Joshua Evnin
October 12, 2004
I501 Section 3: Social Informatics

How Social Informatics Serves to Enhance Design

Introduction

Since Informatics is a broad field with many possible areas of specialization, I think it is important to begin an explanation of how I think Social Informatics will fit into my career by explaining what I believe my career path will hold for me. After leaving Indiana University, I hope to be hired as an HCI Designer, in the strictest sense of the title. My goal is to design tools for people to use which are advanced by the abilities of computers. This means that I will assess the tasks that people complete on a daily basis and make them easier with the help of embedded computer systems. I believe that Social Informatics will greatly enhance studies of my user populations, thereby leading to user-supportive designs.

In the article *What is Social Informatics and Why Does it Matter?*, Rob Kling defines Social Informatics as "the interdisciplinary study of design, uses and consequences of information technologies that take into account their interaction and cultural contexts" [Kling, 1999]. It is my opinion that one cannot design effective, usable objects without the mindset present in this field. No object is ever used outside of a particular context, be it cultural or otherwise. Building tools without taking the history and culture of users into account yields designs prone to errors in concept and execution. A recent study showed that senior citizens will not utilize technologies, even if they *need* them, if it makes them feel embarrassed or incapable [Hirsh et al., 2000]. Careful research of this user population would lead to the development of tools that allow users to enhance their lives without negative feelings.

The rest of this paper will discuss the factors which serve to motivate the use of Social Informatics methodologies in the field of HCI/Design, and will then suggest a methodology which I believe should be widely adopted in this relatively new field. The paper will conclude with a discussion of how Social Informatics practices have been applied to the kinds of products we currently use and the ways in which we use them.

User Systems and Environments

When a designer goes about creating a product for a group of users, it is important that he consider individual task scenarios as well as the attributes that come to light when users coordinate to complete an undertaking. When designers consider a task in which coordination occurs, it is vital that he study both how each member of the group functions, and how the system works as a whole. In the classic book Cognition in the Wild, Edwin Hutchins discusses the ship navigation tasks undertaken by a group of sailors. Of the work done by the team he states, "The computations performed by the navigation system are not equivalent to the cognitive tasks facing the individual members of the navigation team…The computations that are performed by the navigation system are a side effect of the cognitive activity of the members of the navigation team" [Hutchins, p. 170]. At no point does a member of the group explicitly complete a computation; rather the solutions come to view as a side-effect of the process. This goes to show that there *is* a difference between a system and the sum of its parts. It is not enough to study how each cog in an organization completes tasks, rather, as designers we must consider the outcome of the group as a separate entity.

Beyond the study of coordination systems, designers must also consider how one's environment affects the way tasks are completed. On this topic Hutchins says, "In watching people think in the wild, we may be learning more about their environment for thinking than about what is inside them…The environments of human thinking are not 'natural' environments. They are artificial through and through. Humans create their

cognitive powers by creating the environments in which they exercise those powers" [Hutchins, p. 169]. This is to say that people construct the world in which they work such that the environment affords the completion of their particular tasks. An example of such a phenomenon is walking in to a coworker's seemingly messy office, but being surprised to find that he knows exactly which pile your paper is in. It is absolutely vital that we study the environments people create and modify using the technologies they are outfitted with. Using such data, designers will be able to construct tools which do not hamper the user's tasks, but provide more efficient use of the workspace, allowing them to work more naturally.

Enhancing Performance, Not Fixing Problems

In chapter 6 of Kiesler and Hind's Distributed Work, many reasons are given to explain the advantages of face-to-face interactions over remote collaborative work. Among these advantages are the following:

- Physical proximity increases communication by putting people with similar interests in each other's presence.
- The fact that people will see each other often generally results in an obligation to speak to one another.
- At the beginning of collaboration, coworkers must have extended communication to develop a common view of the issues.
- Physical copresence allows for a full range of linguistic, paralinguistic, and nonverbal behaviors to communicate.

