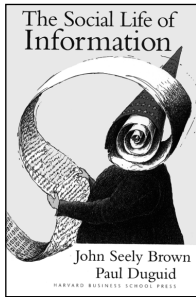# WHEN TECHNOLOGY ALONE ISN'T ENOUGH: REDISCOVERING THE SOCIAL NATURE OF LEARNING

BY JANICE MOLLOY

The Social Life of Information
by John Seely Brown and Paul Duguid

Why can millions of people successfully operate a relatively complex piece of heavy equipment—an automobile—while few seem capable of getting a simple video-cassette recorder to tape a TV show? In their book *The Social Life of Information* (Harvard Business School Press, 2000), John Seely Brown and Paul Duguid point out an important distinction between these two scenarios: acquiring the skills and instincts required to drive usually takes place in a social context, while learning to program a VCR is generally an individual endeavor. Almost anyone who gets behind the wheel has already spent countless hours observing other drivers in a wide range of situations. In contrast, we seldom witness someone set a VCR or receive ongoing coaching about how to do so.

Partially as a result of the different settings in which these activities take place, the VCR has remained an underused piece of electronics, while the automobile continues to play a central role in our culture. This example is just one of many that the authors cite in weaving a cautionary tale about relying exclusively on technology—especially information technology—to drive the future of our organizations, institutions, and societies. Instead, we must recognize how social needs—especially around learning—influence our acceptance and successful application of new technologies. If we fail to do so, we'll continue to build products that people can't use, design strategies that people won't implement, and recommend changes that people fail to embrace—regardless of how elegant or sophisticated those solutions may be.

Broken Promises of the Information Age

To bolster their argument, Seely Brown, director of the famed Xerox Palo Alto Research Center, and Duguid, research specialist in social and cultural studies in education at the University of California at Berkeley, explore some of the broken promises of the Information Age. What ever happened to visions of the "paperless office"? Or predictions that the organizations of the 21st century would be flatter and less centralized than their 20th-century counterparts? Or the idea that most of us will soon be working for "virtual corporations," dialing into the office every day from our homes? Despite now having the technical means to make such divinations realities, we have yet to do so. Are we merely creatures of habit, stubbornly standing in the way of progress? Or are there deeper reasons why the digital revolution hasn't changed our world as quickly and as completely as some soothsayers had prophesized?

Seely Brown and Duguid believe that many of the predictions about the transforming impact of bits and bytes fail to take human needs and desires into account. They state, "The tight focus on information, with the implicit assumption that if we look after information everything else will fall into place, is ultimately a sort of social and moral blindness." The authors argue that "rather than condemning humanity as foolish, primitive, or stubborn for sticking with the old and rejecting the new, it seems better to stop and ask why."

Their probing questions produce interesting—and sometimes counter-intuitive—results. For instance, why has the rise of digital communication corresponded with an unfortunate jump in paper consumption, when many predicted that computers would replace the need for printed documents? In exploring this query, Seely Brown and Duguid found that paper is more than just a carrier of information; it offers certain qualities that are challenging to duplicate in electronic form. Documents bear smells, textures, and smudges that convey meaning. For instance, think of the reactions that a letter on high-quality bond, a perfumed notecard, or a tear-stained letter can provoke in the recipient—characteristics that are difficult to emulate by computer.

The authors sense that we have found cutting-edge technologies and old-fashioned pen and paper to be complementary rather than competitive. They cite the case of the fax machine, which has grown in popularity even as seemingly more efficient modes of communication have evolved. People still find it useful to be able to scrawl comments on a document and drop it in the fax for instant—and accurate—transmission.

Likewise, for years, pundits have predicted that the rise of e-mail, the

Internet, and the World Wide Web would lead to flatter organizations, with information systems replacing middle managers. What these futurists failed to recognize is that managers add value to the flow of information; they aren't simply conduits that can easily be replaced by machines. And technology can actually lead to greater centralization. With the compression of space and time made possible by digital communication, the main office can now maintain tighter control over branch offices than it could when information flowed more slowly. Thus, technology won't automatically cause more egalitarian organizational structures; managers still must choose to share power and authority with others.

Knowledge and the Knower

Seely Brown and Duguid also address the topic of knowledge management. In an effort to leverage employees' learnings and insights, numerous companies have invested fistfuls of money in knowledge databases. But many have found that, despite their best intentions, they have created only static repositories of *information*. True knowledge is notoriously difficult to "detach" from the knower. As a case in point, the authors cite several companies that have successfully identified best practices in one plant but have been unable to implement those practices in another factory just across town.

Why is transferring knowledge from one plant to another, or from one person to another, so difficult? This question brings us back to the example of the video-cassette recorder—and the social nature of learning. Seely Brown and Duguid refer to anthropologist Julian Orr's study of the spread of knowledge among Xerox technical representatives —which occurred in spite of the company's information systems. Orr found that the company-supplied documentation was inadequate for all but the most routine tasks that the reps faced. So the reps found ways to engage in collaborative problem-solving, knowledge sharing, and knowledge creation outside the organization's formal

processes—through telling stories over breakfast or while troubleshooting breakdowns together.

The reps formed a community that was linked by their common practice of servicing copiers. "The members of this community spent a lot of time both working and talking over work together. . . . The talk made the work intelligible, and the work made the talk intelligible. . . . Become a member of a community, engage in its practices, and you can acquire and make use of its knowledge and information. Remain an outsider, and these will remain indigestible." The reps ultimately adopted a knowledge database that succeeded in becoming

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a valuable resource because they themselves determined what tips and insights to include. In this case, the technology supported—rather than sought to replace—the workers' social network and processes.

Learning as a Social Process

Based on their findings, the authors have several recommendations for moving from an information-based to a knowledge-based model of learning. They highlight the power of collaboration, storytelling, and improvisation. They cite the example of a problem-solving session at Xerox that resembled "a series of alternating, improvisational jazz solos, as each [rep] took over the lead, ran with it for a little while, then handed it off to his partner, all against the bass-line continuo of the rumbling machine until finally all came together." This kind of learning would be difficult to glean from a user's manual or information database.

Seely Brown and Duguid also advocate balancing formal and informal processes, as well as structure and spontaneity. Too many constraints can limit creativity; too few can hinder productivity. They comment that "The use of deliberate structure to preserve the spontaneity of self-organization may be one of humanity's most productive assets."

The authors are careful to point out that knowledge creation and sharing mustn't remain the purview of the folks in product development. "Businesses have to create new business models, new financial strategies, new organizational structures, and even new institutional frameworks to deal in these new markets." Companies must look beyond their own walls to view their formal and informal connections with other businesses—especially those located close by. Seely Brown and Duguid point out the synergies present in "clusters" of companies in similar industries, such as the high-tech cluster in Silicon Valley, the Formula 1 cluster of race-car designers outside of London, and the golf-club cluster outside of Los Angeles. Such hotbeds of knowledge on a particular subject can offer economies of scale and broad-reaching networks of practice for all players.

Far from being a pessimistic diatribe about the limits of technology, *The Social Life of Information* highlights the potential that exists in the human mind and spirit. Time and again, though, the authors remind us that machines, software, and datalines must serve human needs—and that humans don't exist merely to fulfill a destiny predetermined by our tools. In order to make the most of the incredible technical resources that we've created, we need to tailor them to help bring us together rather than allow them to push us farther apart. By remembering that learning and knowledge creation are social processes, we can ultimately leverage the promise of technology to build a better future for all. ▫

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