wide World WebQuest - <http://www.kn.sbc.com/wired/bww>

Searching for China - <http://www.kn.sbc.com/wired/China/ChinaQuest.html>

Little Rock 9, Integration 0? - [http://www.kn.sbc.com/wired/BHM/little\\_rock](http://www.kn.sbc.com/wired/BHM/little_rock)

The Tuskegee Tragedy - [http://www.kn.sbc.com/wired/BHM/tuskegee\\_quest.html](http://www.kn.sbc.com/wired/BHM/tuskegee_quest.html)

### **Other related Web sites by**

ozline.com – helping educators work the Web for Education - <http://ozline.com>

Filamentality – the first Web site to spin WebQuests - <http://www.kn.sbc.com/wired/fil>

Web-and-Flow – An interactive Web site for designing - <http://web-and-flow.com>

Best WebQuests – celebrating the Best in WebQuests - <http://bestwebquests.com>

---

© 2002 - 2005 Tom March & ozline.com

October 23, 2005