

## Chapter 7.21

# Effort–Accuracy Trade–Off in Using Knowledge Management Systems

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### **ABSTRACT**

To solve complicated problems, people often seek input from others. Knowledge management systems (KMSs) provide help in this activity by offering a computer-mediated approach to information sharing. However, if the KMS contains content that is obsolete or incomplete, those using the system may expend greater amounts of effort to detect what content is worthwhile or they risk relying on poor inputs, which may lead to less accurate solutions to their problems. As a result, most KMSs include rating schemes as part of the user interface designed to help those using the system identify high-quality content. Rating schemes depend on current users rating the quality of the existing content, guiding subsequent users in future content searches. If specific ratings are

low in validity, then they may not reflect the true content quality (unintentionally or intentionally). This chapter provides a robust summary of the KMS literature and draws on the effort-accuracy trade-off framework to offer the results of a research study. The research study examines 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. Through an experimental design, the study described herein manipulates rating validity and content quality in a replicated KMS setting and examines how users trade off search and evaluation effort. The results of the study demonstrate that rating validity differentially influences how KMS search and evaluation effort relates to decision accuracy. The chapter concludes with a discussion of the study findings and ideas for future research.

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## **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 (Fang, 2000; Kim & Compton, 2004; Nevo et al., 2003; Orlikowski, 2000). KMSs are shared repositories of potentially useful knowledge to support end users within the same work group or organization (Davenport & Hansen, 1999; 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 improving subsequent content search and evaluation efforts (Shon & Musen, 1999; Standifird, 2001; Wathen & Burkell, 2002). However, future users may be misled if the ratings do not accurately reflect the content quality (Dellarocas, 2003; Resnick et al., 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 et al., 2003; Cramton, 2001). Consequently, users relying on misleading ratings may select high-rated, low-quality content that is obsolete and incomplete to use in their particular task (Cosley et al., 2003; 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 maximize their chances of making the most accurate decisions (Payne et al., 1993). This chapter 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 substantial competitive advantage though the efficient and effective sharing of unique, non-imitable 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 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 efforts 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 setting 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 chapter 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 chapter specifically 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

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