
Scholar's Playground or Wisdom's Temple? Competing Metaphors in a Library Electronic Text Center

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ABSTRACT

THIS STUDY DRAWS UPON THEORIES from cognitive anthropology concerning the role that metaphors and mental scripts play in organizing human thought and action. Metaphors are implicit cognitive templates that enable people to understand novel situations in terms of familiar ones, while the related scripts provide outlines for how to act in emergent situations. These theories are applied to the ways in which librarians and library patrons conceptualize and respond to electronic texts. In 1994, these authors carried out a qualitative ethnographically informed case study of an electronic text center in a large academic library designed to reveal the underlying metaphors that library staff and patrons used in thinking about electronic texts. This article presents three of the most common sets of these metaphors. The first was a tendency to analogize electronic full texts as regular books. Second, a large body of competing metaphors saw the electronic text center as both a place of play and a place for work. Finally, we discuss metaphors that influenced how librarians and patrons viewed and behaved toward each other.

INTRODUCTION

Whatever one may feel about the incursion of electronic texts into the traditional library setting, the fact remains that full-text information technology is finding a permanent place there. Centers devoted to the use, manipulation, and creation of electronic texts are appearing in several academic libraries—Indiana University, the University of Michigan,

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and the University of Virginia to name some of the more prominent examples. One reason these centers exist is that the use of electronic texts and related technology pose both practical and conceptual problems for librarians and library patrons. In terms of their content, packaging, and hardware requirements, electronic texts do not fit comfortably into the library as it has been traditionally conceived.

Over centuries, librarians have developed extremely efficient procedures for handling *books*—tangible items which we know how to classify, store, and access, and which our patrons are generally comfortable using. In contrast, electronic texts pose challenges to both libraries' ability to manage them and the comfort level of patrons. At the very least, library procedures have to change. More importantly, electronic texts are causing both librarians and patrons to change their very ways of thinking about texts, libraries, and information.

THEORETICAL BACKGROUND: WHY METAPHOR?

Electronic texts, and indeed literary and linguistic computing generally, represent a novel development in libraries. The application of computer processing to humanistic texts was once the province of specialists as represented in the journal *Computers and the Humanities* from 1966 on. More recently, CD-ROM technology has made it possible for a much wider audience of students and scholars to read and manipulate traditional humanistic texts in machine-readable format, causing academic libraries not only to collect, but also to provide support for, electronic information. These materials take their place alongside computer-based library catalogs and bibliographic databases, which have by now become familiar sights in most libraries in the Western world. Yet even the OPACs and databases were novel enough in recent years to have prompted a plethora of studies aimed at describing the attitudes held by both library staff and patrons regarding these developments.

Our approach borrows from theories in cognitive science that promise a way to understand and describe how people respond to new situations. The theories of cognition developed in cognitive anthropology and cognitive linguistics start with the question, How do people know how to act in the new and emergent situations they face every day? The answer is that this accomplishment is achieved by means of mental structures variously known as "models," "scripts," or "schemas." Roy D'Andrade (1995) defines a schema thus:

the organization of cognitive elements into an abstract mental object capable of being held in working memory with default values or open slots which can be variously filled in with appropriate specifics. For example, most Americans have a well-formed schema for a *commercial transaction* [emphasis in the original] in which a buyer and seller exchange money for the rights over some object. (p. 179)

Schemas and scripts provide mental templates or outlines that enable people to efficiently process new and emergent situations in terms of old familiar ones. For example, someone who has never visited a chiropractor's office before will know what to do there by applying the script for going to a doctor's office. This script is in turn an elaboration of the broader script for visiting a professional office of any kind (Rumelhart & Norman, 1988, pp. 539-41). The script provides a kind of mental shortcut, a generic template into which one can insert the details appropriate to the current specific instance of the type.

It will be noted that, while such mental shortcuts are only useful, even indispensable, to everyday thought and action, they are not without drawbacks. Mental shortcuts may eliminate too many nuances. Schemas that persist as bases for action in the face of facts that contradict them are known popularly as "stereotypes." They represent the least adaptive end of the range of cognitive modeling.

