

The Social Life of Information
by John Seely Brown and Paul Duguid, 2000

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Introduction - Tunneling Ahead

Raw information is not enough without *content* and *context* [1]. B and D coin the term “tunnel design” to refer to design practices that ignore history and relevance, producing technologies that “bite back.” Tunnel design also ignores the “social periphery,” communities, organizations, and institutions that frame human activities. Such social context helps people understand what information means and why it matters. For instance, the Internet can generate a feeling of directness to information that is seductive in that it hides the institutional and sociocultural environment that produced that information. An “infocentric view” forces us to ignore the social forces behind the creation of information.

The goal of this book is to address predictions about digital innovations touted in print but flawed in practice. Why do archaic tools like paper, pencil, and faxes still hold on? Some examples examined in later chapters: the world of information, digital agents, the home office, the paperless society, the virtual firm, and the digital university.

Chapter 1 - Limits to Information

Solutions to information overload invoking “Moore’s Law” (i.e. that the doubling of computational power available on a chip takes place every 1 1/2 years) is the wrong approach to take, because instead of thinking hard, we embrace dumb power. The authors encourage a look beyond information.

Information gurus want us to believe that information is all that matters - B and D remind us that this only works if all you do, want, and are can be translated into information, and what gets left behind doesn’t matter. (For instance, Microsoft’s slogan, *Where do you want to go today?* implies that merely accessing information about people, places, and things is sufficient to replace the experience of them.) But people are not just information processors and complex human issues are not simply information [2]. There are both similarities and differences between how atoms, the fundamental unit of matter, and bits, the fundamental unit of information, behave, and examining them can illuminate many of the myths and misconceptions about information and the information age.

Note [1]: I like the way Tor Norrestrand in his book *The User Illusion* describes the importance of information of content occurring in context as *exformation*. He argues that effective communication depends on a shared body of knowledge between the persons who are communicating. For example, if talking about trees what is said will be unintelligible unless the person listening has some idea what a tree is, what it is good for, and where one might encounter one. In using the word 'tree', the speaker has deliberately thrown away a huge body of information, though it remains implied. He illustrates the point with a story of Victor Hugo writing to his publisher to ask how his most recent book, *Les Miserables*, was being received. In the telegram, Hugo simply wrote "?", to which his publisher replied "!" indicating the book was selling well. The exchange had no meaning to a third party because the shared context was unique to those taking part in it. The information cast away to contribute to this shared context is *exformation*. Norrestrand coined the word as a shortened form of *explicitly discarded information*, originally in Danish as *eksformation*; the word first appeared in English in an article he wrote in 1992. He says, "exformation is everything we do not actually say but have in

our heads when or before we say anything at all. Information is the measurable, demonstrable utterance we actually come out with".

Note [2]: What does this mean in terms of digital ethnography? It is important to consider how the production of digital ethnographic records of human activity may both help and hinder the examination and understanding of the underlying cognitive practices by recording, or distorting, the context in which that data was taken.

Chapter 2 - Agents and Angels

To understand human negotiation and imitate it requires understanding humans as more than mere goal pursuing agents. B and D remind us that the rules and goals humans pursue shift dynamically in practice depending upon the social conditions that prevail.

Chapter 3 - Home Alone

Many of the problems with the design of home offices arise from misunderstanding what office work is - it's not simply information handling. In order for people to work alone at home, technology has to support their access to social networks. The design of new technologies must align with social resources, even while helping them to change (for example, Apple computers in schools, and the telegraph).

Chapter 4 - Practice Makes Process

This chapter details the rise of the "business process reengineering" movement in the late 80's. A section of particular interest, especially in relation to distributed cognition across social groups, discusses collaboration (p. 105-106). In this section the authors detail studies of how people work together, emphasizing how shared knowledge differs from a collective pool of discrete parts. They also stress the power of stories (p. 106-107) in building a collective knowledge [3]. There is a balance of routine and improvisation in the process of work.

