• 115-215: Contextual Inquiry
• 215-230: Break
• 230-3: Forming groups
• 3-4: Group consulting
User-centered Design

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Design:

1) to create, fashion, execute, or construct according to plan

2) a: to conceive and plan out in the mind
   b: to have as a purpose
   c: to devise for a specific function or end

Source: http://www.merriam-webster.com/dictionary/design
Design...

is conscious
keeps human concerns in center
is a conversation with materials
is creative
is communication
has social implications
is a social activity

- T. Winograd, *Bringing Design to Software*
Iterative Design Cycle

NEEDS → DESIGN → EVALUATE → IMPLEMENT → NEEDS

Slide from Scott Klemmer
User-centered Design

• Design is intuition chiseled by experience
• Methods for carefully understanding users and context; and testing ideas
• Vary according to goals, scale, longevity, location, data recording, alternatives and degree of perturbation
Design Phases (IDEO)

Understand
Observe
Visualize & Predict
Evaluate & Refine
Implement
Crash Course

- Observation
- Contextual Inquiry
- Ethnography
- Personas
- Probes
- Prototypes
How to Observe

• Participant observation is simply careful observation of users

• Evenly distributed attention, between foreground and background

• Separate observation from interpretation

• Be very careful about imputing motives, mind-reading, etc., especially when studying those very different from oneself

Adapted from Jenna Burrell
How to Participate

• “Going native” is one extreme
• Complete detachment is the other
• Strike balance between insider and outsider
• Potential models: Translator / Apprentice

Adapted from Jenna Burrell
How to Record Notes

- When? as soon as possible
- Where? somewhere unobtrusive
- Log more data than you will need
- Use, but don’t rely on, audio recorders, cameras, notebooks, scrapbooks, etc.

Adapted from Jenna Burrell
<table>
<thead>
<tr>
<th>BEST PRACTICE</th>
<th>TECHNIQUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>separate direct <strong>observation</strong> from <strong>inference</strong> as best you can</td>
<td>Put inference/interpretation in brackets [] or in a separate column</td>
</tr>
<tr>
<td>distinguish between direct quotes and paraphrasing</td>
<td>“” for direct quotes and ‘’ for paraphrasing</td>
</tr>
<tr>
<td>all the <strong>specifics</strong></td>
<td>date, time, place names, names and contact info for people</td>
</tr>
<tr>
<td>Do not be limited to text</td>
<td>drawings, maps, tape small papers into your notebook such as business cards, flyers, etc.</td>
</tr>
</tbody>
</table>
Contextual Inquiry

• Contextual Inquiry is Participant Observation tailored towards Office Settings and towards Requirements Specification

• “Contextual Design makes data gathering from the customer the base criterion for deciding what the system should do…”

• “The core premise of Contextual Inquiry is very simple: go where the customer works, observe the customer as he or she works, and talk to the customer about the work.”

Source: Beyer and Holtzblatt
Making Change Palatable

• “Systems must match the user’s model closely enough that the user can make the transition…”

• Even if a new technology is advantageous, it will not be adopted if it is too disruptive

• Need a path from current practice to the future

• Counterpoints - Business changes much more slowly than some parts of society (esp. youth)

Source: Beyer and Holtzblatt
Design from Data

• “The user is not like us”
• We need data to understand the user
• Forces design team to agree on observations and interpretations
• Reveals hidden aspects of work and behavior
• Marketing only provides a high-level analysis of customer segments; not detailed information about their practices and views

Source: Beyer and Holtzblatt
Principles of CI

• FOCUS - Shared starting point, orienting the team and user towards a common goal

• CONTEXT - See the work where it unfolds

• PARTNERSHIP - Make yourself and the user collaborators in understanding the work

• INTERPRETATION - Assigning meaning to design team’s observations

Source: Beyer and Holtzblatt
Establish a Focus

- Establishing a project focus keeps project team aligned towards relevant questions.
- Asking the customer about whether they bring an umbrella to work probably wouldn’t be helpful for designing a word processor.
- Different team members will have a slightly different focus.
- Reconciled during group interpretation.
Master & Apprentice

• You as Apprentice; Customer as Master - keeps you humble, customer in charge
• Investigator is not afraid to ask questions
• Teaching while doing means user doesn’t have to think in advance what to convey
• Allows discovery of subtle details, which may be overlooked in “canned” discussion
• Reduces need for formal interview questions
Being a Good Apprentice

• Be a keen observer
• Don’t be afraid to ask questions
• Maintain attitude of inquiry and learning
• Admire the Master as an expert
• Aspire to see the World as they do
Things to Look For

- Workarounds
- Mismatches between what people say and do
- Offhand, under the breath comments
- Sighs
- Rolling of eyes
- Confessions

Adapted from Jake Wobbrock
Withdrawal & Return

• The researcher observes something that he/she would like to dig deeper about
  “Is there a reason you paused there?”

