
Information Seeking in Context A Challenging Metatheory

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INTRODUCTION

I have pleasure in summing up the results and discussions of the ISIC conference. What I am trying to do is to show some general trends in information needs and seeking (INS) studies that have emerged from the papers and discussions heard during the days in Tampere. Moreover, I will also relate the findings to some key reviews on the status of INS studies in order to bring the trends into the time perspective. It might be that my conclusions are biased by the selection policy of the program committee of ISIC, which emphasized holism and process orientation. However, I would claim that the emerging trends in the papers are generalizable beyond the conference. The selected papers (25 out of over 80 submitted ones) offer a cross-section of current thinking in INS studies.

The papers of the the concerence provide promising views for future research in INS studies. I think that we have good reason to look optimistically to the future of our field of research. Although there are some problems shadowing our research community, I find the following trends brightening the horizon of INS studies:

- a shift in metatheory from person-centered approach to person in context/ situation oriented conception
- more varied and holistic theoretical approaches
- growing embeddedness of information needs and seeking in the phenomena they or are part of
- more process orientation
- more longitudinal studies
- intensive use of theoretical and methodological ideas from other disciplines
- increased variety of methods and use of multiple methods
- qualitative methods have gained a leading position
- research has professionalized in terms of academic norms (maturity)

Although the studies have many positive features, they are not without problems. I think that the following are the most crucial shortcomings of the INS research:

- Lack of theoretical growth
- weak specification of metatheories to unit (substantive) theories
- unspecific definitions of basic concepts and their relations

- weak conceptual relationship to earlier studies
- concentration on individual level variables → (group), organizational or societal level usually missing
- information use is a seldom studied area

A TRIPLE CHARACTERIZATION OF THEORY

Before I begin to argue for my claims, I have to introduce Wagner's and Berger's conception of the nature of theoretical activity and growth to support my analysis.

Wagner and Berger (1985; cf. Kuokkanen & Savolainen 1994, Vakkari 1994) differentiate between three kinds of theoretical contexts: orienting strategies, unit theories, and theoretical research programs. Orienting strategies come very close to what are often called theoretical perspectives in sociology. Notions like structural-functionalism, symbolic interactionism, social constructivism, sense making or cognitive viewpoint do not signify substantive theories, but metatheories. Consisting of ontological, epistemological, and conceptual pre-suppositions of a very general nature, they are not so much about processes like information seeking occurring in the social world as they are about the ways of thinking and speaking about those processes. Wagner and Berger call them orienting strategies because their cognitive function is to offer guidelines and directives for actual theory construction.

An orientation strategy may include the development of ontological and epistemological arguments concerning the subject matter of the discipline in question, the nature of the reality studied by the discipline, and the values and goals of inquiry. It may also involve the articulation of the conceptual foundation employed in the description and analysis of studied phenomena. Finally, it is likely to incorporate the formulation of directives for the selection of theoretical problems of investigation and for the construction and evaluation of proposed problem solutions. (Wagner and Berger 1985, 700)

Wagner and Berger (Wagner & Berger & Zeldith 1989, 31–35) include in the domain of metatheories also theories which are conceptualized in such abstract and general terms that can be applied to any kind of concrete social system. Elements like tasks, roles, information needs, information seeking can be found in work places, families, work groups and other social systems. In order to formulate these abstract concepts, the phenomena have been abstracted from concrete settings. Thus, metatheories are not about particular social structures, processes or groupings. Models presented in the papers by Byström, Leckie and Pettigrew, and Wilson can be called metatheories because of their general nature. Especially Wilson's diversified model fits well with the concept of a metatheory. (In the following names of authors refer to their articles in this proceedings.)

Metatheories should be specified into unit theories by placing them in concrete social settings. One can say that a concept in a metatheory consists of a range of variation of meanings fixed by the definition of the concept. The metatheory thus presents all the situations or "states of affairs" that can be expressed within the logical possibilities by the conceptual apparatus of a theory. Forming a unit theory from a metatheory means specification of its general concepts to fit into certain concrete settings which the researcher wishes to study. (Wagner & Berger & Zeldith 1989, 32–35; Kuokkanen & Savolainen 1994, 356–360). Wagner and Berger also remind us that within a metatheoretical framework one can construct a large number of different substantive theories for a given domain.

