

Information Worlds and Interpretive Practices: Toward an Integration of Domains

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ABSTRACT

This article proposes an interwoven three-part framework for conceptualizing and analyzing the role of information in human activities, melding the cognitive and affective domain of the individual, the collective domain of the social, and the domain of signification and communication practices, focusing on the ways in which individual characteristics, social context and interaction, and signification and representation work together to form information behavior. The article presents an overview of each of these three domains and discusses the ways in which they are intertwined. It argues that considering the three domains in relation to each other offers a holistic framework within which to consider the ways in which information – needs, behavior, creation, and use – depends simultaneously on all three. It concludes by offering a brief discussion of the implications of the framework for information services, including (but not limited to) libraries.

Keywords: Information Behavior, Information Seeking in Context, Semiotics, Hermeneutics

1. INTRODUCTION

The field of Library and Information Studies has long focused on an evolving range of issues integral to

the practice of librarianship *per se*, including not only practical and procedural matters that form part and parcel of daily activities within libraries, but also more abstract concerns related to the organization and pack-

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aging of information (e.g. cataloguing, indexing, etc.) and political and policy matters intended to bolster the role of libraries as organizations within broader cultural contexts. In more recent years, the field's focus has extended, with increasing attention paid to non library-centric issues, with information more broadly conceptualized as one of the fundamental building blocks of a culture, something not limited to materials collected and housed within library walls, but central to day-to-day activity in all settings, inextricably interwoven with human interaction.

Part of this broadening of focus from the singular *institution of the library* to information as a part of the very fabric of life has been theoretical, with conceptualizations of *information behavior* similarly expanded from narrow models of information seeking activities within formalized settings to encompass more robust frameworks including a wide variety of factors ranging from affective aspects to contextual and social factors influencing information use. This article falls into this category of work, arguing that multiple factors are necessary for understanding the place of information in our lives, and for conceptualizing the role it plays and the value it has in the construction of human meaning. I attempt to construct an interconnected three-part framework within which to situate information and information-related activities:

1. The cognitive and affective domain of the individual,
2. The collective domain of the social, and
3. The domain of signification and communication practices.

Much of this work draws upon my previous work in theory (e.g. Burnett, Besant, & Chatman, 2001; Burnett & Jaeger, 2008; Burnett, Jaeger, & Thompson, 2008; Jaeger & Burnett, 2010) as well as cultural and philosophical hermeneutics (e.g. Burnett, 2002; Dickey, Burnett, Chudoba, & Kazmer, 2007; Burnett, 2010; Burnett, Whetstone, & Jaeger, 2013), drawing together previously disparate strands of that work and extending it into a – hopefully – more carefully integrated whole.

2. THE DOMAIN OF THE INDIVIDUAL

One of the dominant strands of LIS research has em-

phasized the interaction between an information system of some sort – a database or a library catalog, for instance – and an individual with an information need. As Case (2007) and others have pointed out, attention began to shift in the 1970s away from a prevailing focus on the design and functional characteristics of systems to considering the activities and needs of the individual user. Indeed, much of the history of the field since that shift could be described as being largely concentrated on individuals. Fundamental to this focus is the concept of an information need as defined by Taylor (2015); such a need, as it is transformed (with the help of a librarian acting as an intermediary) from unexpressed visceral need to a finally articulated “compromised need” (p. 251) in the form of a query presented to an information system, structures the basic information seeking process.

While work in this domain has defined the concept of information need in a variety of ways – including, for instance, Belkin's (see, e.g., 1980) “Anomalous States of Knowledge” (ASK) and Dervin's “Cognitive Gap” (see, e.g., 1992) – and has examined a variety of individual characteristics including both the cognitive (Dervin's emphasis on individual sense-making, for instance) and the affective (Carol Kuhlthau's (1991) Information Search Process model), its emphasis has consistently centered on the individual as the primary unit of analysis. Information need, in such an approach, is of necessity defined in terms of the individual: a user comes to seek information because of his or her own unique perception – whether well- or ill-defined – of their own particular interests and needs.

Individuals, however, do not exist in isolation, nor do information systems; rather, they interact within a specific context. However, even context is most often defined with the individual at the center; as Case put it (2007, p. 13) it is “the particular combination of person and situation” that gives meaning to the process of finding, making sense of, and using information. In other words, while the user is never an isolated entity independent of external influences, he or she is, as an active and autonomous agent, the locus at which “need” coalesces into active information seeking and, thus, considered to be the appropriate focus for research on information behavior. As Yu (2012, p. 5) puts it, “the informational properties of individuals ... cannot be replaced by context-denoting concepts [A]

n individual's information world is a sphere of his/her lifeworld which the person experiences in the role of information agent ... rather than social, economic or any other agent."

