

# WebQuest: Learning Through Discovery

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## INTRODUCTION

The Internet has a vast array of information resources that educators and students can access when studying a particular topic. There are millions of different types of Web sites available on the Internet that could prove useful in the learning process. However, this wealth of Web resources can create problems determining which sites are valid, credible, and up-to-date. In addition, students become overburdened in locating applicable Web resources when completing coursework due to the quantity of Web sites (Faichney, 2002). WebQuests have increased in educational popularity by helping students perform inquiry-based and/or cooperative learning that is planned and organized. The need for students to cipher through numerous Web sites to determine applicability and authenticity is unnecessary because the research has already been performed and validated by the teacher in WebQuests. This article explains the role that WebQuests play in structuring curriculum content and giving students an authentic investigatory experience. The principles and components of WebQuests are described first to provide a foundation for their applications in instruction. Applications and methods of integration are also addressed to offer educators ideas on integrating WebQuests into the curriculum.

## BACKGROUND

WebQuests have become popular tools for integrating Internet resources into existing curriculum content and have expanded rapidly in popularity. They are presently the most common tool used for the integration of technology into the classroom environment (Lamb & Teclehaimanot, 2005). In the past 10 years, WebQuests have evolved from a basic knowledge acquisition tool into exercises that enhance critical thinking skills through the integration of knowledge, analysis, and application strategies structured around a particular issue

or social problem. WebQuests are usually presented as hyperlinked documents that link relevant resources to the specified problem. Developing WebQuests can provide students with an effective tool for locating and evaluating online information.

## Defining WebQuests

This instructional method was originally developed by Dodge (1997) and March (2004) at San Diego State University in 1995. March defined WebQuests in 2003 as 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” (¶ 10). A WebQuest is an inquiry-based learning activity that requires students to interact with resources located on the Internet, develop collaborative learning skills, and engage in higher level learning (Sandars, 2005; Zheng, Stucky, McAlack, Menchana, & Stoddart, 2005). WebQuests are built upon the constructivist paradigm using cooperative learning frameworks such as scaffolding as important design criteria. Cooperative learning is the instructional use of small groups to maximize individual and group learning and is tailored to activities that are well-defined and contain logical problems (Mills, 2006). Scaffolding provides structure to the learning experience by clearly defining the purpose and boundaries of student exploration in examining a case study or problem (McKenzie, 1999).

Structured technology projects such as WebQuests fall into this category. Through a structured process such as scaffolding, WebQuests affect student achievement by transforming what they read into a new understandable and relative form (March, 2003; Zheng et al., 2005). Finally, depending upon the instructional goal, WebQuests can be either long-term or short-term (Johnson & Zufall, 2004). Long-term WebQuests can involve a week or month’s time during which the learner is required to extend and refine the information through

analysis and demonstration. Short-term WebQuests can take between one and three class sessions and involve learners in knowledge acquisition and in integration of new information.

## Instructional Principles

In terms of educational applications, March (1998) and Christie (2002) have identified several educational principles that support the use of WebQuests in instruction. March (1998) explains that the instructional features of WebQuests work to increase student motivation by engaging in real-world learning activities, developing critical thinking skills to transform information into useful knowledge, and supporting teamwork and cooperation by requiring student participation. Christie (2002) expands upon these three principles by adding additional components such as the (a) encouragement of reasoning skills involved in a problem-solving process, (b) requirement of students to interpret, analyze, evaluate, and draw inferences, (c) promotion of social skills that also helps increase one's appreciation of diversity, (d) facilitation of students to reflect, analyze, and evaluate their own thinking, and (e) fostering of interdisciplinary learning. WebQuests provide a method for integrating Web-based learning activities into the curriculum that foster appropriate instructional principles.

## Design of WebQuests

According to Bernie Dodge (1997), there are six essential elements in an effective WebQuest: *introduction, task, process, resources, evaluation, and conclusion*. All of these elements have a specific purpose that contributes to a successful WebQuest.

1. The introduction explains the issues and establishes the problem setting.
2. The selected task must be intellectually engaging and within the ability of the students to achieve.
3. A set of references or sources that have been preselected for the students to review are given. These sources usually include sources on the World Wide Web, but may also include other hard copy sources and interviews.
4. An explanation of the process or the procedural steps detailing what the students need to complete that addresses the task.

5. A structuring or scaffolding device that provides guidance and resources to the students on how to organize the new information
6. A summary or conclusion to review what is learned in the experience and highlights how this new knowledge can be applied to other applications or subjects.

Although Dodge initially did not require that the WebQuest include such elements as group activities, role-plays, or interdisciplinary instruction, his original conception included these attributes (Dodge, 1997). Others have expanded the application of the WebQuest into these areas. WebQuests have been promoted as a tool for the development of discovery learning activities in group settings (Castoniova, 2002) and literature role playing (Teclehaimanot & Lamb, 2004), and as a tool to integrate subject area content with technology (Smith-D'Arezzo, 2002).

The current model used in some WebQuests differs from Dodge's original template by the inclusion of a credits and references page or a page that provides information for teachers. In addition, the current template combines the processes and resources into a single component that is usually organized as a Web page with several sections or a set of linked Web sites (Mills, 2006). Nonetheless, whichever model has been used, WebQuests have been promoted as a technique to improve critical thinking skills (Felix 2003; Kanuka, 2005; Vidoni & Maddux, 2002). WebQuests are well received by students, as well as teachers, who believe that this method is more intellectually engaging to the student (Castoniova, 2002; Lara & Repáraz, 2005). As a result, this instructional method has spread into nearly every academic subject area including mathematics, science, physical education, history, and career education (March, 2006a).

## Essential Elements of Effective WebQuests

The core of WebQuest design can be described as five distinctive elements: problem introduction, task alignment with objectives, clearly defined activities, cognitive progression, and the selection of appropriate resources. The introduction presents an authentic scenario problem that is easily approachable for the intended audience. The required tasks to be completed and the processes applied in the WebQuest are based

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