

# Bridging the Gap between Field Studies and Design

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## INTRODUCTION

Research on Human-Computer Interaction (HCI) and Computer Supported Cooperative Work (CSCW) emphasise the need for understanding the work domains in which new technologies are introduced and advocate a strong focus on the users' needs. Design for dynamic work contexts cannot be based solely on bottom-up empirical analyses of the current task situation. The primary problem is how we can understand and model work that changes dynamically and thus defies static enumeration of procedures, tasks, and goals. This has led to increased appreciation and use of field-study methods such as on-site observation, task analysis, and ethnographies. These methods provide researchers and designers with a work-oriented understanding of the use situation. At the same time, designers continue to keep track of technological opportunities and to use the more system-oriented development techniques with which they are familiar. However, the work-oriented techniques and the system-oriented techniques are rarely integrated and many practitioners experience a confusing and difficult-to-bridge gap between them.

This workshop is motivated by the difficulty of bridging the troubled waters between work analysis and design. Is there a solution to this problem or is it inherent in the substance matter? A field study is an analytic process, while design is a creative activity. A field study leads to a general understanding of a work problem, while design requires specific, worked-out solutions. A field-study analysis is not constrained by technology, while design creativity is constrained by the user' needs as well as the available technologies. The solutions to these issues will depend on the particular approach applied in the field study and during design.

HCI research has shown that theoretical conceptualisations can be very useful, but they must be informed by empirical studies of work as well as by experimental design of prototypes. In trying to devise these theoretical conceptualisations many researchers have themselves

encountered a gap between conceptualisations of their empirical studies and their prototype designs.

Analysis of users' work and design of computer-based information systems has inspired the development of numerous techniques and methods. Some of these have been widely adopted by practitioners. Others are mainly used by researchers. Further, while certain techniques and methods attempt to provide an integrated focus on analysis *and* design, most of the techniques and methods focus on either analysis or design. In many cases the strongest link between analysis and design is the general reliance on iteration as a means of cross-fertilisation. The workshop aims to cover a broad spectrum of techniques and methods and is equally interested in accounts of the nature and consequences of insufficient integration of analysis and design activities as in attempts to and techniques for bridging between analysis and design

The workshop also aims to gather different groups from the HCI community. Researchers have their views on design. It would also be fruitful to learn more about the methods and techniques of industrial designers and other practitioners. Furthermore, HCI is a widespread educational topic, and it is important to share knowledge about the different ways in which the integration of analysis and design is addressed in education.

Different schools of researchers recommend various means to integrate analysis and design activities. Participants are encouraged to present their reflections on their own experiences with specific examples of field studies and/or designs that illustrate a gap or a successful tight coupling between analysis and design.

## OBJECTIVES

The objectives of this full-day workshop are to:

- Increase awareness of the existence, nature, and consequences of the gap between field studies and design, for researchers as well as designers.
- Identify approaches to, techniques for, and ways of working with, if not bridging, the gap between field studies and design.

## BACKGROUND

Technology is changing human work in many respects: Increasing automation, integrated systems, devices inserted between collaborating individuals, advanced

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communication networks, small and large scale distributed systems, embedded technologies, and so forth. Concurrently, the increasingly dynamic work domains in which many people have to accomplish their tasks foster an extensive need for communication, collaboration, and problem solving. Large information spaces, variability, discretion, learning, and information seeking are common characteristics of contemporary work domains. Under these circumstances, researchers and designers need to establish a thorough understanding of their application domain to design effective, efficient, and satisfying systems.

#### **FORMAT OF WORKSHOP**

The organisers of the workshop will organise discussions based on position papers solicited from the participants. The organisers will aim for discussions where empirical studies are used to exemplify different approaches to HCI and where theories, methodologies, and techniques are used to tease out general lessons from empirical studies.

Participants will be required to submit and provide brief presentations of position papers. The position papers should aim to raise issues the participants want to discuss with the other workshop participants. The workshop will allot ample time for discussion.

Accepted position papers will be made available to the workshop participants prior to the workshop. The participants will be asked to read the position papers in advance and relate their position paper to other positions.

#### **WORKSHOP ATTENDANCE AND POSITION PAPERS**

The target audience of the workshop is researchers and practitioners who have experienced or bridged the gap between field studies and design. All workshop participants must submit position papers and present them at the workshop. Position papers will be reviewed with respect to their relevance, quality and ability to stimulate discussion.

Position papers can be up to 4 pages and should be submitted no later than August 30, 2002. Please send your submission to amp@risoe.dk, in Word or PDF format.

After the workshop the organisers will assess whether the workshop could form the basis for a special issue in one of the core HCI journals.

Maximum number of participants is 20.

#### **THE ORGANISERS OF THE WORKSHOP**

The organisers of the workshop have backgrounds in different approaches to field studies and design.

- *Activity Theory* (e.g., Bødker 1991), which contributes its emphasis on the mediating role of computer-based artefacts in human work. Activity theory is a means for analysing the multiple aspects of the nature of artefacts in the web of human activity. It further yields important concepts for understanding the historical, social, and material context in which artefacts are created and used, and for understanding artefacts in organisational work contexts.
- *Cognitive Systems Engineering* (e.g., Rasmussen et al. 1994), which offers a comprehensive framework for cognitive work analysis that captures both the domain characteristics and the adaptive features of human behaviour in dynamic work. Related to the framework are principles for coupling the work analysis to design of ecological information systems. Cognitive systems engineering also provides a framework for evaluation.
- *Computer Semiotics* (e.g., Andersen 1990), which studies the nature and use of signs. To some degree it is a meta-science since specific types of signs, such as speech, texts, movies, pictures, gestures, etc., are the subject of special disciplines. Semiotics collects what is common to such diverse types of signs, and defines concepts that apply to all varieties. It sees computer applications as media and is mainly concerned with problems relating to human interpretation, the creation of meaning, and the design of interface representations.

Along with the development of prototypes, the organisers of the workshop conduct field studies guided by these theoretical approaches and aim to inform the design of information systems.

#### **REFERENCES**

- Andersen, P.B. 1990. *A Theory of Computer Semiotics: Semiotic Approaches to Construction and Assessment of Computer Systems*, Cambridge University Press, Cambridge, UK.
- Bødker, S. 1991. *Through the Interface - a Human Activity Approach to User Interface Design*, Lawrence Erlbaum, Hillsdale, NJ.
- Rasmussen, J., Pejtersen, A.M. & Goodstein, L.P. 1994. *Cognitive Systems Engineering*, Wiley, New York.