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IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- Open conferences;
- Working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

Dinesh Katre Rikke Orngreen
Pradeep Yammiyavar Torkil Clemmensen (Eds.)

Human Work Interaction Design: Usability in Social, Cultural and Organizational Contexts

Second IFIP WG 13.6 Conference, HWID 2009
Pune, India, October 7-8, 2009
Revised Selected Papers

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Preface

We are extremely pleased to present a comprehensive book comprising a collection of research papers which is basically an outcome of the Second IFIP TC 13.6 Working Group conference on Human Work Interaction Design, HWID2009. The conference was held in Pune, India during October 7–8, 2009. It was hosted by the Centre for Development of Advanced Computing, India, and jointly organized with Copenhagen Business School, Denmark; Aarhus University, Denmark; and Indian Institute of Technology, Guwahati, India. The theme of HWID2009 was Usability in Social, Cultural and Organizational Contexts. The conference was held under the auspices of IFIP TC 13 on Human–Computer Interaction.

1 Technical Committee TC13 on Human–Computer Interaction

The committees under IFIP include the Technical Committee TC13 on Human–Computer Interaction within which the work of this volume has been conducted. TC13 on Human–Computer Interaction has as its aim to encourage theoretical and empirical human science research to promote the design and evaluation of human-oriented ICT. Within TC13 there are different working groups concerned with different aspects of human–computer interaction.

The flagship event of TC13 is the bi-annual international conference called INTERACT at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

Publications arising from these TC13 events are published as conference proceedings such as the INTERACT proceedings or as collections of selected and edited papers from working conferences and workshops. See <http://www.ifip.org/> for the aims and scopes of TC13 and its associated working groups.

2 Working Group 13.6 on Human Work Interaction Design

This working group was established in September 2005 as the sixth working group under the TC13 on Human–Computer Interaction. It focuses on Human Work Interaction Design (HWID) and it is called WG13.6. A main objective of the working group is the analysis and design of a variety of complex work and life contexts found in different business and application domains. For this purpose it is important to establish relationships between extensive empirical work-domain studies and HCI design. The scope of the working group is to provide the basis for an improved cross-disciplinary co-operation and mutual inspiration among researchers from the many disciplines that by nature are involved in a deep analysis of a work domain. Complexity is hence a key notion in the activities of this working group, but it is not a priori defined or limited to any particular domains. The aim of this working group on

human work interaction design (HWID) is to initiate new research initiatives and developments, as well as an increased awareness of HWID in existing and future HCI educations. See <http://hwid.cbs.dk/>

3 The WG13.6 HWID 2009 Working Conference – Facts and Figures

The HWID 2009 working conference investigated the concept of usability in social, cultural and organizational contexts. The two-day conference included sessions on Usability Methods and Design Research; Cultural Usability, Usability in Social and Organizational Context; and on Human Work Interaction Design. Besides the research areas presented through the papers in this book, interesting preliminary research on cultural usability within many domains and innovative designs were presented all giving a basis for very interesting methodological topics regarding cultural issues in relation to designing for human work.

It was a pleasure to accept 20 full papers at the HWID2009 conference. Altogether the conference had 70 participants (20 paper presenters, 50 attendees). It once again proved the fact that good conferences are made by the quality of content and participation of the people.

The working conference theme of "Cultural Usability and Human Work Interaction Design" was felt to be very timely and relevant in the context of growing investments on e-governance, e-learning, e-health and applications of information systems to empower the rural and agricultural population of not only India, but globally. It is perhaps the most appropriate time to create awareness and promote cultural usability. Cultural usability is going to be a differentiating factor for new product development and success given the need for IT products and systems to cross international boundaries. As a result it is also of importance to the usability practitioner in the IT industry.

The conference touched upon wide-ranging topics related to cultural usability and human work interaction design such as cross-cultural usability testing, user personas, usability evaluation method in medical context, usable techniques for hand-writing recognition, mobile application for construction workers, an overview of HCI education in India, promoting usability in large enterprises, design conversions, social usability in second life for distance-learning students, interactive kiosks for museums and many more.

The conference attracted several international participants from European countries like Denmark, the UK and Portugal. There was also a participant from Iran and of course a large number of participants from India. A good representation from Indian cities like Pune, Mumbai, Hyderabad, Bangalore, New Delhi and Guwahati was also observed.

