When Effort exceeds Expectations:
A Theory of Search Task Difficulty

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Abstract

In a recent review of over one hundred interactive information retrieval studies, Wildemuth et al. [1] observed that despite widespread usage of the concepts of task complexity and task difficulty, "clear and consistent definitions of these attributes are lacking and there is no consensus on how to distinguish levels of complexity or difficulty within a set of search tasks" (p. 1119). Importantly, the authors called for the creation of richer conceptual models and more precise and valid measurement practices. In this talk, I will present a theory of search task difficulty that arose from results of a recent empirical study that evaluated a set of search tasks that were constructed using a cognitive complexity framework from educational theory. While results of this study showed participants engaged in significantly more search activity when completing more cognitively complex tasks, they did not evaluate more cognitively complex tasks as more difficult and were equally satisfied with their performances across tasks. These findings have led to a new theory of search task difficulty that is rooted in expectancy and appraisal theories, and posits that when searchers first encounter a search task description, they first appraise the task and its requirements in the context of their abilities, desires and other aspects of the search situation (e.g., system familiarity, time limits) and then make an estimate of how much effort will be needed to complete the task to achieve their ideal level of performance. A search task, consequently, becomes "difficult" when expended effort exceeds expected effort. This theory differs from many current notions of search task difficulty that assume a linear relationship between search task difficulty and search behavior. It also has implications for how search task difficulty is measured.

Biography

Diane Kelly is a Professor at the School of Information and Library Science at the University of North Carolina at Chapel Hill. Her research and teaching interests are in interactive information search and retrieval, information search behavior, and research methods. She is the recipient of the 2014 ASIST Research Award, the 2013 British Computer Society's IRSG Karen Spärck Jones Award, the 2009 ASIST/Thomson Reuters Outstanding Information Science Teacher Award and the 2007 SILS Outstanding Teacher of the Year Award. She is the current ACM SIGIR treasurer and served as conference program committee co-chair in 2013. She serves on the editorial boards of several journals including ACM Transaction on Information Systems, Information Processing & Management, and Information Retrieval Journal. Kelly received a Ph.D., M.L.S. and a graduate certificate in cognitive science from Rutgers University and a B.A. from the University of Alabama.

References

[1] B. W. Wildemuth, L. Freund, and E. G. Toms. Untangling search task complexity and difficulty in the context of interactive information retrieval studies. *Journal of Documentation*, 70(6):1118–1140, 2014.