

Does CSCW Need Organization Theory?

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ABSTRACT

CSCW as a field has been driven primarily by researchers' desire to solve real world problems of groups and organizations, and to use new technology to solve these problems. The field has accumulated a set of empirically-based interdisciplinary studies and many interesting new applications. The question to be addressed in this panel is whether CSCW as a field is ready for theory--whether theory is needed to move the field along, or on the contrary, whether the problems and the technology are still too new or are changing too fast to accommodate theory. The panelists will describe some of the organization theories that could be applied to CSCW, and debate their usefulness, taking both sides of the question.

Categories and Subject Descriptors

H1. [Information Systems]: Models and Principles; J4. [Computer Applications]: Behavioral & Social Sciences

General Terms

Measurement, Economics, Experimentation, Human Factors

Keywords

Organization theory, social science theory, research methods.

1. INTRODUCTION

Kurt Lewin, the great social psychologist, said, "There is nothing so practical as a good theory [6]." What does a CSCW theory look like, and what is practical about such theory? A CSCW theory is a systematic conception of how information systems work in organizations, how people process information, make decisions, and behave toward others, or how groups and organizations operate in their social environment. In CSCW, theories potentially could increase and systematize our knowledge about technology for groups and organizations. Theories could provide the means of organizing known facts (for example, about group dynamics of using communication technologies such as IM) and so to create knowledge out of bits of information. Theories also could yield suggestions for future research. When we move

into new areas with theory, we not only discover new information about people and technology to support groups and organizations but at the same time we test the strength of our theories.

A few theories have already had small influence in CSCW, for example, structuration theory [2], which posits that when new technology is introduced into an organization, people adapt the technology to their own goals and tasks, and in turn influence the technology implementation. Yet even structuration theory has not had a large influence in CSCW.

There are several plausible explanations for the absence of theory in the pages of CSCW journals and in CSCW conference papers. One explanation is that the field's problem oriented focus on group work and emerging technologies to address these problems discourages an interest in theory building and hypothesis testing. For example, under what conditions do managers create virtual teams in the face of strong evidence (including general evidence from many CSCW studies) that virtual teams face huge coordination problems? Several theories are applicable to answer this theoretical question—transaction cost theory [13], knowledge-based resources theory [5], and resource-dependence theory [10]. Yet it is not clear that CSCW researchers would profit from theoretically-based and empirically-tested answers to the question. Do CSCW researchers care why managers create virtual teams and the conditions under which they do so? Would this knowledge influence or guide the computer-based systems that they built? If the answer is no, then the field will not profit from theory.

Another plausible reason for the comparative absence of theory in CSCW is the success of ethnographers and ethnographic methods in the field. Ethnographers take a highly empirical, setting-specific approach to research. Ethnographers do not test derivations from theory but rather observe a setting or settings in systematic detail, sometimes with the active participation of those who will use the technology. In CSCW, researchers using varieties of ethnographic (and ethnomethodological) approaches have provided us with numerous rich descriptions of tasks, problems, people, and work and social settings. These ethnographies have led to design suggestions and system requirements for new CSCW technology. Prototypes were evaluated empirically but not theoretically (because there was no generalizable theory to test). The result has been perhaps excellent designs but, typically, little sustained work to develop first principles that can be applied elsewhere.

2. PANEL DISCUSSION

The panel will discuss the possible usefulness or uselessness of group and organization theory in CSCW. Among the theories that panelists may discuss include some of the following: transaction cost economics [13] and resource-based theories [5] (both pertaining to organization and group boundaries), public goods theory [8] and social loafing theory [4] (pertaining to problems surrounding knowledge sharing and group contribution problems), and more cognitively-oriented theories such as Weick's sensemaking theory [12] (pertaining to how people in organizations make sense of unfolding novel events and objects). These theories, and still others, have stood empirical tests and have plausible applicability to CSCW problems. Panelists will discuss such matters as the ways theory might help solve current CSCW problems, whether theory would get in the way of a fast-evolving field, and whether current organization and group theories can be applied to CSCW-type problems.

3. PANELISTS

1. Stephen R. Barley, Charles M. Pigott Professor of Management Science and Engineering and Director of the Center for Work, Technology and Organization at Stanford's School of Engineering.

Stephen Barley has written extensively on the impact of new technologies on work, the organization of technical work and organizational culture. He edited a volume on technical work entitled *Between Craft and Science: Technical Work in the United States*, published in 1997 by the Cornell University Press. With Gideon Kunda he has just published an ethnography on high tech contracting with the Princeton University Press entitled *Gurus, Hired Guns and Warm Bodies: Itinerant Experts in a Knowledge Economy*.

