

# Preface

It is hard to think about computer information technology without considering its human side. Information technology is built by and for people. According to most definitions, information technology and human beings are two of the components of an information system. Computer information technology interacts with people in many ways as information systems process transactions or provide support for decision-making. This book — *Computing Information Technology: The Human Side* — examines the interaction and interface between people and information technology. Each of the 17 chapters presents cutting edge research on the human side of computer information technology.

The human side of computing information technology has a long history in information systems research. Among the journals dedicated to this topic are the *ACM Transactions on Computer Human Interaction* (<http://www.acm.org/tochi/>), *Information Technology & People* (<http://www.emeraldinsight.com/itp.htm>), and the *International Journal of Human-Computer Studies* (<http://www.academicpress.com/ijhcs>). Many other journals, such as Idea Group's own *Journal of End User Computing*, focus on various aspects of the human side of computing.

The field is also broad. It encompasses user-interface design and usability, end-user computing, the cultural and organizational impact of computer systems, user satisfaction with and adoption of information technology, various software products and technologies, such as groupware, knowledge management, and workflow, and many other sub-fields. In this volume, we explore many of these topics.

Seven of the 17 chapters, more than one third of this volume, focus on user interface design and usability. Four of these chapters deal specifically with the Web, comprising Section I — Web Site User Interface.

- Chapter I, “Navigational Tools in Hypertext Information Retrieval Frames and an Expandable Table of Contents,” by Rawiwan Tenissara, addresses two elements of a Web page user interface — the table of contents and frames. Tenissara tests six hypotheses under controlled conditions and finds that users of expandable tables of contents performed worse and had less favorable attitudes towards their experience than users of traditional tables of contents. Tenissara also found that multiple frames do not lead to superior performance or speed in searching or browsing.

- Chapter II, “Website Interactivity and Amusement: Techniques and Effects,” by Yuan Gao, reviews theory and research addressing how design decisions regarding interactivity and humor affect users’ perceptions of a Web site’s information and entertainment value. Gao concludes that more research is needed to uncover the causal factors that underlie the observed behaviors and assessments so that businesses can develop more effective Web sites.
- Chapter III, “Techniques for Visualizing Website Usage Patterns with an Adaptive Neural Network,” by Victor Perotti, seeks to improve usability by offering Web designers’ post-implementation techniques for examining how visitors use a Web site. Although previous studies have proposed alternative techniques for data mining of Web logs, Perotti presents a novel approach to both analysis and presentation, one that can be easily used and understood by Web designers without training in sophisticated analysis techniques.
- Chapter IV, “Using Usability Factors to Predict the E-Commerce User Experience,” by Adrie Stander and Nata van der Merwe, identifies a number of factors that affect users’ satisfaction with e-Commerce Web sites. Among these are depth of color, use of frames, existence of privacy statements, proportion of white space, background color and the value-added services provided by the site.

Section II, Interface Design and Usability, addresses these topics in contexts other than Web design. Chapter V deals with survey administration, Chapter VI with systems development, and Chapter VII with data analysis.

- Chapter V, “Social Issues in the Administration of Information Systems Survey Research,” by Susan K. Lippert, compares manual with Internet-based (both Web and email) survey data collection methods. These methods are compared along a variety of performance parameters, including response rate, participation ease, attractiveness of survey, novelty effect, administrative costs, response flexibility, response time, population size, sample bias, instrument validity, the management of non-response data, and response error.
- Chapter VI, “User Interfaces and Markup Language Programming: The Effects of Interaction Mode on User Performance and Satisfaction,” by Jeffrey Hsu, also concerns Web-based surveys, but only as a case example. Hsu addresses the question of whether a software wizard is a good user interface for developers programming in markup languages such as HTML or SGML. Hsu’s case study compares the efficiency and satisfaction of experienced and novice developers in their creation of a Web-based survey using either a native markup language called SQML (Survey Questionnaire Markup Language) or a wizard that generates SQML commands through an intelligent user interface.
- Chapter VII, “Development of a Task Model for the Analysis and Retrieval of Statistical Data,” by Peter N. Hyland, provides guidance to developers of systems designed to present and analyze statistical data. Hyland explores the sequence of tasks that analysts employ to make sense of data and answer specific questions when faced with tabular, OLAP, or value/rule-based user interfaces.

The vast majority of people who use computers can be considered end users, those who are not programmers, computer professionals, or systems designers. Section III, End User Computing, examines the problems and issues unique to end-users. Chapters VIII and IX are concerned with how end users seek and receive help with their computing problems. Chapter X explores how end users develop software for their own needs. Chapter XI addresses how to teach people to become proficient end users.

