CPSC 444: ADVANCED METHODS IN HUMAN-COMPUTER Interaction

Lecture 2 – Field Studies I

Joanna McGrenere

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includes slides from Jessica Dawson
ADMINISTRIVIA

- please see me at break if:
  - if you haven’t registered for the course,
  - you are registered, but not yet in a workshop/lab section
    - 4 students were moved off the waitlist last night, please see me

- All students who attended the first lecture last Friday should now be registered in a workshop/lab

- Often you will need to bring copies of the readings to class

- poll hands: how many would need to borrow a camera to complete project?
ADMINISTRIVIA

• Everyone should be on piazza now – only 35 enrolled so far (missing about 15 of you)

• How’d the prep quiz go?

• Questions about the Project and MSI?
  – Friday’s workshop dedicated to MSI
  – MSI due next Monday
TODAY

• introduction to field studies & methods

• case study: Malone, T. W. 1983. How do people organize their desks?: Implications for the design of office information systems.
FIELD STUDIES — LEARNING GOALS

Today

• explain what field work is
• identify and explain different field study variants
• identify the principles of field work and how they differ from laboratory work
• explain the different methods used in field work (cont’d next week)
• explain different sampling methods
• be familiar with a field study, be able to describe methodology and findings
• know how to critique the strengths and weaknesses of a specific field study/experiment reported in the literature
WHAT IS A FIELD STUDY?

• **field study** is a general term that denotes a study that takes place *in context*

• **value of context?** what people say and what they do can vary significantly
WHEN TO USE FIELD METHODS

• most often for pre-design
  – cost-benefit tradeoff easiest to make

• but can be used at any stage

• interviews & observations are often used throughout the design/evaluation cycle – but there is a difference between using these methods in and out of context
PRINCIPLES OF FIELD WORK

• natural settings:

• Holistic:

• Descriptive:

• members’ point of view:
NOTE ON TERMINOLOGY
(FOR THIS CLASS)

Methods
Methodology

slide adapted from Michael Sedlmair’s 2012 Infovis talk:
http://www.cs.ubc.ca/labs/imager/tr/2012/dsm/
image credits:  http://www.air-n-water.com/blog/quick-summer-meal/
http://manwifeanddog.com/2012/05/05/a-homemade-recipe-for-a-happy-wife/
NOTE ON TERMINOLOGY
( FOR THIS CLASS )

Examples of ingredients?

METHODS

METHODOLOGY

slide adapted from Michael Sedlmair’s 2012 Infovis talk:
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http://manwifeanddog.com/2012/05/05/a-homemade-recipe-for-a-happy-wife/
COMMON FIELD STUDY “METHODOLOGIES”

- ethnography
- observational study
- (in-depth) interview study
- contextual inquiry
- diary study
- field experiment (likely discuss later)

- these are not mutually exclusive
- for a given field study, methodologies will differ
  - e.g., on the methods used or the “depth” of the field work conducted
WHAT IS ETHNOGRAPHY?

• roots in anthropology – exploration of the everyday realities of people living in small scale, non-western societies
  – ethnographers “figuring out” what is going on through participation in social life
  – e.g., by observing, participating, and talking with people)

• today, ethnographic approach is much broader:
  – being applied to large industrialized societies (e.g., workplaces, senior centres, schools; and activities like teaching, financial investing)
ANOTHER NOTE ON TERMINOLOGY:

• variation in language:
  – some refer to all field work as ethnography, which isn’t correct

• it is common to equate **field study** with **ethnographically-informed study** or a study that takes an **ethnographic approach**
Doing Field Work

General steps and considerations:

• Determine research objectives
• Develop focal points
• Identify participants and sampling strategy, recruit participants
• Determine data collection methods and design materials
  – E.g., creating interview questions
• Other pragmatics
  – How will data be recorded?
  – What do you need to bring?
  – Ethics
• Piloting
• Post-session debriefing
• Data analysis
formulate research objectives:

– states what one wants to achieve
– use objectives to set initial scope

e.g., to understand how doctors manage patient records and the implications this activity has for the design of electronic health records
IDENTIFY FOCAL POINTS

• 2-5 questions that are expected to drive the study (think focus & scope):
  - driven by research objectives or development goals
  - centered on general issues
  - answers not anticipated or assumed

- e.g., what are the triggers that result in a doctor updating (or referencing) a patient record?
- others?
- more on focal points next week
PARTICIPANTS

• devise a sampling strategy
  • what types of participants?
  • how many participants?
  • generally non-probability based sampling method

• gaining access to field site and participants
  - time consuming
  - ethics considerations
SAMPLING METHODS

• finding participants:
  - quota
  - purposive
  - convenience
  - snowball

• if you have specific groups of interest
  – need some kind of screener that identifies important parameters in your target population

• Why do we use different sampling methods?
• What is the implication of different methods?
RECRUITING PARTICIPANTS

• can be more involved than for lab studies:
  – higher threshold, participants allowing you into their “space”
  – often involves more time than a lab study
  – consider appropriate incentive (lab study norms not necessarily appropriate: e.g., $10/hr)

• usually far fewer participants than in a lab study, 3-12 is common
DATA COLLECTION METHODS

• select methods that will address focal points and that will be appropriate for chosen site, e.g.,
  – observation
  – interviews
  – self-report techniques
  – remote techniques
OBSERVATION

• goal to capture *tacit knowledge* and ward against participants trying to please observer

• duration can vary dramatically (small # of days to a year or more!)

