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Effects of emotion control and task on Web searching behavior

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Abstract

The study investigated how users' emotion control and search tasks interact and influence the Web search behavior and performance among experienced Web users. Sixty-seven undergraduate students with substantial Web experience participated in the study. Effects of emotion control and tasks were found significant on the search behavior but not on the search performance. The interaction effect between emotion control and tasks on the search behavior was also significant: effects of users' emotion control on the search behavior varied depending on search tasks. Profile analyses of search behaviors identified and contrasted the most commonly occurring profiles of search activities in different search tasks. Suggestions were made to improve information literacy programs, and implications for future research were discussed.

Keywords: Affect; Information tasks; Search patterns; Web search; Web navigation

1. Introduction

Since its introduction in the early 1990s, the Web has become one of the popular tools for information search and communication. It is often ranked as the most important source by many, and regarded as a good place to get everyday information by over 90% of Internet users (Fallows, 2004).

As the Web rises in popularity, efforts have been made to understand how individuals search for information on the Web, and what factors influence the Web search behavior. Research shows that user and task differences account for over half of the key factors affecting user behavior on hypermedia systems (Nielsen, 1989). Recent studies have revealed that users' affective aspects have significant impacts on information behavior (Bilal, 2000; Kurbanoglu, 2003; Nahl, 1998; Ren, 2000; Wang, Hawk, & Tenopir, 2000). How users' affective characteristics interact with tasks and influence search behavior, however, has not been well understood.

The study aimed at investigating how experienced Web users navigate and search the Web. Effects of the user's emotional control and tasks were examined in relation to the Web search behavior and performance. In addition, by using profile analyses, dominant patterns of search behaviors were identified and compared

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across tasks. Based on the findings, issues related to user-training and interface design are discussed and future studies are suggested.

2. Related studies

Although the Web is a popular source, searching the Web can be challenging. Users are not always efficient in navigating the Web and finding high quality resources. Depending on their preferences and styles, certain users might experience more difficulties than others when searching the Web (Wang et al., 2000). Research on key factors and their effects on the search behavior would help improve the design of information systems and user training programs. Previous research suggests that information seeking on the Web is affected by user characteristics (including cognitive and affective propensities) as well as tasks (Kim & Allen, 2002; Vakkari, 2001; Wang et al., 2000; Wilson, 1999). This section will introduce and review related studies on how users' affective characteristics and search tasks influence the search behavior.

2.1. Users' affective characteristics and search behavior

Information-seeking behavior is influenced by users' affective characteristics. While seeking for information, users go through different stages of actions and may experience different emotions such as anxiety and frustration (Kuhlthau, 1991). How they manage their emotion during the search process seems to affect their search behavior and performance (Bilal, 2001; Wang et al., 2000).

Recognizing the need for a more comprehensive model of human information-seeking behavior, Wilson (1999) called for studies exploring users' affective variables, such as self-efficacy and problem-solving/coping styles. Self-efficacy refers to an individual's "belief in one's capabilities to organize and execute the course of action required to manage respective situations" (Bandura, 1977, 1986), and is found to be positively related to the search performance and online source usage (Nahl, 1996; Ren, 2000). More recently, research shows that 'affective coping skills' consisting of self-efficacy and optimism have a positive impact on the performance in information tasks and that higher affective skills can compensate for lower cognitive skills (Nahl, 2004, 2005).

Coping strategies is another useful construct that stems from the 'stress and coping theory' developed by Lazarus (1966). Two major forms of coping have been identified, namely emotion-focused and problem-focused coping. The former involves efforts to regulate the stressful emotions caused by an event, while the latter, efforts to control problems causing a stressful situation. It was found that emotion-focused users tend to navigate the Web rather linearly, and consecutively traversed a number of layers of nodes with little effort in the front-end-analysis (Kim, 1999).

2.2. Task characteristics and search behavior

Researchers are increasingly aware of the importance of contexts and tasks in understanding information behavior (e.g., Allen & Kim, 2001; Bystrom, 2000; Cool, 2001; Savolainen, 1995; Vakkari, 2003). Studies on Web searching have also begun to investigate the effect of task types. Research shows that users usually go through more search steps and spend more time in ill-defined subject search tasks than in specific, fact-finding tasks (Hsieh-Yee, 2001; Kim & Allen, 2002). Findings on search strategies are rather inconsistent, however. Hsieh-Yee and her colleagues found that users solved search problems in similar fashion regardless of search tasks (Hsieh-Yee, Davidson, & Ozgar, 1998), while others found that search strategies vary depending on tasks (Bilal, 2000, 2001; Schacter, Chung, & Dorr, 1998). Differences in participant groups and tasks might have contributed to the varying results of the studies. Clearly, more research needs to be done to investigate the effect of tasks on search behavior.

2.3. Interaction between task and user characteristics

Recognizing that user characteristics might interact with task types and influence search behaviors, a few studies have tested this interaction effect. Navarro-Prieto, Scaife, and Rogers (1999) found that different search