Unit theories deal directly with social processes like information seeking. The structure of a unit theory includes a set of concepts and a set of assertions relating those concepts in an account of some social phenomena (Wagner & Berger 1985, 703). They are intended as answers to specific research questions. Durkheim's theory of egoistic suicide and Merton's theory of anomie are the most celebrated exemplars of what Wagner and Berger understand by a unit theory. In the ISIC presentations by Byström and Todd one can note most features of a unit theory. In their models central concepts are clearly defined. Assertions relating concepts to each others leave some room for stronger specifications.

As opposed of orienting strategies, unit theories are empirically testable. To the extent that such testing provides support for the unit theories, growth or progress may be said to have occurred. However, the context of unit theories are not sufficient for analysing theory growth: According to Wagner and Berger (1985, 704) unit theoretical activity focuses almost exclusively on theory – data linkages. To fully describe and understand theory growth it is necessary to look also at the relations between unit theories, theory – theory linkages.

This observation leads to the introduction of theoretical research programs, which are families of interrelated unit theories. Thus, a theoretical research program consists of unit theories which have conceptual relations to each other. Studies by Byström and Kuhlthau share partly a common theoretical structure (concepts) in their interest in how task complexity correlates with information seeking.

Wagner and Berger identify three basic theory relations occurring in theoretical research programs (Kuokkanen & Savolainen 1994, 347–348). Each relation represents a distinct mode of theory growth. The relations are elaboration, proliferation, and competition. Elaboration comes very close to the traditional conception of the growth of knowledge as a cumulative process. Theory elaboration occurs when a more recent theory T2 subsumes and adds something to the empirical domain of T1. Theory T2 is somehow more comprehensive,

more general, or more specific, or has more empirical support than its predecessor. T1 and T2 address a similar empirical problem and employ a similar theoretical structure.

Proliferation differs radically from the empirically linear conception of scientific progress. In this relation T2 says nothing about the problem area of T1. Their relationship is based solely on conceptual continuity. Proliferation takes place when ideas from T1 are used by T2 to tackle an altogether different problem domain. T2 is a proliferant of T1, if it is capable of pioneering a problem area with the theoretical structure (i.e. conceptual machinery) of T1. An example of this is the use of role theory by Leckie and Pettigrew in their study of INS by professionals. They expand the scope of the role theory to the field of information behavior. While elaboration increases depth of knowledge, proliferation increases the breadth of knowledge by expanding the empirical domain of the research program.

In direct polarity to proliferation, the competition relation is based uniquely on the sharing of a problem area. T2 challenges to take over the explanatory domain of T1 with an altogether different conceptual machinery. The two theories may even employ different orienting strategies.

FIGURE 1

Wagner-Berger system of theory relations: main types

	Type of relation		
	Elaboration	Proliferation	Competition
Theoretical Structure	Similar	Similar	Different
Problem Area	Similar	Different	Similar
Nature of Growth	Linear cumulation	Branching cumulation	Refutation

Source: Kuokkanen & Savolainen 1994, 348

When comparing unit theories it is crucial to explicate what is meant by similar theoretical structures. A unit theory consists of a set of concepts and a set of relations interconnecting those concepts. Two aspects can be identified in the similarity of the structures of unit theories. First, the similarity presupposes that the sets of primitive (main) concepts of theories are identical. This can be called the conceptual aspect of the similarity. Second, given that the theory satisfies this first condition, the similarity of the theories can be determined by comparing the sets of relations which interconnect the concepts in each theory. Let us call this the factual aspect of the similarity. (Kuokkanen & Savolainen 1994, 350-351)

A SHIFT IN METATHEORY FROM PERSON-CENTERED TO PERSON IN SITUATION ORIENTED APPROACH

Ten years ago Dervin & Nilan (1986) in their widely-known article criticized heavily the dominating orienting strategy or "the conceptualizations that drive research" (p. 3) as they call it in INS studies. The basic line of argument was that the research has been system-centered instead of being user or person-centered. They criticized studies for treating persons as mechanistic, passive users, conceptualizing information as objective phenomenon, which has constant meaning and absolute correspondence with reality. A common bias in studies has been concentration on the external behavior of actors instead of internal cognitions. Moreover, they clame that studies have focused their attention on user behavior at the point of intersection with the information system, and have attempted to predict information behavior according to static, across time-space models, that apply across situations. The prevailing method was the use of sophisticated quantitative techniques.

The Tampere conference has shown that the metatheory of INS studies has changed decisively to the direction formulated by Dervin and Nilan abandoning the system-centered paradigm. One can claim that the prevailing metatheory includes today nearly all the directives and elements put forward ten years ago by the authors. Some other reviews of INS studies (Hewins 1990) have also arrived at a similar conclusion.

