What Difference Does a Theoretical Lens Make in Conducting a Study of Human Information Interactions?

Panel presented at the 2013 Annual Meeting of the Association for Information Science & Technology (ASIS&T)

Katriina Byström
Dept. of Archivistics, Library & Info. Science, Oslo & Akershus Univ., Norway and Swedish School of Library & Info. Science, University of Borås, Sweden
Katriina.Bystrom@hb.se

Mary Cavanagh
School of Information Studies, University of Ottawa, Canada
mary.cavanagh@uottawa.ca

Jannica Heinström
Information Studies, Åbo Akademi University, Finland
jheinstr@abo.fi

Barbara M. Wildemuth
School of Information & Library Science
University of North Carolina at Chapel Hill, USA
wildemuth@unc.edu

Sanda Erdelez, moderator
School of Info. Science & Learning Technologies, University of Missouri, USA
ErdelezS@missouri.edu

INTRODUCTION
People interact with information in a variety of ways and in a variety of contexts. Studies of such interactions have focused on a variety of users, from scholars’ use of the literature (e.g., Ellis, Cox, & Hall, 1993) to the everyday information seeking of retired investors (O’Connor, 2013). They’ve also included multiple contexts (e.g., Agarwal, Xu, & Poo, 2011). Human-information interaction (HII) has traditionally been approached either from an individual-focused or contextual perspective.

Today multi-dimensional approaches are being developed in response to the complexity of HII (Fidel et al., 2004). No study can, however, encompass all possible aspects of HII and consequently a certain perspective or theoretical framework is needed for each individual study. The perspective taken is likely to influence the specific research questions asked, the study design and methods, and the potential outcomes of the study. This panel will explore such influences by examining the ways in which four specific theoretical perspectives might be applied to the study of particular types of information behaviors in a particular setting, in this case middle managers’ information interaction in a firm under financial strain.

THE RESEARCH SCENARIO
Each panelist will react to the following scenario:

We’re now experiencing a global economic downturn (i.e., recession). This trend makes justified decision-making vital, and often results in the diversification of sources of decision-making information (Ho, 2009). Because executives in firms experiencing financial strain are under pressure to respond to immediate needs, they often turn to middle managers for insights. Thus, middle managers in large corporations often have responsibility for generating ideas and making plans for how to deal with financial downturns and for implementing those plans. Sometimes these plans involve the exertion of greater financial control (King, Fowler, & Zeithaml, 2001), while they sometimes involve more entrepreneurial initiatives from middle managers (Kuratko et al., 2005; Ren & Guo, 2011). Almost always, the plans are influenced by contextual factors, such as the organizational culture or the corporation’s size and position within its sector (Page et al., 2003).

In our scenario we will consider a firm under financial strain where middle managers are given the task of generating ideas and developing long-term plans for the firm.

Many research questions may arise in such a setting. They might focus on individual managers’ information behaviors or on the social context of those behaviors. Research studies investigating these issues might use a variety of data collection and analysis approaches. The outcomes of the studies might have a range of effects or impacts.

THE THEORETICAL PERSPECTIVES
Each of the four panelists will consider the research scenario from a particular theoretical perspective: Jannica Heinström will take a personality theory perspective, Katriina Byström will take a work-task approach perspective, Barbara Wildemuth will take an activity theory perspective, and Mary Cavanagh will take a practice theory perspective.
Each perspective applies a particular lens to analyzing the scenario. The personality perspective focuses on individual differences between managers in equivalent situations, most commonly studied through standardized tests. The task perspective elaborates on how particular tasks influence managers’ actions. Task-based studies utilize multiple methods, ranging from statistical quasi-experiments to naturalistic inquiry; in this presentation an example of triangulation will be described. Activity theory lifts the perspective to a broader view of interaction between the subject, object, and community elements and their relationships. Practice theory focuses on commonalities and shared doing and knowing. Both activity theory and practice theory utilize direct observation, interviews, and examination of artifacts in situ, as well as other methods. Together these complementary perspectives will highlight the complexity of human information interaction.

**Personality Theory (Heinström)**

According to personality theory, people’s ways of thinking, feeling and behaving form patterns that remain fairly stable over time. Despite research evidence that points to a genetic and biological base for personality traits (Yamagata et al., 2006), there is nothing deterministic about personality. Behavioral consistency emerges in comparison to other individuals rather than by observing the behavior of any one person, which may vary considerably depending on circumstances (Asendorpf, 2009). Relating behavior to personality differences thus helps us understand why people react in different ways under the same circumstances.

