Some thoughts on ethnography aiming for design

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Although ethnography is a well-known and accepted method in HCI and CSCW research, it does not inform design as much as some of us who use it wants to. There are many reasons for this, some of which will be raised in this position paper. My standpoint is that we have not yet found ways to communicate the ethnographical results in such ways that they easily can be obtained for design. Many of us, I believe, do contribute with design thoughts, that our ethnographies does discuss different experiences of information management and technology use. However, we are not getting the message through so we need to rethink the way we bring forward our research results for the purpose of informing new system designs.

In this position paper, I present the last research project I have participated in and the experiences for design that came out of it. Further, I discuss why design, with the intention of defining design for ethnographies a bit more and make an attempt to pinpoint the problem - why is it so difficult to get ethnographies to inform design. Finally there are some possible solutions - some thoughts on how we can improve the role of ethnography for design purposes.

The SOS Alarm project

SOS Alarm is a company that is responsible for managing the telephone calls made to the emergency telephone number 112 in Sweden. The SOS operators receive, categorize, document, dispatch and monitor the incoming cases. This ethnographical study (Helgeson, Lundberg, Normark, Pettersson, & Crabtree, 2000; Normark, 2002a; Normark, 2002b) focused on the SOS operators work; how they coordinated the information and tasks between them; how the technology supported that work.

What was learned

At larger SOS centers, a case was almost always coordinated between two operators, a receiver and a dispatcher. This division could be static or dynamic. The initial question for this study was how this coordination was done, and what was the role of technology in the coordination process. During the study, another question became of interest, against the background of the plans for a future centralized system for SOS emergency dispatch. At least in theory such a change would mean that the 112 call can be handled by any of the 20 SOS center in Sweden (e.g. the least busy one), and would no longer be handled locally. What would this change imply for the coordination of work? What would be needed to support it? A key issue seemed to be how the SOS receiver makes the case file accountable to the dispatcher.

The emergency call taker documented facts, such as the address of the incident and the name of the injured and so on. S/he used the forms in the CoordCom system to do so. That was the easiest part of the work. The more complex work was to interpret the caller's information and collect sufficient information so that the call could be accepted or rejected as a case. It was not only that the receiving operator needed to be sure, s/he also may need to account for reasons to the dispatcher when the case was handed over. The case could be coordinated through the CoordCom system alone, or, additionally through co-listening and/or verbal exchange.

The dispatcher on the other hand needed to be sure that the case was valid so that the ambulance was not turned out on an invalid case. S/he mainly got the priority, the label and in some occasions a short description in free text. The process of selecting which unit to send was guided by many properties of the units, of which the location was only one.

Reflections for design

One general conclusion that was drawn from this study was that the system handled facts well. Facts were, however, not independent of the context. Impressions, values and local knowledge were important and unconditionally a part of the SOS Alarm operators' work. The computerized system, should be considered as a communication and information storing system. It should not be designed to actively do categorization and analysis of the case. Another conclusion drawn was that the case files were not complete. They lacked important information, conditions that were not considered as facts and thus not entered into the case file. There were some cases when the information in the system was sufficient, but in many of the cases, the operators also had to coordinate verbally. There were no cases observed in the study where the verbal coordination was a problem, but, when considering a new setting where case coordination should work at distances, problems may occur. One of the main potential problems is the time constraint. When the operators needed to coordinate verbally they could smooth the flow by seeing what the other one was doing. They had overview of the current situation at the center and the actions of others. This issue would have to be addressed in a new system design for a distance coordination arrangement. Nevertheless, verbal coordination is important for common understanding. The goal would not be to remove verbal coordination but to make the process faster by having case files that were designed to encourage the operators to add more informal but crucial information.

The account of the work of the receiving operator and the dispatcher and the CoordCom system gave several different results. The interface was not effectively designed, the operators worked with only a part of the screen so that the full potential of the interface was not used. The form-oriented documentation part called for keeping the information short, too short for some occasions. The case categories in the system were based on a relationship between the priority of the case and the type of injury that the person in need had. This was often worked around since it was not only physical facts that was considered in the priority decision, but conditions of the caller (was s/he for example vague or upset), the context of the accident (was it a public place), the age of the injured, and many other reasons. Also, in rescue cases, it was only the facts and not the underlying reasons that were documented. If this design would be maintained in the new system, there would be a potential problem when cases are supposed to be coordinated between centers and this important information would be lacking.

The problem

In ethnographical studies, one tends to fail in communicating the results in such forms that they really are used as the foundation for design. This is usually the reason for wanting ethnographies to be more design oriented. First of all, I think that it is important to define exactly what we mean by "design" what our expectations upon orienting towards it are. There seems to be many different conceptions when one asks around, is it in the form of a prototype, a mock up, a data modeling schema or an actual implemented product? My definition of design in this context is *design as the process* going from field study to actual implementation. Drawing upon this, doing more design oriented ethnography thus means refining the data so that it can be used in further on in the design process. I do not think that it is necessary to do a prototype or even mockups to strengthen the use of ethnography in design.

Many ethnographical design projects have proposed that the solution of involving ethnography in design is to work in multidisciplinary teams. This means that design should be an actual product, or at least a prototype, built by some engineers in the project, while being informed by the ethnographers. However a good way of using ethnographers, it does not in my

opinion strengthen the use of ethnographies for design purposes. I would like to be able to do ethnography AND contribute to/suggest/recommend design ideas so that other researchers or system designers really can use it and adjust their systems to it. I want to find ways to communicate the results in a more design-oriented fashion.

The main problem of moving from ethnography to design is that one spends many hours trying to understand how a certain (work) setting is ordered - one knows how much different tools and practices depend on each other. It is thus very difficult to start to think about how one can change the tools and what will happen then. Some people do suggest that we should just g ahead and do design and not think so much about the lack of methodology when moving from ethnography to design. This is probably wise. However, I think that the main strength of ethnographic studies is to extract functionality, not to do interface design, even if some sketches can be used to communicate ideas for new functionality.

Finally - we do need to be clear on why we want to do design. In many cases it is fine just to report on how the products produced are used out there.

Possible solutions

I think that in order to get more design oriented, we need to find forms of communicating our results in a more general form. Martin, Rouncefield, & Sommerville, (2002) has done admirable work in trying to define "patterns of interaction" that has come out of ethnographies, this is very exciting work. A pattern e.g. is "Multiple representations of information". The patterns are categorized by essence, usefulness, where to be found and what they imply for design. We have not seen so many meta analysis's of CSCW ethnographies, I think that there is much to be done here in order to generalize user activities and experiences.

The key to more effective communication of ethnographic analysis for design purposes is to structure the ethnographies more. Perhaps one way to get inspiration is from the data modeling techniques, using data dictionaries and defining objects (see e.g. Rumbaugh, Blaha, Premerlani, Eddy, & Lorensen, (1991)) and the Unified Modeling Language (UML). Again, this means moving away from the holistic descriptive ethnographic approach to a more structured format.

Yet another way is to define use scenarios. It goes in line with new system development methods like extreme programming (see e.g. Beck (1999)). The programmers work in teams in an iterative process with scenarios as requirement specifications.

One of the things that has occurred to me is that ethnographers (myself included) tend to take on really large and difficult projects, like banks or air traffic control. It is no wonder that it becomes more difficult to make design suggestions with the complexities of these settings. If we intend to contribute to design, I believe we have to focus much more. It is, however, important to keep the holistic approach, it is one of the strengths of ethnography. By being able to analyze motivations, conditions and concerns on a higher level than the nitty gritty details of computer use, I think that we are able to contribute with new and useful motivations that can guide the whole design.

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