In other words, the cognitive devices labeled schemas work like metaphors. According to Lakoff and Johnson (1980), "the primary function of metaphor is to provide a partial understanding of one kind of experience in terms of another kind of experience" (p. 154). Schemas are like metaphors in that they are "essentially cognitive transfer agents—that is, they allow the transfer of knowledge from one knowledge domain to another" (Barker et al., 1994, p. 214). Metaphorical extension allows people to understand and talk about new phenomena in terms of old ones. As Klaus Krippendorff (1993) explains: "All metaphors carry explanatory structures *from a familiar domain of experiences into another domain in need of understanding or restructuring*" [emphasis in original] (p. 4).

It follows that metaphors are much more than mere embellishments to speech; indeed, they affect our understandings, perceptions, and actions. The work of George Lakoff and Mark Johnson (1980) has been influential in demonstrating that much of our everyday experience is structured by large-scale metaphorical concepts. Far from simply describing reality, metaphors also organize users' perceptions and, when acted upon, they help create reality (Krippendorff, 1993, pp. 4-5). Metaphors have entailments for the target domains—i.e., they organize users' perceptions and influence the way users act (Krippendorff, 1993, p. 5). The familiar domain that is extended to comprehend a new domain carries with it preconceptions, behavioral expectations, and stereotypes, all of which influence the way users understand, respond to, and act in the new domain.

This study investigates the reception of electronic texts and related services (such as full-text searching, linguistic computing, and the creation and encoding of electronic texts) in libraries, in terms of the metaphors and mental schemas that are used to describe and think about them. This approach promises to uncover the implicit assumptions and forgotten connotations that underlie the responses to electronic texts by both

patrons and librarians. Our premise is that new library services, such as electronic text centers, will be conceptualized in terms of old and familiar services, and that these metaphorical constructs will have an important influence on the way services are designed and used, thus affecting their success or failure.

SITE OF THE STUDY

The site of the study was the Library Electronic Text Resource Service (LETRS) in the Research Collections of Indiana University Library in Bloomington, Indiana. LETRS was opened in September 1992 to provide faculty and students with access to electronic editions of scholarly texts in the humanities and to offer specialized assistance in the creation of such texts and their manipulation for the purpose of linguistic analysis.

LETRS consists of a small comfortably furnished space surrounded by office-divider walls and located on the first floor of the main library at Indiana University (Bloomington campus), between the reference desk and circulation desk. In addition to numerous scholarly electronic texts in the humanities—such as the *Complete Works of Jane Austen* and the *al-Qur'an Database*—the facility houses various computer software tools of use to humanities scholars—bibliographic management software: software for creating concordances; and other tools for text analysis, markup, and retrieval. These materials are mounted in various combinations on several high-end desktop computers. When this study was done in 1994, two co-directors managed LETRS—one who reported to University Computing Services and the other a librarian who reported to the reference department. This configuration was designed to ensure that both the necessary subject expertise and technical (hardware-related) knowledge would be available (see Day, 1994). A team of graduate assistants drawn from humanities disciplines, whose job was to provide extensive support and instruction for users, staffed the office.

METHODOLOGY

The study of LETRS was carried out over a period of several weeks in Fall 1994 using methods of participant-observation borrowed from ethnographic field work. We visited the facility on several occasions to observe the interactions of staff and patrons or to explore the resources in LETRS personally. We conducted open-ended interviews with a select group of people associated with LETRS. The co-directors, who were the designers of the system, and two of the four graduate assistants, working as LETRS consultants, represented the staff. Next, we talked to four LETRS users, including people we knew personally, some approached directly as they were using the facility, or people recommended by the LETRS staff. All were graduate students, university staff, or faculty in various humanities departments. Finally, using personal contacts, one non-user was located

who could be seen as a potential client of LETRS—a faculty member in the classics department.

There was no attempt made to achieve a random sampling of the large number of people who used LETRS or the even larger number of humanists in the university who were potential users. The selection was driven primarily by convenience and time constraints. There are no claims that the findings are a statistically significant representation of the larger group.

ANALYSIS OPTIONS

Several options are available to assure that qualitative results are reliable and generalizable to other cases besides the ones studied. One such method is to subject the analysis to the scrutiny of members of the group being studied to see if they agree with the conclusions. A preliminary version of this article was shared with two of the study informants—the two co-directors of LETRS—and both were largely in agreement with the analysis. A second approach is to compare the results with data available from other sources. In the presentation of the study results below, reference will be made to the few published studies that also describe metaphorical constructs in relation to libraries. Finally, information obtained from even a small non-random sample of informants may be heuristically valuable as data to be tested in further studies.

