Usability in Practice: Field Studies

The following is adapted from Stephanie Rosenbaum's position paper for the CHI 2002 Usability in Practice session titled "Field Studies—Evolution and Revolution."

Although practitioners recognize and appreciate the value of field research, most usability practitioners don't have the opportunity to conduct many field studies. The multiple challenges of budget, schedule, and logistics often combine to defeat our efforts to convince clients and management to support field studies. Therefore, practitioners working for companies developing products—and individual consulting practitioners—may have only occasional chances to use these worthwhile methods.

As a 15-person usability consulting firm, Tec-Ed faces the same challenges every time we try to define a field research project. However, because we define so many projects for a wide variety of companies, from 1996 to 2002 Tec-Ed has performed a relatively large number of field studies. As a result, we've had the opportunity to evolve and adapt two time-honored field research methods in ways that are working well to inform product design.

Why Field Research Is Underutilized

Tec-Ed has successfully been using adaptations of contextual inquiry and ethnographic interview methodology for short-term user research projects in our consulting practice. Although these methods have been described in detail in HCI literature, few examples exist of their use on a day-to-day basis in commercial product development.

Traditionally, contextual inquiry [Holtzblatt and Jones; Raven and Flanders] and contextual design [Holtzblatt and Beyer; Wixon et al.] have been in-depth qualitative methods, mostly conducted within large organizations that can invest in research for long-term product design improvements. Similarly, the methodology for ethnographic interviews has been developed through fairly extensive projects [Wood].

In contrast, usability testing methods are regularly used in short-term data collection projects. The literature on "discount usability" [Nielsen] and many other published case histories describe the successful application of usability testing to achieve immediate commercial goals. Indeed, when my firm works with an organization that is conducting user research for the first time, we are most likely to recommend usability testing as the method of choice for our first project. The audience needs less education in research methods to understand and apply usability test results, and observing usability tests can be very compelling to development staff members.

Why Field Research Is Important

Usability testing—especially iterative usability testing—is easy to justify and highly productive. But there are strong reasons to recommend ethnographic field research, even in commercial situations with tight deadlines and restricted budgets. In addition, it's often possible to combine traditional usability testing with ethnographic methods in a highly effective sequential use of multiple methods.

A recent paper [Rosenbaum 2000] listed the potential problems of restricting usability programs to heuristic evaluation and usability testing:

- They may not evaluate different audience groups; most small-sample usability tests assume a fairly homogenous audience.
- They don't observe users in their context of work.
- They don't address longitudinal issues; most observations focus on ease of learning and the "out of box" experience.

Although that paper discusses the benefits of usability programs employing multiple methods (with many short examples drawn from projects), it doesn't address specific case histories.

Field Studies Tec-Ed Has Performed

Since 1996, Tec-Ed has used adaptations of contextual inquiry and ethnographic interviews many times in our practice. These adaptations have enabled us to benefit from the methodology, despite the constraints of commercial practice. Here are summaries of some field studies:

- Contextual inquiry at seven call-center sites using service-call management software in the U.S. and Europe. 1996 [Anschuetz et al.].
- Contextual inquiry with radiation therapists and radiation physicists at a hospital oncology center, as part of a project to redesign the user interface of the control software for medical accelerators that deliver radiation therapy to cancer patients. 1997.
- Ethnographic interviews at three enterprise customer sites with system managers and end users of a company developing voice and data conferencing hardware and software. This project was part of a usability program with sequential use of multiple methods. 1998 [Bugental and Rosenbaum].
- A longitudinal study including weekly ethnographic interviews with physicians and hospital staff during the alpha test of a clinical information system. This project also implemented sequential multiple methods: heuristic evaluation, initial usability testing, audiotape diaries, and final usability testing, as well as the ethnographic interviews. 1999 [Rosenbaum et al., 1999].
- Ethnographic interviews at 19 homes of vehicle owners in the eastern, midwest, and western U.S. to learn what kinds of vehicle records they keep and how web technology could support their information needs. This project also examined, photographed, and analyzed collections of artifacts. 2001.
- Contextual inquiry at users' homes to learn how "lower-end" consumer audiences conduct searching on websites: what tools they use, what goals they want to achieve, what methods and approaches they take to reach their goals, and how their search activities relate to UI designers' models. 2001.
- Ethnographic interviews at 10 homes of vehicle buyers in the eastern and western U.S. to learn what kinds of information they desired before buying a vehicle, where they sought the information, and how they used it. This project also examined, photographed, and analyzed artifacts such as brochures, magazines, and handwritten notes. 2002.