Although we share a new metatheory, it is by no means a homogenous one. It includes various elements which are not always consistent, at least if we do not scrutinize them on a very general level. I think that the article by Dervin and Nilan reflected the more general anti-positivistic trend in social sciences at that time, and the anti-system-centered trend within our field of study. These features are also the key presuppositions of the new metatheory.

A sign of the inconsistency of the new metatheory is the discourse analytic approach to problems of INS studies presented by Talja and partly by Tuominen and Savolainen. The discourse analytic viewpoint is basically a theory about the production of knowledge through language. The viewpoint abandons the individual as the basic unit of analysis, and shifts the focus to a more general level: to the variability of knowledge formations. It is interested in the resources the language provides for its speakers to conceptualize topics in a certain way. It is inspired by Foucault and British discourse analytic movement.

This approach is not so much interested in information needs and information as such, but constitution of information and information needs in discourses. A discourse is a set of statements, which provide a language for talking about particular kind of knowledge about a topic. A discourse, like a theory, makes it possible to construct the topic in a certain way, and limits other ways of speaking about it. The approach tries to bridge the gap between the user-oriented and system-oriented approaches by claiming that they both can share

a common discourse. It is equally important to study the socio-cultural aspects and ideological nature of information systems, as it is to study the socio-cultural aspects of the users. This is done by studying how these phenomena are construed in language in discourses. Talja emphasizes that if the focus is shifted to the study of knowledge formations in discourses, information seeking research need not to be either user-centered or system-centred. She is challenging the current approaches in INS studies, e.g. the cognitive viewpoint, to a metatheoretical debate.

We can pick from the presentations nouns for the various dimensions of the new metatheory: social constructionism, discourse analysis, sense making, user orientation, naturalistic paradigm, grounded theory and cognitive viewpoint. It is interesting to note, that the buzz words at the CoLISI conference in Tampere five years ago (Vakkari & Cronin 1992), hermeneutics and phenomenology, are not included in the metatheoretical vocabulary of ISIC96. One can note, however, that implicitly a kind of a social version of phenomenology in the Schutzian sense forms the basis of most of the intellectual movements expressed in those nouns. This phenomenological tradition emphasizes analysing persons' experiences in different segments of their life worlds. Methodologically it implies concentration on actors' own understanding and description of the situations studied in natural settings. The approach is in favour of qualitative methods.

The implicit metatheoretical stands of many papers in the ISIC reflect this kind of social phenomenology. However, the stands are often vaguely expressed, and they represent different variants of the movement. Many of the studies presented in this conference can be classified under the umbrella of social constructionism at least in a broad sense of the term. By social constructionism I understand that people live in a common reality which they mainly share with the help of language. Language provides people with vocabularies, i.e. concepts and categories for use in different situations. This vocabulary varies according to the discourses they are participating in. By using the vocabulary people construct meanings or make sense in their lives. On a general level, the whole society and its organizations are socially construed, their meaning is not given but construed. There are two main points in this conception. First, the vocabulary is intersubjective and shared, providing a common base for individual construction of meaning or sense-making. Secondly, there is a variation in individual construction of meaning. People can interpret and understand differently the same situations and the same messages. By combining these premises we get a paradox: Individual sense-making is bound by an intersubjective, and in that sense objective, vocabulary, or knowledge formation, if you wish. As Wittgenstein put it, "the limits of my language are the limits of my world".

I think that Brenda Dervin has today the most marked metatheoretical influence on the studies of INS. Many of the writers refer to her metatheoretical contribution, Dervin's communitarianism, as a point of departure in their research. The basic assumption of communitarianism is that knowing is processual negotiation of meaning between people. "It assumes that knowing is made and remade, reified and maintained, challenged and destroyed in communication: in dialogue, contest and negotiation" (Dervin 1994, 377). Thus information is seen as a communicative construct which is produced in a social context. Although she is not explicitly referring to social constructionism when presenting her own approach, one can see common features between the two. In that sense, sense-making represents social constructionism, and its advocates are members of this broader school of thought. However, it is interesting to note that the second point of social constructionism is emphasized in some studies which claim to apply her approach, although Dervin seems to reach for seeing communicating as a link between the two dimensions of social constructionism, social and individual. The main implication of her keynote address in the ISIC was that we all must to learn to walk in between different positions.