In the interviews, the goal was simply to get informants talking about LETRS and the electronic texts and services provided there. Whereas a traditional quantitative survey might reveal that a certain percentage of users feel that electronic texts are easy to use “*n*” percent of the time, the ethnographic approach has the potential to discover *why* these attitudes exist, and how they are connected to broader networks of cognitive schemas, patterns, and assumptions. Since schemas are usually implicit, direct questioning will not reveal them. Using open-ended non-directive questions, we hoped to uncover the metaphors and schemas that informed the informants’ thoughts on these subjects. The interviews took the form of conversations in which users were asked such open-ended questions as “How would you describe LETRS? What is it?” and “Who are the actual users of LETRS?” Once the informants started talking, they were allowed to talk as long as they wanted, asking further questions as appropriate (even if they were not on the initial list of questions to ask), and letting the talk go in whatever direction the speakers wanted. The conversations that emerged were noted and subjected to data coding and content analysis to retrieve the recurring metaphors and patterns that were used.

RESULTS

The profusion of metaphors that occurred in the conversations with LETRS staff and patrons was amazing in its richness and variety. In the

following pages, three of the most common sets of these metaphors will be presented and discussed. Each has potentially important implications for the success of this service and of similar electronic text centers in other libraries.

The Electronic Text as Book

The most pervasive metaphor in the conversations was one that described LETRS as a library: "Despite what it looks like, this is a library facility, not a computing facility." One of the co-directors described it as "a small enough library that it works like your library at home." According to this metaphor, the staff and users of LETRS were analogous to librarians and scholars in an academic library (like the academic library that housed the facility), and the contents of LETRS were analogous to traditional library books: "Basically the collection is no different from a library collection."

The existence of a common schema or folk model that sees a library as a physical space that stores books is evidenced by any number of unself-conscious pronouncements, including some in library and information science literature. For example, in the introduction to a special issue of *Library Trends*, Janice Kirkland (1989) wrote that "libraries, which used to be quiet places for people and books to come together, seem to be metamorphosing into places for machines with all that machines require, and remain only secondarily places for books and people" (p. 385). Similarly, Barker et al. (1994) had no hesitation in defining a conventional library as "principally a storehouse for large collections of paper-based books" (p. 214). Danuta Nitecki's (1993) analysis of communications to the *Chronicle of Higher Education* found that the most common conceptual model of a library held by university faculty or librarians was that of a location or storehouse. The centrality of the book in traditional operating procedures for libraries is apparent in, for example, the treatment that many libraries give to such nontraditional formats as cassette tapes. The library is geared toward storing and handling books—physical objects of a standard size and shape. Cassettes do not fit this template so, to handle audio-cassettes, some libraries elaborately package these in such a way that they too are the size and shape of an average book.

Since the folk cognitive model of a library is as a place that holds books, it is not surprising that many people in the study thought of electronic texts in the library as another kind of book. In fact, the designers of electronic texts often chose the metaphor of a book as the basis for their end-user interfaces (Barker et al., 1994). However, while it may be conceptually useful to think of an electronic text on CD-ROM as a type of book, the analogy tends to obscure the real differences between them. In particular, it tends to mask the technological difficulties involved in making a CD-ROM text available to library users. According to the LETRS

co-directors and consultants, neither patrons nor librarians understood the complexities of getting electronic texts “up and running.” Thus, they said, library administrators had pushed for an open house for the facility before the staff felt ready to demonstrate the products. “It’s not just plug and play,” they said. Lack of standardization, incompatible hardware platforms, and incompatible software interfaces make the task of actually using an electronic text extraordinarily difficult.

Librarians and library users, who simply understand electronic texts as an analogical extension of traditional books, are encouraged by this schema to expect that the electronic products will be similarly easy to use. The metaphor foregrounds the ease of use of books and, by extension, of electronic texts, while losing sight of the less convenient aspects of the book-centered library. Books are not “plug and play” either—but familiarity causes one to overlook the fact that even a book has to be cataloged, labeled, perhaps bound, and otherwise processed before it is accessible, or that it may not be on the shelf at the time one is looking for it.

Competing Metaphors: A Place for Play or Work?