• degree of involvement: *observer-participant* to *participant-observer*
  – can you identify the pros & cons?

• can be person/event/place/or object focused
  – can you think of an example for each?
SPECIFICS ON OBSERVATION

• direct observations
  – researcher on site, in context
  – participate as little as possible
  – take notes, audio tape conversational components, collect artifacts, take pictures of artifacts that cannot be taken, sometimes videotape as a backup

• video observations
  – researcher not present, video camera capturing instead
  – can be less intrusive for participant
INTERVIEWS

• **continuum:** unstructured, semi-structured, structured

• early stages of research use unstructured
  – why?

• later stage more structured
  – why?
INTERVIEWING IS AN ART: GUIDELINES

• interview in everyday, familiar settings – take cues from context
• look for specific examples & artifacts
• do not pre-suppose answer
  – How often do you use your mobile phone to call family members? VERSUS What are the ways in which you communicate with your loved ones?
• be open-ended - avoid yes/no questions
• be flexible to adapt line of questioning
• establish and maintain good rapport
• casual conversation is not bad
• assume respondent is expert
• do not interrupt unnecessarily
• plan questions that allow triangulation – ask the same question in different ways
CONTEXTUAL INQUIRY

• **structured methodology** for gathering information in field work
  – goal: to bring it to the design process
  – uses both observation and interview: idea is to intensely interview people while they work

• principles:
  – context
  – partnership: share control, participant is expert
  – focus: keep sight on research objectives, do not try and understand full culture
SELF-REPORT TECHNIQUES

diaries

• participant’s written record of specific events, or can be what is happening at prompted moments
• free form or structured recordings
• e.g., study on exploratory learning “Eureka” moments (Rieman & Lewis, 1996)

visual stories

• pictorial diaries, use a camera in addition to text
• e.g., study using video to document file retrieval (Blomberg, Suchman, and Trigg, 1996)
REMOTE DATA COLLECTION

• remote video and audio via the Internet
• remote interactions collected through logging
  – Google does studies ALL THE TIME
DATA ANALYSIS

• circulate notes and transcriptions among team
• hold video analysis sessions
• identify patterns: in behaviour, events, artifacts, within and across individuals
• common techniques:
  – coding data
  – affinity diagrams
• triangulate data where possible
CODING DATA

• **Coding**: technique where you label chunks of data to describe what you see happening.

• can code many kinds of data, e.g.
  – text in field notes and transcripts
  – events or sections of video

• goal is often to identify themes, categories, patterns in behaviour, artifacts, events, etc.

• affinity diagramming often used to look for commonalities

• **open coding**: themes, categories, etc. are ‘discovered’ while you are going through data

• **closed coding**: you know what themes and categories you want to look for examples of *before* going through data
REPRESENTATIONS – COMMUNICATING RESULTS

• storyboards
• scenarios
• profiles/personas

• more examples in case study papers

• finally, team brainstorm implications for design
CASE STUDY

HOW DO PEOPLE ORGANIZE THEIR DESKS?
IN SMALL GROUPS: **DISCUSS**

Study motivation & methodology

- what is the goal of this research?
- what is a possible focal point for this research?
- what sampling method was used?
- what data collection method(s) being used
Results and Discussion

• what individual differences in organization were seen?

• what conclusions could be drawn about people with messy offices? about the value of a neat office?

• how do files and piles relate to finding and reminding?

• how are files and piles consistent/inconsistent with computer file management?

• how can computer file management better support finding? reminding?
IN SMALL GROUPS: DISCUSS

Critique

• how effective are the questions in the Appendix?

• identify two things the author does in presenting the study and findings that you found effective/interesting/curious etc.

• how convinced/confident are you by this study and its conclusions?
  – what aspects of the study and its write-up boosts your confidence?
  – what aspects diminish your confidence?

• did the author achieve his research goal?
STRUCTURE OF A FIELD STUDY PAPER

common elements

- description of respondents
- description of methods use (including interview questions)
- case study approach (“Two Examples”)
- use of respondent quotes
- analysis
- implications for design

- why is each of these different elements important?
- how might presentation choices around these element effect how convincing a study is?
PROS & CONS OF FIELDWORK

• pros:
  – comprehensive understanding of current practice
  – greater ability to predict the impact of a new or re-designed technology
  – give developers a richer understanding of who + context they are developing for
  – greater ability to prioritize design ideas & features

• cons:
  – time intensive
  – could perpetuate negative aspects of current design
  – vast amounts of data that can be difficult to analyze
  – output is description of practices, not prediction for design
  – scale – small number of users
NOW YOU CAN...

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NEXT TIME

Lecture will cover:

• how to prepare and run sessions in the field