

Statements of Research Interests

Shin-jeng Lin, Ph.D.

A multidisciplinary research background

I earned my Ph.D. in Information Science at Rutgers University, M.A. degree in Computer-mediated Communication at University of Florida, and B.A. in Management Information Systems at National Sun-Yat-Sen University in Taiwan. My multidisciplinary education backgrounds provide me a unique and novel perspective in studying information systems and enable me to collaborate with scholars in different academic disciplines.

Overall research interests

My research interests lie in examining and supporting the information behavior exhibited by Electronic Commerce (EC) customers and knowledge workers in organizations. Both EC customers and knowledge workers engage in successive sessions of activities in information processing, knowledge construction and decision making. My overall research goal is to develop an “intimate” system environment that would function like a personal assistant or tutor with a great amount of knowledge about the user and thus can provide effective and efficient supports to the user’s information tasks.

Research plans

To achieve my research goal, I have completed and submitted a NSF career-award grant proposal in the summer of 2005. The proposal details the 5-year research plan that entails 16 research projects and will undertake an iterative four-stage research methodology as the following. First, I will be developing and validating the conceptual and theoretical frameworks to describe and explain how EC customers and knowledge workers search for, exchange with others, organize, manage, use, reuse information, and make decisions to complete their activities; these frameworks respectively are the conceptual Framework of Intimate Electronic Commerce Environment and the conceptual Framework of Intimate Personal Knowledge Management Environment. Second, I will use these frameworks to systematically construct use cases or task analysis and suggest useful requirements for an intimate electronic commerce environment and intimate personal knowledge management environment. Third, I will prototype the proposed system features to meet the derived requirements. Finally, I will evaluate the effectiveness and efficiency of the prototyped systems features for EC stores and KM systems. The results of such evaluation can give feedback to help further revise the developed conceptual frameworks.

Research foundations

My 5-year research plan is built on my research work on successive information searches. I have developed and validated Multiple Information Seeking Episodes (MISE), a conceptual model characterizing successive sessions of information searches that were created based on the review of the multi-disciplinary literature, including library and information science, human computer interaction, cognitive psychology, and phenomenology (Lin and Belkin, 2005; Lin, 2005). MISE can be the foundation for the conceptual frameworks for EC and PKM because it provides a systematic way to describe and explain the behaviors of information seeking, use and management. The conceptual frameworks for EC and PKM will respectively apply, extend and validate MISE within contexts of EC consumers’ online behavior and knowledge workers’

personal knowledge management practices. These new frameworks can also link the design-oriented MISE framework (for its descriptive power in task analysis) to the outcome variables of EC and PKM activities in order to develop an evaluation metric of system performance.

Deriving the system requirements from MISE, I also have designed and prototyped PERSONalized and Successive Information Search Tools (PERSIST), supporting the information searchers in cumulatively gathering and dynamically classifying the information objects they find useful or relevant (Lin 2002). My 5-year research plan will also explore how PERSIST can be used as a starting point and incorporated with other technologies to support successive activities of information processing, knowledge construction and decision making in the contexts of EC consumer behavior and personal knowledge management practices.

Additional Research Background

My research career started when I was a doctoral research assistant at Rutgers University for the research project, "Understanding and Supporting Multiple Information Seeking Strategies," funded by the DARPA TIPSTER Phase III Program. The project postulates that information searchers interact with information systems in a variety of ways other than just retrieving information from information systems; for example, they could interact with information systems to learn about information resources (e.g., a database) where the possible information objects (e.g., documents that contain relevant information) are collected. The project further asserts that to support the information searchers more effectively, the information systems should support the users transiting from one interaction method to another smoothly (Belkin, 1998). As a doctoral research assistant, I was responsible for both technical and behavioral aspects of information retrieval systems under studies.

I also was a participant of TREC (Text REtrieval Conference) Interactive Track program at Rutgers University. TREC, organized by NIST, is a program for the comparative evaluation of information retrieval systems and their components. The interactive track particularly concentrates on the interaction between the searcher and the information system, exploring how the information system could adapt or support active searchers in a series of interaction sequences itself (e.g., automatic query expansion) or through the computerized interface (e.g., user relevance feedback). At Rutgers University, under the supervision of Dr. Nick Belkin, the interactive track program particularly focuses on the use, understanding, and effectiveness of positive relevance feedback and query reformulation by the users.

For both the TIPSTER and TREC projects at Rutgers, I helped codify the information seeking behavior to validate the postulation of multiple information seeking strategies as well as designed and prototyped several experimental interfaces to the information retrieval system. Belkin, et. al. (2001) described the iterative evolution of the interactive information retrieval system studied from TREC5 to TREC8. In addition, I also prototyped the interface to the information system used by Park (1999), in which she studied the effects of two different interfaces to interactive information retrieval system: the fusion of the results of the queries against various databases in one single interface versus examining queries results for different databases individually.