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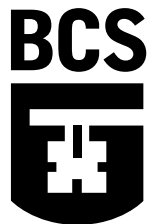
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Andy Crabtree

Designing Collaborative Systems

A Practical Guide to Ethnography

With 26 Figures



Springer

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For James and Heather

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Preface

This is a book about understanding work for purposes of collaborative systems design. It is especially concerned with ethnomethodologically-informed ethnography as a means of analysing work, and to articulate ways in which such ethnographic studies might be related to design. In a design context, ethnomethodologically-informed ethnography is often simply referred to as ethnography, a convenient abbreviation that will be employed here.*

Ethnography is an approach to social research that is of increasing interest to the designers of collaborative computing systems. Rejecting the use of theoretical frameworks and insisting instead on a rigorously descriptive mode of research, the approach is considered to provide a valuable means of analysing the social circumstances of systems usage, the latter being a factor that an increasing number of designers identify as crucial to successful systems development. The ‘turn to the social’ in systems design recognizes that computers are employed within situations of human interaction and collaboration and that the work systems need to support is, as such, essentially social in character. Placing unique emphasis upon the observation and description of interaction and collaboration within natural settings, in contrast to within laboratories, ethnography is an approach that brings a real world, real time social perspective on work to bear on systems design. The approach is particularly concerned to identify and convey the ways in which everyday activities of work (workaday activities) are assembled in the interactions and collaborations of parties to their accomplishment. The emphasis placed on the collaborative assembly of work in interaction leads ethnographers to speak of the ‘social organization’ of work or, more simply, of cooperative work – a distinct focus which underpins ethnography’s appeal to and purchase in interactive systems design generally.

*It should be said at the outset to avoid confusion that this convenient abbreviation glosses over a wide variety of different and competing analytic frameworks or formats, a great many of which provide the analyst with an *a priori* ensemble of general theoretical concepts and categories for describing, analysing and representing work. For sound methodological reasons that will be articulated over the unfolding course of this text, such ‘generic analytic formats’ are rejected as inadequate. When and where the notion of ethnography is employed in this text, it should be read then and taken to refer to ethnomethodologically-informed ethnography and not to the members of that broad family of approaches that employ generic analytic formats to analyse ethnographic materials, unless it is explicitly stated to the contrary.

The purpose of this book is to introduce potential users of ethnography to the study of cooperative work and, for the more familiar, to articulate practical ways in which studies of work may be employed in the design process to analyse the social characteristics of the design space. Accordingly, the book is organized into four discrete yet interrelated chapters, addressing 1) the requirements problem, which provides the motivation and practical context for the inclusion of ethnography in the design process; 2) significant ethnographic practices for describing, analysing and representing cooperative work; 3) the practical relationship between ethnographic studies and design; and 4) the role of ethnography in the evaluation of systems supporting cooperative work. While addressing academic problems in each of these areas, this book is intended to be a pragmatic aid to parties involved in the design of collaborative systems and so the primary emphasis of the text is methodological in character. Methodological issues are elaborated through practical examples which illuminate how cooperative work may be described, analysed, and represented, how work studies may be structured to inform the formulation of design solutions, and how ethnography may be employed in the evaluation process. Examples are drawn from a development case which describes, in turn, the description, analysis and representation of cooperative work in a library setting, the initial formulation of a design solution supporting searching's work, and the elaboration of the initial design solution through end-user evaluation of the developed system.

At a substantive level, the book addresses the adequacy of Human-Computer Interaction (HCI) as a primary point of view for describing, analysing and representing work. It has long been recognized that in concentrating on the cognitive properties of users, the real world, real time work of competent practitioners located together in workaday situations is ignored to the detriment of design. Rather than try to repair the inherent deficiencies of cognitive theory, an alternative primary point of view for analysis is considered instead. Computer Supported Cooperative Work (CSCW) places analytic emphasis on the need to appreciate the collaborative and essentially social character of work in undertaking interactive systems design. Ethnographic approaches in general are considered to be a valuable means of describing and analysing cooperative work, though these approaches are not without their problems. Of particular concern is the 'problem of constructive analysis' that besets a great deal of ethnographic research and sees the real world, real time social organization of work glossed over and obscured through the descriptive, analytic and representational use of generic theoretical formats. Consequently, the development of an informal method of description, analysis and representation inspired by ethnomethodology is considered as an alternative to theoretical formats.

Moving to design, the link between studies of cooperative work and design is explored. Particular emphasis is placed on the role of an



adapted patterns language as a lingua franca supporting communication between ethnographers and designers. The adapted patterns framework provides a means of structuring ethnographic studies to support cooperative analysis of the design space and provides concrete resources informing the co-construction of use-scenarios. Use-scenarios articulate the practical demands that may be placed on systems by users and serve to specify quality criteria which shape the production of design solutions. Design solutions may be further elaborated through the construction of prototypes made available to end-user experimentation. End-user experimentation does not mean that designers must construct laboratory-based scientific experiments to test the validity of their systems, but rather that the validity of the system should be assessed in direct relation to the actual cooperative work of end-users. The final chapter of the book explores techniques of cooperative design and situated evaluation as a means of assessing the validity of proposed design solutions and conducting further analysis of the design space in cooperation with the real experts in work's accomplishment – namely, the people who will actually use proposed systems in their cooperative work.

The ambition of theory-based design in HCI has been frustrated to a great extent. Through the 1980s, many efforts presumed a simple one-way relationship between science and technology (the traditional notion of 'technology transfer'). They focused on applying rather thin examples of information-processing psychology, reducing the user's performance and experience to counts of low-level tokens, ignoring the user's prior knowledge, task context, and goals. They also incorporate rather thin views of technology. They did not take seriously the fact that design is a process with a well-established practice that can only be impacted if it is understood in intimate detail.

Carroll, Kellogg and Rosson