Building Bridges between Information Behavior Research and Information Architecture

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Summary

Researchers and designers in Information Science have frequently discussed a significant problem: Specialties within the field often do not mutually benefit from each other's work. "Mutual ignorance", for example, is how Ingwersen (1996) characterized the relationship between "mainstream IR [Information Retrieval] research" and "user-oriented research", saying "the two predominant research communities do not really explore the ideas, methods and results of each other" (p. 13). A similar dynamic exists between Information Behavior Research and Information Architecture. In this presentation we examine the differences between these two fields of inquiry and discuss how the relationship could be enhanced.

The definition of Information Architecture and its place amongst related disciplines is, of course, much debated (e.g., Rosenfeld, 2002). We shall think of it broadly, and simply observe that its practitioners seek to change the digital world from its current state to a preferred one (Simon, 1996). Projects in Information Architecture, thus, restructure or expand the built world (Schön, 1991), even if it is computer mediated and often intangible. Because the outcomes of Information Architecture lie in a built world, and a large and diffuse world it is, it can be very difficult to set useful boundaries on the subject. Consider that to some degree the traditions of social science, information technology, and design all influence the practice of Information Architecture. Indeed, like the field of Human-Computer Interaction, Information Architecture is a boundless domain (Barnard, May, Duke, & Duce, 2000; Grudin, 2006). How do we flourish in a boundless domain?

Donald Schön answers this question by proposing an epistemology of practice, where professionals learn to Reflect-in-Action (Schön, 1991). Under his view, knowledge is generated in the process of doing. The reflective practitioner applies a *discipline* and he "strives to make the situation conform to his view of it while remaining open to evidence" (Schön, 1991, p. 74). In a *virtual world* (e.g., a sketchpad), free of the constraints of a *built world*, the professional applies *exploratory experiments* to a representation only for the sake of seeing what happens or tries *move-testing experiments* to examine specific *implications*. By holding a conversation with his materials and listening to the *backtalk* the designer, according to Schön, is able to change a problematic situation for the better. In this way, the problem is defined only when its solution is fully expressed (Rittle & Webber, 1974).

On the other hand, the social scientist normally embraces a different ethos. When conducting Information Behavior Research, which can be defined as "the study of how people need, seek, give and use information in different contexts, including the workplace and everyday living" (Pettigrew, Fidel & Bruce, 2001, p. 44), he or she values careful observation and description. Objectivity is assumed. Abstraction, within appropriate bounds, is the gold standard. Progress in

the field is marked by the invention of models or theories that hold explanatory or predictive power. For a survey of theories of information behavior, see Fisher, Erdelez & McKechnie (2005).

Design and research, in short, entail different standards for creating, building, and valuing knowledge. The major differences are shown in the following table.

Category	Information Behavior Research	Information Architecture
Involvement	Unobtrusive observation	Intervention with situation
Agent in service	Science, to discover phenomena	Stakeholders, to satisfy needs
Ends	Situation-oriented	Solution-oriented
Means	Human focus	Technology focus
Process	Fidelity of description	Innovation to improve
Unit of analysis	Activities and context	Tasks and interaction
Outcome	Models for abstracting regularities	Artifacts for enabling use
Spirit	Courage	Courage

One might reasonably expect that research findings about the current conditions of the built world can significantly inform design. In other words, descriptive studies, models or theories of information behavior should be important to information architects who seek to facilitate information behaviors by changing patches of the built world. Experience, however, shows that this is not always the case; indeed, the knowledge generated in the act of design is often ahead of what knowledge exists in a research base. But, even more critically, research that is intended to be applied in design is often ineffective. In fact, much theory and many research approaches in Human-Computer Interaction have not been useful to practitioners (Rogers, 2004). Fisher, writing as Pettigrew, Fidel, and Bruce (2001), furthermore, conclude that research studies of information behavior have had little significant impact on information system design.

One approach for bridging the fields is for the researchers to propose design "guidelines" or "implications", with the intention that they be taken up by the designers. But, this approach, as we all know, can be problematic. When implications are cited by a designer, often their use it not clearly described. On the other hand, designers often seem to cite guidelines to signal appreciation or to bolster decisions already made. Thus, most often, the coupling that is achieved through implications, recommendations, or guidelines is tenuous. Concerning "design implications" generated by sociologists for designers through ethnographic studies, Dourish (2001) says "to the design community, these 'implications' often seem obvious, insubstantial, or vague; to the sociologists, they deny the richness of the settings to which they refer" (p. 156).

Horst Rittel (1984), a design theorist, identified a crucial concept in any interdisciplinary collaboration, the "symmetry of ignorance", which asserts that no one in an interdisciplinary group can guarantee that his or her knowledge is superior to all others. To say it differently, the information architect and the information behavior researcher cannot be sure of what relevant insights the other holds. As disciplines become more specialized and as traditions firm, the symmetry of ignorance tends to become even stronger.

Because of the forces of specialization, it seems likely that the intensity of the differences between Information Architecture and Information Behavioral Research will only increase. On the one hand, technological innovation offers a growing number of options and constraints for the Information Architect. By intervening, the designer values the degree to which a current situation is changed into a preferred one even if the situation is narrowly defined. Relevance trumps rigor. On the other hand, many fascinating contexts are still to be studied and contexts are continually changing. Here, the social scientist values fidelity of description, thoughtful interpretation, and models that abstract behavior within defendable limits. To bridge such evidently incommensurable differences, Rittel (1984) proposed a system of rigorous dialog and argumentation.

A different approach is emerging from product design firms. Under the rubric of Design Research, social scientists and designers, both of various backgrounds, are joining forces (e.g., see Laurel, 2003, IDEO, 2003). Researchers become designers. Designers become researchers. This interchange has led to new synthetic methods where empirical data collected in the field, often richly visual, is represented to promote creativity. Here, methods are developed by social scientists and designers to *serve* design, not necessarily science. An important, related development is to place information behavior research firmly within an established design methodology (Fidel & Pejtersen, 2004).

These and other approaches for bridging the fields can be assessed with criteria that were proposed by Carroll (1991) when he sought to analyze the difficulty of applying information processing psychology to the design of interactive computing systems. He observed that "A key to understanding the relation of science and application is context" (p. 2), and proposed two criteria for judging the merits of an approach that was meant to inform design: "specificity" and "applicability". For the first, "the science must apply specifically to the actual concerns of the target domain; it must be content appropriate" (p. 2). For the second, "use of the science must conform to the processes of the application in the target domain; it must be process appropriate" (p. 2). These criteria seem to be relevant to any field that wishes to establish a foothold in Information Architecture.

In this presentation, we use these criteria to examine possible bridges between Information Behavior Research and Information Architecture. The argument we shall make is that these two fields are ideally positioned to benefit for each other's unique perspectives. To enjoy the benefit, however, dialog is needed so that the relationship becomes one of "mutual understanding." We seek to facilitate this dialog.

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