

# Cultural Influences in Collaborative Information Sharing and Organization

**Ravi K. Vatrapsu**

Center for Applied ICT (CAICT)  
Copenhagen Business School  
Howitzvej 60, 1st floor  
Frederiksberg, DK-2000 Denmark  
vatrapu@cbs.dk

**Daniel D. Suthers**

Department of Information and Computer Sciences  
University of Hawai'i at Mānoa  
POST 317, 1680 East-West RD  
Honolulu, HI, 96822 USA  
suthers@hawaii.edu

## ABSTRACT

This paper provides an extended analysis of cultural influences on information sharing and organization first reported in [44, 47]. The basic premise of the research reported in this paper is that appropriation of socio-technical affordances and technological intersubjectivity vary along cultural dimensions. To empirically evaluate this premise, an experimental study was conducted with three independent groups of dyads from similar or different cultures (*American-American*, *American-Chinese*, and *Chinese-Chinese*) doing collaborative problem-solving in a knowledge-mapping environment. Participants interacted through an asynchronous computer interface providing multiple tools for interaction (diagrammatic workspace, embedded notes, threaded discussion). Results showed that American participants in the *American-American* intra-cultural computer supported collaboration condition were more likely to discuss strategies for information sharing and information organization than participants in the *Chinese-Chinese* intra-cultural condition. Implications for research and practice of computer supported intercultural collaboration are discussed.

## Author Keywords

appropriation of affordances, comparative informatics, computer supported intercultural collaboration (CSIC), culture, information sharing, information organization, technological intersubjectivity.

## ACM Classification Keywords

H.5.3 Group and Organization Interfaces: *Theory and models, Asynchronous interaction Collaborative computing, Evaluation/methodology*; H.1.2 User/Machine Systems: *Software Psychology*.

## General Terms

Design, Experimentation, Human Factors, Management

## INTRODUCTION

Prior empirical research has documented cross-cultural

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*ICIC'10*, August 19–20, 2010, Copenhagen, Denmark.  
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variation in *individual values* [31], *interpersonal structure* [41], *behavior* [17], *communication* [13], and *cognition* [28]. With the proliferation of information technologies and the Internet in organizational settings, there is an increasing researcher and practitioner interest in understanding cultural influences in the design, implementation, use, and impact of information systems. Emerging results show cross-cultural variation in interacting with computers [see 46 for a selective survey]. Prior research in human-computer interaction (HCI) has shown that culture influences *user interface design* [e.g., 10], *web design* [e.g., 24] and *usability evaluation* [e.g., 45]. Emerging research findings have indicated cultural influences in *computer mediated communication (CMC)* [e.g., 9], *computer supported cooperative work (CSCW)* [e.g., 34], *online learning and asynchronous learning networks (ALN)* [e.g., 27].

Cultural influences in work places have been researched from national as well as organizational cultural perspectives [14, 16, 17, 25, 29, 30]. This paper is concerned with (national) cultural influences on information sharing and organization in computer supported collaboration. It is based on an experimental study that investigated the basic premise that social affordances of technologies vary across cultural dimensions. More specifically, since prior empirical research shows cultural variation in behavior, communication, cognition, and interacting with computers, we investigated how participants (a) appropriate affordances and (b) relate to each other in a computer supported collaborative environment with external representations. In this paper, we address issues related to the explicit negotiation of information sharing and organization strategies in a quasi-asynchronous computer supported collaborative problem-solving environment with external representations between two cultural groups (Chinese and American) organized into three collaborative dyadic settings (Chinese-Chinese, Chinese-American, and American-American). The two research questions are:

## Research Questions

*R1: To what extent does culture influence the explicit negotiation of information sharing strategies?*

*R2: To what extent does culture influence the explicit negotiation of information organization strategies?*

The rest of the paper is organized as follows. The theoretical framework section presents a brief discussion of information sharing, information organization, and relevant culture theory on communication to situate the above two research questions. The methodology section presents details on the design of the experimental study, the description of the software used, the distribution and sequencing of the experimental study materials, research hypotheses, details about participants, instruments, and finally, the experimental protocol or procedure. The results section to follow presents the statistical findings from the empirical data. The discussion section provides a substantive interpretation of the statistically significant findings. A qualitative analysis is then presented to complement the quantitative findings. Implications and limitations are discussed towards the end.

### THEORETICAL FRAMEAPWORK

In this section, brief discussions of information sharing and organization are presented first and cultural differences in communication are discussed next. Finally, two research hypotheses regarding cultural influences on the explicit negotiation of information sharing and organization strategies are introduced.

#### Information Sharing and Organization

Prior research in the fields of management information systems and computer supported cooperative work has highlighted the importance of information sharing and organization [2, 3, 6, 18, 23, 26]. In knowledge and service economies, information sharing is essential for effective and efficient functioning of an organization. Information sharing has been identified as a critical process for inter-organizational information systems [2, 22]. The centrality of information sharing for cooperation and collaboration has been emphasized in CSCW [e.g., 3]. Prior research has investigated information sharing in collaborative electronic media [e.g., 18], the role of attitudes on information sharing [6] and intelligent systems for information sharing [23]. Recent work has sought to advance the information sharing paradigm by drawing on social constructivism [26]. Information and communication technologies not only enable information sharing across the individual, group and organizational levels but also provide environments for information organization. However, cultural influences in information sharing and organization have not been studied extensively. This paper is an attempt to address this lacuna in our current understanding. Cultural considerations in information sharing and organization are discussed in the next two sections.

#### Cultural Considerations in Information Sharing

The dimension of “**low-context**” vs. “**high-context**” cultures introduced by Hall [13] highly relevant to the contexts and situations of computer supported collaboration involving intra- and inter-cultural groups. According to Hall [13], in high-context cultures, usually also the cultures with

high power distance, a member needs to be explicitly asked to respond to elicit behavior that is in deviation from the norm. Hall characterizes speaking as an art in high-context cultures, with an emphasis on the emotional aspect. High-context cultures privilege social motivation. In low-context cultures, by contrast, members expect to influence others to act by explicitly pointing out pertinent information. The information provided implicitly enables the communicating other to take the desirable decision. Low-context cultures privilege rational information. Table 1 lists patterns of Hall’s cultural communication context dimension.

High-context communication	Low-context communication
Communication is aimed at emotions and rhetorical persuasion	Communicative focus is on rational information
Communication is unhurried and long, as persuasion takes time	Information is desired in quantity and expected to be delivered at once
Main emphasis is not laid on the transmission of information, as most of it lies in the context	Decisions are taken on the basis of information
Both speaking and listening are something to be thoroughly enjoyed	Communicator errors carry social costs as they blur information
Ambiguous interpretation is allowed	Unequivocal interpretation is desired

**Table 1: Low- vs. High-Context Communication Styles**

In computer supported intercultural collaboration, the style of communication might affect information. Particularly, the cultural communicative style might affect the explicit negotiation of strategies and techniques for information sharing and information organization. This in turn might affect the information sharing processes during collaborative interaction. Of particular interest is how intra- and inter-cultural teams negotiate strategies for information sharing in computer supported collaboration contexts.

#### Cultural Considerations in Information Organization

According to Nisbett and Norenzayan [28]:

A number of studies indicate that East Asians organize the world in rather different ways than do people of European culture. East Asians tend to group objects on the basis of similarities and relationships among the objects whereas Americans tend to group on the basis of categories and rules (p.24).

Nisbett and colleagues also report that contextual similarity increased the association for words in Chinese participants. On the same experimental task, American participants















