

**Bonnie A. Nardi, Ed.,**  
*Context and Consciousness:*  
*Activity Theory and Human-Computer Interaction.*  
**Cambridge, MA: MIT Press, 1996, 400 pp.**

**Book Review**

—Reviewed by JAMES M. NYCE

Manuscript received June 1997.  
The reviewer is with the School of Library  
and Information Management,  
Emporia State University, Emporia,  
KS 66801 USA  
IEEE PII: S 0361-1434(97)06891-4.

*Index Terms*—Activity theory, cognitive science, human-computer interaction.

Over the past five years or so, there has been some discussion of activity theory in the HCI (human-computer interaction) literature. Nardi does the HCI community a service by pulling together authors and arguments she believes best represent work of this kind. Among the papers are discussions of activity theory as a theoretical base, often opposing activity theory to theoretical sets derived from cognitive science, psychology, and other social sciences useful to HCI. In this way, the contributions to this volume allow readers to decide for themselves what analytic yield activity theory might have. There are also more empirical papers, giving readers a chance to see what might be gained when activity theory informs HCI research.

Kaptelinin provides a balanced but not uncritical theoretical account. He discusses how the development of activity theory over time has led to a focus, regardless of what its proponents believe, that privileges the individual and the psychological. As a result, he argues that activity theory tends to be reductive when it comes to things like culture, history, and social institution (p. 64). In one of the four chapters that Nardi contributes, "Studying Context: A Comparison of Activity Theory, Situated Action Models, and Distributed Cognition," she looks at what each of these perspectives brings to—and takes away from—research linking users, technology, and society in ways that have value for design-

ers (p. 69). Nardi comes down on the side of activity theory. However, the criterion she applies—that only activity theory has "tools for pulling out...higher-level description"—raises some issues about how balanced Nardi's argument is, about what she means by "higher-level," and about the relationship that theory should have to description (evidence) in HCI research (p. 83). Because this relationship is discussed in one way or another throughout the book, we will return to it later.

As for the more empirical papers, Christiansen looks at how computer technology gets read into and out of Danish police work. Holland and Reeves discuss how the \*same\* work (a class assignment) is understood, negotiated, and redefined by three groups of American undergraduates in a programming class. Engestrom and Escalante trace the history of the Postal Buddy, a stand-alone electronic kiosk built for the U.S. Postal Service: They look at the events—micro and macro, bureaucratic and emotional—that led to the project's demise.

All these papers make arguments, weak or strong, for activity theory as a theoretical base for HCI. Among the weaker is Nardi's "Some Reflections on the Application of Activity Theory." In this study of presentation (slide making) software Nardi makes a *post hoc* argument for activity theory. Activity theory, she tells us after the fact, would have made this work "easier" and "more fruitful" (p. 235). In short,

not only is Nardi's argument here *post hoc*, but its central terms are never defined. Perhaps the most convincing of these arguments is Raeithel and Velichkovsky's paper. As Raeithel and Velichkovsky take the reader example-by-example and method-by-method through their paper, they make a strong argument for activity theory. What makes their argument strong is that they treat activity system not as a system or a doctrine. Instead, it is an eclectic, robust toolbox that can help the HCI community address substantive issues.

This book is not just a collection of papers on activity theory, nor does it simply celebrate a Soviet tradition that for reasons of history (we won, they lost) now has something of a cult status in the U.S. While it is true, HCI often finds itself at the mercy of the whims or winds of intellectual fashion. (One year Brenda Laurel is in, the next she is out). However, other factors are at work here. This book, by design, is an argument about what the intellectual foundations of HCI should be. In other words, Nardi uses the book, its contributors, and activity theory to advance an agenda; namely, that for HCI to succeed—and for her to be accepted by the development community—it has to take a particular stance toward research and epistemology.

According to Nardi, the HCI research community operates in a "conceptual vacuum" largely it seems because investigators do not take the perspective of activity theory (p. 244). This does not mean that the HCI community is not interested in issues like epistemology, research agenda, or methodology. Instead, what Nardi seems to want to argue is that these higher order efforts are fundamentally misplaced. Borrow-

ing a phrase from Kari Kuutti, Nardi believes this is why HCI has been "unable to penetrate the human side of the interface" (p. 3). Nardi ticks off what the results have been. The HCI research community has no common vocabulary (p. 9). Its attempts at "abstraction, generalization and comparison [have] become problematic" (p. 10). HCI has produced no cumulative research agendas or results (p. 11). According to Nardi, activity theory will lever HCI "out of the claustrophobic thicket of descriptive detail" and provide HCI with "concepts with which to compare and generalize" (p. 92). For Nardi, what activity theory can bring to HCI is a "rigorous scientific foundation" (p. 15). The only other option, Nardi believes, is for us to continue to "work autistically in our particularistic interests and promiscuous vocabularies" (p. 245).

There are two separate issues here. The first is whether activity theory can play the role Nardi asks of it. It is important to consider what one wins and loses with activity theory. Kaptelinin suggests that we have to give up culture and society and any role they have in the subjects and domains in which HCI is interested (pp. 57, 64). As for theory and method, anything Nardi believes that cannot be a tool "for pulling out a higher-level description from a set of observations" has to be discarded (p. 83). For Nardi, when it comes to HCI, activity theory should preempt evidence and theory drawn from the social sciences. Nardi asks us to take her word for this. On the other hand, HCI may fail, not for the reasons Nardi believes. But rather because HCI has not taken what the social sciences have had to say about artifact and practice seriously enough. Nardi, for example, argues that ethnography should be set aside. After all, she

sees ethnography, wrongly, as an *ad hoc* methodology, one with little or no conceptual underpinning, one that cannot yield general laws (pp. 10, 235).

The second is whether the kind of science Nardi argues for is sufficient. In other words, can it support a research community that studies how individuals, social institutions, and technology inform each other? However, Kaptelinin asks whether with activity theory we want to construct a science that only captures what is "related to rational understanding of human interaction with the world" (p. 64). In this way, it may reconfirm stances toward knowledge (a kind of naive positivism) and epistemology (a "common sense" empiricism) that obscure rather than clarify issues and objects HCI takes as its own.

If we read the objects and issues of HCI as human artifacts, we may not want to go off in the direction Nardi points us in. What Nardi asks of "rigor" and "precision" may not yield what she hopes, and Nardi's project denies any distinction between natural and social "facts." Nardi assumes that HCI should make use of the same methods and have the same goals as the natural sciences. While a book review is no place to replay much of the history and philosophy of science, there are other sides to this story (Max Weber's for one). It can be argued that culture and society and their operations and objects are not of the same order of things as those in nature. Therefore, when it comes to human artifacts, the products of culture and history with which HCI is most concerned, a science framed in Nardi's terms simply will not work.