

SOCIAL INFORMATICS

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ABSTRACT

This entry describes the concept of social informatics, delineates the research domain the concept is intended to cover, and explains its relevance for library and information science, updating Kling's 2003 description of social informatics in this Encyclopedia (1). After an initial definition of the term, a brief history of social informatics is presented from the origins of the term in the 1980s among Scandinavian scholars to the appropriation of the term by Kling and colleagues in the mid 1990s to its current status as a useful lens for researchers in a wide range of disciplines to use to study computerization in society. Three main approaches of social informatics are described after which some of the main insights that have emerged from social informatics research are discussed. The entry concludes with an assessment of the impact of and potential for social informatics in library and information science.

INTRODUCTION

Computers in various forms, cell phones, global positioning systems, and many other digital devices have become part of the routine fabric of many people's lives. Recent developments in ubiquitous computing, "which may be embedded in the environment, embedded in objects, worn, or carried by the user throughout everyday life," presage a future that moves beyond the computer as a desktop artifact (2) towards a scenario where people "have the same secure, personalized access to communications on devices everywhere, whether public or private, mobile or stationary." (3) These and other information and communication technologies (ICT) have become key components of the large and complex infrastructures on which many different types of organizations depend. The pace of technological innovation continues to increase and as researchers and entrepreneurs work on Web 2.0 applications, for example, the effort led by Miller to develop the technologies that are forming the infrastructure of the "semantic web," (4) there is already speculation about the next wave:

The Semantic Web community's grandest visions, of data-surfing computer servants that automatically reason their way through problems, have yet to be fulfilled. But the basic technologies that Miller shepherded through research labs and standards committees are joining the everyday Web. They can be found everywhere--on entertainment and travel sites, in business and scientific databases--and are forming the core of what some promoters call a nascent 'Web 3.0.' (5)

This wave of innovation is sweeping over libraries and other information organizations and there is a small and growing literature about “library 2.0” (6, 7, 8), a vision of a “next-generation library” based on “the application of interactive, collaborative, and multi-media web-based technologies to web-based library services and collections,” (9). There is even some discussion among bloggers of “librarian 2.0” (10). As these activities intensify, one simple and profound question to ask is what this immersion in and dependence on ICTs is doing to us. This question is simple to ask and difficult to answer. In part, this is because it is difficult to study something that is both pervasive and routine; one of the implications of ubiquitous computing is that the object of study will eventually become invisible. In addition, a reliable approach is needed to study the ways in which people’s work and play are affected by the ICTs they design and use that also allows researchers to understand the ways in which people are affecting the ICTs on which they rely. Research into computing and society requires an approach within which can be found the theories and concepts that will allow researchers to uncover these instances of mutual shaping. Social informatics is one useful approach that can do this because of its focus “on the social consequences of the design, implementation, and use of ICTs over a wide range of social and organizational settings” especially “the roles of ICTs in social and organizational change” (11).

This entry describes the concept of social informatics, delineates the research domain the concept is intended to cover, and explains its relevance for library and information science; it updates Kling’s 2003 description of social informatics in this Encyclopedia (12). After an initial definition of the term, a brief history of social informatics is presented from the origins of the term in the 1980s among Scandinavian scholars to the

appropriation of the term by Kling and colleagues in the mid 1990s to its current status as a useful lens with which to study computerization in society. Three main approaches of social informatics are described after which some of the main insights that have emerged from social informatics research are discussed. The entry concludes with an assessment of the impact of and potential for social informatics in library and information science.

WHAT IS SOCIAL INFORMATICS?

To paraphrase a question asked by Kling in 1999 (13), what is social informatics and why does it matter in library and information science? Kling, Rosenbaum and Sawyer recently defined social informatics as “the interdisciplinary study of the design, uses, and consequences of ICTs that takes into account their interaction with institutional and cultural contexts.” (14). Lamb and Sawyer (15) describe social informatics as

A body of rigorous empirical research that focuses on the relationships among people, ICTs’, and the social structures of their development and use. Social informatics studies engage a broad range of ICTs – from large, formal, organizational information systems such as medical records systems to everyday, informal, often highly-personalized devices such as mobile phones and personal digital assistants. In these studies, ICTs are seen as embedded within a larger social milieu that infuses meaning and purpose into their shaping and uses.