GROWING EMBEDDEDNESS OF INFORMATION NEEDS AND SEEKING IN THE PHENOMENA THEY SUPPORT OR ARE PART OF

If we stop labeling metatheoretical elements and take a closer look at the presentations, we can note a shift in focus from information to the process for which information is sought and used. Information needs and seeking are no more studied as ends in themselves, but they are seen as embedded in the actions, tasks and situations they are supporting. Neither do the actors always describe their actions or tasks as information containing activities. Methodically "information needs" and "seeking" are only analytical differentiations for the purpose of analysis. Methodologically they will be treated as functions of a broader task or problem situation to be coped with.

Information is seen as one dimension in completing a task or action. Thus information needs and seeking are subordinate to the action they form a part of. As a consequence studies usually start with an analysis of action or task to be fulfilled, and continue with analysis of information behavior connected with the task. Tom Wilson has in his studies been an early advocate of this approach (Wilson 1981). This perspective could also be called the action centered perspective.

If the studies accepted the previous conception, it is no wonder that information behavior is seen as a process in a larger process of task completion. This has increased the process orientation in the studies, and, naturally, also led to longitudinal studies (e.g. Barry, Kuhlthau, Solomon, Wang). Because processes are occurring in time, it is necessary to follow the phases of the process at

different points in time. These studies broaden our understanding of INS process.

INTENSIVE USE OF THEORETICAL AND METHODOLOGICAL IDEAS FROM OTHER DISCIPLINES

Information science studies in general (Small 1981, Vakkari 1994) and INS studies in particular have been subject to claims that they are self-contained and passive in adopting ideas from other disciplines. There has been also evidence of this (Wilson & Walsh 1996). However, the papers presented in ISIC are astonishing rich in theoretical and methodological ideas from other fields of research. It is not a question of cosmetic references, but the ideas have been put into use in the studies. They have been used as theoretical models. One can say that there has occurred a proliferation of theories to INS studies. Methodological innovations have also been sought elsewhere. The most common source for ideas has been organizational and management studies (7 cases), communication studies (5 cases), social psychology (4 cases), and psychology (3 cases). The choice is constant with the paradigmatic model for INS studies, which is information behavior of professionals in completing a task in an organisation.

INCREASED VARIETY OF METHODS

It seems that all the broad spectrum of methods have been used in INS studies. Both quantitative and qualitative techniques are applied although qualitative are more popular, at least in the ISIC papers. Multiple research techniques have also been combined in many studies across both methodological traditions (e.g. Barry, Byström, Solomon, Sonnenwald and Lievrouw, Wang). Questionnaires, semistructured interviews and observation are typical combinations of techniques in some studies. It is obvious that multiple methods in a study will reveal a more varied and valid picture of the research object.

The growing popularity of qualitative methods is connected to the success of grounded theory and naturalistic inquiry in INS studies. As I mentioned earlier, the rise of social phenomenology with its interest in the experienced life worlds of people has been the main factor behind the popularity of these movements.

LACK OF THEORETICAL CONTINUITY AND GROWTH

The presentations at this conference provide convincing evidence of the metatheoretical and methodological maturing of our research field. Problems arise when metatheoretical principles and especially created metatheories are put into practice in creating substantive theories. We can find many general models of interest in the presentations. The basic elements of the study have been presented in very abstract and general concepts. They provide the researcher with many options for interpreting the concepts for their concrete research settings. We can call this activity the specification of a metatheory into

a unit theory. The necessary condition for the specification is that the general level concepts have been defined so exactly that the researcher can infer the concepts he/she is using in the unit theory. It is obvious that the definitions of concepts in metatheories remain on a general level and cannot be quite exact in order to include all the necessary phenomena and processes that could be instances or intended application of the metatheory. The crucial step is specification of concepts for the field of intended application, i.e. the formulation of the unit theory. Without it there will be a gap between a metatheory and substantive (unit) theories.

UNSPECIFIC DEFINITIONS OF BASIC CONCEPTS AND THEIR RELATIONS

Although there are many exceptions in the papers, the major problem in the studies is insufficient definition of basic concepts and especially their relations within a unit theory. I do not think that a claim of the nature of grounded theory research as a theory building process can be a counter argument against this stand. Although it usually begins with loose or working definitions of the phenomenon under scrutiny, it should end up with a presentation of a theory. I think that my observations hold for most of the results based on the grounded theory approach.