4 A Brief Historical View of the Emergence of the HWID Research Questions

A part of the HWID 2009 organizers' collaboration had its onset in a Euro-India workshop in May 2005 at Copenhagen Business School (CBS). The main objective at the

HCI track of this workshop was to discuss and map out research and practice opportunities, in order to improve and better understand that the consequences that the theories and models applied in the two regions have. This later led to a number of research initiatives, and among the participants were Dinesh Katre and the Danish organizers.

Similarly, during the 5th Danish Human–Computer Interaction Research Symposium in November 2005, where CBS were hosts, Pradeep Yammiyavar from the Indian Institute of Technology in Guwahati gave a keynote talk, on “Emotion as a Construct in HCI.” During the discussions we raised the question of if and how underlying emotions can offer a better way to understand cross-cultural issues.

In parallel and during late 2004 and 2005, the IFIP 13.6 working group on Human Work Interaction Design was formed, primarily initiated by Annelise Mark Pejtersen, Chair of TC 13 on Human–Computer Interaction, and supported by Torkil Clemmensen and Rikke Orngreen. The broad focus of the workgroup is to: “Establish relationships between extensive empirical work-domain studies and HCI design; encourage empirical studies and conceptualizations of the interaction among humans, their variegated social contexts and the technology they use both within and across these contexts; promote the use of knowledge, concepts, methods and techniques that enables user studies to procure a better apprehension of the complex interplay between individual, social and organizational contexts and thereby a better understanding of how and why people work in the ways they do; promote a better understanding of the relationship between work-domain based empirical studies and iterative design of prototypes and new technologies; and establish a network of researchers, practitioners and domain/subject matter experts working within this field. “[source: <http://hwid.cbs.dk/>]

An important part of these objectives is to understand users and their context. Consequently, at the first HWID event, named “Describing Users In Context,” we raised the issue of “The Human Being in the 21st Century – Design Perspectives on the Representation of Users in IS Development”, and explored the argument against the very mono-cultural and mono-dimensional models used in HCI, towards richer multimedia portraits of users of multimodal technologies, and a discussion of the challenges that they imply.

As such the cultural and organizational context in which IS systems are applied and used is an important factor in work of the 13.6 HWID group; and research issues related to culture were present but not the main focus of activities in later workshops and working conferences. However, in 2008, at the HWID workshop at NordiCHI 2008, a workshop was held with this specific focus, namely: “Cultural Usability and Human Work Interaction Design—Techniques That Connect.”

Here issues within cultural usability and use of mobile phones were raised by both Huanglingzi Liu and Ying Liu in their paper on “Evaluation of Chinese Finger Writing Recognition on Touch-Sensitive Keypads of Mobile Phones,” as well as Dinesh Katre’s work on interacting with smart phones using one-hand thumb input methods. In both cases, test results and design recommendations are presented, showing that there are challenges of cross-cultural usability and that to improve the basis for design decisions, we need an open honest debate of delicate ethical issues on cultural differences among the user groups. Issues that relate to cultural historical differences in writing style, to illiterate vs. literate users of technology, as well as varying physical characteristics and

motor skills due to work and life conditions. Others investigated the social and communicative preferences of users in different cultural settings. The experimental work of Matthias Rehm et al. on conversational interfaces using actors in prototypical situations shows among others that users prefer agents demonstrating a behavior similar to their own cultural background. Ravi Vatrapu investigated how the social affordances of computer-supported collaborative learning technologies vary across cultures.

While the above research issues relate to specific mobile or social technologies, many of the NordiCHI2008 workshop issues related to more methodological areas and usability techniques and methods for design, such as the challenges of using local vs. foreign evaluators when testing (PhD thesis work by Qingxin Shi); investigation into if and how cultural factors affect thinking in usability tests (by Xianghong Sun) and utilizing persona descriptions in various cultures (by Lene Nielsen). These are all research results that show that there are differences in how HCI designers and evaluators from different cultures perceive and value the aspects of usability. What lies ahead would be to ponder about methods and techniques that support investigating and understanding these differences in design situations. Such effort is seen in the initial work of Yammiyavar and Clemmensen in the workshop paper on “Extracting Users’ Data: Towards Development of a Cultural and Semantically Sensitive Combinatorial Methodology,” and the work of Masaaki Kurosu on the Artifact Development Analysis (ADA) using usability and culture as value criteria in evaluations.