Social informatics focuses on the “the intended and unintended social and organizational consequences of ICT-enabled change and change efforts” (16). For these

reasons, social informatics has a problem oriented focus (17); although “multidisciplinary and methodologically diverse” it “can be considered to be distinctive through the common focus on a complex problem area; namely, computerization as socio-technical complexity.” (18).

Social informatics researchers are not typically interested in how to build or design ICTs. Instead, they want to understand the complex relationships that are involved when these ICTs are used in different types of social, cultural, organizational and institutional contexts. Their objects of study include the ICTs, the people who design, set up, maintain, and use them, and the different settings in which they are used. Robbin and Day argue that social informatics researchers seek “to intervene in the social construction of the meaning, value, use and even design of technologies as shaped by discourse and education” and “to intervene in the practice of theory of ICTs by means of critical examination and discourse.” (19) Horton, Davenport, and Wood-Harper add that “there is an implicit hope that the detailed analyses developed under the banner of social informatics will provide ‘increased understanding’ that will result in ICTs that are ‘actually workable for people and can fulfill their intended functions’” (20).

Social informatics matters because it addresses questions of fundamental importance in library and information science and other fields: given the types of situations described above, how can we best understand the complex relationships among people, the ICTs that they design and use, and the contexts in which design and use take place. In addition, Halavais asks

How does the intended use of the technology relate to its use within ... existing social practices? In what ways, both intended and unintended, does the technology affect the structures of interaction and understanding within a community?" (21).

HISTORY

The term "informatics" has been part of the academic lexicon for many years; Brookes argues that Lenin should be seen as the founder of informatics (22)! Since the late 1970s (23) the term has been used to describe "the study of information content, representation, technology, and the methods and strategies associated with its use" (24). In early 1980s, however, the term acquired the modifier "social" when it was used by Norwegian social scientists whose work focused on the intersections among technology, organizations and work. Roggen claims that "social informatics, the interdisciplinary field of informatics, ... [was] established as a science in 1982 by Stein Bråten" at the University of Oslo (25), Ursul (26) and Robbin and Day (27) claim that it became a discipline soon after. The Faculty of Social Sciences at University of Ljubljana, Slovenia established a program in social informatics in 1985 (28) stating that the term "relates to interaction between society and information-communication technologies" at macro and micro levels of analysis. Around this time, Kling, who had been studying computerization from a social science perspective in the United States since the 1970s, met with Bråten and Roggen in Norway where he learned about their new discipline and "its terms, concepts, theories, models, and research projects carried out by Bråten and his collaborators" (29).

In the mid 1990s, Kling and his colleagues were casting about for a label to describe more concisely the research in which he and like-minded researchers had been engaged. What had been called the “the social analysis of computing,” “human-centered computing,” the “social study of information technology” and the “sociology of computing” became “social informatics.” According to Kling, Rosenbaum, and Sawyer,

In 1996, some participants in this research community agreed that the scattering of related research in a wide array of journals and the use of different nomenclatures was impeding both the research and the abilities of ‘research consumers’ to find important work. They decided that a common name for the field would be helpful. After significant deliberation, they selected ‘social informatics.’ (30).

Since then, there has been considerable activity, initially driven by Kling, that has included a 1997 NSF funded workshop that set a research agenda for social informatics, the introduction of a social informatics minitrack in the America’s Conference for Information Systems (now called Social Theory in Information Research), panel discussions on social informatics at the Annual Meetings of the American Society for Information Science and Technology, special issues of the Information Society and the Journal of the American Society for Information Science and the Information Society, the formation of a Social Informatics Special Interest Group in the American Society for Information Science and Technology, undergraduate and graduate courses about social informatics, and the establishment of several centers of social informatics at universities in the United States (the Rob Kling Center for Social Informatics at Indiana University) and Europe (the Center for Social Informatics at Napier University, Scotland). Social informatics research is alive and well and the movement Kling “fostered has grown to

encompass a widening and interdisciplinary interest in research that carefully examines the ways in which ... ICTs ... are bound up in everyday social and organizational structures” (31).

