Investigating the Technology-Work Relationship: A Critical Comparison of Three Qualitative Field Methods

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Three qualitative research methods examined:

- Ethnography
- Participatory Design
- Contextual Inquiry

"Because they are so often conflated in the literature, and because they are superficially similar, these field methods are sometimes not used in ways that harness their unique strengths" (p. 420)

Ethnography

"It's goal is to understand ways of living within a social group, including the tacit rules, practices, and conventions that govern that group" (p. 420).

Multilayered, rich, inductive study of a culture

There is a difference between ethnography and ethnographic methods:

Ethnography is the action of describing a culture

Ethnographic methods are the actions used to generate and analyze qualitative data (Schwandt, 2007)

Constructivism

Humans do not find or discover existing knowledge, we construct meanings based on our experiences.

Two branches:

Radical Constructivism
Focuses on the individual thinker or "knower"

Social Constructionism
"how social actors recognize, produce, and reproduce social actions and how they come to share an intersubjective understanding of specific life circumstances" (Schwandt, 2007, p. 39)

Ethnography

In HCI, observation of individuals acting in group settings can lead to the development of a model that predicts users actions

Ethnography is inductive: you cannot control the situation, only observe

Researchers tend to change their research environment, despite best intentions

The unit of analysis is the group, not artifacts

Ethnography

Design Work

Ethnographic descriptions offer a high degree of insight into cultural and organizational pracitices

Understanding specific context does not equate to understanding design challenges

Results are sometimes difficult to apply to specific situations since the aim of ethnography is generalized description

Large commitment

Participatory Design (PD)

User-centered design process

Not a research method like ethnography, therefore concerned more with artifacts than with culture

Participatory Design (PD)

Interested in specific daily work functions, and how tools are used in those functions

Focus on breakdowns: where a tool does not work as expected

How can tools work better in specific contexts?

Participatory Design (PD)

Data collected through observations, but data is co-constructed by users and researchers

Unit of analysis is the tool-user in context or simulation of context

Prototypes are constructed, and users and researchers modify them to meet the needs of the users and context

Participatory Design (PD)

Design Work

Users are enthusiastic since their experiences help shape the product

Avoids "reinventing the wheel"

Incrimental v. radical change

Contextual Inquiry (CI)

"dedicated to divining the underlying work structure of a given workplace and standardizing the work structure in ways that increase the system's efficiency and the individuals' control and happiness" (p. 424)

A combination of the inquiry methods of ethnography and the tool-user context prototyping of PD

Contextual Inquiry (CI)

Similar to ethnography in that it looks for a unified narrative

Once work structure is discovered, researchers manipulate it and only instantiate solutions after cultural understanding is achieved

Contextual Inquiry (CI)

CI uses short term invasive methods of data collection

Users are observed and interviewed in context, once, for only an hour

Use of snapshots to create models of work structure

Contextual Inquiry (CI)

Design Work

Focus is shifted from prototypes (as in PD) to reorganization of the work structure

Development of tools comes later

Good for radical changes in organizational structure and minimizes the amount of time researchers spend in the field

Generalizations may not reflect actual individual circumstances

CI researchers may not understand organizational culture, thus making changes difficult

When is it appropriate to use each work model?

Ethnography:

Great for developing detailed descriptions of users, workplace environments, and workplace culture

Involves considerable time and resource expenditure, so not suited to frequent use or for minor changes to artifacts

When is it appropriate to use each work model?

Participatory Design:

Good for incremental changes to artifacts and democratization, since it draws on user experience

Does not allow for radical changes in workplace structure or artifacts: not a "big picture" approach

When is it appropriate to use each work model?

Contextual Inquiry:

Minimizes length of intrusive contact between researchers and users and also promotes radical change in workplace structure and artifacts

Relies on generalizations of an underlying work structure based on limited contact, and thus can reduce applicability of solutions to specific situations and specific users

Table 1. A Comparison of Ethnography, Participatory Design, and Contextual Inquiry.

	Ethnography	Participatory Design	Contextual Design
Theoretical precepts			
Understanding of mind	Social constructionist	Constructivist	Social constructionist
Understanding of culture	Gained through observation and immersion	Gained through observation, study, interviews, cooperative design	Gained through targeted snapshot observations and extended group analysis
Understanding of history	Addressed through culture; longitudinal study might uncover development	Addressed through observations; iterative work might interact with development	"Snapshots"; assumes that users' work is essentially static
Understanding of task	Nuanced but unstructured	Cooperatively developed; nuanced but changes as users become co-developers	Structured but underdefined
Understanding of artifacts	Cultural artifacts used to accomplish meaningful goals.	Tools designed for specific contexts; perceptions of tools are as important as facts; users' feelings about tools as important as tools' functionality.	Figure into physical model, but not systematically explored in terms of how they structure and stabilize work. Focus is on "underlying work structure" rather than interface.
Understanding of structure of activity	No formal model.	Draws on constructivist theory for activity structure	"Work structure" represented through models: context, physical, flow, sequence, artifact, consolidated flow
Data collection			
Research focus	Emergent; usually guided by a very general research question	Research question	Clearly defined set of concerns rather than a research question
Methods	Observation, interviews	Observation, interviews, collaborative design, walkthroughs, cooperative prototyping	Observation, interviews (during observations), walkthroughs
Nature of observation	Unstructured; inductive; longitudinal	Semistructured; iterative	Semistructured; snapshot
Unit of analysis	Group	Individual-in-context or individual-in-simulation	Individual-in-context
Partnership model	Participant-observer or anthropologist	Collaborator	Apprentice or partner
Data analysis			
Analysis tools	Databases of field notes, artifacts, interview data	Prototypes, videocoding, work language analysis, artifact analysis	Affinity diagrams and related tools (not databases)
Microanalysis (level of operations)	None	Analysis of breakdowns	None
Mesoanalysis (level of actions)	Stories from field notes and interviews; classification system	Observations, interviews, design interactions	Observations, abstracted into various models
Macroanalysis (level of activity)	The grand narrative or key linkage that emerges from the longitudinal study	The shape of the entire collaboration	The underlying work structure, derived from the various models
Design work			
Description to prescription	Primarily descriptive. Quest for "key linkage" that can focus the process of classifying observations (a metaphor, model, general scheme, pattern, story line).	Descriptive, participatory (designers consult with users to generate solutions).	Descriptive, oriented toward extracting essential work structure. Work structure then becomes guide for design solutions.
Products	Unclear link between description and prescription. Unsystematized.	Evolve iteratively from existing artifacts.	Evolve as physical solutions to abstract problems (i.e., work structure goals).

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References

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