Ethnography

Hypothesis → Study → Data → Theory

Experimental research

Study → Data → Theory

Ethnographic research
• Collect the data
• Code the data and find patterns that occur in the data
• Create theories that explain the data
• Try to attack the theories by gathering more data
  • Leads to stronger theories
Data Collection

- Methods: Observation, interview, participation, logging
  - Format: Field notes, video, audio, log files
- Triangulation: use multiple data sources to support an interpretation to increase the confidence of the conclusion
  - From different participants
  - From different types of data, e.g., observation, interview, logs
Research Example: Vlogging in Dentist Training

- Becvar and Hollan (UCSD), GROUP ’07
- Field site: dental hygiene training program in San Diego, CA, USA
- Goals
  - To gain understand the teaching and learning practices, media and representations
  - To implement and evaluate a design prototype based on the finding of the first goal
- Method
  - Ethnographic study of the current practice
  - Implement and deploy the prototype, then do another ethnographic study
Vlogging in Dentist Training: Understanding Current Practice

- Method (2004, one year in the field)
  - Observation
  - Video recording
  - Contextual interview

- 18 students, 4 instructors participated

- Sample finding: strategies used by clinical instructors
  - Molding: laying their hands over students’ hands as they work with instruments
  - Directing: verbally talking a student through a new procedure: “Do this”
  - Demonstration: using hand gestures to show correct/incorrect ways to handle instruments
Engineering & Design

- Objective: solve a problem with a solution that works
- Key attributes*:
  - Compelling target
    - Solve a concrete, compelling problem with demonstrated need
    - Solve a set of problems using a unifying set of principles
    - Explore how people will interact with computers in the future
  - Technical challenge
    - Requires novel, non-trivial algorithms, or configuration of components
  - Deployed when possible
    - System is deployed and intended benefits and unexpected outcomes documented

* from James Landay’s slides: James & Friends’ Systems How To
Research Example: Skinput

- Harrison et al., Best paper CHI ’10

- Contributions & Benefits
  - “Skinput is a technology that appropriates the human body for acoustic transmission, allowing the skin to be used as a finger input surface.”
Skinput: Appropriating the Body as an Input Surface

Chris Harrison
chris.harrison@cs.cmu.edu

Desney Tan
desney@microsoft.com

Dan Morris
dan@microsoft.com

Carnegie Mellon
Microsoft
The Messy Truth

Observation → Prototype 1 → Prototype 2 → ... → Prototype n → Descriptive model → Predictive model → Commercial product → Long-term effect study

Related scientific theory → Real-world study