My assessment may sound exaggerated, because the studies do include rigorous definitions and really fruitful differentiations and categorisations of the elements of information behavior. As examples can be mentioned classifications of tasks, steps, activities in information behavior by Algon, of task complexity and information types by Byström, of boundary spanning roles by Sonnenwald and Lievrouw, and of knowledge structures by Todd. However, this is not adequate, if the relations between the central concepts have not been shown accurately enough. This part of the theory construction is as necessary as the definitional rigorosity. It tells us how the various dimensions of the research object relate to each other. At the same time explication of the relations between concepts brings added definitional accuracy to the theory. They specify the meaning of the chosen terms in the model. Thus the construed unit theory is able to give a more detailed and precise picture of the social setting it aims to explore.

The relative lack of specification of conceptual relations might be due to the fact that the use of qualitative research strategy has not usually aimed at explanations. In explanations one has to make specific assertions about the relations of explanans and explanandum. The qualitative strategy often aims at understanding the behavior and actions of the individuals. It is understood to be more descriptive, and to try to capture the ways people experience their realities, i.e. constructing meaning in their actions. However, I think that it does not exclude a research question like "how do these constructs in different phases of information behavior relate to each other or how are they related to some other

constructs of phenomena in which the behavior is embedded". I would argue that this problem formulation will specify conditions of information seeking and use. It is one way to produce theoretical growth in INS studies in the sense of theory elaboration.

One of the striking features in many studies was the use of the central concepts, like information, knowledge, information need, seeking, and use as primitive concepts, i.e. without definition. The terms situation and context were also most commonly used without taking much trouble in seeking their meaning, and not so seldom concepts which were not aimed to be used as primitives were also left open. Although the actual use of the concepts will unfold their meaning, at least partly in each case, the specificity and interpretation of the results left room for discussion.

The common use of central concepts as primitives implies that most of the research community take their meaning as given. This sounds paradoxical, because most of the community agrees that their meaning is quite vague. In some way this habit reflects that information needs, seeking and use has been understood at least implicitly as a uniform research object. The fact is, however, that information behavior is a complex and multidimensional phenomenon. Luckily, this is confirmed by the conceptually innovative studies at the conference. Basic concepts were defined, and a usual tactic in these studies was differentiation of a concept into subcategories. The concept acquires added meaning from the definitions of the subcategories. Heavy borrowing of theoretical and methodological ideas from other disciplines was also characteristic of these projects. To mention some cases, studies of teams (e.g. Solomon, Sonnenwald & Lievrouw) and task related projects (e.g. Algon, Byström) introduced productive ideas from other fields, and included interesting conceptual differentiations of information behavior and related phenomena. Different categorizations of tasks or types of information presented at this conference are already contributing fruitfully to the theoretical growth in our field of research.

INFORMATION USE IS A SELDOM STUDIED AREA

By naming the conference "Information needs, seeking and use in context" our aim was to emphasize the processual and social nature of information behavior. Our intention was to encourage papers analysing the research object as a process and on various social levels. If we differentiate information behavior into need, seeking and use phases, and classify variables used in the studies according to the social level, into individual, organizational (incl. group) and societal level, we get the following picture of the dimensions of the papers. Table 1 is an abstraction of a classification of papers according to the dimensions.

The studies concentrate heavily on information needs and seeking of individuals leaving information use and organizational or societal factors in many

cases aside. I shall comment first upon the papers' concentration on information needs and seeking, and after that on those also studying information use.

TABLE 1
The priority areas in INS studies according to the phase of process and level of variables

Level of variables	Phase of the process in information behavior		
	Needs	Seeking	Use
individual	xxx	xxx	x
organizational (incl. group)	x	x	x
societal	o	o	o

legend: xxx = high priority, xx = medium priority, x = low priority, o = very low priority

Information behavior is operationally understood in many studies as information need and seeking process which includes identification and choice of information sources guided by information needs. Research has explored information seeking as an endpoint. On the other hand, I have to underline that in the papers there are many signs of the stretching of the perspective to include the use side of the process. Although many of the studies concentrate on the choosing of sources, they do include at least in interpretation of the results discussion about the use of the information obtained from the sources. There is a growing interest in relating information needs and seeking to the outcomes of the work roles or tasks. In most of the cases the use process is not analysed in detail, but its contribution to the outcome is described in broad and general terms. The gap between seeking and use is bridged by bringing evidence from data which is not directly aimed at answering use questions. In an indirect way these studies also introduce information use.

The ISIC papers which also analyse the use of information, can be classified into three categories. The first group of papers are inspired by Brenda Dervin's sense making methodology. On the bases of her studies Dervin has developed a categorization of "helps". These papers use her "helps" categorization as a tool for describing the ways in which information has been used to make sense in the gap situations (e.g., Julien). It is applied in the studies as a conceptual machinery in explaining the findings.