In 2006, the first HWID conference called “Human Work Interaction Design, Designing for Human Work: HWID2009” was held during February 13–15, 2006, at the University of Madeira, Portugal. This resulted in an IFIP Springer publication, edited by Torkil Clemmensen, Pedro Campos, Rikke Orngreen, Annelise Mark Pejtersen, and William Wong. The second HWID conference, HWID2009, took up the thread from the first conference. With this book we hope to publish a set of papers that all have the potential to initiate new research initiatives and developments, as well as provide an increased awareness of HWID in existing and future HCI education in India and abroad.

Organizing this Second 13.6 Working Conference, from the first call for papers through the actual conference activities until the final publication of the papers, was not a simple task. It required hard work and commitment from both those who were involved in the intellectual calls and reviews and the practical work of setting up the environment for the conference as well as from the participants during the conference. We want to thank everybody for their significant contribution to the success of this conference. A special thanks to Dinesh Katre, C-DAC, Pune, India. We also want to thank IFIP and the sponsors of the conference for providing the support and funding for its implementation. The sponsors are the CultUsab project, IFIP TC 13, and C-DAC.

December 2009

Dinesh Katre
Rikke Orngreen
Pradeep Yammiyavar
Torkil Clemmensen

Table of Contents

Introduction

Usability in a Cultural Context: A Report on the Scope, Process and Research Results of CultUsab - The Cultural Usability Project	3
<i>Torkil Clemmensen, Pradeep Yammiyavar, Rikke Ørngreen, and Dinesh Katre</i>	

Status of HCI and Usability Research in Indian Educational Institutions	21
<i>Pradeep Yammiyavar</i>	

Usability in Cultural Contexts

A Comparison of What Is Part of Usability Testing in Three Countries	31
<i>Torkil Clemmensen</i>	

Augmenting Usability: Cultural Elicitation in HCI	46
<i>Souleymane Boundaouda Camara, Cecilia Oyugi, José Abdelnour-Nocera, and Andy Smith</i>	

Exploring Persona-Scenarios - Using Storytelling to Create Design Ideas	57
<i>Sabine Madsen and Lene Nielsen</i>	

Usability and Culture as Two of the Value Criteria for Evaluating the Artifact: A New Perspective from the Artifact Development Analysis (ADA)	67
<i>Masaaki Kurosu</i>	

Personas in Cross-Cultural Projects	76
<i>Lene Nielsen</i>	

Usability Heuristics and Qualitative Indicators for the Usability Evaluation of Touch Screen Ventilator Systems	83
<i>Dinesh Katre, Ganesh Bhutkar, and Shekhar Karmarkar</i>	

An Overview of a Decade of Journal Publications about Culture and Human-Computer Interaction (HCI)	98
<i>Torkil Clemmensen and Kerstin Roese</i>	

Internationalization and Localization of Usability

Analyzing Cultural Usability of Mobile Keypad and Displays for Textual Communication in Internationalization and Localization Perspectives	115
<i>Rikke Orngreen, Dinesh Katre, and Mulagapati Sandeep</i>	

Design of a Template for Handwriting Based Hindi Text Entry in Handheld Devices	132
<i>Diya Gangopadhyay, Ityam Vasal, and Pradeep Yammiyavar</i>	

Development of an Intuitive User-Centric Font Selection Menu	144
<i>Girish Dalvi</i>	

Usability in Social Contexts

Interaction Design and Usability of Learning Spaces in 3D Multi-user Virtual Worlds	157
<i>Shailey Minocha and Ahmad John Reeves</i>	

Identifying the Cognitive Needs of Visitors and Content Selection Parameters for Designing the Interactive Kiosk Software for Museums	168
<i>Dinesh Katre and Mandar Sarnaik</i>	

Case Study of Online Banking in India: User Behaviors and Design Guidelines	180
<i>Jhumkee Iyengar and Manisha Belwalkar</i>	

One-Handed Thumb Use on Smart Phones by Semi-literate and Illiterate Users in India	189
<i>Dinesh Katre</i>	

Usability in Organizational Contexts

Developing a Mobile Phone Based GUI for Users in the Construction Industry: A Case Study	211
<i>Pradeep Yammiyavar and Prasanna Kate</i>	

Usability Considerations in Developing a Graphic Interface for Intra Office Communications	224
<i>Pradeep Yammiyavar and Piyush Jain</i>	

Interaction Design as a Multimodal Conversation	235
<i>Arminda Lopes</i>	

Author Index	253
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