Activity Theory in HCI

Fundamentals and Reflections

Synthesis Lectures on Human-Centered Informatics

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Victor Kaptelinin
University of Bergen and Umeå University

Bonnie Nardi
University of California, Irvine

SYNTHESIS LECTURES ON HUMAN-CENTERED INFORMATICS #13

ABSTRACT

Activity theory—a conceptual framework originally developed by Aleksei Leontiev—has its roots in the socio-cultural tradition in Russian psychology. The foundational concept of the theory is human *activity*, which is understood as purposeful, mediated, and transformative interaction between human beings and the world. Since the early 1990s, activity theory has been a visible landmark in the theoretical landscape of Human-Computer Interaction (HCI). Along with some other frameworks, such as distributed cognition and phenomenology, it established itself as a leading post-cognitivist approach in HCI and interaction design. In this book we discuss the conceptual foundations of activity theory and its contribution to HCI research. After making the case for theory in HCI and briefly discussing the contribution of activity theory to the field (Chapter 1) we introduce the historical roots, main ideas, and principles of activity theory (Chapter 2). After that we present in-depth analyses of three issues which we consider of special importance to current developments in HCI and interaction design, namely: agency (Chapter 3), experience (Chapter 4), and activity-centric computing (Chapter 5). We conclude the book with reflections on challenges and prospects for further development of activity theory in HCI (Chapter 6).

KEYWORDS

activity theory, post-cognitivist theory, object-orientedness, hierarchical structure of activity, mediation, externalization, internalization, development, activity system model, agency, experience, activity-centric computing, hn-HC

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Preface

In graduate school, one of our professors once said, “Social theory should be judged according to standards of *truth, beauty, and justice*.” The authors judge activity theory highly, but we recall this statement to draw attention to the burden of the professor’s message which asserts that theory is a special kind of artifact embodying the highest human values. Encountering activity theory provides an opportunity not only to learn the specifics of the theory but to pause for reflections on the standards to which we hold science and design.

Truth is no easy thing. It is legitimate to be troubled by simplistic notions of truth, to believe only in partial truths, to insist on the wobbly provisionality of all knowledge. But we can still root for the truth because *in practice*, whether the quotidian empirics of everyday life or the grand labors of Nobel Prize-winning scientific research, we prefer to know rather than not to know. Truth in theory speaks to a fundamental human orientation to reality.

The beauty of theory is perhaps less apparent. Aesthetic qualities are, however, apprehended readily enough when one immerses in theory. The revelatory experiences theory permits occur as moments of altered perception when we see what we did not see before, when refigured ideas and objects educate us to understand the world more complexly. These moments move us as deeply as an artist’s unique visions. The standard of beauty in theory is part of its essence as much as truth-seeking.

We puzzled over the “justice” part of the professor’s statement for some years. Finally we came to see it as the most important quality of a theory of social life. This standard seems a contradiction though—perhaps the truth is not just and it would be disingenuous or delusional to pretend otherwise. But social theory inevitably weaves itself back into the practices of our lives. If we believe that man is a rational problem solver, maximizing utility, we begin to design institutions around that notion, to live as though it were true. The injustices of this view need not be retailed here (but they start with “man”). Activity theory is animated by an optimistic, positive,

forward looking prospect in which imaginative reflexive activity always holds possibilities for just action. The caring notion of *development* foundational to activity theory proposed, from activity theory's earliest beginnings, that we humans are responsible for one another's development, and that growth and change continually renew our potentials as human beings. Early activity theory research concerning education for the lower classes, improved services for the disabled, and more just means of educational testing deliberately focused on areas in which important aspects of human development were at stake.

Now as we design and analyze digital technologies that affect billions of people *we* are in part responsible, through the agency of these powerful technologies, for broad swaths of the course of human development—education, social life, commerce, governance. To the extent that technologies are inflected by figurations of theory, consequential action depends on the standards of the theories we invoke.

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Victor Kaptelinin and Bonnie Nardi
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