

Findings Abstract

How Children Find Information on the Internet: An Empirical Study and its Implications

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This study applied a multi-method qualitative research approach to investigate how children use the Internet to find information to solve problems for their schoolwork. The study was conducted over a seven-week period in the Ameritech Classroom in spring 2001. Some of the findings from this study shed light on children's information-seeking behavior in the Internet environment: (1) Children were very positive and enthusiastic about Internet searching. They were also quick learners. (2) Children's Internet-searching skills were found to be lacking. Sophisticated search techniques, such as using Boolean operators, searching within categories, and combining searching and browsing, were not used. (3) Children almost universally regarded the information found on the Web uncritically. In fact, the students never questioned the accuracy, authority, and quality of sources when selecting them. (4) Children tended to use search engines as the only source for finding information. This was especially true of the 3rd grade students who could not select appropriate sources to solve different types of problems. (5) Children were easily overwhelmed with too much information for their limited search skills. (6) Children could not understand the different functionality provided by various search engines and applied incorrect search strategies with different search engines. Many of them typed a question in search engines that do not support natural language searching. (7) Children tended to use single words as their search terms or typed a question. In addition, the study yielded a greater understanding of students' physical, cognitive, and affective behaviors at each stage of their Internet search processes, as well as an understanding of how the use of the Internet as a search tool affects these behaviors. Since this study was conducted over an extended period, the students were given the opportunity to experience searches on their own and with a partner. While most 3rd grade students preferred group work, most 5th grade students preferred individual searching. It also appeared that students who were more experienced in searching the Internet tended to prefer individual work in both groups. Interestingly, however, these Internet savvy students would also like to pair with a partner when conducting difficult search tasks. The findings of this study can help classroom teachers develop effective strategies to teach children how to find information effectively and evaluate and select reliable information sources from the Internet. The problems that students experienced during their searches point to areas that classroom teachers need to address. Although little research has been conducted on how searching the Internet may foster higher order thinking skills, some studies have suggested that information searches have a positive impact on higher-level thinking. In a Delphi study, Neuman (1994) determined that most library media specialists who used electronic resources in their libraries felt that encouraging higher-level thinking is an important outcome of conducting online searches. One study by Renshaw and Taylor (2000) involving university students demonstrated that using interactive multimedia CD-ROMs to teach concepts about geosciences had the effect of improving students' higher-order thinking abilities in that subject area. This study demonstrated that the Internet is a good

vehicle to teach children information literacy, problem solving, inquiry formulation, and critical and higher-order thinking. First of all, this study was conducted in a real setting, and the search tasks were part of students' school assignments – students used the Internet to find and select information to solve real problems for their schoolwork. The process required students to acquire and apply necessary technical skills to find relevant information and engage in higher-order thinking to evaluate and select the right information to solve problems. In addition, the dynamic, interactive, and open nature of the Internet provided opportunities for students to actively engage in the information search process. Very few learning processes would be able to offer this benefit. Finally, this study suggested alternative ways that must be instituted to measure student learning—students should not only be evaluated based on whether they find the right answer at the very end, but also on how they found and selected the information during the process. In particular, unlike solving a math problem, there is no one “right” answer for most Internet search tasks. The search process consists of trial-and-error patterns that reveal students' search and technical skills, critical thinking, and domain knowledge on the topic. Thus, reviewing and understanding students' search processes can help teachers develop a better way to evaluate students' performance. Perhaps more importantly, by reviewing and understanding students' search processes, teachers can obtain valuable information on "why students did not get the right information," "what went wrong," and "when and where students needed help." All of this knowledge can help them develop effective teaching strategies.