

Chapter 5.20

Developing Digital Literacy Skills with WebQuests and Web Inquiry Projects

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ABSTRACT

This article identifies digital literacy as an important aspect of new media literacy at the K-12 level. Digital literacy includes developing the skills of information location and application as well understanding how to use available evidence to assist in problem solving and decision making about important questions and issues that have no clear answers. Two web-based examples of instructional strategies – WebQuests and Web Inquiry Projects—are suggested as ways to develop these and other important 21st century learning skills.

WHAT IS DIGITAL LITERACY?

Over the last decade the term ‘literacy’ has evolved to include an ever increasing, and diverse range of skills. “The new literacies of the Internet and other ICTs include the skills, strategies and dispositions necessary to successfully use and adapt to the rapidly changing information and communication

technologies and contexts that continuously emerge in our world and influence all areas of our personal and professional lives” (Leu, Kinzer, Coiro & Cammack, 2004, p. 1572). According to Jamie McKenzie (2005), “Literacy is about wrestling understanding from chunks of information, whether these chunks be numerical, textual, visual, cultural, natural or artistic” (p. 7). One form of literacy, ‘digital’ literacy, can be defined as “a person’s ability to perform tasks effectively in a digital environment, with “digital” meaning information represented in numeric form and primarily for use by a computer... [and] includes the ability to read and interpret media (text, sound, images), to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments” (Jones-Kavalier & Flannigan, 2006, p. 9).

Developing the skills of information location and application is one aspect of **digital literacy**. These skills include the ability to find, evaluate, synthesize, and use information to answer questions and make informed decisions. Digitized information comes in many forms, and students need to acquire the ability to read, interpret, understand, and use all of these media formats. They need to understand that

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everything on the Web represents an individual's point of view and that all sources need to be carefully and critically examined for authenticity and bias. They also need to recognize that no one source of information can adequately represent all there is to know about a particular topic; multiple sources on any topic should always be consulted and their information compared. **Digital literacy** also involves understanding how to use the available evidence to assist in problem solving and decision making about important questions and issues that have no clear answers. Furthermore students benefit from opportunities in which they are encouraged to transform information in new ways to advance their own and others' thinking, rather than simply consuming what others have produced. Finally, students need to develop a critical attitude toward computer technology in our society in terms of its present and future impact on humanity. The overall goal of **digital literacy** is to develop knowledgeable, skilled, and responsible users of computer technologies.

The Partnership for 21st Century Learning [http://www.21stcenturyskills.org/index.php?option=com_content&task=view&id=254&Itemid=120] calls for an emphasis in schooling on all of these literacy skills to ensure that students will be successful in the 21st century. The International Society for Technology in Education's (ISTE) Standards for Educational Technology (2007) also include creativity and innovation, communication and **collaboration**, research and information literacy, critical thinking, problem solving and decision making, digital citizenship, and technology operations and concepts. Addressing all of these components of **digital literacy** is a major undertaking for schools and all teachers, grade levels and subject areas have important roles to play.

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 both constructivist learning principles and digital literacy, **higher level thinking**, problem solving and communication skills.

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

Before examining ways to address **digital literacy** skills in teaching with technology, it is important to review what we know about effective technology use. Computers are now more readily available in many schools worldwide and the Internet is often hailed as an innovation with unprecedented potential for the improvement of teaching and learning. Although some critics claim that the use of computer technologies has had minimal to no affect on learning outcomes (Cuban, 2001, Openheimer, 2003), there have been positive affects identified in the research literature. "Several recent research reviews and meta-analyses published in the United States and Britain suggest that, when measured across the board, educational technology yields "small, but significant" gains in learning and student engagement" (Viadero, 2007 p. 1). Learner motivation has been identified in numerous studies as being particularly evident with the use of computer technologies (Sterling, 2007). As for learning gains, Wan, Fang, and Neufeld (2007) found that, "Technology can influence learning processes by facilitating cognitive information processing activities such as search, scanning, transformation or comparison of information" (p. 187). Higgins (2004) found advances in reasoning, understanding and creativity using computers. Viadero (2007) identified positive affects for writing with the use of word processors, and for

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