2. JoAnne Yates, Sloan Distinguished Professor of Management, MIT Sloan School of Management.

JoAnne Yates examines communication and information as they shape and are shaped by technologies and policies over time. Her research encompasses both historical and contemporary organizations, with a focus on changing communication and information technologies and the related work practices. Her new historical study, *Structuring the Information Age: Life Insurance and Technology in the 20th Century*, will be published in Spring 2005.

3. Robert E. Kraut, Herbert A. Simon Professor of Human-Computer Interaction, Human-Computer Interaction Institute & Graduate School of Industrial Administration, Carnegie Mellon University.

Robert Kraut conducts research on everyday use of the Internet, technology and conversation, collaboration in small work groups, and computers in organizations. In these domains, he examines the challenges individuals, groups, and organizations face in performing social tasks and uses this knowledge to inform the design of new technology. He collaborates with computer scientists and engineers in this work.

4. Paul Resnick, Professor, School of Information, University of Michigan.

Paul Resnick studies and helps develop technologies that aid communities—convening technologies, online ride sharing

services, reputation and recommender systems. He is collaborating on the CommunityLab project to apply social science and economics theory to design on-line communities.

5. William H. Dutton, Professor and Director, Oxford Internet Institute, University of Oxford, 1 St. Giles', Oxford OX1 3JS United Kingdom, <http://www.oii.ox.ac.uk>.

William Dutton has been involved in many projects and collaborative ventures related to new technology, social change, and government policy. He was national director of the UK's Programme on Information and Communication Technologies (PICT) from 1993 to 1996. He has published widely, including *Society on the Line: Information Politics in the Digital Age* (1999, Oxford University Press).

Moderator: Sara Kiesler, Hillman Professor of Computer Science and Human Computer Interaction, Carnegie Mellon University.

Sara Kiesler studies communication and technology in groups and organizations. Much of her work applies theory in social psychology to HCI and CSCW domains. Her recent projects include the People and Robots project (www.peopleandrobots.org) and research on collaboration in dispersed and diverse groups such as interdisciplinary research teams. A recent edited book with Pamela Hinds is *Distributed Work* (2002, MIT Press).

3. BRIEF POSITION STATEMENTS

Stephen Barley will make the arguments that there is enough data accumulating to begin to *build* a situated theory of micro-organizing and to begin use the emerging theory to focus the research endeavor more. We do not necessarily need to draw on existing theory although CSCW ought to pay more attention to what other researchers have done.

JoAnne Yates will argue that too often CSCW literature does not take advantage of or build on theories developed in the organizational literature, even when directly applicable. Ethnographic and observational methods could gain greatly, without violence to their methodology, by adopting a meta-theoretic stance such as Giddens' structuration to undergird their situated perspective on technology use. In addition, more specific theories around temporal patterning (e.g., Gersick's work [3]), and around communication patterning, especially genre theory [9] may usefully inform the analysis of field observations.

Robert Kraut will argue that since the turn of the 20th century [11] and especially since World War II, the field of social psychology has developed a rich theoretical base for understanding and predicting group behavior. However, unlike theories in cognitive psychology, this theoretical base has been inadequately mined in the HCI and CSCW literatures. He will illustrate both the utility of social psychology theory for application design and some problems with it, by applying the collective-effort model [4] to the problem of under contribution to online groups. He will illustrate the application, by showing how one can translate these theories into specific design recommendations in the context of an online movie recommendation website, called MovieLens. The designs were partially successful at increasing the amount that subscribers to this community rated movies. He will reflect on why social psychology theory has been underused in HCI and CSCW research and practice.

Paul Resnick will say that theories already drive CSCW design at a very abstract level, and that they could usefully do so at one more layer of detail if we push ourselves to make it so. This greater detail will lead to better design for CSCW applications and advance the basic science we are drawing on. We should demand that the theories make concrete predictions, and then test these predictions in field trials that leave big data traces of human behavior--behavior that would be harder to observe in non-electronic settings.

William Dutton claims that theory is embedded in every perspective --that there is inevitably a theory behind CSCW, whether or not it is explicit. He will convey this notion by putting CSCW within his own perspective on ICTs reconfiguring access. He will refer to his own work to discuss theoretical underpinnings of the field and the politics of computer-supported cooperative work.

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