• The researcher asks about this, and they withdraw momentarily from the task

• The pair discuss the researcher’s question

• After discussing, participant returns to the task at hand

Adapted from Jake Wobbrock
Summary vs. Ongoing

• Retrospective accounts are often summaries

  “I got to work, checked my email and had a cup of coffee”

• By being present in the time and place of activity, we can access much richer data from ongoing activities

  “I got to work, looked over my email, answered messages from my boss, decided to have some coffee, walked to the coffee machine, found there was no coffee, so I made coffee…”
Abstract vs. Concrete

• Humans also have a tendency to abstract when summarizing in retrospect - to save time, and convey points they feel are important

• This reduces amount and quality of data in CI

• *Leaning back & Staring at the ceiling* are clues that user is being abstract

• *Leaning forward & Pointing at artifacts* are being concrete

• Focus discussion on real tasks and artifacts
Check your Interpretations

- It is good to check your interpretations to make sure they are accurate
  
  “I saw you just do X. Is that because of Y?”
  
  “I believe X. Is that correct?”

- When you check your interpretations in-context, participants should respond accurately

- Outside of context, they may be more inclined to agree or answer in generalities

Adapted from Jake Wobbrock
Vet Your Design Ideas

• CI is a fine time to get initial feedback on ideas
  “If you had a technology that did X, would that solve this problem?”

• Designers want to do this anyway

• Users should understand the intent of your suggestion, and be able to provide direct feedback

• This will also demonstrate mutual understanding providing opportunity for brainstorming and/or clarification
Stages of a Contextual Inquiry

- Interview / Warm Up
- Transition
- Observe Behavior
  - Share Interpretation
  - Refine Interpretation
- Wrap-up
Avoid Other Relationships

- Interviewer / Interviewee - Not based on context or ongoing activities
- Expert / Novice - You are not the expert in the user’s work, they are!
- Guest / Host - You shouldn’t be too afraid of asking the wrong question
7 Ways to Screw up a CI

- Not being inquisitive/nosy enough
- Overly disrupting the task
- Turning it into a regular interview
- Failing to respect your participants
- Failing to observe and take good notes
- Focusing on the wrong details
- Slipping into abstraction

Adapted from Jake Wobbrock
Contextual Inquiry
Group Interpretation

- A maximum of 48 hours after the interview
- Focusing one interview at a time, each team member is asks questions of the interviewer
- The outputs of this meeting are:
  - A sequence of notes, including observations, questions, design ideas and breakdowns, indexed by user number (important to keep anonymous)
  - A set of working models
Roles during Interpretation

• Interviewer - conducted the interview
• Work Modelers - generate work models
• Recorder - take notes
• Moderator - run the session
• Participants - ask questions, make observations
• Rat-hole Watcher - avoids breaking protocol or wasting time
Affinity Diagramming

- Affinity Diagrams can be generated during group session
- Each observation/idea is copied to a post-it
- Notes are hierarchically organized into themes, based on the focus of the project
- Usually done in a chaotic fashion, with design team members running back and forth with post-its and yelling ideas to each other
Work Models

• Work models are a graphical way of representing the results of a CI
• Generated during group interpretation session
• A concrete set of deliverables allowing the design team to agree upon a representation
• Distills the important contextual aspects
• Use judiciously
5 Kinds of Work Models

• **FLOW** - Direction of communication and coordination

• **SEQUENCE** - Detailed sequence of work steps

• **ARTIFACT** - Physical objects that support the work

• **CULTURE** - External influences

• **PHYSICAL** - Layout of the work environment
Ethnography

• Ethnography is more then just a method; its a way of looking at the World

• Subject - the holistic study of people, culture, societies, social relations, social processes, behavior in situ

• Method - some participant-observation

• Analysis and writing style - inductive analysis, use of ‘thick description’ and narrative, “emic” accounts

Adapted from Jenna Burrell
“Thick Description”

- Try to describe the world holistically
- Making you feel as if you were there
- Not only observing actions, but the cultural symbols behind those actions
- Avoidance of generalization - “Another country heard from” [Geertz]
- Acknowledges observer’s subjectivity

Adapted from Jenna Burrell
For Next Time

• Finalize groups!
• Ideas and pitches due next week

• Next week:
  • Group pitches
  • In-class activity
User Research: Due 10/7

• Preferably choose users you can directly observe
• Otherwise, consider e-mail, phone, Skype
• Try to find primary data (videos, stories, statistics) related to users
• As a last resort, you can summarize prior research