

FOREWORD

Special issue of Behavioural and Information Technology with key note lectures and selected papers from the 8th international conference on Work With Computing Systems 2007 – WWCS 2007 – in Stockholm May 21st–24th 2007

An increasing number of people use computers at their work. Typically more than every other in the workforce in many countries uses personal computers at their work. Computers are used at work, at school and in our homes; both by young and old. Other kinds of Information and Communication Technology (ICT) are also frequently used in modern working life, such as mobile phones and palm computers. It could be stated that the computer and related equipment have become our most used tools of today.

ICT has changed working life in many respects and it is clear that efficient and healthy use of computing systems is important for successful work for individuals, companies and the society. On the other hand, problems with the usability of the ICT will have negative effects on wellbeing, productivity and quality of work.

This new technology has made work limitless as you easily can continue your work at home or elsewhere and makes it possible for you to be available throughout the day and night. A polarisation between mobile and flexible ICT-work and non-mobile ICT-work with long-lasting constrained seated work is perhaps beforehand. A number of health problems more or less related to ICT-use have emerged, like mental and somatic stress-related disorders, as well as eyestrain, neck or upper extremity pain, e.g. ‘mouse-arm’ and ‘mobile-phone-thumb’. Lack of health and well-being is a threat to the efficiency of work.

Issues concerning computing systems, work and employment were discussed at the 8th international scientific conference on Work With Computing Systems – WWCS2007 under the overall theme *Computing systems for human benefits*.

The conference was finally organised by the Royal Institute of Technology (KTH), the National Institute for Working Life (NIWL), the Swedish Agency for Innovation Systems (VINNOVA), the Swedish National Labour Market Board (AMS), the Confederation for Professional and Salaried Employees (TCO), and The Swedish Trade Union Confederation (LO).

Interaction between THEORY and PRACTICE was in special focus during the conference. Besides traditional oral and poster sessions within one of the three main themes – *Healthy and efficient work with*

computing systems; Computing systems for mobile and non-mobile work; Computing systems for everyone and in specific areas, there was a parallel Practice Track with presentations from the six organizers.

The WWDU/WWCS conferences

The first scientific conference on computer work, named Work With Display Units – WWDU was organised in Sweden in 1986. This was succeeded by six more: 1989 Montreal, 1992 Berlin, 1994 Milan, 1998 Tokyo, 2002 Bavaria and 2004 in Kuala Lumpur (where the name was changed to Work With Computing Systems, WWCS, to broaden the scope).

The WWCS conferences will in the future be a part of the International Ergonomics Association (IEA) congress series, as WWCS formally became a Technical Committee (TC) within the IEA at the IEA conference in Maastricht 2006. The next IEA conference will be in Beijing, august 2009. Those interested in joining the WWCS-TC are welcome to contact the chair or secretary. Information is available on the IEA web-page www.iea.cc.

Two of the five key note lectures held at the conference, together with seven contributions to the conference selected by the national and international Scientific Committees for full paper publication, will be found in this special issue of BIT.

P. Rau from Tsinghua University in Beijing, China, gave one of the invited key-note speeches at the conference. The title of the presentation was *Good Computing Systems for Everyone – How on Earth? Cultural aspects*. He pointed out that we have not yet succeeded in making computing systems into a very usable environment supporting users with different culture backgrounds. He gave an overview of past literatures cross-culture effects on computing systems and discussed three perspectives, perceptual, cognitive and affective.

S. Bødker from University of Aarhus, Denmark and Y. Sundblad from KTH in Stockholm, Sweden gave another of the invited key-note speeches – *Usability and interaction design – new challenges for the Scandinavian tradition*. They pointed out that new

interfaces are movable and used in changing locations and context, different tasks are done through a combination of specialised technologies. A wider repertoire of physical instruments is now available than the keyboard and the mouse. In particular, they discuss how the Scandinavian tradition of user involvement in development is facing up to the challenges of new work and of non-work context.

The next two papers discuss usability in a software development process. The first paper is by R. Høegh from Aalborg University, Denmark. The title of the paper is *Case Study: Integrating Usability Activities in a Software Development Process* and presents an action research study in a company, where a team of human factor specialist was introduced to the software development process. The paper concludes with a number of practical advices relating to the production of usability activities into the development process. The second paper is by R. Høegh and J. Jensen both from Aalborg University, Denmark. The title of the paper is, *A Case Study of Three Software Projects: Can Software Developers Anticipate the Usability Problems in their Software?* They discuss the results from three case studies where the participants in the development process were asked to describe their beliefs about the usability problems of their systems. These descriptions were then compared with the results of a usability evaluation involving end-users.

The three papers that follow have in common that they are all discussing age related aspects in one way or another. The first by M. Omori, from Kobe Women's University, M. Miyao, from Nagoya University, H. Kanamori and B. Atsumi, both from Toyota Motor Corporation, has the title *Visual Cognitive Performance of Elderly People: Effects on Reading Time of Age, Character Size and Visual Distance*. They describe two experimental studies and propose a new formula that enables estimation of the amount of information that can be displayed in accordance with the required reading time for information systems, taking into account the users' age. The next paper is by N. Schneider, S. Schreiber, J. Wilkes, M. Grandt and C. Schlick, all from RWTH Aachen University in Germany. The title of the paper is *Foundations of an Age-differentiated Adaptation of the Human-Computer-Interface*. They discuss the demographic changes of the population and the accompanying changes in gainful employment will make it increasingly important to maintain and promote employability of the

ageing workforces. The last age-related paper is from K. Arning and M. Ziefle, both from RWTH Aachen University in Germany. The title of the paper is *Development and validation of a computer expertise questionnaire for older adults*. It describes two studies and discusses the results of the practical implications and the need for further research.

The paper following is by Pappachan and Ziefle, both from RWTH Aachen University in Germany. The title of the paper is *Cultural Influences on the Comprehensibility of Icons in Mobile-Computer-Interaction*. They examine if icons within the mobile context are interculturally comprehensible or not, in a study performed in Germany and India.

Next paper is by H. Aoki, J. Hansen and K. Itoh from Tokyo Institute of Technology and from the IT University of Copenhagen. The title of the paper is *Learning to interact with a computer by gaze*. They examine the learning processes that subjects undertake when they start using gaze as computer input. The results encourage the use of gaze-based interfaces for severely disabled people.

The last paper entitled *Use of ICT to supply health-care services to nomadic patients: An experimental survey*, written by M. Caratozzolo, S. Bagnara and O. Parlangeli representing Politecnico di Milano, Università degli Studi di Siena. The authors bring up nomadic patients and say that they have the right to an effective, safe, and fast health-care assistance wherever they are. The goal of the work was to outline a concept of information architecture for an efficient technological support device, essential to the transfer of medical data.

The other three key note lectures read at the conference and nine other selected papers will be published in the Scandinavian Journal of Work Environment & Health – Supplement late in 2007.

Acknowledgement

The guest editors would like to thank those who reviewed the papers for this special issue.

Guest editors
Tomas Berns, Ergolab AB and Ann Lantz
Royal Institute of Technology

Allan Toomingas
National Institute for Working Life
Karolinska Institutet