Note [3]: I am interested in how organizations maintain a compendium of knowledge over time. How does/will the HCI-DCOG lab maintain lab-specific knowledge?

Chapter 5 - Learning - in Theory and in Practice

People are not just interchangeable consumers and processors of information. People are creators and carriers of knowledge. Organizational knowledge lies less in its databases than its people. The talk and the work, the communication and the practice, are inseparable.

They discuss studies done by Lave on learning (p. 126) to be part of a community of practice - and mention a reference about particle physicists creating and sharing knowledge (Karin Knorr Cetina (1999) Epistemic Cultures). I found this interesting relating to distributed cognition in a community of practice.

B and D emphasize that there is a difference between:

learning about	learning to be
know that	know how
explicit knowledge	implicit, tacit knowledge

Unenlightened teaching and training often misses this point, focusing heavily on information, not on how to use information. But information is not enough to produce actionable knowledge. Practice too is required.

Features of learning ignored in the “infocentric” perspective:

- People learn on demand, in response to a perceived need.
- People learn in social settings.
- Learning and identity shape one another. As people learn in a community of practice, the identity they are developing determines what they pay attention to and what they learn.

There is a distinction between *networks of practice* - people who work on a similar practice within the same institutional framework, and *communities of practice* - groups who work on a practice who are located in the same space and time.

Chapter 6 - Innovating Organization, Husbanding Knowledge

Organizations play a crucial role in the step from invention to innovation, the transformation of ideas into products and processes (p. 171-172), within a larger ecology.

Chapter 7 – Reading the Background

Why is paper hanging on? Digital “infoenthusiasts” misunderstand the resourcefulness of paper documents. B and D encourage a look beyond viewing documents as just mere “carriers” of information, playing an often-neglected social role. Documents help structure society, enabling social groups to form, develop, and maintain a sense of shared identity.

Readers look beyond the information in documents, for reliability and validity of the content. In contrast, institutional processes are much harder to detect in digital information sources. Transforming and distilling information through a series of paper-based sources leaves behind valuable residues that digital options may not (ex. Vinegar residue on letters).

Sharing and circulating documents played (and continue to play) a critical part in the development of modern scientific communities (p. 191-192). Documents serve to organize other “textual communities,” such as religious groups, Internet interest groups, and even national identity (p. 194-197).

Documents are fixed, but information is fluid. Information takes a path through a series of material objects en route to propagation through society. Latour describes key properties of documents, “immutable mobiles” (p. 198), in contrast to archaic methods. B and D extend Latour’s analysis into digital documents. New fluid communications technologies make it easy to demote older fixed ones, however, this rivalry overlooks the complementary capabilities both forms may play. In many situations, fixity is preferential to fluidity. Harold Innis suggests that communication technologies favor to preserve either *immobility* (across time) or *mobility* (across spaces). At present, the speed of modern communications is dazzling, but how archival is this information? Web links “rot.” The information on the WWW resembles less the books it is intended to replace than the type in which those books were set.

The value of fixity is *context*. For instance, spatial clues and layouts provide easier access to paper-based documents. We seldom read books page by page in order. Efficient communication relies not on how much can be said, but on how much can be left unsaid – and even unread -- in the background. A certain amount of fixity, both in material documents and in social conventions of

interpretation, contributes a great deal to this sort of efficiency. We need to be wary of the perils of separating, as the authors put it, “text from context.”

Chapter 8 – Re-education

This chapter details the promises and challenges of the Virtual University. Changes in student body, changes in competition (universities vying for your tuition dollars and the increasing price of an education), and new technologies have altered how we look at higher education. But there is resistance in the hegemony as to the value of a degree earned online: can new technologies really replace the quality of an education using the Socratic method, group learning, and face-to-face tutelage? Perhaps supplement it. But are traditional universities much better than information faucets? Modeling a Virtual University after the non-functional educational strategies of the traditional university is not a good approach.

Learning to be involves *enculturation* – engaging with communities of practice and of concepts. Peer support (group learning) is a powerfully successful way to learn.