Understanding Users In Context:
An In-Depth Introduction to Fieldwork for User Centered Design

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Abstract.   There is increased awareness of the need for design to be driven by deep understanding of users, their activity patterns, processes, needs and external influences--understanding that can only be gained by studying user behavior in the user's context.   This requires that practitioners know how to plan and carry out observational studies of users, which in turn is a new skill for many. In addition, fieldwork is bigger than any one methodology. Therefore, in this tutorial, we will take a fresh and deeper look at fundamental principles, teaches a range of techniques, and examines important issues on which methods differ.

Keywords: Fieldwork, ethnography, user research, naturalistic observation, contextual inquiry, artifact walkthough, naturalistic usability evaluation.

1   Introduction

Observational research differs from other ways of gathering user data and complements other user-centered design (UCD) methods.   For instance, deep understanding of challenges in users' work patterns can help identify user requirements for new tools, or may spark entirely new product concepts. Information about the context of use that is gained from these studies can inform specific design decisions including mental models and affordances of new products.   The usage context and dynamics of use can both contribute to building of robust scenarios both to design to and to test against.

Doing useful and valid field research depends on how you approach the inherent challenges of such research. Examples include dealing with the inherent ambiguity of qualitative data from field studies; risks of anecdotal evidence; balancing observation and inquiry; sampling bias; reducing the risks of premature closure, identifying and controlling (to the extent possible) reactive effects and demand characteristics.

Planning the field research is a critical first step in assuring its validity.
Establishing a focus is a crucial step in preparing for field research. A focus determines what will be salient for the researcher, and helps guide the researcher in

prioritizing the many avenues that can be pursued during the data gathering in the field. Defining the focus is probably the most critical step in determining how you set up the study and whether you will actually bring back useful and relevant information.

2 Four Data Gathering Techniques

2.1 Naturalistic Observation

Naturalistic observation is best adapted to situations where the opportunity for real time interaction with users in the process of their work is limited. It can also be useful in early, exploratory phases of research. Because of the lack of real-time interaction with users, however, it presents challenges for making sense of your observations.

2.2 Contextual Inquiry

Contextual Inquiry, in contrast, depends upon interaction with users in real time. Unlike a conventional interview, contextual inquiry is very non-linear. Opportunities to probe deeply versus opportunities to broaden the exploration arise unpredictably. There are specific inquiry techniques help the researcher not only to elicit samples of behavior and explore contextual dependencies, but also to balance depth with breadth.

2.3 Artifact Walkthrough

The actual interview techniques of Artifact Walkthrough can resemble those of Contextual Inquiry. However, Artifact Walkthroughs apply these techniques in situations where it is difficult to observe the process of interest. For example, the process may be intermittent and difficult to capture in real time, or it might be inappropriate to interrupt it. Artifact Walkthroughs allow for exploration of these processes retrospectively but ground the information in concrete evidence of behavior. Therefore they do not rely on simple recall. They also provide openings into wider exploration of the user's process. As with actual behavioral observation, they often bring out aspects of the process that the researcher would not have thought to ask about and the user would have thought to mention

2.4 Naturalistic Usability Evaluation

Naturalistic usability evaluation encompasses a range of techniques for evaluating the user's interaction with technology in the user's natural context, based on the user's own goals and materials. They therefore focus on tasks that are meaningful to this user or that incorporate the user's own content more easily than laboratory evaluations. They also allow you to study both usability and utility conjointly and to explore both discovery and task performance.