Many of the metaphors and associated scripts that occurred in conversations with LETRS staff and users may be divided into two opposing categories of *work* and *play*. These categories correspond to the fundamental cultural tendency, identified by Emile Durkheim (1995 [1912]), to treat things as either *sacred* or *profane*. In Western cultures, these categories can be identified by similar paired labels such as the following descriptors:

SACRED	PROFANE
work	play
adults	children
important	trivial
solemn	joking
ascetic	pleasurable
utilitarian	frivolous

The playground and workplace metaphors for LETRS will be discussed in turn below. It will become evident that each metaphorical category entails different and sometimes incompatible expectations of what the facility contained, how staff and users should behave, the relationship between these groups, and expectations (or stereotypes) that one group held about the other.

Play/Profane Realm

One of the most common metaphors used to describe LETRS was that of a candy store:

"To linguists, this place is a candy shop."

"Users often don't know what to expect. It's totally new to most people. A gee whiz reaction is common: like a kid with a new toy. In some ways this is like working in a toy shop. I play with them myself."

If LETRS as a whole was a toy shop, then the computers themselves were toys, and the expected behavior of users was one of play, exploration, excitement, and enjoyment. One neophyte user extended the play metaphor to the notion of LETRS as a swimming pool: "I plan to go in and play, because it would be fun," she said. "I'd like to see a balance between helpful consultants and materials that will allow you to jump off the edge and *swim around* a bit." However, her metaphor was based on the assumption that one would know how to swim, which would make "jumping off the edge" a pleasant experience. In contrast, another neophyte user employed the dark side of the same metaphor, in which he likened his less than satisfying experience in trying to learn new software packages to "being thrown into the water."¹ That is, he felt he was left alone to learn these new systems without help or preparation.

These playground metaphors for LETRS carried associated assumptions and stereotypes about the intended users and related scripts for how the LETRS staff were supposed to interact with them. Briefly, the users were depicted as behaving like excited children, with the implication that the staff's role was to teach and guide them. This implicit metaphor appears again in the following quote from one of the directors, who was describing the ideal script of what would happen when a user entered the facility:

Some humanists will see us and wander in; they see what's there and wander in. Here there are consultants who are grad students in the humanities and a whole bunch of neat toys for them. It's been called a candy shop for linguists. A consultant ambushes you, matches you up with the right computer, holds your hand, and gets you really excited.

The picture of the user in this description is that of someone who may be lost, who "wanders in," a child attracted by "toys" or "candy," who "gets excited." The staff, in contrast, plays the role of adults who hold the child's hand.

Other metaphors may also be discerned in these words. The term "ambush" suggests an aggressive role for the LETRS staff and a passive one for the user. When we spent time in LETRS, there was an opportunity to observe this script in operation. Whenever anyone entered the LETRS space, the consultants would stop what they were doing and ask the patron what they were looking for. They then showed the person to the appropriate machine; accessed the required CD-ROM product, database, or software; and gave the patron a quick demonstration of how to

operate it. In doing so, they were following their job descriptions and LETRS policy.

Consonant with these scripts, LETRS's consultants described users as hesitant, needing encouragement, or as being attracted into the facility by curiosity:

"People often stand hesitantly at the door."

"Most users are people who come in out of curiosity."

"People wander in and ask, 'What's this?'"

Once again, these metaphors implicitly contain an image of the users as dependent and unsure of themselves—like children.

Work/Sacred Realm

In addition to being a place for play, LETRS was also described as a *laboratory* or *workshop*—"a humanist's wetbench" (a metaphor from chemistry). This metaphor framed the facility as a place for serious work, filled with tools, not toys.

Users were more likely than the staff to take this utilitarian tack. One explicitly called LETRS a tool. Another described it in terms of what it could do for her—i.e., as a personal assistant or secretary: "It has more to offer in terms of saving time and selecting out certain things you need . . . It can help you meet deadlines." In the laboratory metaphor, LETRS was seen as a place to experiment: "I noticed different computers with Sony monitors and Gama Universe, which handles Arabic, and became interested. Sat down and used it to see how the fonts were, asked a little help to get the directory and files, and experimented a little."