The most established personality model today is the five-factor model, which describes five core dimensions: openness to experience, conscientiousness, extraversion, agreeableness and negative emotionality (McCrae, Costa & Paul, 2008). Each of these traits may influence managers’ information interactions in different ways. Generally people tend to be drawn to situations that match their character (Asendorpf, 2009). This could mean that managers share characteristics that influence their information interactions. Managerial work has, for example, been found to particularly attract optimistic and risk-tolerant people (Graham, Harvey & Puri, forthcoming 2013). Various situations, moreover, afford people with different opportunities to express themselves (Snyder & Cantor, 1998). Conscientiousness has, for example, been related to task performance of managers, while extraversion influences relationship building (Oh & Berry, 2009). Personality related reactions, moreover, depend on situational elements (“if...then”), rather than statically being carried over from situation to situation (Mischel & Shoda, 1995). In our example this could mean that it is not the financial strain per se that causes a reaction but, rather, how threatening the manager regards the situation. Stress tolerance has been identified as a key trait for successful managers (Oh & Berry, 2009).

In the discussion Heinström will elaborate on how personality theory may be used to frame a study of the mechanisms behind managers’ information interactions under financial strain.

**Work-task Approach [Byström]**

A work-task based approach, as a methodological approach rather than a theoretical foundation, has gained increasing attention in information studies since the early 1990’s. This approach binds information-related activities to the concept of work tasks. Work tasks are thus identified as key nodes of work and, through this association, information seeking and information searching are placed in a meaningful operational context. Work tasks are often divided into subsequently smaller constructions (or sub-tasks), the most commonly recognized ones being initiation, actual performance and conclusion.

The task-based approach facilitates the study of information-related activities by relating them to phases and aims in task performance, and by recognizing the parallel utilization of information and its sources. Thus, it acts as an illuminative trajectory between expectations, goals, actions and results, of which information and its sources form part of the solution as well as the problem itself. Different characteristics of tasks (e.g., complexity and genre) may be addressed, and findings are used to understand ways of working and to guide design of supportive information tools.

Whereas the temporal aspects of work tasks are clearly omnipresent in real-life work tasks, they seldom are organized neatly in phases. Moreover, work tasks in real-life are performed in a context of work, and thus the goals and prerequisites of that context are apparently of interest in explaining the diverse activities, including the information-related ones, that are undertaken within a frame of work tasks.

To date, the work-task based approach has proven as fruitful for theoretical development as for empirical analyses. It has been mostly utilized in the fields of information seeking and information retrieval, and is one of the central features of research in interactive information retrieval. Byström will illustrate the possible research focus by applying the work-task based approach to the research scenario.

**Activity Theory [Wildemuth]**

Activity theory originated in Russian psychology in the 1920’s and 1930’s, relying heavily on the work of Vygotsky and Rubinstein. It was further developed by Leontiev and Engeström. In recent years, it has been applied to analyses of human-computer interaction and, more recently, information seeking.

In this theoretical perspective, activity is viewed as a particular type of relationship between a subject/actor and an object (Kaptelinin & Nardi, 2012). Subjects have needs (biological and psychological) and interact with objects in the world in order to meet those needs. While most studies using activity theory identify individual people as the
subjects, teams or organizations may also be subjects of activities. Activity theory attempts to bridge the gap between motivation (i.e., the needs motivating the subject) and action (taken by the subject on an object).

An activity is composed of a sequence of steps, called actions. The objects at which these actions are directed are called goals. Actions can be decomposed into their component operations, each of which may be the outcome of automatization of an action through repetition.

Of particular relevance to our discussion is Engeström’s (2000) addition of a third element, community, to the basic idea of a subject-object interaction. He formed these three basic elements into a triangle of interactions, with particular relationships between each dyad. The relationship between subjects and objects is mediated by instruments/tools; the relationship between community and object is mediated by division of labor; and the relationship between subject and community is mediated by rules. He referred to the set of relationships as an activity system.

Wildemuth will apply some of the basic concepts of activity theory to the research scenario, with a particular emphasis on Engeström’s conceptualization of activity systems as a tool for analyzing specific human-information interactions.

Practice Theory [Cavanagh]

Since The Practice Turn in Contemporary Theory (Schatzki et al., 2001) was published, the social sciences and organization theory in particular have been witnessing a re-focusing on practice (Reckwitz 2002). This particular version of practice theory has similar sociological and philosophical roots as all practice-based approaches, but differentiates itself from earlier ones by focusing explicitly on central ideas from actor-network theory and the sociology of translation as these concepts were developed in science and technology studies (Latour, 2005; Law, 1992). In current practice theory, the age-old social science problem of how order comes about is solved by establishing an inextricable connection between the processes of doing, knowing and organizing.

Practice scholars prefer to build their theories from in-depth understanding of what people actually do when they organize their private and professional lives, instead of starting from model-theoretical approaches abstracted from action.

Interactions between human and non-human agencies are the central focus of practice studies. These interactions foreground the dynamics of shared doing and knowing across organizing fields conceptualized variously as action-nets (Czarniawska, 2004), textures of inter-connected practices (Gherardi, 2006) or actor-networks (Latour, 2005). Practice privileges all actors without differentiation. There is no context - there are only actors and actions stretched and flattened into a non-hierarchical plane and anchored historically and culturally across time and space. Although there is still no unified approach within con-

temporary practice theory, Gherardi’s (2012) definition of practice as a process or mode, relatively stable in time and socially recognized, of ordering heterogeneous items into a coherent set is widely accepted. Ethnographic and participant-observer research methods are favored in practice-based studies.