The second group is inspired by the cognitive viewpoint. In these papers the focus is not actually on how the information is used in producing a solution to

a problem or fulfilling a task, but how the information changes the conceptual structure of the individuals (Todd, Wang). What is crucial is how the understanding changes, not so much how the information or changed understanding contributes to the problem solution. Those studies continue the great line created by Bertram Brookes by contributing to solving his famous equation.

Having not so much evidence at hand I would say as an educated guess that in information science the cognitive viewpoint as a metatheory and its applications have been quite strongly driven by the presuppositions and interest of information retrieval (IR) research. The description of texts is commonly made by condensing it into main concepts with the help of indexing language. It is quite obvious that an approach with the focus on human conceptual structures is of interest to IR research. By this I do not claim that there is use for the cognitive viewpoint only in IR. On the contrary, I think that it is necessary to know how individuals conceptualize the situation they are facing. Its conceptualization is one part of its sense-making. However, from the point of view of information behavior, there are still steps from conceptualizing an issue in a situation to what to do with a new conceptual structure. I think that this argument, among others, suggests that it is time to gather information seeking and information retrieval research communities together to address common problems.

The third category of studies also including information use consists of those focusing on groups (Algon, Barnes & Spink & Yeatts, Limberg, Solomon, Sonnenwald & Lievrouw). They are studying to varying extents how group members utilise the information they seek. Their reasons for following the information behaviour process to its use side can be traced to their theoretical sources, which are borrowed from other disciplines like management science, social psychology and communication studies. The theoretical ideas also include utilization of information. An additional factor in some studies is that their problem formulations include efficiency or performance of the groups. It is quite obvious that information use in the groups is one central factor contributing to their effectivity and performance.

CONCENTRATION ON INDIVIDUAL LEVEL VARIABLES

Although we can see more and more studies in which information needs and seeking are embedded in the phenomena they support or are part of, the embeddedness seldom includes other than individual level variables. As Table 1 shows, organisational or societal level variables are seldom used. We are speaking about the situationality or contextuality of information behavior, but do not so often conceptualize it as a part of the social milieu in which it occurs. This was also stressed by Wilson (1981) when he suggested that the scope of the studies should include also work environment of the users.

I think that in many studies the situation is understood as a problem situation of an individual in a narrow sense. On the other hand to include in one study variables from all the levels and scrutinize the whole process would imply a research design which would be too complicated to be completed. In order to avoid too complicated research designs, I would suggest that we should design studies which will concentrate more on contextual factors, and then combine the results with results from studies using more individual level factors. Combining the results from both types of studies is theoretical work, which aims at building theoretical research programmes including social and individual levels of information behavior.

In many cases the structure and culture of the organizations where the experts are solving problems or performing their tasks has been left without attention. However, it is evident that the structure of an organization, let's say in the form of its supply of information resources, or its culture in shaping the roles and tasks of its servants, is an important factor directing information behavior. Also the studies about information seeking in groups presented in the ISIC are confirming this assumption.

Studies on the information behavior of groups represent winds of change in this respect (Algon, Barnes & Spink & Yeatts, Solomon, Sonnenwald & Lievrouw). They do include at least variables which describe group behavior, and in certain cases also variables referring to the structural and cultural features of organizations. If we wish a more versatile understanding of the social and contextual nature of information seeking and use, we should also include those variables in our studies and import ideas from other disciplines for its support.

CONCLUSION

Although I cannot see so much theoretical continuity in the INS studies in the sense of interrelated unit theories presented at this conference, compared with earlier reviews (Dervin & Nilan 1986, Hewins 1990, Wilson & Walsh 1996) however, metatheoretical approaches and studies inspired by them show theoretical and methodological progress in our field. The old system-centered approach is metaphorically speaking water under the bridge. A person in situation or action-centered metatheory has replaced it. In that way the directives put forward in the article by Dervin and Nilan ten years ago have been realized. Information behavior is more and more understood as a process containing elements from needs to use embedded in a broader process of which it is a part. Information is seen as a social construct created in the interaction of people and messages. The research object is conceptualized more and more as a social phenomenon leading to the use of variables from the organizational and societal level. An encouraging feature is also the importing of ideas from other disciplines to INS studies. The results of the ISIC conference are opening a

promising and challenging horizon of expectation for our field of research. I am convinced that they will function as a lens through which the research community will evaluate the future development in the field.

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