Competing Metaphors

There were thus two conflicting metaphors for LETRS: one describing it as a place for play, the other as a place for work.² Not surprisingly, the related scripts for expected behavior in this space also conflicted. The general script for behavior in a library is very similar to the one that applies in churches, museums, art galleries, or concert halls—all use the underlying categorization of *sacred space* from which are barred such profane items and behaviors as noise, food and drink, and boisterous behavior. A certain amount of physical discomfort—or, at least, a de-emphasis on comfort—is part of the schema for sacred space; thus the furnishings in these places usually tend toward the ascetic. LETRS, on the other hand, was carpeted and comfortably furnished (unlike the rest of the library right outside its door, which conformed to a standard institutional style). It was also noisy by library standards, particularly because of the multimedia CD-ROM products. One informant explicitly commented on the clash of scripts that such noise represented:

My visit at LETRS I found a little bit irritating. We were doing an interview and someone else was calling up birdcalls, which I thought

was rude. It interrupted our discussion. . . . The library is proverbially a place where you should be quiet, and where librarians ask you to be quiet. It seemed funny to be in the position of a patron hoping the *librarian* would be quiet.

LETRS was seen as different from the rest of the library. The metaphor of a place apart, a sacred space, was common among the staff and designers. "As soon as you walk out that door, you're in a different world," said one co-director. "This facility is an island within which things may or may not work the same way as they do in the rest of the library or at UCS [University Computing Services]." This model of a place apart not only existed on the cognitive plane, but also manifested itself in the furnishings and in the office walls and separate door. This provision had the pragmatic explanation that it was necessary to provide security for the expensive equipment inside, but it also inevitably conveyed the message that this was a special place, a place apart.

According to the consultants, many people were unsure whether they could even enter the facility, being under the impression that it was a private office rather than a public space. One may discern another pair of potentially conflicting scripts here. On the one hand, the mission of LETRS was to sell itself to potential users and attract as many of these people inside as possible. On the other hand, the group of appropriate potential users was a highly specific one. Care was taken to ensure that the computers were not used for ordinary word processing or for reading e-mail, and it was necessary to explain to people that this facility was not like the other public computing clusters elsewhere in the library. As one user commented: "It's specialized, not for everyone, but for people who want to do specific work."

According to one of the consultants, the designers had intended to create a space that looked and operated like a professional office such as a doctor's office. He felt that a less businesslike atmosphere would be desirable: "What we need is Turkish tile work, something more artistic." Currently, he felt: "It's dull, it looks like a business office." In other words, he favored the playful over the work frame for understanding this facility.

The model of a sacred space carries with it the metaphors of users as strangers or neophytes, while the staff appear as teachers, guides, and initiators. In fact, one informant described himself explicitly as "a neophyte user." The relevant script is one of providing initiation and guidance to the neophytes, while the computers and products kept in LETRS fill the role of sacred mysteries. This was the metaphor one faculty member—a nonuser of the facility—used to describe a colleague's offer to teach him one of the electronic texts in LETRS: "He offered to initiate me into the Greek Thesaurus." This informant described himself as relatively unskilled in the use of computers and as having been frustrated and unsuccessful in trying to teach himself new computer applications. "If I had

a friendly person guiding me for an hour, to get me past those first frustrations—some ‘Virgil and Dante,’ ” he said, he would have more success. “Virgil and Dante” is the metaphor of a personal spiritual guide who leads the newcomer from hell to paradise, from unfamiliarity with the new world of electronic texts to a state of expertise and comfort. It was an apt description for the script that the LETRS designers had chosen for their operation. The LETRS consultants filled the role of Virgil to the user’s Dante.

Differing Staff/User Perspectives

The script favored by the LETRS staff to describe their relationship with the users was, however, subtly different from the Virgil-Dante metaphor. The staff saw themselves as missionaries following an evangelistic script. Instead of merely waiting for neophytes to come to them, they actively sought out converts—“We’ve been proselytizing” is the metaphor they used frequently in their conversations with us—by means of workshops, open house events, articles in campus newspapers, and personal contacts among their fellow students. One consultant was a particularly zealous missionary. “This is the direction of progress,” she said. “In the next decade, I can’t imagine how people will do without this in all fields. I’d like to see more texts in different fields: the social sciences, history.”

As part of the evangelistic script, users—humanities scholars—were seen by some staff as being unaware of the benefits that electronic texts could offer them. “Very few literary or linguistic people are computer literate,” said one of the consultants. “We try to show the noncomputer users the value of our tools.” Another said: “They don’t know how computers can help them”; and according to another: “So many people have never used anything but word processing.” In the “Virgil and Dante” metaphor that our faculty member used, the newcomer and the guide are on a nearly equal footing. In contrast, in the metaphor of missionaries and heathens or converts, the relationship is far from egalitarian. The missionary—here, the LETRS consultant—is in a superior, if not patronizing, role with respect to the unenlightened user.

