



Coda and Response to Christine Halverson

BONNIE A. NARDI

Agilent Laboratories, 3500 Deer Creek Road, MS 24M-A, Palo Alto, CA 94303, U.S.A.

Many thanks to Christine Halverson for an incisive, original discussion of theorizing in CSCW. In reading Halverson's discussion of activity theory and distributed cognition, I was struck by the common angst shared by all of us with theoretical inclinations who attempt to interest others in developing perspectives beyond seat of the pants analysis. As a community of designers and researchers, we teeter between wanting to just hunker down and get something done – design – and striving to find satisfying theoretical frames that help us understand more deeply what people and technology are about. This tension does not always resolve happily as the following poem by Tom Erickson reveals:

Theory Theory: A Designer's View

Thomas Erickson

Theory weary, theory leery,
why can't I be theory cheery?
I often try out little bits
wheresoever they might fit.
(Affordances are very pliable,
though what they add is quite deniable.)
The sages call this bricolage,
the promiscuous prefer menage . . .
A savage, I, my mind's pragmatic
I'll keep what's good, discard dogmatic.

Add the reference to my paper,
watch my cited colleagues caper,
I cite you, you cite me,
we've got solidarity.
(GOMS and breakdowns, social network,
use those terms, now don't you shirk!)
Clear concepts clad in fancy clothes,
bid farewell to lucid prose.
The inner circle understands
but we overlook the hinterlands

Dysfunctional we are, it's true,
 but as long as we're a happy crew,
 if strangers stare and outsiders goggle,
 or students struggle, their minds a'boggle
 (Dasein, thrownness, ontology
 ethnomethodology)
 A pity 'bout that learning curve
 but whose to blame if they lack verve?
 A ludic take on structuration,
 perhaps this causes consternation?

I see four roles that theories play:
 They divide the world, come what may,
 into nice neat categories,
 enabling us to tell our stories.
 (Info scent sure is evocative,
 and cyborg theory's quite provocative)
 Our talk in turn makes common ground,
 where allies, skeptics may be found
 Prediction's theory's holy grail,
 most that seek it seem to fail.

The world is messy, fuzzy, sticky,
 theoretically 'tis all quite tricky.
 Theories keep it at a distance,
 cov'ring up the awkward instance.
 (Objects, agents, actor networks,
 banish life with all its quirks)
 But when edges grate and things don't mesh,
 that is when I think my best.
 So let not theory serve as blinders,
 welcome disruptions as reminders!

Oddly now, I'm theory cheery
 I find I have a theory theory!
 Neither holy grail, nor deep disgrace,
 theory's useful in its place,
 (Framing, talking, predicting, bonding,
 evoking discourse – Others responding)
 Like goals and methods, plans and actions,
 theory's situated, not pure abstraction.
 So make your theory a public way,
 where passers by may pause and stay.

Erickson was inspired to write this poem after reading a draft of Halverson's paper, and has kindly allowed us to publish it here. The poem seemed to me as an editor and theorist to provide a legitimate and useful perspective that would otherwise go unarticulated in a research community, and one that we must take seriously as we argue for theorizing in CSCW.

"Theory weary" is indeed just what we often feel as the pressing demands of our everyday jobs make it hard enough to keep the home fires burning, much less venture out to the thorny wilds of theory. As poets do, Erickson gets right to the heart of the matter, laying bare the pretension, obfuscation and inutility that are all too often part of theorizing. He prefers the rough and ready pragmatism of bricolage. There is a lot to be said for taking design head on, just going for it, without the potential strictures of conceptual scaffolding, without navigating the semantic thickets of competing theories.

However, some of us apparently were born and bred in the briar patch, and we find the dense vegetation of serious theoretical argument a richly stimulating environment. This special issue speaks to those who labor to develop and apply theory as a means of doing better design – of providing that place where others may "pause and stay" if they so choose.

