

Cambridge University Press
0521365708 - Human Factors for Informatics Usability
Edited by B. Shackel and S. J. Richardson
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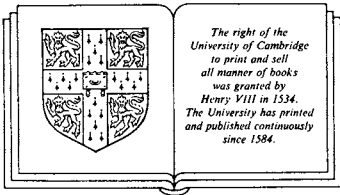
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Frontmatter

[More information](#)

CONTENTS

Preface	vii
Contributors	xi
Acknowledgements	xiii

Part 1 : Informatics Usability — Introduction, Scope and Importance

1. Human Factors for Informatics Usability — Background and Overview. <i>Brian Shackel and Simon Richardson</i>	1
2. Usability — Context, Framework, Definition, Design and Evaluation. <i>Brian Shackel</i>	21
3. The Business Case for Human Factors in Informatics. <i>Alphonse Chapanis</i>	39

Part 2 : System Design — Orientation and Approaches

4. Human Factors Contributions to the Design Process. <i>Ken Eason and Susan Harker</i>	73
5. Helping the IT Designer to Use Human Factors. <i>Tom Stewart</i>	97
6. Interface Design Issues for the System Designer. <i>William Newman</i>	121
7. An Approach to Formalised Procedures for User-Centred System Design. <i>Arthur Gardner</i>	133

Part 3 : Special Topics in Depth

8. The Contributions of Applied Cognitive Psychology to the Study of Human-Computer Interaction. <i>Phil Barnard</i>	151
9. Formal Models and Techniques in Human-Computer Interaction. <i>Jürgen Ziegler and Hans-Jörg Bullinger</i>	183
10. Designing Expert Systems for Usability. <i>Brian Gaines</i>	207

Part 4 : Organisational Aspects and Design in Large Systems

- | | | |
|-----|---------------------------------------------------------------------------------------------------------|-----|
| 11. | Organisational Issues and Task Analysis.
<i>Siegfried Greif</i> | 247 |
| 12. | Participation in Systems Design — What Can It Offer?
<i>Enid Mumford</i> | 267 |
| 13. | Towards a Human Factors Strategy for Information Technology
Systems.
<i>Leela Damodaran</i> | 291 |

Part 5 : Design and Evaluation — Some Specific Methods

- | | | |
|-----|---------------------------------------------------------------------------------------------------|-----|
| 14. | A Taxonomy and Rule Base for the Selection of Interaction Styles.
<i>Ben Shneiderman</i> | 325 |
| 15. | Designing and Evaluating Documentation for IT Users.
<i>Patricia Wright</i> | 343 |
| 16. | Evaluating Usability.
<i>Alphonse Chapanis</i> | 359 |
| | References | 397 |
| | Author Index | 425 |
| | Subject Index | 429 |

PREFACE

For most ordinary users and even for some computer professionals the human-computer interface is still more of a space frontier and a time barrier than an open door to communication. As Sir John Fairclough (Chief Scientific Adviser to the UK Cabinet Office) has said, at the time when he was Chairman of the IBM UK Laboratories, "Human Factors is the N° 1 issue today".

The computer and informatics industry is beginning to realise the need to change from the domination of technology-oriented goals to achieve balanced solutions truly proven to match the expectations, needs, capabilities and satisfaction of the users. The problem is that it is much harder to design for what real users really want. The aim of this book is to show how the knowledge and methods from the discipline of Ergonomics/Human Factors can help to improve Informatics Usability for real people.

The computer and now the informatics industry has grown amazingly during its first 35 years, without much formal attention to Human-Computer Interaction (HCI). Does it really need to be concerned about the user? The answer comes from some leaders of the industry itself. "People costs are already very much greater than machine costs for over 95% of the human-machine interactions. Actions to reduce the human costs and simplify the human interface to computers will have the greatest impact on growth".

So the industry is changing orientation, and may be expected to spend much more effort and resources on 'computer ergonomics' or 'computer human factors' to improve the usability, efficiency and quality of the HCI.

This book has been developed from the review papers presented by invited speakers at an Advanced Study Course held at Loughborough University 14–19 December 1986. The Course was sponsored by the European Science and Technology Research Committee of the Commission of the European Communities

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Frontmatter

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(CREST) and by the Science and Engineering Research Council (SERC) of the United Kingdom. It had three objectives:

1. to review the knowledge and methods available from the field of human factors to help improve the usability of informatics systems;
2. to present recent theoretical and methodological developments in this field; and
3. to stimulate increased application of this knowledge and these methods and developments.

On completion of the course, students were expected to have gained an advanced overview of the theory and practice presented and to be able to start applying at least some of the knowledge gained.

To achieve these objectives some of the leading international authorities on human factors presented review papers, attended panel sessions, provided demonstrations and answered the many questions one would expect from advanced academic, industrial and commercial students. The speakers presented a rich and stimulating mixture of research and practice, built up from many years of experience in this complex field.

All the chapters in this volume are based upon their contributions, but they have been substantially revised and expanded to present a comprehensive review. They have been grouped together in five parts, as indicated in the list of contents, and the scope of the book is outlined in the latter part of Chapter 1.

The material in this book is as timely today as when presented; it is not out of date. Indeed in many respects it is more timely, because the industry is now recognising the need to heed the users. Computer designers are becoming receptive to the importance of the human factors aspects. I am very grateful to the contributors for their tolerance of the interchanges and delays inherent in editing and revision, including delays due to my eye operations, and I wish to thank them for their forbearance and above all for the quality of their contributions.

This book is not intended primarily for professionals or experts in human factors or human-computer interaction, although they may well find substantial new material here. Its principal target audience comprises the very many designers, software and hardware engineers, system design managers, management services managers and user managers who are now becoming aware of the importance of usability. The book is intended to provide for them not only a comprehensive introduction and a thorough overview but also some substantial first guidance about what they can do and how they can approach the problems of informatics usability.

The book is also intended to serve as an introductory text for postgraduate conversion courses and for undergraduate courses in computing and information

technology, and for short advanced courses in informatics. Many courses are now being developed and established; this overview and primer on usability and human-computer interaction should provide a good foundation for them. Further, it will serve its purpose even more fully if it helps not only to structure and stimulate this field of research and application but also to increase the interaction between readers and writers. The addresses of all the contributors are given in the next section. The intensity of involvement of all at the course and subsequently during editing has been such that probably every author will welcome communication from any reader.

Looking to the immediate future of HCI, it seems likely that there will be considerable development in two distinct directions. In research and system development, the study of new HCI possibilities will probably accelerate, in such areas for example as speech systems, natural language systems and storage structures using different approaches. In application and system design, there will probably be a marked growth of attention to formal methods of designing for human use. Some research will also be needed to improve and generalise these methods, particularly the approach of user-centred design; but in the main the concentration needs to be upon disseminating and applying the knowledge and techniques already available from the human sciences.

It will be evident to the reader, from the way in which different chapters deal with different issues from different orientations, that the subject of HCI is still developing, with much to be done and with many interesting challenges. For the researcher, in both computing and human sciences there is still much to learn about people and the possibilities which computer technology may bring for human development. For the computer professional and designer, the challenge is to learn new skills and facts about people, to accept new methods and advisers, and especially to work with users. As a result, computers and informatics systems with good usability may gradually evolve to a new status as useful, symbiotic, servants and partners of society.

Brian Shackel
Quorn, June 1990.

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[More information](#)

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