Typically, the types of external influence considered to be pertinent influences on the actions of the individual have been defined rather narrowly, with work-related roles typically receiving the most attention (see, e.g., Case 2007 for an overview of such research). Over the past couple of decades, however, this narrow focus on formalized work-related activities has loosened somewhat, perhaps most notably in Savolainen's (1995) conception of Everyday Life Information Seeking, which acknowledges that people do not limit their information activities to only those issues related to their employment, but actively pursue a wide variety of other interests as well. There is, as well, an increasing amount of work examining information in relation to individuals' leisure activities (see, for instance, Hartel, 2003, 2010 and Fulton, 2009).

3. THE DOMAIN OF THE SOCIAL

Often seen as being in opposition to work that focuses on individual agency (but actually complementing it, as I will argue below), another strand of work has concerned itself more expansively with questions of context and the social dimension of information use. In one sense, this move away from attention to an (often de-contextualized) individual is necessary: as noted above, individuals do not exist in isolation, but undertake their actions in locations defined by time, space, and a myriad of other external factors. On the other hand, the fact that "context" (because of that myriad of factors) can seem to expand infinitely, as even the fluttering of a butterfly somewhere in the world can demonstrably be considered to be part of "context" writ large (as in Chaos Theory; see Gleick, 1987, for the image of the impact of the butterfly); as Dervin (1996, p. 15) notes, "there is an inexhaustible list of factors that are contextual."

However, as Dervin (1996, p. 15) further notes, "there is a mandate to build conceptual systems which would provide guidance" for considering the role of context in information activities. A wide variety of work takes steps in this direction, including Wiegand's (2003, 2005) arguments for conceptualizations of "Library as

Place" and "Library in the life of the user," as well as studies building on Wiegand's work that investigate the role played by libraries in specific geographic and social settings (see, for instance, Most, 2008). Similarly, Fisher and her colleagues (Fisher, Durrance, & Hinton, 2004; Counts & Fisher, 2010) explore how specific locations function as "Information Grounds" in which the exchange of information is not only wholly situated within a precise place but is also inextricably rooted in the social particulars of that place and its denizens.

In particular, the work of Chatman (e.g. 1991, 1992, 1999, 2000; Burnett, Besant, & Chatman, 2001) turns strongly away from a conceptualization of the individual (and his/her cognitive state) as the defining locus of information-related phenomena. Instead, Chatman considered social factors and influences (rather than individual information needs) as the primary movers shaping how information is conceptualized and used (or avoided) within what she called "Small Worlds." Although a number of details changed in how she deployed her core concepts over time (and although she moved from a focus on information poverty to questions of information use more broadly conceived), Chatman argued for a specific set of factors linked to information use within a Small World (Burnett, Besant, & Chatman, 2001):

- Social Norms, a shared understanding of the acceptability of different kinds of observable behaviors within a world;
- Social Types, or the particular social roles played by individuals – and, particularly, how they are perceived or "typed" by others – within a world;
- Worldview, an agreed-upon perception of what kinds of information are of value within a world and what kinds are not; and
- Information Behavior, the normative activities and practices related to information gathering, use, avoidance, etc.

Although it remains useful for thinking about how social factors and settings exert influence on the information-related activities within a world, Chatman's work relies on an extremely constrained conceptualization of the boundaries defining the limits of a "world," essentially arguing that, while individuals' behaviors are contextualized within their localized Small social World, such worlds are themselves isolated entities allowing few, if any influences from external forces into

their settings (Burnett, Besant, & Chatman, 2001).

Clearly, however, just as individuals exist within the social settings of which they are a part (but only a part), those settings – Chatman’s Small Worlds – also exist within and are demonstrably shaped by larger social groupings. The lives and behaviors of participants within even the most constrained worlds (such as, for example, the inmates in a women’s prison who were the focus of Chatman’s 1999 study) are influenced and shaped not only by their immediate surroundings but by a number of other external factors including not only the social worlds of prison guards and administrators, but also the relationships between the prison as an entity and the remote worlds of the legal establishment and the political and economic forces of the outside world. That is, worlds are contiguous to as well as embedded and situated within other worlds; within these worlds information is not meaningful only at the level of the individual, but is a critical – and even defining – part of the structure and interaction of social worlds across levels.

