User-Centered Design

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UNDERSTANDING USERS
Contextual Inquiry
Participant Observation
Affinity Diagramming
Work Models
Other Methods
what is design?
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
Questions about whether design is necessary or affordable are quite beside the point: **design is inevitable.** The alternative to good design is bad design, not no design at all. Everyone makes design decisions all the time without realizing it....and good design is simply the result of making these decisions consciously, at the right stage, and in consultation with others as the need arises.

— Douglas Martin

Designing a product is designing a relationship.— Steve Rogers

Design is in everything we make, but it’s also between those things. It’s a mix of craft, science, storytelling, propaganda, and philosophy. — Erik Adigard
ITERATIVE DESIGN CYCLE

Needs

Design

Implement

Evaluate
Design Phases (IDEO)

UNDERSTAND

OBSERVE

VISUALIZE & PREDICT

EVALUATE & REFINE

IMPLEMENT
Design Phases (IDEO)

UNDERSTAND

OBSERVE

VISUALIZE & PREDICT

EVALUATE & REFINE

IMPLEMENT

contextual inquiry
prototyping
heuristic evaluation

scenarios
personas
usability testing
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
METHODS

Participant Observation
Contextual Inquiry
Ethnographic methods
Interviews
Focus Groups
Surveys
Probes
Participant observation is careful observation of users

Evenly distributed attention, between foreground and background

Separate observation from intervention

Be careful about assuming motives
Separate observation from interpretation

Be careful about imputing motives, mind-reading, etc., especially when studying those very different from oneself.
“Going native” is one extreme

Complete detachment is the other

Strike balance between insider and outsider

Useful models for design:
   Translator
   Apprentice
CONTEXTUAL INQUIRY
Contextual Inquiry is Participant Observation tailored towards Work Settings and 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
“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 high-level analysis of customers; not detailed information about their practices and views

Source: Beyer and Holtzblatt
“Systems must match the user 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.

Businesses may change much more slowly then some parts of society (for example, youth).

Source: Beyer and Holtzblatt
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
Establishing a 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 may have a different focus.

Reconciled during group interpretation.
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
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 am here at work, looking over my email, answering messages from my boss, decided to have some coffee, walking to the coffee machine, found there was no coffee, so I’ll make coffee…”
Humans have a tendency to abstract and summarizing in retrospect - to save time, and convey points they feel are important.

This reduces amount and quality of data.

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

Leaning forward & Pointing at artifacts are concrete.

Focus discussion on real tasks and artifacts.
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
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
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
FOCUS – TAKING NOTES

Get into groups of two

Conduct a contextual inquiry on note taking in class

Start by introducing yourself and the task
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.
## How to Record Notes

<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>
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Stages of Contextual Inquiry

1. Interview/Warm Up
2. Transition
3. Observe behavior
4. Share interpretation
5. Refine interpretation
6. Wrap up
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
SEVEN WAYS TO SCREW UP A CONTEXTUAL INQUIRY

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
A maximum of 48 hours after the interview

Focusing one interview at a time, each team member can ask questions of the interviewer

The outputs of this meeting are: A sequence of post-it notes, including observations, questions, design ideas and breakdowns, indexed by user number (keep anonymous)

A set of working models
ROLES DURING INTERPRETATION

Interviewer - conducted the interview

Moderator - run the session

Participants - ask questions, make observations

Recorder - take notes

Work Modelers - generate work models

Rat-hole Watcher - avoids breaking protocol or wasting time
Affinity Diagrams can be generated during group session.

Each observation/idea is written on post-it.

Notes are hierarchically organized into themes.

Usually done in a chaotic fashion, with design team members running back and forth with post-its and yelling ideas.
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 important contextual aspects
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 is more than just a method; it’s a way of looking at the World

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

Method - mostly participant-observation

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

Adapted from Jenna Burrell
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
Other Methods

METHODS
Surveys
Interviews
Focus groups
Probes
Personas
Goals of data collection

Decide on:

- who to ask
- what to ask
- what medium to use
- how to administer
- how to analyze
For facts, self-reported behavior, opinions…

Keep It Short and Simple

Pretest!

Survey Monkey, Google Forms
A ‘group interview’

Capitalizes on discussion between participants

Know when to and when not to step in

Be fair and encourage all to participate
Material artifacts: cameras, diaries...

In situ, user-driven

Capture infrequent events

Incentives?
Diary studies ask people to keep a diary, or journal, of their thoughts, activities and/or interactions.

Can also use phones, cameras, audio recorders etc.
Diary studies can help overcome the limits that researchers typically face in studying rare, sensitive or private topics.

Participants can influence the design project by highlighting what is most significant for them.

Participants need to have prompts or incentives to record regularly and accurately.

Experience sampling: automatically prompting users for feedback based on specific events (time, location, etc.)

(Chavez et al 2004; Watkins and Swidler; 2009; Young and Barrett 2001).
User Research:
Due 3/4

Prefer users you can directly observe

Otherwise, e-mail, phone, Skype

Supplement with other methods: Surveys, Focus Groups, Probes

Primary data (videos, stories, statistics, prior research)

Conduct an affinity diagramming exercise

Turn in your final notes and synthesis by March 4th
For next Week

Start finding users and planning / conducting your User Research

Next week: Values Homework and Activity