ASSUMPTIONS

Social informatics research typically makes use of theories and methods of the social sciences. However, it is probably more accurate to say that social informatics is an approach to studying technology and society influenced by social science theory and method that cuts across many academic disciplines. Researchers working in information systems, library and information science, sociology, anthropology, communications, journalism, management and other disciplines are using the concepts and tools of social informatics. (32) Despite this heterogeneity, there is a set of assumptions that is common to their work. These can be organized into assumptions about the embeddedness, duality, and configurability of ICTs. (33) The first, embeddedness, holds that the context matters; ICTs do not exist in social or technical isolation and are embedded in social, cultural, organizational, and institutional contexts (34, 35). A second and related assumption is that technology involves a fundamental duality wherein ICTs, the people who design and use them, and the contexts in which they are embedded are in relations of mutual shaping, an insight that has been important in the work of Orlikowski (36). Working from this assumption, social informatics research and theorizing “seeks to uncover and explain the coupling of technology and social order.” (37). One implication of this assumption is that “the situated nature and uses of computing mean that context and use are bound up through practice: to report on use is to report on the situations of that use” (38). A related

assumption about this duality emphasizes one dimension of mutual shaping. ICTs enable and constrain social actions and social relationships that are enacted within the contexts of design and use. Finally, ICTs are configurable. They are sociotechnical systems that can be interpreted and used in different ways in different settings.

APPROACHES TO SI RESEARCH

There are three main approaches that characterize social informatics research. The first is normative and covers work that as its main goal to influence practice. Researchers engaged in this type of work seek to provide empirically based findings that can be used to make recommendations intended to improve the work done by people designing, implementing, managing and using ICTs. For example, some normative work is directed at designers and managers of ICTs, while other work seeks to influence people involved in setting ICT policy. The second is analytic and includes work that has as its main goal the development and refinement of theories of ICTs in their social, organizational, and cultural contexts. Analytic research “seeks to contribute to a deeper understanding of how the evolution of ICT use in a particular setting can be generalized to other ICTs and other settings” (39). This type of work is important because it results in the development of a body of theory and empirical work that forms the knowledge base of the discipline.

The third and perhaps most important approach is critical, covering work that examines “disjunctions between popular and professional claims about the social values and uses of [ITC] and the empirical reality of such.” (40). Researchers adopting this approach call into question the conventional wisdom and assumptions about ICTs and, in

doing so, employ “perspectives that do not automatically and uncritically adopt the goals and beliefs of the groups that commission, design, or implement specific ICTs.” (41) Day argues that the this critical impulse is at the heart of social informatics and, developed more deeply, can move the discipline in novel and rewarding directions because its “empirical objects ... can be as much conceptual constructs as empirical entities, and [its] central concern [can be] the examination of the notion of information as a culturally and historically specific conception of knowledge” (42). The critical approach easily incorporates genre and discourse analyses into the social informatics researcher’s methodological tool kit as it becomes “ultimately, a discursive and cultural examination of the construction of meaning and concepts related to ICTs,” (43).

KEY INSIGHTS FROM SI RESEARCH

Some of what has been learned from almost 30 years of research into the interrelationships among technology, organizations, people and work now seems like common sense, but at the time these findings were being reported many were challenges to the conventional wisdom about computing and society. At the time of this writing, some of these finding have not yet had impacts on the design, implementation and use of ICTs.

Based on the assumption of embeddedness, SI researchers have demonstrated empirically the mutual shaping that characterizes the relationships among people, ICTs and the contexts of design and use. On the one hand, the context of ICT use directly affects the meanings and roles the technologies have for the people using them; for

example, the same information system will be used differently in a elementary school and a government agency. In addition, the interpretations that people develop to help them grasp ICTs shapes their adoption and uses of these technologies. Such a set of conventions are necessary if the interactions enabled by the ICTs are to proceed smoothly (44). The result is that the social and organizational contexts of ICTs play “a significant role in influencing the ways that people use information and technologies, and thus influence the consequences for work, organizations, and other social relationships” (45). A related insight also grounded in an assumption of embeddedness is that ICT use leads to multiple, and seemingly contradictory, effects. That the same ICT package can be implemented in two similar organizations and be used in different ways with different outcomes has been attributed to the differing contexts of use. This has been illustrated clearly by Orlikowski, who described two similar consulting firms that implemented the same software package and experienced two very different outcomes. The success of the software in one firm and the failure in the other was shown to be due to differences in non-technological organizational practices; in one firm there were organizational incentives for employee participation and in the other there were not (46).