In keeping with this evangelizing script, everyone at LETRS referred to their outstanding conversion story. This featured a retired librarian who was uncomfortable with computers but who was the biggest single user of LETRS at the time of the study. As one consultant commented: “He is an unexpected user: a self-confessed Luddite; retired from the library partly because of the incoming computers; felt uncomfortable with them. He’s here every day, waiting when we open with a stack of cards.”

“Luddite” is another metaphor that has gained a new lease on life with the contemporary revolution in personal computing and is now widely used to describe people who either are uncomfortable with computer technology or feel threatened by the incursion of technology into their lives.

If the retired librarian described above referred to himself in these terms, LETRS staff were not hesitant to ascribe similar attitudes to humanist scholars. One of the accompaniments to the evangelizing script was that they shared a stereotype of their potential users as computerphobes: "A lot of people in the humanities are scared of computers," we were told. "Humanities computing has traditionally been used for quantitative analysis, which turned other humanists off. People who believe in Literature with a capital L are against quantitative analysis of texts, which they see as turning literature into a social science."

This assumption would appear to be a reasonable one, as research suggests that humanist scholars indeed use computers less than scholars in the sciences or social sciences (Champion, 1983; Wiberley & Jones, 1989, 1994). However, as with other schemas, this one can be a mental shortcut that cuts too many corners. That is, in some cases, the designation "computerphobe" was applied inappropriately. For example, both consultants explicitly described one of the users we interviewed as a computerphobe. However, the interview with him revealed quite the opposite—i.e., although he personally did not use computers much besides word processing (he had his secretary print out his e-mail for him), he was a strong advocate for the usefulness of computers in his field of linguistics. He had research assistants creating and using linguistic databases, and he required his students to do assignments using the specialized text analysis software in LETRS. Far from being a computerphobe, he was a computer fan, albeit for the time being, a nonuser of the electronic text center.

CONCLUSION

Some of the findings from this study are most applicable to the field site itself—that is, they are specific to the LETRS center at Indiana University. However, the implicit attitudes, expressed in the metaphors used by both staff and users toward computers in libraries and to electronic texts in particular, seem potentially applicable to other academic libraries and indeed to all libraries. Consultants in university library computing facilities are typically students. The subject expertise required to work in an electronic text center, involving multilingual texts and linguistic computing, is usually found among graduate students without library training. In the wider context, librarians today, whether professional or paraprofessional, were by and large trained before the advent of full-text computer applications in libraries. Patrons in other universities (especially those less well-endowed or placing less emphasis on library automation) will be at least as inexperienced in the use of computers for literary and linguistic research of the type supported by LETRS. This situation will be even more true of public libraries, which are less likely to be in the vanguard in the use of technology. Even though this situation will not remain

static, the metaphor of an electronic text as a book will influence expectations of librarians, staff experts, and library patrons wherever they may be. The clash of sacred and profane metaphors that computer use encourages—e.g., framing the library as a playground and also as a place for work—is likely to be an issue in any academic library.

Perhaps the most far-reaching finding of this study, one which goes beyond computer-related issues, is the difference in expectations between librarians and staff on the one hand and patrons on the other. At LETRS, the users and potential users favored scripts in which the user was central and the LETRS staff filled the role of assistants or guides. The staff and designers, on the other hand, favored scripts that emphasized their active roles as salespeople, teachers, or missionaries; in these scripts, the users played a subordinate role as relatively unskilled, immature, passive, and in need of help. This incompatibility between what users expect of library staff and how staff view themselves in relation to users produces perhaps the oldest pair of competing metaphors in the field.

The significance of case studies such as ours is in offering a means by which these differing expectations may be elicited. Individual metaphors, scripts, and schemas, as mental shortcuts, may be quite specific to the mind that employs them. However, within a contextualized case study, or across a number of such studies, categories of meaning may cluster to provide sufficient explanatory power to resolve conflicting expectations in the design and use of library services.

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NOTES

¹More generally, metaphors to water are often used to refer to the "information stream" that librarians and their patrons must cope with—e.g., in the popular metaphor of "surfing the Internet." Communication is often described in terms of a conduit metaphor, in which the content of communication is akin to water (Krippendorff, 1993, p. 8).

²One need not assume that the work and play scripts must necessarily be in conflict. For example, Joachim Knuf (1995) argues that computers and computer software create a *blending* of the characteristics of work and play.

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