Knowledge Management Systems Usage: Rating Scheme Validity and the Effort-Accuracy Trade-Off

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ABSTRACT

Humans often seek input from others when solving complex problems and knowledge management systems (KMSs) support this activity by providing a computer-mediated approach to information sharing. However, if the content provided by the KMS is obsolete or incomplete, end-users may need to exert greater effort to detect these problems or they risk relying on poor inputs leading to less accurate decisions. As a result, most KMSs include rating schemes as part of the user interface designed to help users identify high-quality content. Rating schemes depend on current users rating the quality of the existing content, guiding subsequent users in their future content searches. However, specific ratings may be low in validity and not reflect the true content quality (unintentionally or intentionally). This study examines how rating scheme validity influences how users trade-off search and evaluation effort for decision-making accuracy. Results demonstrate that rating validity differentially influences how KMS search and evaluation effort relates to decision accuracy. The research findings provide insight into KMS user interface design and how end-users efficiently and effectively use the knowledge in KMSs to make decisions.

Keywords: content ratings; empirical study of user behavior; KMSs and decision-making; knowledge management systems (KMSs); KMSs user interfaces; usage of knowledge in KMSs

INTRODUCTION

Like other information systems, knowledge management systems (KMSs) support the efficient and effective processing of information by facilitating the location of high-quality content from the mass of knowledge they contain (Orlikowski, 2000). KMSs are shared repositories of potentially useful knowledge to support end-users within the same work group or organization (Jones & Kochtanek, 2004). KMSs are designed with interfaces that incorporate rating schemes to help users screen out irrelevant, low-quality content (i.e., knowledge). Rating schemes allow KMS users to provide feedback about the quality of content through ratings, potentially improv-
ing subsequent content search and evaluation efforts (Standifird, 2001; Wathen & Burkell, 2002). However, future users may be misled if the ratings do not accurately reflect the content quality (Dellarocas, 2003; Resnick, Zeckhauser, Friedman, & Kuwabara, 2000). Ratings can be misleading because those supplying the ratings may manipulate ratings intentionally or may rate the content based on a context very different from the users’ current context (Cosley, Lam, Albert, Konstan, & Riedl, 2003). Consequently, users relying on misleading ratings may select high-rated, low-quality content that is obsolete and incomplete to use in their particular task (Melnik & Alm, 2002).

Decision-making theory suggests decision-makers are constrained by their limited cognitive resources when performing knowledge tasks (Miller, 1956). Because of this constraint, decision-makers are motivated to use as little effort as necessary to solve a problem, yet they want to make the most accurate decisions (Payne, Bettman, & Johnson, 1993). This article draws on the effort-accuracy trade-off framework to examine how rating validity influences how KMS users employ their limited cognitive resources to search and evaluate KMS content, with the goal of finding and using the highest-quality content in their task. KMSs are complex systems with the potential to deliver competitive advantage through the efficient and effective sharing of unique, nonimitable firm resources (i.e., employees’ knowledge) (Alavi & Tiwana, 2002). Therefore, it is important to better understand how user interface designs, such as rating schemes, affect how users use the knowledge in KMSs. It is also equally important to better understand how users trade off their search and evaluation efforts for making more accurate decisions concerning the use of the knowledge in KMSs in order to improve KMS content search and retrieval. Developing insight into these issues will inform KMS designers and managers of the importance of ratings and ultimately how to develop more useful KMSs (Zhang & Dillon, 2003).

Prior research suggests KMS users use ratings in making decisions about KMS content usage (Poston & Speier, 2005). However, this research fails to adequately explain how ratings schemes influence how users trade off their effort to search and evaluate content for accuracy in decision-making. Through an experiment, this study manipulates rating validity and content quality in a replicated KMS and examines how users trade off search and evaluation effort.

**KNOWLEDGE MANAGEMENT SYSTEM USAGE**

KMSs are technology-based systems that help employees make future use of the tacit and explicit knowledge of others (Alavi & Leidner, 2001). This article focuses on the “repository” type of KMS which emphasizes the documentation and storage of knowledge (i.e., KMS content) to facilitate its reuse through access to the codified expertise (Grover & Davenport, 2001; Jones & Price, 2004). Research has discussed social and technical limitations of KMS usage; however this article examines how end-users interact with KMSs to locate content to use in knowledge tasks (Alavi & Leidner, 2001). KMSs often include design features such as search algorithms and rating schemes to help users find relevant and reliable content (Fisher, Chengalur-Smith, & Ballou, 2003). A research stream examining search algorithms exists (Fang, 2000; Park & Kim, 2000); yet little is known about how users use rating schemes in the KMS environment.

The process for locating content is iterative, beginning when KMS users enter keywords into a search engine to access relevant content. A keyword search typically results in a lengthy list of content that users must evaluate for high-quality (Brajnik, Mizzaro, Tasso, & Venuti, 2002). Finding high-quality content is difficult because of the sheer amount of information available and the potential for user disorientation given the existence of irrelevant, obsolete, and incomplete content (Davenport & Beck, 2001; Farhoomand & Drury, 2002). Users reduce disorientation by evaluating a subset of items instead of every item from the search results (Resnick & Montania, 2003). Ratings (e.g., 1 =
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