Concepts in theory

Halverson does a wonderful service in pointing out that theories themselves vary in the degree to which they specify the world – how many and what kinds of categories carve up reality into those "neat categories" of which Erickson speaks. She notes that activity theory is more richly elaborated conceptually than distributed cognition, arguing that this is both a feature and a bug. Halverson suggests that distributed cognition analyses are more "data-driven," sticking closer to ethnographic descriptions of specific situations.

While I can agree that a data-driven approach may lead to swifter design decisions in particular cases, over the long term it will not, in my opinion, enhance engineering practice for building CSCW applications. We all need tools to think with, and confronting unique situations in riotous detail time after time is as sure a way to grow weary as excessive theorizing. Activity theory gives us conceptual tools for building comparative cases that can help us understand what we are looking at as we confront new situations, a function Halverson points to as important (see also Whittaker et al., 2000). AT is firmly committed to a historical perspective that examines the specifics of each case while taking account of fundamental recurring patterns revealed in its basic constructs such as the relations of subject and object, and the social nature of consciousness. As such, I feel AT has fine theoretical pitch, producing a melodious blend of the general and the specific.

Halverson raises the provocative and somewhat disturbing idea that the successes of both activity theory and distributed cognition may be attributable as much to their "commitment to ethnographically collected data" as to any theoret-

ical acumen. Here's a vote for the poet! If there's one thing ethnography does well, it's take on the messy, squidgy real world of specific cases of human activity that often don't fit the theoretical models. I think that careful ethnography is invaluable and I suspect sometimes that's all we need. However, I also know that as an academic discipline, anthropology is deeply troubled after 150 years of making little theoretical progress. Anemic theoretical development leads to a withering of community in any field of study. Inasmuch as CSCW is a research community, I feel that theoretical progress is an essential activity. Halverson notes that theories support discourse in a community. I would like to underscore how very very important that is. She observes that activity theory provides "precision in communication to other AT practitioners," which I set out as a goal of the publication of *Context and Consciousness: Activity Theory and Human-Computer Interaction*, in 1996.

One type of conceptual development any theory needs, in my view, is a unit of analysis, or a set of them. Imagine biology without species, ecological niches, and ecosystems, or physics without quarks and leptons. The fact that distributed cognition has no unit of analysis except those defined anew on the fly for each new situation, would seem to be a serious drawback to its continued theoretical development. Halverson points out the potential advantages of a "variable" unit of analysis but that seems overly optimistic to me. A unit of analysis scopes the problem of study, as Halverson says, but it also defines theoretical relations between elements in the theory. Distributed cognition comes dangerously close to taking an unproductively atheoretical stance in arguing that it can get along without a unit of analysis. Halverson observes that ethnomethodology rejects theory wholesale, "as a reaction to problems operationalizing theoretical constructs . . . with reference to the observed world." Distributed cognition adopts a less radical stance, but still may find itself in company with ethnomethodology in refusing to theorize even such old standbys as division of labor and mediating artifacts. With its much longer history, we can take an object lesson from anthropology, which has, in practice, stayed awfully close to "the domain of inquiry" as Halverson, says, resulting in a jumble of interesting but, at the end of the day, unsatisfying accounts of human culture gravely diminished by their particularism. (Even anthropology, however, has productively used the concept of division of labor for well over a century.)

It appears that distributed cognition, ethnomethodology and anthropology view conceptual elaboration with deep suspicion, cleaving instead to "the domain of inquiry," because they decline to treat theoretical concepts as contingent, practical, hypothetical tools with which to think and communicate. Miettinen (2000), drawing on Dewey, argues that theoretical concepts are "working hypotheses," guiding us; they are not to be taken as a mirror image of reality (which is what is feared in particular by the most radical theory rejectors, ethnomethodologists). Concepts have practical, functional jobs to get done, and when used as "tools of reflection, analysis and anticipation" (Miettinen, 2000), they are critical to understanding.