There is also a set of insights about the nature of ICTs. The first is that ICTs are configurable – they are actually collections of distinct components. This means that different components and features are emphasized in different social and organizational settings. The second is that these configurations are not static. ICTs continue to evolve and change after they are implemented and sometimes in ways not anticipated by their designers. This is to be expected since there will be “ongoing adjustments of the technology and initiatives aimed at influencing the organizational context, for instance,

training users, changing existing procedures, and promoting the establishment of appropriate conventions for use.” (47). This process has been called “technology-use mediation” and describes the efforts to align the structure and functioning of the ICTs with existing work and other organizational practices (48). Walsham, for example, describes a police dispatch system that was modified by the people using it. (49) The process also has currency when considering the adoption and use of ICTs in social and domestic settings.

The third insight is that ICTs have trajectories that begin with their design and continue until they are no longer in use. It is therefore possible to study the evolution of an ICT configuration focusing on its history and future; a trajectory is composed of a social history and a trail of technological progress. These trajectories can be traced and studied and although ICTs have the potential to be influential in social and organizational change, their trajectories often favor the status quo. (50). Finally, there is an insight that aligns well with fundamental assumption from the social construction of technology approach concerning the role of values and ideology in the design, development and use of ICT; technology is not value neutral. ICT use has moral and ethical aspects and these have social and political consequences. In some cases, “IT applications can ... shift the balance of influence and power in organizations by restructuring access to information, technical staff, and the kind of authority that informational resources can bring.” (51). Consequently, the implementation, and use of ICTs typically produces winners and losers. For example, in many organizations, the implementation of ERP systems has led to efficiencies, but also to changes in work routines that some employees do not like and, in more extreme cases, early retirement.

SOCIAL INFORMATICS AND LIBRARY AND INFORMATION SCIENCE

At the turn of the century, in a special issue celebrating the 50th anniversary of the Journal of the American Society for Information Science (now the Journal of the American Society for Information Science and Technology), Saracevic describes information science as “interdisciplinary in nature” and “inexorably connected to information technology” with a “technological imperative [that] is compelling and constraining” its development; in addition, information science “has a strong social and human dimension, above and beyond technology” (52). In the same issue, Bates identifies three “big questions” for LIS, a “physical” question about the fundamental laws and features of recorded information, a “social” question about the ways in which people interact with and make use of information, and a “design” question about the ways in which access to information can be improved. (53).

It is clear that the assumptions and insights of social informatics as described above overlap with these descriptions of information science. As increasingly sophisticated ICT become integrated into information organizations, including libraries, the questions that social informatics researchers ask and the problems they investigate become increasingly relevant for LIS. For example:

- How is the introduction of new technologies changing work practices, organizational structure and culture in libraries and other information organizations?

- What can we learn by studying the discourse about technology and information organizations?
- Can an SI approach shed more light on problems of information seeking and use?
- Bishop and Van House have already argued for the value of an SI approach to digital libraries. What else can we learn about them?
- Can an SI approach lead to better understanding of fundamental concepts of LIS such as “information?”

CONCLUSION

Information and communication technologies have become essential components of many people’s work and social lives. Within organizations, activities such as distance education, virtual teamwork, telecommuting, telemedicine, the outsourcing of organizational functions such as payroll management all depend on complex digital infrastructures supporting shifting configurations of ICTs. Outside of organizations, ecommerce, egovernment services, electronic banking and other networked electronic services are becoming increasingly commonplace parts of people’s lives as they do their business in the world. Wikis, blogs, and social networking sites of all kinds are taking their places in people’s social lives. As computers and other ICTs become ubiquitous and recede into the background it becomes more important to analyze them from an approach that takes seriously their embeddedness in social and organizational contexts and social informatics is one useful way to do this.

Drawing on some thirty years of research into the relationships among computers conducted in the United States and a similar stream of work in Scandinavia, social informatics emerged as a research domain in the mid 1990's. Initially driven by Kling and colleagues social informatics, a label already with currency in Europe, defined a research domain that focused on the relationships of mutual shaping among ICTs, the people who design, implement, manage, and used them, and the social and organizational contexts with which the people and technologies are embedded. Social informatics has become a useful lens with which researchers in a variety of disciplines study ICTs, computerization and society.

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