Building on Chatman’s work and melding it with Habermas’ notion of the “Lifeworld” – a culture-wide sum of all available information resources, pathways, and channels within which both individuals and smaller social worlds are situated – the Theory of Information Worlds (Jaeger & Burnett, 2010) attempts to address three important points:

1. That Chatman’s narrow focus on only the smallest of Small Worlds, together with her suggestion that such worlds must be considered in isolation from the larger worlds surrounding them, limited the power of her analysis of the interaction between information and social factors.
2. That human information use – indeed, that all information-related activities – are socially situated and are shaped, at least in part, by social forces in addition to individual information needs and cognitive factors.
3. That “information worlds” as social groupings overlap with and interact with each other, that these worlds may or may not perceive the meaning and value of information in the same ways, and that these differences in perception may lead to conflict between the worlds.

The Theory of Information Worlds thus adds a concept of “Boundaries” – the places at which different

worlds come into contact with each other in one way or another – to Chatman’s core concepts and renames the concept of “Worldview” as “Information Value,” to suggest not only that each world has its own agreed-upon (if often implicit) scale for assessing the importance of different kinds of information but also that the kind of value attached to information (and the appropriate metrics for weighing that value) may differ from world to world. Finally, it should be noted that, although it focuses on social worlds rather than on individual users as the locus of information-related activities, the theory denies neither the importance of individuals nor the relevance of individual preferences, cognitive and affective states, or decisions; rather, it sees those individual characteristics and choices as being embedded within – not isolated from – the social world. Individuals are never fully free agents, but act within a set of norms, constraints, values, and possibilities that are social in nature.

4. THE DOMAIN OF SIGNIFICATION

Human users of information, whether conceptualized as individuals or as social groups, do not interact with information as an abstraction, but always as something encoded and communicated in some way via a material system of representation, whether writing, visualization, or some other medium for recording and storing – in a very literal sense, Buckland’s “Information as Thing” (1991). Even purely verbal information exchange via personal interaction and word of mouth relies on linguistic encoding, and differs from other mechanisms for representation primarily in being evanescent rather than persistent in some way. Whether language structure is universal, innate, and a precondition of thought – and whether information can or cannot exist without it – or whether it is merely a social channel for communicating things that exist purely cognitively without encoding (see, for one among many overviews of a closely related debate surrounding Chomsky’s linguistics, Colapinto, 2007), for the purposes of the field of LIS, information cannot be usefully conceptualized, sought, retrieved, or used without the mediation of representational practices of some sort; to paraphrase the poet William Carlos Williams (who was talking about poems), information, when packaged and stored for future

use, can be seen as “a small (or large) machine made out of words” or some other encoding scheme (Williams, 1969, p. 256).

Although it has not always been informed by linguistic or philosophical approaches, a substantial component of work in the field has, in one way or another, examined the relationship between language (as a form of representation or signification) and information. And, indeed, much of the initial focus on retrieval and other information systems mentioned above directly engaged questions related to language, whether in the use of controlled vocabularies to represent “aboutness” to support user searches of systems (see, for only one recent example among thousands, Gross, Taylor, & Joudrey, 2015) or the different ways in which an information need could be expressed by a user during a search interaction (Taylor, 2015). Other work has brought new ways of addressing the gap between natural language and the more formalized vocabularies found in thesauri through the use of the more rigorously designed but also more flexible and “smarter” language structures found in ontologies (see, for two examples, Compton, 2014; Willis & Losee, 2013), with methods sometimes borrowed from linguistics (see, for instance, Faith, 2013). In addition, some work attempts to use automated approaches either to approximate human language use (e.g. Workman & Stoddart, 2012) or to develop systems to automatically interpret and modify users’ system queries (e.g. Symonds et al., 2014). Still other work has taken a less system-oriented and formalized approach, trusting in the “wisdom of the crowd” through approaches such as user tagging and folksonomies (e.g. Lin, Trattner, Brusilovsky, & He, 2015; Spiteri, 2007).

Although theoretically-oriented approaches have not been as common as such practice-oriented work, a number of researchers have pursued more conceptual concerns, often related to language use as one of the primary ways in which people interact and create shared meaning. For instance, Thellefsen et al. (2014) have used Peircean semiotics to criticize Belkin’s individually-oriented cognitive ASK model for lacking a social component in which meaning is created as an interactive process between multiple agents and, ultimately, for being unable to explain how information is understood and turned into knowledge. Semiotics (based often, though not always, on Peirce rather than on Saussure) and its formulation of the relationship between signs,

objects, and interpretants has also been proposed as a framework for understanding the sense-making process (see Liu, 2013) and as a way forward in improving indexing practices (de Almeida et al., 2013) and knowledge organization (Friedman & Smiraglia, 2013).

Given that information, no matter how it is encoded and communicated, relies entirely on a system of signs and that such signs are part of an extended process that includes not only information seekers (that is, individual users) but also information creators and material objects such as books that mediate between creators and consumers, such a focus on the role of language in the creation of meaning seems fully appropriate. As Raber and Budd (2003) have suggested, “information” is a complex and often fuzzy concept, encompassing objects, individual cognitive processes, and social influences; considering it as a system of signs requires that we focus on all aspects of the process rather than solely on either individual cognition or on social context; people, whether considered individually or in groups, interact with information via such a system of signs.

Semiotics offers one path for analyzing those aspects of information related to signification and communication practices. Another approach, drawing upon Iser’s reader-response theory, focuses primarily on how individuals, as consumers of texts, construct meaning – or information – through reading, conceived as an active performance (e.g. Mathson, 2011; Finlay, Ni, & Sugimoto, 2012). However, reader-response approaches tend often to minimize factors other than the role of individual cognition in the act of reading; Budd and Raber (1996) and Budd (2006) have proposed discourse analysis as a broader framework not only for understanding reading and interpretation, but also for analyzing how librarians function as mediators between information and users and for exploring how socially-rooted discursive practices shape and influence our perceptions and understanding of information in the first place. Both semiotics and discourse analysis, to varying degrees, emphasize the rootedness of information within two different systems outside of the individual: the semiotic system of language and representation, and the system of social discursive practices. An essential contribution of the more cognitively-oriented approaches to information, as outlined above, however, is that the individual cannot be removed from the equation; information, while it unquestionably relies upon some kind

of system of representation (whether linguistic, visual, auditory, or other) for its transmission, and while it (equally unquestionably) is imbued with meaning and value because of the ways in which it is embedded within social practices and contexts, is also sought and used by individuals for their own individual purposes.

Another approach to the domain of signification, drawing upon cultural and philosophical hermeneutics, more fully acknowledges this interconnectedness. Hermeneutics emerged out of Talmudic and Christian traditions as a set of practices for deriving valid interpretations (or readings) of sacred texts (Thompson, 1981). More recent versions of hermeneutics, however, take up a more broadly defined challenge: to theorize about how semiotically-encoded objects (texts, for instance) that are created in one time and place still communicate to readers who find themselves in often radically different contexts – or, to put it in the terms of the Theory of Information Worlds, how texts can communicate across multiple information worlds which may (or may not) share norms and values either with each other or with the texts. As Hans-Georg Gadamer puts it, practices of representation and signification – written language foremost among them – function as “the fundamental mode of operation of our being-in-the-world and the all-embracing form of the constitution of the world” (1976, p. 3). To put this in terms of the field of LIS, the creation, dissemination, seeking, and use of information forms the heart of our engagement with – and understanding of – the world in which we live. In this sense, hermeneutics provides an ideal framework for conceptualizing the entire life-cycle of information.

Like reader-response theory, hermeneutics, in Paul Ricoeur’s (1974) formulation, emphasizes the interpretation of texts as an act undertaken at the end of the cycle by a reader; however, it also importantly situates this act as part of the chain that includes the other necessary elements of the process of creating meaning: the writer (or creator of the text), the text itself, and the social contexts within which texts are created and read. While Ricoeur deals specifically with texts, his version of hermeneutics works well when the concept of information is substituted for that of the text – after all, as noted above, information must be encoded or packaged in some way in order to be either stored or used. Indeed, his definition of a text as “a discourse told by somebody, said by somebody to someone else about something”

(1974, p. 30) applies as well to information and its place within discursive practices. Information is created (and packaged) by someone with a particular intention and a vision of a potential audience, it is about something, and it is a “social phenomenon” (1974, p. 31) involving a producer, a set of mediating factors (both objects and actions), and a receiver; it is our way of understanding – and, thus, constructing – the world: “For me, the world is the ensemble of references opened up by every kind of text, descriptive or poetic, that I have read, understood, and loved” (1974, p. 37).

As a guiding framework for research on information behavior, Ricoeur’s hermeneutics has the disadvantage of being explicitly uncommitted to any particular methodology. Still, hermeneutic approaches have been proposed for LIS research since at least 1989 (see Benediktsson, 1989), and have been used for studies of a variety of information-related phenomena, including the implications of design decisions for the ability of online personal health records to support patients’ ability to understand and conceptualize information related to their own health (Burnett, Whetstone, & Jaeger, 2013); the degree to which both virtual communities (Burnett, 2002) and reference interviews can be seen as hermeneutic processes (Cohen, 1993; Murphy, 2005); the development of ontologies within information systems (Fonesca & Martin, 2005); the evaluation of databases (Boydens & van Hooland, 2011); classification (Paling, 2004); as well as more theoretically-oriented work related to literacy (Suominen & Tuomi, 2015), the creation of knowledge (Suorsa, 2015), and general information theory (Gnoli & Ridi, 2014). As Hansson (2005) has suggested, hermeneutics, in part because of its focus on the mediation of systems of signs in information activities and in part because of how it sees the individual and the social as intertwined factors, can provide a way forward in LIS research.

5. ENTWINED DOMAINS

As the above overviews suggest, the three domains – the individual, the social, and signification – are inextricably intertwined with one another. Individuals occupy the domain of the social and interact with one another through the mediation of signs. Or, to put it another way, the domain of the social is the broad context with-

in which identifiable beings with unique cognitive and affective characteristics (i.e., individuals) live, exchange information, and engage with each other using a wide variety of signification and representational practices. Indeed, the domain of the social can arguably be seen as a complex system in which language and a wide variety of cultural artifacts and objects – as well as cultural institutions – play a semiotic role, carrying – and, perhaps, communicating – meaning (or, in LIS terms, information). Attempts to understand and use that meaning take place at both the level of the individual and as part of an ongoing and interactive social process.

Using Ricoeur's hermeneutics (1974) as a guide suggests that, although information objects (i.e., information that has been encoded and packaged as a "thing" in Buckland's (1991) sense) are necessary, information itself is neither static nor disengaged, but is, rather, one component of a complex process involving all three domains. Information transfer requires several interlocking stages:

1. Production of information, including an intent to communicate or demonstrate something to some kind of audience on the part of an agent, whether an individual or a social collective.
2. A medium by means of which that intent – or something approximating it – is encoded and turned into a "thing." This encompasses not only obvious media such as texts of various kinds, but also mediating information systems such as databases and institutions such as libraries dedicated to the storage and retrieval of information.
3. Some kind of process through which information is sought, obtained, encountered, acquired, or otherwise engaged with. This can include, obviously, traditionally-conceptualized information seeking activities such as those described above, but it also includes a wide range of other activities both individual and social.
4. An interpreting agent (again, whether an individual or a social group of some kind), who may or may not be the audience envisioned by the creating agent, and who may or may not understand the information encoded in the object in the way the creating agent intended. And
5. Some kind of acknowledgement, response, or impact. That is, as Bateson's famous formulation (1972) puts it, information is something that makes a

"difference" in some way, which is one of the things that gives it value.

Activities related to all of these stages can be construed to be information behavior of some kind or another. That is, conceptualizations of information behavior should not be limited only to those parts of the process related to needing, finding, or using information, but should also take into account production and the ways in which information is deemed to be worth creating as well as how it is encoded and packaged.

This process is neither seamless nor unproblematic. It is clear that what could be called "slippage" occurs between each stage. The creators of information may or may not, for instance, make decisions that allow them to accurately or clearly express their intentions; the encoding of information using some kind of communicating medium (such as language) is limited by things like usage and discursive norms, community practices, formal characteristics of particular genres, etc.; the audience may be quite different from that anticipated by the creators; and the ways in which the audience interprets, understands, or uses the information may (as both reader-response theory and hermeneutics suggest) bear little resemblance to the creator's intention.

Acknowledgement of such "slippage" echoes the insights of some post-structuralist theory, and in particular Jacques Derrida's (e.g. 1998) argument that communication practices always contain the seeds of their own dissolution or deconstruction. However, whereas Derrida's formulation of this "slippage" has, with some justification, been criticized as either radically relativist or even a form of nihilism (e.g. Wolin, 1993), hermeneutics accepts it as a given part of the complexities of communicating across the distances of space and time. Ricoeur (1974, p. 43) addresses this issue through his concept of "distanciation" as an inescapable characteristic of communicating via signs; he suggests that the difficulty of grappling with and trying to understand a text transforms the reader's distance from the writer into a new kind of closeness in which fruitful understanding can occur:

Distanciation is ... the dynamic counterpart of our need, our interest, and our effort to overcome cultural estrangement. Writing and reading take place in this cultural struggle. Reading is the *pharmakon*, the "remedy," by which the meaning of a text [or information] is "rescued" from the estrangement of

distanciation and put in a new proximity, a proximity which suppresses and preserves the cultural distance and includes the otherness within the oneness.

Ricoeur (1974) calls this process of turning distance into closeness the “mode of ‘as if’ (‘as if you were there’).” Ricoeur applies the “mode of ‘as if’” explicitly to the world of printed texts and literary genres, but it can be extended to the concept of information as well. Information produced according to the norms and discursive standards of existing genres – that is, information that has been encoded for distribution, storage, and use according to existing practices – becomes a primary way of interacting with the world in which we live; despite the slippage and “distanciation” inherent in the process, it is “as if” information could be transferred seamlessly through the “ensemble of references” provided by texts (Ricoeur, 1974, p. 37).

It is important to emphasize, once again, that this process entwines – and, indeed, requires – all three of the domains outlined above. It is, as Ricoeur makes clear through his use of the first person pronoun, the individual, with his or her own cognitive and affective makeup, who engages with information. And yet this individual engagement is inherently part of an ongoing social process, as the individual is situated within a social context and is, of necessity, engaging with information created by others for purposes other than his or her own; further, the practices involved in information production, distribution, and archiving – publication, libraries, the media, etc. – are social practices. And, finally, the domain of signification – language, discursive practices, modes of representation – provides the set of tools that make the entire process possible in the first place. It is, in a very real sense, the locus of interaction between individuals and other individuals, between individuals and social collectives, and across different social groupings; signification practices form the glue that holds information worlds together and makes them work.

6. IMPLICATIONS FOR LIS RESEARCH AND PRACTICE

This article argues for a holistic framework within which to consider the ways in which information – needs, behavior, creation, and use – depends simultaneously on three different but intertwined domains:

the individual, the social, and signification. Although it began with an observation that the concerns of the field of LIS have shifted from a focus on libraries and librarianship to a broader conceptualization of information as a fundamental part of life and social interaction, it should be clear that libraries still play a central role in the world of information. Thus, the framework outlined here has some important implications not only for understanding information as a phenomenon both within and outside of libraries, but also for library practices and the field of librarianship.

The three domains, considered independently, offer a number of important points for information provision in any setting, including libraries. Consideration of the domain of the individual makes it clear that, while there are inescapable important external influences (including both of the other two domains), people also make decisions and have interests and needs rooted in their own individuality; “one size fits all” approaches to information provision run the risk of missing this point. The domain of the social, on the other hand, foregrounds the fact that individuals and their actions are always situated in specific times and places and within identifiable information worlds that help to shape users’ activities. Further, because information systems – including libraries – are also created within specific social contexts to meet goals and provide services that are clearly social in nature, analysis of such systems requires attention to those social factors that guide developers’ decisions about design and functionality. As I have argued elsewhere (Burnett, Whetstone, & Jaeger, 2013), the concepts outlined in the Theory of Information Worlds provide a powerful analytic tool for thinking about how systems, through their design, “project” a set of sometimes opaque assumptions about things like social norms and information values that both enable and constrain information seeking and use. Similarly, the domain of signification makes it clear that information systems and practices – as well as individuals and social groupings – are always built out of and, of necessity, use signification practices (including, but not limited to, language practices) to facilitate information access and use; understanding of these signification practices not only can help us understand how signification structures shape and influence information, but can also suggest ways in which information services and systems can be improved and made more transparent.

One important implication of the three domains is that, while it is often assumed that the concept of information behavior is somehow only relevant at the user end of information work, system design and development can – and should – also be thought of as a type of information behavior. Decisions made during the development process both “project” a vision about the intended purpose, function, and meaning of information tools, and make material a set of assumptions about which user behaviors are to be supported and which are not. Users, that is, can only engage with systems in ways that have been built into those systems. Research about systems and research about users should, then, inform each other rather than being thought of as radically independent of each other; and both are inextricably intertwined with all three domains.

Good information practice can benefit from attention to each of the three domains, but can perhaps benefit even more powerfully from attention to the ways in which the three interact with one another. This is not to suggest that all LIS researchers should suddenly embrace holistic methods that draw upon individual, social, and signification models and approaches. Rather, it is important to remember that research within any of the three domains can offer something of value to research within the other domains. Individuals do not exist apart from either social groups or signification practices, just as groups are made up of individuals who use signification practices to interact. Information is the point at which the three intersect, and research into information phenomena – even when it is not “holistic” – should help illuminate that intersection.

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