- Chapter VIII, “Media Selection and End-User Satisfaction: An Empirical Study of Help-Desk Using SERVQUAL,” by Sang-Gun Lee, Sangjin Yoo and Zoonky Lee, examines how several dimensions of satisfaction with end user support vary depending on how that support is given. Face-to-face and telephone support provide more satisfaction on some dimensions, while the Internet, email, and hybrid methods of support provide more satisfaction on other dimensions. The authors conclude that organizations should consider automating help desks to provide more options to end-users.
- Chapter IX, “End User Support Usage,” by Robin Munkvold, asks, “Why do end users choose different support services?” Munkvold shows that certain characteristics of end users, such as their technical skills, involvement with IT, and self-efficacy towards IT, determine whether or not they seek formal or informal sources of support and use internal or external documentation. Munkvold recommends that organizations should work to improve these end user qualities rather than providing only traditional support services.
- Chapter X, “Users as Developers — Conditions and Effects of User Systems Development,” by Anders Avdic, answers the question, “How can end users best develop new information systems without the aid of information technology professionals?” Using spreadsheet creation as an example, Avdic shows that characteristics of end user development, such as the interactivity that arises as an end user switches between user and development roles, as well as integration and the ability to raise questions, result in superior outcomes, especially in uncomplicated applications.
- Chapter XI, “Solving Common Business Problems with Microsoft Office®,” by Kathryn Marold and Gwynne Larsen, demonstrates the advantages of a problem-solving approach for training increasingly computer-savvy students in end-user computing tools such as Microsoft Office. The authors argue that students benefit from tackling operational problems, such as those they might experience on the job, in a relatively pressure free environment. They also find that the problem-solving approach works well in both Web-based and traditional learning environments.

The chapters in Section IV, Information Technology and the Organization, take a more macro view of the human/computer interface than preceding chapters do. For example, they address how technology affects organizations through changing culture and power relationships, and how existing cultures and political structures affect the adoption of new technology. Chapters XII and XIII focus on organizational adoption of new technology, while Chapters XIV and XV examine the effect of technology on inter-organizational relationships and alliances.

- Chapter XII, “Changing a Business School Corporate Culture: Teaching in the 21<sup>st</sup> Century on a Different Blackboard,” by Jennifer Paige Nightingale, presents a case study of the introduction of SOBA-net, an Academic Management System for faculty, students, and staff at the Duquesne University School of Business in Pittsburgh, Pennsylvania. The case traces the history of adoption and use by members of the organization.
- Chapter XIII, “The Role of the Organizational Context in the Use of a Workflow System: Lessons From a Case Study,” by Anabela Sarmiento, is a longitudinal study of the introduction of a workflow system at an anonymous Portuguese company that consults on and implements electronic document storage systems. The case study shows how structural, political, human, technological and cultural factors can be enablers or constrainers of systems adoption. It also shows how these factors interact with one another and demonstrates how that interaction complicates the adoption decision.
- Chapter XIV, “Strategic Models for the Delivery of Personal Financial Services: The Role of Infocracy,” by Steven Gordon and Paul Mulligan, develops the concept of “infocracy,” a form of organization in which information provides the underpinning of structure and the basis of individual power. In the context of financial service integration, in an environment in which information technology can make inter-organizational alliances appear transparent to customers, the authors hypothesize that structure should depend upon the strategy of the firm.
- Chapter XV, “Role of Behavioral Factors in Strategic Alliances,” by Chong Kim, Purnendu Mandal, and Dale H. Shao, highlights a number of human and organizational culture issues that play a major role in the development of a strategic alliance between a major telecommunications organization and several retail electricity organizations. The authors use this case study to develop a framework to help partners in new alliances understand each other’s informational requirements and interdependencies.

No academic volume on the human side of computing information technology would be complete without attention to how research is done in this discipline. Section V, The Human Side in IT Research, presents two chapters that highlight contemporary research issues.

- Chapter XVI, “Building a Custom Client-Side Research Tool for Online Web-Based Experiments,” by Stu Westin, describes the problems and techniques involved in building a research instrument to collect detailed data about a Web user’s keystrokes and mouse movements. Such an instrument can collect more precise information than that which clickstream analysis or network sniffing can obtain. Such information is crucial to researchers’ ability to understand and analyze how people actually perform Web-based activities, such as electronic commerce.
- Chapter XVII, “Towards a Sociopragmatic-Constructivist Understanding of Information Systems,” by Boris Wyssusek and Martin Schwartz, argues that a philosophical foundation is needed for a better understanding of information systems. The authors develop a framework for information systems (IS) research and practice that they call

“sociopragmatic constructivism,” which they believe will begin to question the basic assumptions taken for granted in contemporary IS research and will better integrate IS research with elements of cultural theory, philosophy of science and sociology.

The chapters of this book are extensions of manuscripts presented at the 2002 IRMA International Conference in Seattle, Washington, May 19-22. All were triple blind reviewed for acceptance at the conference. From among the approximately 350 conference presentations, acquisitions editor, Mehdi Khosrow-Pour, selected 17 for inclusion in this special volume, with the objective of transmitting knowledge that would be most valuable to academicians and practitioners. We hope and trust that you will find these chapters both valuable and enlightening.

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