

# Including Social Contexts When Broadening Computing Education

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## **ABSTRACT**

The technical conception of computing education results in social knowledge being in general marginalized. However, Participatory Design is only one of many aspects of good computing practice that depend upon skill with things social. This has led to several deliberate attempts to integrate the social into computing education. Much can be learned by trying to share and evaluate these experiences, and trying to articulate what has been learned in terms of design principles. In this workshop, we will share experiences incorporating social perspectives and research methods into education in computer science and related disciplines, as part of a program to broaden these fields. We will conclude the workshop by exploring whether further networking around these issues would be productive.

## **Keywords**

Computing education, Social perspectives

## **BACKGROUND**

These Participatory Design (PD) Conferences grew out of efforts to integrate the people likely to use a computer system in its design. At least in part through experience with techniques like iterative design and rapid prototyping, the initial conception of involving users in a single, specific design stage was broadened to recognize PD as implying the inclusion of users in all phases of design, implementation, redesign, upgrading, etc. of each actual computing application. Put simply, good PD came to involve understanding both the technology and the use context as deeply social. Occasional interventions by computing scholars (e.g., Wiezenbaum, Weinberg, Winograd and Flores, Ehn, Dahlbom and Mathiessen) and activist groups (e.g., Computing for People and Computer Professionals for Social Responsibility), as well as the

experience of projects like Demos, Utopia, and Florence, also reinforced this message of computing's sociality.

However, the computing artifacts generally taken as central to computing education (algorithms, machine architectures, etc.) have been conceived of in technical and formal terms. As in Shannon type Information (sic; really, Signal) Theory, the social was abstracted from in general computing education. On the basis of such perspectives (what Ben Schneiderman calls Science "Mode One"), educated computer professionals were not specifically prepared to deal with the social phenomena at the heart of good PD, as well as other important aspects of computing with important social components.

How to broaden this education to include such matters is a major preoccupation of several current efforts to renew computing education. Over the years, academic programs in computing have made various efforts to incorporate these social factors. Some have developed specific curriculum units ("courses" in the American higher education argot) as electives within general computing education. Others have sought to integrate the social more generally across the curriculum. A third approach has been to broaden the agenda of what counts as legitimate research in an academic computing environment.

The success/failure of these attempts has depended very much upon various factors: the character of academic leadership, the degree of isolation from/integration of academic cultures into broader national and international scholarly trends, the particular place of computing education in the university (e.g., as an arts and sciences or as a professional discipline), the relevant public policy context, and broader cultural factors (e.g., American individualism vs. Scandinavian collectivism). This 10th PDC seems a propitious time to try to develop a sense of this experience: What works, what doesn't, and under what circumstances. In particular, the discussion in this workshop would complement the activities in the workshop on "Social Informatics and Participatory Design".

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## **WORKSHOP GOALS**

We aim to create a rich discussion of the various methods, practices, and other relevant matters of interest regarding the social perspectives which should be integrated into educational programs in computing and information and communication technology. We also hope to share information about the approach, successes, and problems with diverse, actual, programs that have attempted to do so. If possible, we will identify those approaches which seem most likely to work, and take initial steps toward creating a network to support such attempts.

## **WORKSHOP ACTIVITIES**

In the workshop we plan to use the following techniques:

- small group discussion among workshop participants;
- descriptions of the approaches and the experiences of the programs of which the organizers have direct experience, including the various curricula in Sociology and also Computer Science at Trento University, the School of Informatics at Indiana University, and the Department of Informatics at the University of Umeå, Sweden; and
- additional descriptions of programs that workshop participants have experienced.

## **WORKSHOP SCHEDULE**

15 minutes: Introductions;

45 minutes: Discussion in randomly assigned small groups of the main justifications for socializing ICT education and the main impediments to it;

30 minutes: Three 10 minute presentations on the three programs by the organizers;

15 minutes: Break;

30-45 minutes: Additional descriptions by participants and open discussion;

30 minutes: Back in the initial small groups, to identify what the groups feel are the 5 most important design principles for successfully broadening such education; and

30 minutes: Groups report back and discussion of possible initial networking steps.

## **INTENDED PARTICIPANTS**

Any conference participant with experience of or interest in how to address the social dimensions of computing education in a systematic and fruitful way, to be recruited through circulating notice of the workshop to likely conference participants.

People who want to participate in the workshop are requested to write a brief abstract identifying what in their view are the three social topics of most importance to include in IT/computer science education, the three socially-related skills of most importance and, regarding both lists, why. These should be sent to the three organizers using the emails listed above.

Maximum number of participants: 24

Deadlines: Submit statement: August 1<sup>st</sup>

Notification: August 15<sup>th</sup>