Theorizing the social world

Activity theory has its roots in psychology and may appear to have “the individual at the center of everything,” “situated in a . . . social world,” as Halverson says. However, this is a misconstrual. Activity theory does not “situate” the individual in the social world. Activity theory posits that the individual cannot in any way be separated from other people, artifacts, history and community – the social world. The individual is not in a “situation” that is somehow out there; she *is* the situation, or a key part of it – individual consciousness arises from practical activity in the world and the experience accumulated over a lifetime of such practical activity. We do not drop into “situations” just waiting for us to collide with them, like so many StarTrek parallel universes or mute MacLeishian globed fruits; rather, we enact situations with our bodies and tools, along with others, in multiperson activity systems in which a common object is the lodestar defining the system. We enact activity in a social sphere which we ourselves materially shape, rather than appearing as characters in a situation arising from some unspecified external mechanism. Engeström has made this clear in his work extending activity theory to articulate the larger collective structures such as community that shape activity (1987).

The meaning of cognition

Halverson notes that a serious critique of distributed cognition is that by conflating people and things, the theory denies people their humanity. The issue is raised, but I could not find a rebuttal to the critique in the paper. By proposing that both people and artifacts exhibit cognition, and by studying changes in representational state across “media” (people and artifacts), no distinction between people and artifacts is made (see Nardi, 1996). Activity theory develops quite a different view: artifacts mediate reality for people. In AT, artifacts do not exhibit cognition; they can, under certain historical conditions, produce and carry information that can be interpreted by people or processed by artifacts (just as a furnace responds to a thermostat). Distributed cognition focuses on state changes in representations. Messy cognitive activities conducted every day by ordinary humans, such as interpretation and imagination, are difficult to consider within such a framework. Halverson cites Hutchins’ (1995) definition of cognition as “*computation* realized through the creation, transformation and propagation of representational states” (emphasis added). Neither interpretation nor imagination, (nor many other cognitive capabilities) however, can be reduced to computation. “Cognition” in distributed cognition takes on a specific limited meaning in which machine processes determine the highest level of “cognition,” as cognition-as-computation must stretch across people and things.

Activity theory, by contrast, has, since its earliest development by Vygotsky, considered *meaning*, particularly as expressed in language, to be the *sine qua non* of human consciousness. The activity of generating meaning is a fluid, negoti-

ated social process and cannot be reduced to changes in representations from one “medium” (human or artifact) to another. Meaning is generated in actionable, constantly transforming social fields rather than comprising specific pin-downable representations that move from one person/thing to another.

Part of what is at stake as we examine differences between activity theory and distributed cognition is the very meaning of *cognition*. Distributed cognition speaks of “non-human cognitive agents” which are of the same type as “human cognitive agents.” This seems to me to be a major category error if we are to retain crucial aspects of cognition such as interpretation and imagination, as well as awareness and judgment. My Webster’s dictionary defines cognition simply as “the act or process of knowing, including awareness and judgment.” Biologists (Dobzhansky, 1986), neuroscientists (Edelman, 1992), philosophers (Brentano, 1987), designers (Schön, 1983) and non-behavioral psychologists argue that “awareness and the capacity for reflective choice” are distinctive human attributes, as Barbour (1993) put it. As far as I know, distributed cognition does not attribute awareness and judgment to “non-human cognitive agents.” A theory of cognition that deletes awareness and judgment from the meaning of cognition has reduced its scope to the point of changing the very meaning of the word. (See Star (1989) on deletion, a rhetorical process in which words are recast to hide complex realities).

To close, I would like to say that the most important role of any theory about people is to declare what it means to be human. Every theory is a commitment to viewing our fellow humans in a certain way. I believe that it is in our interest as designers to choose an expansive, generative theory that opens up what it means to be human in all its “messy, fuzzy, sticky” complexity, as our poet says. While my partialities lie with activity theory, it is a good sign that our field has matured to the point where we are kicking the tires of different theories and exploring their implications for computer-supported cooperative work.

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