How We've Adapted Field Methods for Commercial Practice

Overall, the adaptation of field methods for successful use in commercial environments involved several changes from the original descriptions of the methods in the HCI literature.

For Contextual Inquiries

By using a tighter, more constrained focus on key issues, Tec-Ed can observe and collect extensive behavioral and perception data in shorter sessions with the participants. The sessions rarely last over two hours, which is the largest time commitment we can usually obtain from our target audiences. Therefore, our usability team often spends more time in advance of the participant sessions working with the product and/or hypothesizing situations we might observe.

Although Tec-Ed works closely with the development team to analyze with them the implications of what we observed (before proceeding to our recommendations or redesign), it's rarely possible to conduct the structured group data analysis sessions the literature describes. In our adaptation of contextual inquiry, our data-analysis discussions with engineering and marketing staff usually take place during informal debriefings after the sessions. Sometimes we can schedule a somewhat more formal discussion after the final participant session.

For Ethnographic Interviews

In our adaptation of classic ethnographic interviews, Tec-Ed applies the team approach used in contextual inquiry, with separate interviewers and note-takers. This approach enables us to collect extensive data in short participant sessions. Often we have only an hour to spend with each participant; the maximum time we spend is two hours. Our two-person usability teams share the three key activities of interviewing, note-taking, and photographing or collecting artifacts; for example, while the note-taker takes photographs, the interviewer takes notes.

What We've Learned

Overall, Tec-Ed's adaptations of these two field methods are focused on obtaining the richest possible qualitative information in a limited time. We retain the key elements of these methods—an exploration of users' behavior in the context of their own work during contextual inquiry, and intensive observation of users' settings and artifacts during ethnographic interviews. Although we miss learning some behavior and data that longer observations or interviews would yield, working in teams of usability specialists enables us to cover more ground than a single practitioner could achieve in the limited time.

References

Anschuetz, L., Hinderer, D., and Rohn, J. A. (1998). "When the Field is Far Afield Multiple-Country Observations of Complex System Use." *UPA 98 Proceedings.*

Bugental, J.O., and Rosenbaum, S. (1998). "Combining Usability Testing and Documentation for User Support." *ErgoCon '98 Proceedings.*

Holtzblatt, K. and Beyer, H. (1996). "Contextual Design Principles and Practice." In *Field Methods Casebook for Software Design*. Wixom, D. and Ramey, J. (Eds.). New York John Wiley & Sons, Inc.

Holtzblatt, K., and Jones, S. (1993). "Contextual Inquiry: A Participatory Technique for System Design." In *Participatory Design Principles and Practices*. Schuler, D. and Namioka, A. (Eds.). Hillsdale, New Jersey Lawrence Erlbaum. pp. 177-210.

Neilsen, J. (1993). "Discount Usability Engineering." In *Usability Engineering*. New York, NY Academic Press, Inc.

Raven, M.E., and Flanders, A. (1996). "Using Contextual Inquiry to Learn About Your Audience." ACM SIGDOC *Journal of Computer Documentation,* Vol. 20, No. 1.

Rosenbaum, S., Hinderer, D., and Scarborough, P. (1999). "How Usability Engineering Can Improve Clinical Information Systems." *UPA '99 Proceedings.*

Rosenbaum, S. (2000). "Not Just a Hammer: When and How to Employ Multiple Methods in Usability Programs." *UPA 2000 Proceedings.*

Wixon, D., Holtzblatt, K. and Knox, S. (1990). "Contextual Design: An Emergent View of System Design." *CHI '90 Proceedings* 329-336.

Wood, L., (1996). "The Ethnographic Interview in User-Centered Work/Task Analysis." In *Field Methods Casebook for Software Design*. Wixon, D. and Ramey, J. (Eds.). New York John Wiley & Sons, Inc.