Overcoming these obstacles has become a major goal of the telecommunications industry. In fact, Hollan and Stornetta characterize the *Telecommunications Problem* such that, "Ideally, [telecommunications] systems should work so well that those at a distance should be at no disadvantage to those who are physically present" [Hollan and Stornetta, 1992]. Hollan and Stornetta go on to say that in order to succeed with respect to this problem, telecommunications designers must develop technologies that people prefer to use even when they have the option of interacting in a face-to-face manner.

It is my belief that such optimistic goals should be set for all design tasks. Rather than designing systems which mirror the ones in existence, it may be fruitful to reassess our users' needs and create totally new tools. No amount of technological or psychological knowledge will allow designers to build tools that are completely suited to the tasks of those who will utilize our systems. Instead, we must focus on the social aspects of the tasks we wish to affect. It is important that HCI designers embrace the methods of Social Informatics in order to be able to understand the true nature of the task domains that are studied. Utilizing the insights derived from studies of the social aspects of our users' work, designers will be able to create tools which not only fix the problems associated with tasks, but actually advance the performance of those who undertake the work, to a level never imagined before our solution came into existence.

In terms of communication, face-to-face may have many advantages, however we must see the positive aspects of other forms. E-mail allows communicators to respond to issues at their leisure, and allows for access to prior conversations. Communication via cellular phone allows people to connect at any time, in any place, though at lower fidelity than the face-to-face model. In any case, there is a time and place for each method, and the combination of all modes of communication is far better than face-to-face discussion alone.

What is Gained from Social Informatics?

With careful study of user needs and environments, designers can gain valuable insights into the users' task domain. Howard Rheingold explains in his book Smart Mobs that the widespread use of cellular phones and text messaging in Japan has led to a shift in the attitudes of teenagers of the culture. Because of the mobility of this communication tool, these teenage users are allowed a sense of privacy since all calls are directed at them rather than a shared household telephone. Also, text messaging is heavily utilized because it is silent, and allows teenagers to communicate without being

heard by their families. These technologies make perfect sense when considered with respect to the crowded nature of Japanese culture, and the fact that finding personal space can be especially difficult for young people there. I believe with further study into these users' environments one would be able to create even more supportive tools that continue to affect cultural customs.

In this paper it has been my intent to suggest that as an HCI designer, my peers and I will be influenced by Social Informatics in three ways. First, designers need to study not only individual users in tasks, but the ways in which individuals form a system, and the many roles that users can take on in such systems. Next, those who create new systems should be required to study the environment in which a task takes place. And finally, inventors of new tools must do in-depth studies of users' tasks in order to create new systems that not only replace old work habits, but cause the users to perform at a higher level than before. In the case that these methods are not used in this new field, it is likely that new tools will not wholly support users, and will instead be "technological junk" that people waste money on. With the aid of the studies of Social Informatics, my peers and I will be able to concentrate on the real intents of user populations in order to create tools which enhance effectiveness in their particular work processes, which is the true goal of all HCI Designers.

Works Cited

Hinds, P., Kiesler, S. Distributed Work. Cambridge, MA: The MIT Press, 2002.

Hirsch, T., Folizzi, J., Hyder, E., Goetz, J., Stroback, J., Kurtz, C. "The ELDer Project: Social, Emotional, and Environmental Factors in the Design of Eldercare Technologies." Proceedings on the 2000 conference on Universal Usability, 72-79, November 2000.

Hollan, J. Stornetta, S. "Beyond Being There." Proceedings of ACM CHI '92 Conference on Human Factors in Computing Systems, Perspectives on the Design of Collaborative Systems, 119-125, May 1992.

Hutchins, E. Cognition in the Wild. Cambridge, MA: The MIT Press, 1994.

Kling, R. "What is Social Informatics and Why Does it Matter?" D-Lib Magazine, 1-5, January 1999.

Rheingold, H. Smart Mobs: The Next Social Revolution. Cambridge, MA: Basic Books, 2002.

All thoughts, theories, and derivations in this paper which were created by Josh Evnin belong to Josh Evnin. © Josh Evnin, October 2004