# Preface

## SECIII - Social, Ethical and Cognitive Issues of Informatics and ICT

Welcome to the post-conference book of SECIII, the MP Open Conference on Social, Ethical and Cognitive Issues of Informatics and ICT (Information and Communication Technology) which took place from July 22-26, 2002 at the University of Dortmund, Germany, in co-operation with the German computer society (Gesellschaft für Informatik). Unlike most international conferences, those organised within the IFIP education community are active events. This wasn't a dry academic conference - teachers, lecturers and curriculum experts, policy makers, researchers and manufacturers mingled and worked together to explore, reflect and discuss social, ethical and cognitive issues. The added value lies in what they, the participants, took away in new ideas for future research and practice, and in the new networks that were formed, both virtual and real.

In addition to Keynote Addresses and Paper Presentations from international authors, there were Provocative Paper sessions, Case Studies, Focussed Debates and Creative Exchange sessions as well as professional Working Groups who debated particular themes. The Focussed Debate sessions helped to stimulate the sense of engagement among conference participants. A Market Place with follow-up Working Groups was a positive highlight and galvanised participants to produce interesting reports. These were presented to the conference on its last day. Cross-fertilisation between the papers generated some surprising and useful cross-referencing and a plethora of social, ethical and cognitive issues emerged in the discussions that followed the paper presentations.

As the Patroness of SECIII, the Federal Minister of Education and Research, Edelgard Bulmahn, commented: "Information and communication technologies (ICT) increasingly enter all industrial and service sectors - not only in Germany, but world wide. The rapid development has led to a large supply of highly qualified jobs and a shortage of skilled manpower. We are all facing similar challenges which are reflected in the concept of this meeting: How can we support young people's, and especially young women's, interest in studies and vocational training in the ICT professions? How can we create reliable systems providing effective protection against misuse, thus building trust? What contributions can collaboration between educational institutions and industry make? How can we make sure that the potential of information and communication technologies will benefit all; how can we prevent a divide between an 'information elite' on the one hand and the less informed people on the other?"

As mentioned SECIII was an interactive conference in which these and many other questions and issues were raised and discussed. For example, in the Provocative Paper sessions the following issues were debated:

- One notebook per teacher: A sustainable concept for a wide ICT integration in school, Beat Döbeli Honegger and Marc Pilloud;
- Computer science as a profession in Germany: An academic perspective, Esther Ruiz Ben and Britta Schinzel;
- Practical use of multi-media in teacher training, Friedhelm Schumacher;
- Ethical apprenticeships?, Barry Blakeley;
- Paradigm shift on education through thematic modelling under object oriented support, Clara Amélia de Olivera.

In the Market Place conference participants presented views, materials and ideas on whiteboards for discussion with interested colleagues. This provided input for various Working Groups that were active during the conference. On the final day of the conference each Working Group gave a short presentation on the results of their work. All of the reports of the Working Groups have been included in this book. The results from the groups show strong convergence with the issues to be discussed at the forthcoming World Summit on the Information Society (WSIS Geneva 2003) [http://www.itu.int/wsis/]

The SECIII conference was held on the large, modern campus of the University of Dortmund. The university has about 25 thousand students and offers more than 30 Masters programmes, from mathematics to journalism. Teacher education is offered at all levels. With 3,500 students the Department of Computer Science is Germany's largest Computer Science department. It offers theoretical and applied programmes as well as teacher education programmes in Computer Science.

The campus of the University of Dortmund is located close to the successful Technology Park where the 'Dortmund-Project' helps to set up new anchor industries in information and communication technologies, micro-system engineering and e-logistics. With the disappearance of heavy industry from Dortmund, research and technological innovation are the new raw materials of the region's economy.

## Conference Organisation

That this conference attracted such a large number of interested academics and ran so smoothly is a credit to all of the people involved in organising SECIII - IFIP, the International Programme Committee and the National Organising Committee.

## The IFIP Contribution

Two IFIP Working Groups adopted the organisation of the programme of SECIII:
- Working Group 3.1 on Secondary Education, Chair: Deryn Watson,
- Working Group 3.2 on Higher Education, Chair Tom van Weert (past)/ Joe Turner (present).

More information on IFIP and its Working Groups can be found on: http://www.ifip.or.at

## International Programme Committee

Yvonne Bürner (Basel, CH)
Volker Claus (Stuttgart, D
Hélène Godinet (Lyon, F)
Raymond Morel (Geneva, CH)
Robert Munro (Glasgow, UK)
Sigrid Schubert (Dortmund, D)
Deryn Watson (London, UK), Chair
Tom van Weert (Utrecht, NL), Vice Chair
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## National Organising Committee

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Volker Claus (Stuttgart)
Hans Decker (Dortmund)
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Wolfgang Weber (Soest)

## The Conference Themes

Within the broad title for the SECIII conference four themes were identified as being of critical importance. The keynote presentations, contributed papers and working group debates all focused on these themes.

*The e-literate society - the role of informatics, computer science and ICT*

Everybody should be taught, should know and should understand key principles and acquire a range of transferable skills, which would help them to use the technologies of today as well as the technologies of the future. This would help to resolve many of the equity issues which exist in society, e.g. access to technology and information, equal opportunities for men and women, disadvantaged groups, loss of cultural richness and diversity. What role could the educational system play in determining the knowledge and skills and creating a more equitable society? What criteria should be developed to measure and evaluate success in this field?

*ICT- agent of change and social conflict*

The rapid development of ICT has led to many conflicts in society and sharpened specific issues: unemployment, differential access to information, cyber crime, the generation gap, North-South divide. On the other hand it offers promising perspectives: ICT has dramatically transformed our daily life and work, new professions are emerging, new economic frameworks are developing. New educational initiatives, such as life long learning and multimedia, have been formulated. Should education be making students aware of these issues by exploring ways in which these could be resolved? How can education increase social responsibility and integrate it into learning? Will society have to accept crime (e.g. on the Internet), social disorder and disadvantage and how can education of computer scientists produce socially responsible persons? Can the agent of change and social conflict be harnessed to resolve these problems?

*E-learning - meeting the challenge of technology on society through new partnerships*

Educators, teachers, trainers and their students are expected to use ICT in more imaginative ways in all aspects of teaching and learning. In facing up to this, new partnerships are being established e.g. between schools and industry (in creating courseware and teaching modules), between different educational institutions (in developing online-courses) or between local social groups to engage persons currently outside the computer community. In all cases e-learning offers new experiences to education and poses the challenge of developing new tools like authoring systems, intelligent tutor agents, and co-operative and collaborative learning environments that shall realise the potential of ICT.

*Paradigm shifts in education and professional life*

New technologies offer new possibilities for teaching. Education must develop a new paradigm to accommodate the technologies and these possibilities. It's important to integrate the impact of technology on society, but generally educators are not well prepared or motivated to explore issues associated with law, ethics or media education. What tools, what content, what experiences and what resources should be designed to help shape the new paradigm of didactics of computing and what concepts should be adopted?

**The Conference Proceedings**

The structure of this book was relatively obvious. The Keynote Sessions were all about generating and stimulating debate that lasted throughout SECIII. Without exception the Keynotes were extremely successful, sparking discussion - even argument - and forging partnerships and small groups who explored controversial issues in great detail and then shared their conclusions readily with all conference attendees.

We decided that the first section of the book should present all of the Keynote papers and that it would be valuable to present the international papers associated with each of the four themes, organised into their sub-topics. The final section of the book should present the reports from the Professional Working Groups. Importantly these Reports provide paths down which development of issues might proceed or ways in which specific problem issues might be best addressed.

SECIII Conference Proceedings therefore takes the following form: