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An introduction to metatheories, theories, and models

Introduction

The objective of this chapter is to provide a general introduction to some key theoretical concepts of use in library and information science (LIS) research. First, the three terms in the title—metatheory, theory, and model—are defined and discussed. Next, an extended example is provided of a case in which a researcher might consider and test various models or theories in information-seeking research. Next, metatheories are considered at greater length, and the distinction is made between nomothetic and idiographic metatheories. Finally, 13 metatheoretical approaches in wide use in LIS are described. Explanatory texts are referenced, as well as example studies using each approach. The discussion is necessarily brief and simplifying.

Definitions

It is important, first, to distinguish the terms metatheory, theory, and model. These concepts are often confused and used interchangeably. They

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should not be, as understanding the distinctions among them can help in thinking about theoretical aspects of LIS.

- Metatheory A theory concerned with the investigation, analysis, or description of theory itself. (*Webster's Unabridged Dictionary*)
- Theory (a) The body of generalizations and principles developed in association with practice in a field of activity (as medicine, music) and forming its content as an intellectual discipline. . . . *Webster's Unabridged Dictionary*) (b) A system of assumptions, accepted principles, and rules of procedure devised to analyze, predict, or otherwise explain the nature or behavior of a specified set of phenomena. (*American Heritage Dictionary*, 1969). (See also Reynolds, 1971.)
- Model A tentative ideational structure used as a testing device. . . . (*American Heritage Dictionary*, 1969). (See also Lave & March, 1975.)

Metatheory can be seen as the philosophy behind the theory, the fundamental set of ideas about how phenomena of interest in a particular field should be thought about and researched (see also Wagner & Berger, 1985; Vakkari, 1997). The term has not been used much in LIS, but it is rapidly becoming more important to our understanding. In earlier years, the underlying philosophy behind research in the field could be identified as coming from few directions—from a general humanities approach and a general scientific approach. In recent years, however, more and more metatheoretical approaches have been developed within the field and borrowed from other fields. The result has been that we now have a confusion of many approaches competing for attention.

The concept of a metatheory has a lot of overlap with the term "paradigm," which was given its modern understanding in science by Thomas Kuhn (1996). In the terms used here, Kuhn considered a paradigm to be the metatheory, the theory, the methodology, and the ethos, all combined, of a discipline or specialty. So paradigm would have a broader meaning than metatheory. At the same time, metatheory is absolutely core to any paradigm, and is defining of a paradigm in many senses.

Theory, as defined in definition (a), can be thought of as the entire body of generalizations and principles developed for a field, as in "the theory of LIS." Second, and more of interest for this paper, is the concept of a single theory. A theory is a system of assumptions, principles, and

relationships posited to explain a specified set of phenomena. Theories often carry with them an implicit metatheory and methodology, as in the "rules of procedure" in definition (b). However, for most purposes, the core meaning of theory centers around the idea of a developed understanding, an explanation, for some phenomenon.

Models are of great value in the development of theory. They are a kind of proto-theory, a tentative proposed set of relationships, which can then be tested for validity. Developing a model can often help in working through one's thinking about a subject of interest. Indeed, there is not always a sharp dividing line between a model and a theory about the same phenomenon. Models sometimes stand as theoretical beacons for years, guiding and directing research in a field, before the research finally matures to the point of producing something closer to a true theory.

In science, a classic sequence of development has been characterized as "description, prediction, explanation." That is, the first task when studying a new phenomenon is to describe that phenomenon. It is difficult to think about something if you know very little about it. So description comes first. Second, once one knows something about a phenomenon, it should be possible to predict relationships, processes, or sequences associated with the phenomenon. Third, based on the testing of predictions, one should be able to develop an explanation of the phenomenon, that is, a theory. Theories can always be overturned by later theories; even when a theory has been well tested it is always possible that later research will provide a more thorough, deeper explanation for the phenomenon of interest.

Models are most useful at the description and prediction stages of understanding a phenomenon. Only when we develop an explanation for a phenomenon can we properly say we have a theory. Consequently, most of "theory" in LIS is really still at the modeling stage.

In the next section, an example proto-theory, or model, is analyzed, and means of testing the model are discussed. However, some metatheories explicitly eschew the value and possibility of generalizing the studied reality of a situation in order to create a theory. Ethnomethodology, for example, "never bought into the business of theorizing, it was iconoclastic, it would not theorize foundational matters" (Button, 1991, pp. 4–5). Rather, ethnomethodologists "generally decline to theorize about the social world, preferring instead to go out and study it" (Ritzer, 2000, p. 75). At a minimum in the following discussion, one must assume a metatheoretical position that allows for and legitimates models and theories. So the following discussion cannot be applicable to every possible metatheoretical position.

Example using these terms

Let us take, as an example, the Principle of Least Effort. This is probably the most solid result in all of information-seeking research. Specifically, *we have found that people invest little in seeking information, preferring easy-to-use, accessible sources to sources of known high quality that are less easy to use and/or less accessible.* Poole (1985) did a meta-analysis of 51 information-seeking studies, in which he found this proposition strongly confirmed. (He also has a good discussion of theory in LIS.)

So ease of use and accessibility of information seem to be more important to people than quality of information. But what is the *explanation* for this phenomenon? Why are people unwilling to invest that little bit of extra energy in order to get information that they themselves would acknowledge is of better quality? We do not really have a theory. We have described the phenomenon; further, we have found this to be the case in many different environments with many different types of people, so it is a result that appears to be highly generalizable. Consequently, we can also confidently make predictions from these results. For example, we can predict that when we study a new group of people, they will probably also invest little energy in information seeking, and prefer easy-to-use, accessible resources.

So, through description and prediction we have modeled the Principle of Least Effort. Though we often represent models in diagrams that display relationships, we do not have to do so. In this case, our model can be described in a sentence (see the italicized statement above). (For some examples of models presented in diagram form, see Bates, 2002; Gaines, Chen, & Shaw, 1997; Metoyer-Duran, 1991; Wang & White, 1999; Wilson, 1999.) So the Principle of Least Effort is an observed behavior, one we have observed widely enough to confidently model as a principle. But we do not yet have an explanation—so we do not yet have a theory.

How can we move this research from being a model to being a theory? First, we can hypothesize various possible explanations based on work we find elsewhere in the field or in other fields. Here are some I have thought of:

1) People "satisfice" in all realms of life, including information seeking. The idea of satisficing comes from Simon (1976), who argued that in decision making, people make a good enough decision to meet their needs, and do not necessarily consider all possible, or knowable, options. Translated to the language of LIS, for example, using Dervin's concept of "Sense-Making" (Dervin, 1983, 1999), we could hypothesize that people make sense of their situations based on what they know and can learn

easily. Their Sense-Making need only be adequate to continue with life; it does not need to be so perfect or extensive as to enable them to make sense of everything.

2) People underestimate the value of what they do not know, and overestimate the value of what they do know. People have difficulty imagining what the new information would be that they do not know, while what they do know is vivid and real to them. Consequently, they underinvest in information seeking. See Gilovich, Griffin, and Kahneman (2002) and Kahneman and Tversky (2000) for work on distortions in decision making and choice.

3) Gaining new knowledge may be emotionally threatening in some cases. Gregory Bateson once described what he called "value-seeking" and "information-seeking" (Ruesch & Bateson, 1968, pp. 178–179). In value-seeking, a person has an idea in mind of something that he or she wants. Suppose one wants some eggs and toast to eat, for example. One then goes out into the world, does various things involving chickens, grain, cooking, and baking, with the end result that one has a breakfast of eggs and toast. Thus, one has done things to parts of the world in order to make the world match the plan one has in mind. In information seeking, on the other hand, according to Bateson, the directionality is reversed; one acquires information from the world in order to impress it on one's own mind.

However, new knowledge can always bring surprises, sometimes, uncomfortable ones. If "we are what we know," if our sense of self is based, in part, on our body of knowledge of the world, then to change that knowledge may be threatening to our sense of self.

4) Information is not tangible, and objects are. Intangible things seem less real to us, therefore less valuable. Consequently, we invest more in acquiring tangible than intangible things.

Each hypothesis above is not a complete explanation. For instance, *why* do people satisfice? However, if we were to test this satisficing hypothesis and we learned that people do satisfice in information seeking, we would have an explanation that tells us more than just the *observed fact* of least effort. We would then be able to place this result in the context of all the other research in other disciplines that has observed that people satisfice in a variety of circumstances, and could then draw on that research to develop tentative explanations (tentative theories) that go deeper than the satisficing explanation alone.

In fact, Simon's satisficing may be, in effect, another name for Zipf's Principle of Least Effort (1949). Poole (1985) believed his results fit well with Zipf's earlier work. Zipf had a more extensively conceptualized understanding of least effort, one that constitutes a preliminary explanation,

i.e., theory, and which contributes to a better understanding of least effort than we usually articulate in LIS. To Zipf, according to Poole, least effort was technically the "least average rate of probable work" (Poole, 1985, p. 90). That is, people do not just minimize current work associated with some activity, because they could eventually do a total of much more work in the end. Rather, they make a considered estimate of all likely work associated with a given effort, now and in the future, and do the amount of work now that they estimate will best reduce their overall effort, now and later combined (Poole, 1985).

How could we test these four hypotheses listed? In each case one or more studies could be designed in order to attempt to discover which, if any, of these explanations is operating in people's information seeking. For example, in an experimental approach to Hypothesis 2, people could be placed in a realistic situation where they have certain information and do not have other information. They have to expend units in order to "purchase" additional clues or hints to solve the test problem. There are other ways they can expend those same units. The experimental subjects assign their units according to their best judgment. Afterward, they are given the information they did not have earlier. Do they now rate higher or lower the value of the information that they had not had in the test situation? On what basis do they assign value at each step of the experiment?

In an observational approach to Hypothesis 3, people could be studied in real information-seeking situations—suppose in three different types of situations: 1) finding information about a disease diagnosed in a family member, 2) researching a paper in a required course on a topic of little interest, 3) finding out more about a hobby or avocation (Hartel, 2003). Searching could be observed and the subjects interviewed about their feeling reactions to their situation and the acts of information seeking in which they engage. Do they avoid new information or seek it eagerly? Are there signs of anxiety and threat around discovering new information? Do people have different responses to the different types of situation, and why?

In the example above, we started with a descriptive finding—the widely observed tendency of people to prefer easy-to-use and accessible information sources over harder to get, higher quality sources of information. This "Principle of Least Effort" has been so widely observed that we were able to make confident predictions about where else it might appear as well. But we still had no explanation, no theory as to why this phenomenon occurs (except possibly in Zipf's original research, 1949). We hypothesized four possible explanations, and considered ways in which these theories could be tested. Testing might then lead to further tentative theories that would explain this phenomenon still more deeply.

Sources of metatheories

In the preceding section much was made of models and theories. What about metatheories? Where do they fit in? As Kuhn observed, in most natural sciences most of the time, there is a single predominant paradigm out of which researchers identify and test research questions. Metatheories about the nature of research and the desirable methods for each discipline are embedded in those paradigms. In the social sciences, however, it is more common to have a general paradigm for a field, which describes the domain of interest for that discipline—the operations of the mind for psychology, for example—but more than one metatheory, or philosophy of research, competing for the loyalties of researchers within that discipline. In the case of psychology, in the 1960s and 1970s there was a split between an older, behaviorist metatheory for the study of psychology (Skinner, 1992 reprint), and a newer, information processing approach (Chomsky, 1959; Anderson, 1995). The split went so deep that the latter approach came to be known by a different name, cognitive science. Over the last 10 to 15 years another metatheory, by the name of evolutionary psychology, has challenged the information processing approach (Barkow, Cosmides, & Tooby, 1992).

In the sciences, a new paradigm usually revolutionizes the field, that is, the new paradigm reconfigures all prior learning around a new core metatheory and body of research results. Examples have been plate tectonic theory in geology and molecular biology in biology. In the social sciences, however, several metatheories may continue side by side. Sometimes a metatheory will simply die out and other times it will grow and change, and still compete for the interest of researchers.

In the late 20th and early 21st centuries, there has been a proliferation of metatheories in the social sciences generally, and, certainly, in LIS as well. In our society, in general, old ways of thinking are breaking up and breaking down; supposed eternal verities are falling right and left, from the fall of the Berlin Wall and all that it meant about rigid social structures in East and West, to social boundaries that formerly split communities by race, gender, religion, and other long-standing, stable divisions. Even the eternal verities of forms of writing—the book, the journal, the newspaper article—are being shaken up in the new world of Internet information.

Under these circumstances, we should perhaps not be surprised that basic metatheoretical assumptions about what research is or should be are also breaking down and being challenged by newer approaches. I think it is also the case that different people have different cognitive styles, certain ways of thinking that are natural to them. We are all drawn to the sort of research and thinking that works best for us, that is most harmonious with

the way our minds work. Wagner and Berger (1985) call these "orienting strategies."

In earlier, more rigid times, it tended to be the case that only certain orienting strategies were considered legitimate in a given field at one time. Heaven help the psychology doctoral student who wanted to take a qualitative approach back in the heyday of behaviorism, for example. Many talented people were forced out, simply because they had the wrong cognitive style for the intellectual spirit of the times. Now, there is generally more tolerance for different approaches, although there is still some tendency to argue that one's own preferred approach is the one true or best philosophy of research, and everything else is bunk.

I believe that the intensity of these struggles arises, in part, out of the different cognitive styles people have, which then draw them to corresponding different orienting strategies. It just feels so right to follow one's preferred approach that it just must be the case that the other guys are all wrong. However, I believe that every orienting strategy brings us something valuable, if we are only open to learn what it has to offer.

Thus, it is likely that there will continue to be several approaches in LIS to studying the phenomena of interest to our field. When one takes up a particular approach, however, it is important to understand the philosophy and some of the history behind the development of a particular research approach. That way, there will be a smooth and logically consistent passage from philosophy to theory and methodology.

The nomothetic-idiographic contrast

First, we need to make a distinction between what are known as nomothetic and idiographic approaches to research. These two are the most fundamental orienting strategies of all.

- ***Nomothetic***—"Relating to or concerned with the study or discovery of the general laws underlying something" (*Oxford English Dictionary*).
- ***Idiographic***—"Concerned with the individual, pertaining to or descriptive of single and unique facts and processes" (*Oxford English Dictionary*).

The first approach is the one that is fundamental to the sciences. Science research is always looking to establish the general law, principle,

or theory. The fundamental assumption in the sciences is that behind all the blooming, buzzing confusion of the real world, there are patterns or processes of a more general sort, an understanding of which enables prediction and explanation of the particulars.

The idiographic approach, on the other hand, cherishes the particulars, and insists that true understanding can be reached only by assembling and assessing those particulars. The end result is a nuanced description and assessment of the unique facts of a situation or historical event, in which themes and tendencies may be discovered, but rarely any general laws. This approach is the one that is fundamental to the humanities. (See an excellent discussion of these science/humanities theoretical differences in Sandstrom & Sandstrom, 1995; see also discussion in Bates, 1994.)

For the last couple of centuries, the social sciences have been the crossroads where these two approaches intersect, the ground over which the nomothetic and idiographic orienting strategies have fought. One of the common narratives of the 20th century was of the academic social science department, say, political science or economics, being invaded by newcomers with a mathematical or scientific approach to their subject, in opposition to the prior discursive, idiographic approach. In the late 20th century, that narrative was often reversed, when postmodernist theorists came into departments and superseded the more nomothetically oriented researchers who had been there previously.

LIS has not been immune to these struggles, and it would not be hard to identify departments or journals where this conflict is being carried out. My position is that both of these orienting strategies are enormously productive for human understanding. Any LIS department that definitively rejects one or the other approach makes a foolish choice. It is more difficult to maintain openness to these two positions, rather than insisting on selecting one or the other, but it is also ultimately more productive and rewarding for the progress of the field.

Metatheories in LIS

The purpose of this section is to present brief descriptions of a number of the more popular metatheories that are being expressed in LIS these days. The arraying of these approaches in a common framework may be helpful for beginners in understanding the range of research approaches taken in LIS.

There are many metatheories operating in the field currently. There is disagreement between proponents of various metatheories, and there are also various interpretations and descriptions of any one metatheory.

Furthermore, researchers become interested in new approaches as they appear in the field, and may change metatheories and methodologies during their career. Examples given below should be seen as just that, examples; researchers should not be assumed to be always unequivocally associated with a single metatheoretical approach.

It should also be understood that what is presented below is a *personal, idiosyncratic, and simplifying* selection. See Cool (2001); Hjørland (1998, 2000); Pettigrew, Fidel, and Bruce (2001); and Talja, Tuominen, and Savolainen (2005) for other categorizations of metatheories.

For expositions and debates on metatheory and methodology in LIS, see Bar-Ilan and Peritz (2002); Bates, J. A. (2004); Bates, M. J. (1999); Case (2002); Crabtree et al. (2000); Dervin (1999, 2003); Dick (1995, 1999); Ellis (1992); Fidel (1993); Given and Leckie (2003); McClure and Hernon (1991); McKechnie (2000); Pettigrew and McKechnie (2001); Powell (1997, 1999); Sandstrom and Sandstrom (1995, 1998); Sonnenwald and Iivonen (1999); Talja (1999, 2001); Thomas and Nyce (1998); Trosow (2001); Wang (1999); and Westbrook (1994).

With the description of each metatheory below, example applications are provided where possible, and textual sources explaining or elaborating on the various metatheories are also suggested. The listing begins with idiographic approaches in numbers 1–5, mixed approaches in numbers 6 and 7, and primarily nomothetic approaches in numbers 8–13.

1) A ***historical*** approach, in which understanding of the present is seen to arise out of an understanding of the past social, political, and economic events and processes, which have led to current conditions. For historical methods and issues, see Barzun and Graff's classic work (1992), as well as Appleby, Hunt, and Jacob (1994), and Rayward (1996). For examples of historical research in LIS, see Hildenbrand (1996), Maack (2000), and Wiegand and Davis (1994).

2) A ***constructivist*** approach, arising out of education and sociology, in which individuals are seen as actively constructing an understanding of their worlds, heavily influenced by the social world(s) in which they are operating. According to Kuhlthau (1993), educational constructivist theory built on the work of Dewey (1933, 1944), Kelly (1963), and Vygotsky (1978), among others, while, according to Ritzer (2000), sociological constructivist theory arose from Schutz (English translation 1967, original 1932), Berger and Luckmann (1990 reprint), and the closely related ethnomethodological work of Garfinkel (1967). Major proponents of this approach in LIS have been Dervin (1983, 1999) and Kuhlthau (1993).

3) A ***constructionist or discourse-analytic*** approach, with both humanities and social sciences roots, in which it is assumed that the discourse of a

society predominately conditions the responses of individuals within that society, including the social understanding of information. According to Talja, Tuominen, and Savolainen (2005), constructionism sees "language as constitutive for the construction of selves and the formation of meanings." Further, "We produce and organize social reality together by using language." This metatheory arose from the work of Bakhtin (Holquist, 2002) and Foucault (1972), among others. Frohmann (1994) and Talja (1999) have expounded on the use of this approach in LIS. This approach has been applied in LIS by Budd and Raber (1996), Frohmann (2001), and Talja (2001), among others. A non-LIS, but highly relevant example can be seen in Hayles (1999).

4) A ***philosophical-analytic*** approach, in which the classical techniques of the discipline of philosophy, namely extremely rigorous analysis of ideas and propositions, are brought to bear on information-related matters. Certainly, the field of philosophy itself expresses and represents many different theoretical orientations and metatheories. However, despite the many differences among philosophers, there is a fairly universal and well-understood form of analysis and argumentation that is characteristic of the discipline as a whole. Philosophers who have come into LIS, or philosophers outside the field who have addressed LIS-related questions inevitably bring with them this mode of analysis and discourse. For a classic example of this, read Patrick Wilson's still-relevant discussion on the nature of the subject of a book (Wilson, 1968, pp. 69–92). See also Blair (2003), Cooper (1971), Dretske (1981), Fuller (2002), and Wilson (1977, 1983).

5) A ***critical theory*** approach, in which the hidden power relations and patterns of domination within a society are revealed and debunked (Ritzer, 2000, p. 140ff). Michael Harris (1986) was an early practitioner in LIS. More recently, others have joined the debate, critiquing the roles of librarians, the kinds of research done in LIS, and so on. See Carmichael (1998), Chu (1999), Day (2001), Roma Harris (1992), Pawley (1998), Radford (2003), and Wiegand (1999).

6) An ***ethnographic*** approach, originating in anthropology, but now used throughout the social sciences, involving the use of a variety of field techniques, such as observation, documentation, and interviewing. These techniques are intended to enable the researcher to become immersed in a culture, identify its many elements, and begin to shape an understanding of the experience and world views of the people studied (Fielding, 1993). In LIS, see, for example, Chatman (1992), Kwasnik (1992), Pettigrew (2000), and Wilson and Streatfield (1981). A related, popular approach is grounded theory development (Glaser & Strauss, 1967). See Ellis (1993), Ellis and Haugan (1997), Kwasnik (1991), and Mellon (1986). Sandstrom and Sandstrom

(1995) discuss the ways in which both nomothetically and idiographically oriented researchers have used ethnographic methods.

7) A ***socio-cognitive*** approach (Hjørland, 2002), in which both the individual's thinking and the social and documentary domain in which the individual operates are seen to influence the use of information. See also Jacob and Shaw (1998). Paisley presaged this viewpoint in his 1968 "Information needs and uses" review of scientists working within 10 social and information system contexts (Paisley, 1968). More recently, see Case (1991), Covi (1999), and Kwasnik (1991). The nature of context has been discussed in detail by Dervin (1997), and the nature of situation by Cool (2001). Because of the centrality in information studies of 1) information, 2) information technology, and 3) people's use of these, the interplay among these three elements is arguably at the heart of most social research in information studies.

