Chapter XVIII
Using WebQuests to Support the Development of Digital Literacy and Other Essential Skills at the K–12 Level

Susan E. Gibson
University of Alberta, Canada

ABSTRACT

This chapter introduces the WebQuest as one means of addressing effective technology use for developing digital literacy skills at the K-12 education levels. It argues that technology use that promotes constructivist learning principles has been found to have the greatest effect on learning. Furthermore, the WebQuest and its extension, the Web Inquiry Project, exemplify strategies that promote constructivist learning principles when they are designed to encourage student-directed learning, problem solving, higher-level thinking, perspective taking, real-world authentic issues, and collaboration. The author hopes that by providing specific examples of each of these strategies, readers will be better able to envision effective, constructivist-based technology use for their classrooms.

WHAT IS LITERACY?

These days literacy has taken on a whole new meaning. The current buzzword in educational circles is digital literacy. According to the North Central Regional Educational Laboratory (NCREL) Web site (http://www.ncrel.org/engauge/skills/agelit.htm), digital literacy encompasses a large number of literacies, including basic literacy such as language proficiency and numeracy, scientific literacy, economic literacy, technological literacy, visual literacy,

information literacy, multicultural literacy, and global awareness. In addition to these literacies, NCREL calls for an emphasis in K-12 schooling on other skills such as higher-level thinking—including critical and creative thinking and problem solving—as well as communication skills in order for students to be successful in the 21st century. This is a major undertaking for schools and teachers as they struggle with how to address all of these aspects of digital literacy in their teaching. Computer technologies can be used to assist and support teachers in their endeavors.

This chapter begins by reviewing what we currently know about effective computer use to support and enhance teaching and learning. Constructivism is then examined as a promising theoretical framework for that use. The remainder of the chapter looks at WebQuests and their extension, Web Inquiry Projects, as approaches that have the potential to effectively address constructivist learning principles and digital literacy skills, as well as essential higher-level thinking, problem solving, and communication skills.

WHAT DOES RESEARCH TELL US ABOUT WHAT MAKES EFFECTIVE AND MEANINGFUL TECHNOLOGY INTEGRATION?

Before examining ways to address literacy skills in teaching, it is important to review what we know about effective technology use. Computers are becoming more readily available in many K-12 schools worldwide, and the Internet is often hailed as an innovation with unprecedented potential for the improvement of teaching and learning.

However, teachers are at varied levels of awareness about the possibilities for employing these technologies in effective and efficient ways to enhance teaching and learning. Repeatedly the research has found that computer technologies have had "only isolated, marginal effects on how and what children learn in school, despite early champions of their revolutionary educational potential" (Roschelle, Pea, Hoadley, Gordin, & Means, 2000, p. 77). Consequently, "many computers in schools, even up-to-date multimedia computers with high-speed Internet access, are not being used in ways that significantly enhance teaching and learning" (Kleiman, 2000, p. 8). The foremost problem seems to be that teachers tend to use computers as add-ons to the ways they have always taught which often is modeled after a traditional, transmissionist approach. As noted by Howard Gardiner (2000), "When the [computers] are plugged in, they are all too often simply used to 'deliver' the same old 'drill-and-kill' content" (p. 33). As McAdoo (2000) asserts:

> *The issue of equity centers not on equality of equipment but on quality of use. The computers are there, yes, but what is the real extent of access? And are schools able to raise not just students' level of proficiency but also their level of inquiry, as advanced use of technology demands?* (pp. 143-144)

The key to best use is not the fact that computers are being used, but how they are being used. Computer use needs to go beyond low-level tasks such as students being able to demonstrate understanding of how to operate the various technologies with proficiency, to tasks that encourage more advanced learning with computers. Over a decade of research indicates that the most effective uses of computer resources in schools occur when the technology is used by students as an informa-