Reviews

Hunter Heyck, Editor

Sherry Turkle, *Simulation and Its Discontents*, MIT Press, 2009, 208 pp.

Sherry Turkle's *Simulation and Its Discontents* is a readable and engaging consideration of the effects of computer simulation on the practices of scientists, engineers, and architects. As in her other books, *The Second Self: Computers and the Human Spirit* (MIT Press, 2005) and *Life on the Screen: Identity in the Age of the Internet* (Simon & Schuster, 1997), Turkle is interested in the way using computers affects people's identities. Here the focus is primarily on professional identities, since the simulations she examines are used in the workplace. The second half of the title—discontents—is telling; she wants to consider what has been lost with the move to practices mediated by computer simulations.

Turkle opens the book asking what simulations want, echoing Louis Kahn's question about architecture: "What does a brick want?" Turkle investigates what simulations and computer models demand of their users in order to be used. She concludes that they demand immersion. Ironically, complete absorption into simulated worlds is the source of users' discontent with simulations because immersion generates the grounds on which the real and the virtual become entangled and, at times, indistinguishable. Simulations require users to doubt them, yet their engrossing nature makes that difficult, sometimes impossible. Turkle argues that the tension between doubting and doing simulations is what creates simulations' unique capacity to transform professional identities.

This book, one of the outcomes of Turkle's Inititative on Technology and the Self at the Massachusetts Institute of Technology, has two nearly independent parts. The first half is a multichapter essay by Turkle about the nature of computer simulations. The essay is very much in Turkle's style—easy to read, insightful, full of stories and personalities, and not weighted down with jargon or lots of academic evidence. She looks at two generations of simulations and simulation users; one is from the early 1980s (MIT's Project Athena) and the other skipping ahead to the early 2000s. The comparison is striking, showing the sometimes surprising and ironic ways that information technology and its users have matured.

Turkle's original focus is on the role of simulations in the educational environment. In the comparison cases from the early 21st century, however, the focus shifts to looking at the computer in the scientific, engineering, and architectural workplace. This is a difficult, nonparallel comparison, but it highlights the technology's users. As a result, she is able to frame the question of what users need to know in order to use computer simulations and what functions are wholly given over to the simulation. In this regard, she points out a tension between two oppositional meanings of transparency. Transparent simulations might be simulations you can see into and understand the guts of, but they can also be simulations users can see through.

This tension between wanting to see the simulation's operation and wanting to see through it is why computers have such a diverse set of effects on user's identities. The chameleon-like transparency of contemporary simulations provides Turkle with a basis for illuminating some of the most interesting identity issues in contemporary science. For example, Turkle shows that while scientists continue to worry about being tainted by engineers' practical values and are overly dependent on programmers, engineers are concerned that they are being reduced to shop-class technicians. Dependency is a three-way street between users' dependence on each other as well as on the technology.

The second half of the book presents four case studies from the Initiative on Technology and the Self, looking at the Mars Rover, a remotely operated vehicle for deep sea exploration, Computer-Aided Three-Dimensional Interactive Application (CATIA) software for architectural design, and protein-folding simulations for classroom use. The cases are all well-presented and interesting, but their connections with the first half of the book are tenuous at times. All the authors of these cases want to examine how simulation technologies are changing the work of their users, but it is unclear that these tools are all simulations. However, the chapters convincingly illuminate Turkle's insightful question about whether simulations are designed to reveal or replace the physical world. Taken together, the four case studies buttress one of Turkle's strongest claims, that simulations do not create new understanding directly as their output, but rather they generate new shadows of reality that are themselves open to interpretation.

One concern with the book is its lack of reflection on the effects of rapid changes in various parts of the technological system that is a computer, such as the maturation of the visual display, the ever-miniaturizing microprocessor, or the advent of flash memory. One certainly could argue that such changes have fundamentally shaped simulations and their uses. Nevertheless, Turkle successfully persuades the reader that the attributes of computers are defined by users in profound ways, reflecting their users' own images of themselves.

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John Impagliazzo, Timo Järvi, and Petri Paju, eds., *History of Nordic Computing 2: Second IFIP WG 9.7 Conference* **(HiNC2), with revised selected papers from IFIP AICT 303, Springer Verlag, 2009. xvi+323 pp.**

This is the second volume of the History of Nordic Computing (HiNC) conference series, under the auspices of the International Federation for Information Processing (IFIP) and its Working Group 9.7 for the history of computing and the Technical Committee 9 for the relationship between computers and society. This volume is also part of the IFIP Advances in Information and Communication Technologies (AICT) series, and the papers were all presented at the HiNC2 conference held in Finland in 2007.

Most of the 30 papers in this volume deal with the development of information processing by computers in different branches of commercial and public life in the various Nordic countries, especially Sweden and Finland. The rest deal with resources for and issues in the conduct of hardware and software history, such as museum management and the display of computer and electronic information history (Finland). Other pieces in this vein discuss the opportunities provided by research centers in the history of computing (US) and describe ongoing, large projects that aim to collect, document, and preserve sources for IT history using interviews, witness seminars, and autobiographies (Sweden).

Of the more analytic papers, one Danish paper explores how interfaces have become icons of computers and the extent to which they have succeeded in making computers invisible. Another contribution discusses computer science in the Soviet part of the Baltic, and two others cover more general historical problems, one on why users tend to experience computerized systems as actors with agency, and the other on the possibility of historical and cultural value of science fiction in techno-scientific development.

Compared to the first conference in the series, held in Norway in 2003, HiNC2 seems to have drifted toward historical reminiscences and recapitulation rather than analysis. There is nothing inherently wrong with such developments, but it has consequences: claims about the early development of computing and information systems in the Nordic region (p. 76) are not fully addressed, nor are other aspects of computing and information systems specific to this part of the world. In addition, national comparisons, so often demanded in the social sciences and frequently highlighted as a particularly noteworthy ambition for studies placed in the Nordic countries with their peculiar similarities and differences, are absent here.

As these volumes reveal, a social-scholarly network has been built around the history of Nordic computing. This network's research mission will be strengthened notably if some basic problems areas or theoretical entry points can be developed as kernels for papers. And if there is to be any meaning in the concept of ''Nordic'' in the series title, I think the regional context must be addressed more forcefully in calls for papers for future meetings.

In sum, although this volume of conference papers has its worthwhile contributions (some of them written by authors residing in America rather than in the Nordic countries), the purpose of handling Nordic experiences in a separate venue must be further developed. If this is done successfully, for instance by highlighting how the similar Scandinavian languages might have created a Nordic Sonderweg or how the different traditional industrial branches led to diverse applications, then there is room for conferences and volumes of collected papers focusing on the development of computing in this region. If not, however, the basic idea of a Nordic conference on computing should be reconsidered altogether.

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