Hjørland and Albrechtsen (1995) call the analysis of information and its social formation in a community of thought "domain analysis." Other roots of the domain analytic approach can be seen in the areas of historical and descriptive bibliography in librarianship (Bowers, 1994; Updike, 2001), as well as in recent developments around genre theory (Berkenkotter & Huckin, 1993; Vaughan & Dillon, 1998; Orlikowski & Yates, 1994).

The field of social informatics also focuses on the interactions among people, social environments, information technology, and documentary forms. See Bishop and Star's review (1996), as well as work by Kling and McKim (2000), and Palmer (2001). This metatheory shares some of both the nomothetic and idiographic orientations.

8) A ***cognitive*** approach, arising out of cognitive science, in which the thinking of the individual person operating in the world is the dominating focus of research on information seeking, retrieval, and use (Bates, 1979; Belkin, 1990; Belkin, Oddy, & Brooks, 1982; Ellis, 1989; Ingwersen, 1992, 1999). See Newell and Simon (1972) and Anderson (1995) for expositions of this approach.

9) A ***bibliometric*** approach, in which the analysis of the statistical properties of information is seen to provide understanding of value for both the design of information provision and the theoretical understanding of social processes around information, including historical processes. The earliest theory was provided by Bradford (1948) and Zipf (1949). More recent major work has been done by Brookes (1968), Price (1986), Small (1999), and White and McCain (1998), among others. Much of this work has been made possible through the existence of citation indexes (Garfield, 1983).

10) A ***physical*** approach to information transfer, dating principally from the 1950s and 1960s interest in signaling and physical communication

generated by the development of Claude Shannon's information theory (Cherry, 1966; Miller, 1951; Pierce, 1961; Shannon & Weaver, 1975; Wiener, 1961).

11) An ***engineering*** approach to information, in which it is assumed that human needs and uses of information can best be accommodated by successive development and testing of ingenious systems and devices to improve information retrieval and services. The fundamental test of validity for the engineering approach is an operational one, namely, "Does it work?" Thus a major method of developing new knowledge in engineering is through "proof of concept" work, in which an experimental system or device is developed and tested, improved, tested some more, and so on. For theory of engineering, see Dahlbom, Beckman, and Nilsson (2002) and Simon (1981). For applications in LIS, see Croft and Thompson (1987), Hendry and Harper (1997), Kraft and Petry (1997), Over (2001), and Salton and McGill (1983). Variations on this approach are found in artificial intelligence (Minsky, 1968; Russell & Norvig, 1995) and natural language processing (Allen, 1995; Chowdury, 2003; Liddy et al., 1993).

12) A ***user-centered design*** approach, in which the development and human testing of information organization and information system designs is seen as a path to both scientific understanding and improved information access. User-centered design takes the "Does it work?" engineering question one step farther, and asks, "Does it work so well that people can concentrate on what they are doing rather than on operating the system or device?" Classic work in this area is by Norman (1990) and Nielsen (1993). A great deal of design work relevant to LIS goes on in human-computer interaction research (Carroll, 2002; Rogers, 2004). A number of people in LIS focus on user-centered design, for example, Ackerman (2000), Bates (1990, 2002), Dillon (1994, 1995), Hildreth (1989), and Marchionini (1995). See also Marchionini and Komlodi (1998).

13) An ***evolutionary*** approach, in which the insights of biology and evolutionary psychology are brought to bear on information-related phenomena (Barkow, Cosmides, & Tooby, 1992; Wright, 1994). This approach is just beginning to appear in LIS. See Bates (2005, 2006), Madden (2004), and Sandstrom (1994, 1999).

Each of the metatheories above is some part philosophy and some part methodology. However, the historical, philosophical-analytic, ethnographic, bibliometric, engineering, and design approaches are primarily methodology with some philosophy attached, while the others, the constructivist, discourse-analytic, critical theory, socio-cognitive, cognitive, physical, and evolutionary approaches are driven more by philosophical and theoretical orientations, which have methodological implications.

Summary and conclusions

The objective of this chapter has been to introduce the concepts of metatheory, theory, and model, and distinguish them for the purposes of doing research in information seeking. An example result, the Principle of Least Effort, has been analyzed and discussed in relation to the three concepts. Methods of bringing this model closer to the status of a theory have been suggested.

The sources of metatheories in the social sciences have been discussed, and the nomothetic-idiographic distinction has been explained. Finally, 13 metatheories operating in LIS have been described. Sources for each metatheory and examples of its application have been presented.

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