Tracing these ideas and then methodologically applying contemporary practice theory will be illustrated using this organizational scenario.

PANEL FORMAT AND GOALS

The panel will open with a presentation of the research scenario by the moderator (Erdelez). Each panelist will then provide a very brief (5 minute) overview of the theoretical perspective she is taking and discuss (for 7–8 minutes) how it might be applied to the research scenario. The panelist may present suggestions for the research questions that would be most important to pursue, describe some of the research methods that are likely to be applied, and discuss how the theoretical perspective might influence the types of outcomes that might be achieved from the study. These presentations will also include a brief overview of the challenges that might be encountered in applying each perspective.

After the initial presentations, the moderator will interact with the audience to raise questions that will highlight the differences between the four theoretical perspectives and their relative strengths and weaknesses in particular research scenarios (including but not limited to the one that initiated the discussion).

It is hoped that the panel will result in a better understanding of these four theoretical perspectives, including both their similarities and differences. In addition, it is hoped that the audience and participants will gain a more general understanding of the influences of a theoretical perspective on the design of particular studies of information behaviors.

PANELIST BIO’S

Dr. Katriina Byström

Katriina Byström is Professor in the Department of Archivistics, Library and Information Science in Oslo and Akershus University College of Applied Sciences (Norway), and in the Swedish School of Library and Information Science in the University of Borås (Sweden). She does research on digital information and communication milieus at workplaces in general and is specialized on task-based information seeking and retrieval in workplaces. She is an active member of the academic library and information science community, and the co-founder and associate editor of the international Journal of Information Architecture. Her latest research projects are: Better Search Engine, focusing on work-task based search support, and Better Web, the development of digital information and communication work milieus. Professor Byström chairs the European Network for Workplace
Information (ENWI). Her teaching consists of courses of LIS theories and methods on all educational levels, in addition to lecturing on topics within her research interests.

**Dr. Mary Cavanagh**

Mary Cavanagh is an Assistant Professor at a new 'start-up' School of Information Studies at the University of Ottawa (Canada). Her research interests focus on organizing social information practices along institutional boundaries using contemporary practice theory as her interpretive lens and methodological approach. Recent papers include an introduction to practice theory in the information sciences domain and a study of traditional public library reference work as an epistemic practice. Current research focuses on information relations and practices in public information organizations (public libraries, archives, government organizations) enabled by social media and user participation.

**Dr. Jannica Heinström**

Jannica Heinström is a Senior Lecturer in Information Studies at Åbo Akademi University (Finland). Her research interests lie in psychological aspects of information interaction, such as personality, motivation and emotion. Her studies have, among others, explored the influence of personality on students’ information behavior. Currently her work focuses on individual differences in students’ group work attitudes and information behavior in collaborative source-based assignments. She recently completed a chapter on personality theory for the forthcoming book, *Theories in Information Behavior*, edited by Tom Wilson and Elena Macevicute. Her publications include the book, *From Fear to Flow: Personality and Information Interaction*, published by Chandos 2010.

**Dr. Barbara M. Wildemuth**

Barbara Wildemuth is Professor and Associate Dean in the School of Information and Library Science at the University of North Carolina at Chapel Hill (U.S.). Her research focuses on people’s use of information and information technologies. In particular, her studies have included investigations of medical students’ searching of online databases, law students’ use of a Web-based database of legal resources, and the effects of different interface designs on the effectiveness of database use. Her most recent work includes a needs assessment for use of personal health records, and a more methodological study of the search tasks assigned in interactive information retrieval experiments. Her recent book, *Applications of Social Research Methods to Questions in Information and Library Science*, has been adopted as a text in a number of ILS schools in the United States and abroad. Her teaching responsibilities include courses in various aspects of research methods (including theory development), human information interactions, and information ethics.

**Moderator: Dr. Sanda Erdelez**

Sanda Erdelez is a Professor at the School of Information Science and Learning Technologies (SISLT), a Program Coordinator of SISLT’s Library and Information Science Program and an Associate Director at the Missouri Informatics Institute at the University of Missouri (U.S.). She is the founding director of SISLT’s Information Experience Laboratory and a co-editor (with K. Fisher and L. (E. F.) McKechnie) of *Theories of Information Behavior* (2005) published by Information Today. She leads an interdisciplinary research group on opportunist discovery of information. Her current research interests include information encountering, online information search behaviors, and usability of health information technologies.

**REFERENCES**


**Key Readings on the Personality Theory**


**Key Readings on the Work-Task Approach**


**Key Readings on Activity Theory**


**Key Readings on Practice Theory**


