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 <u>according to plan</u>

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

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.
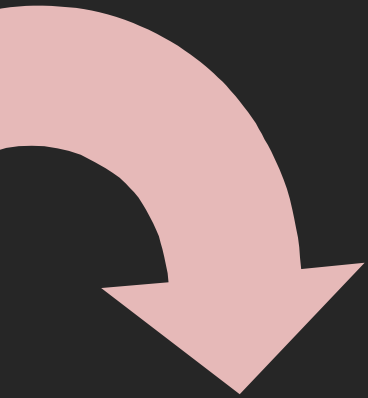— Douglas Martin

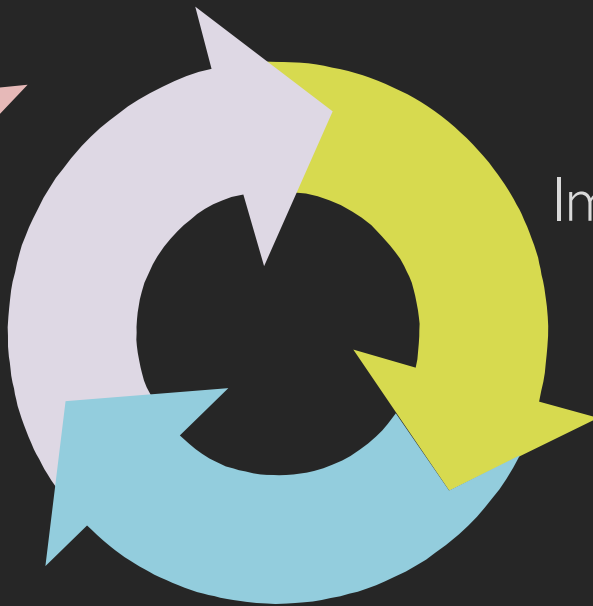Designing a product is designing a relationship.— Steve Rogers

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)

contextual inquiry

UNDERSTAND

scenarios

prototyping

OBSERVE

personas

VISUALIZE & PREDICT

heuristic evaluation

EVALUATE & REFINE

usability testing

IMPLEMENT

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

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

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

Workarounds

Mismatches between what people say and do

Offhand, under the breath comments

Sighs; Rolling of eyes

Confessions

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…

ABSTRACT VERSUS CONCRETE

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

WITHDRAWAL AND 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

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

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

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

BEST PRACTICE	TECHNIQUE
separate direct **observation** from **inference** as best you can	Put inference/interpretation in brackets [] or in a separate column
distinguish between direct quotes and paraphrasing	"" for direct quotes and ' ' for paraphrasing
all the **specifics**	date, time, place names, names and contact info for people
Do not be limited to text	drawings, maps, tape small papers into your notebook such as business cards, flyers, etc.

Stages of Contextual Inquiry

Interview/Warm Up

↓

Transition

↓

Observe behavior

↓

Share interpretation

↓

Refine interpretation

↓

Wrap up
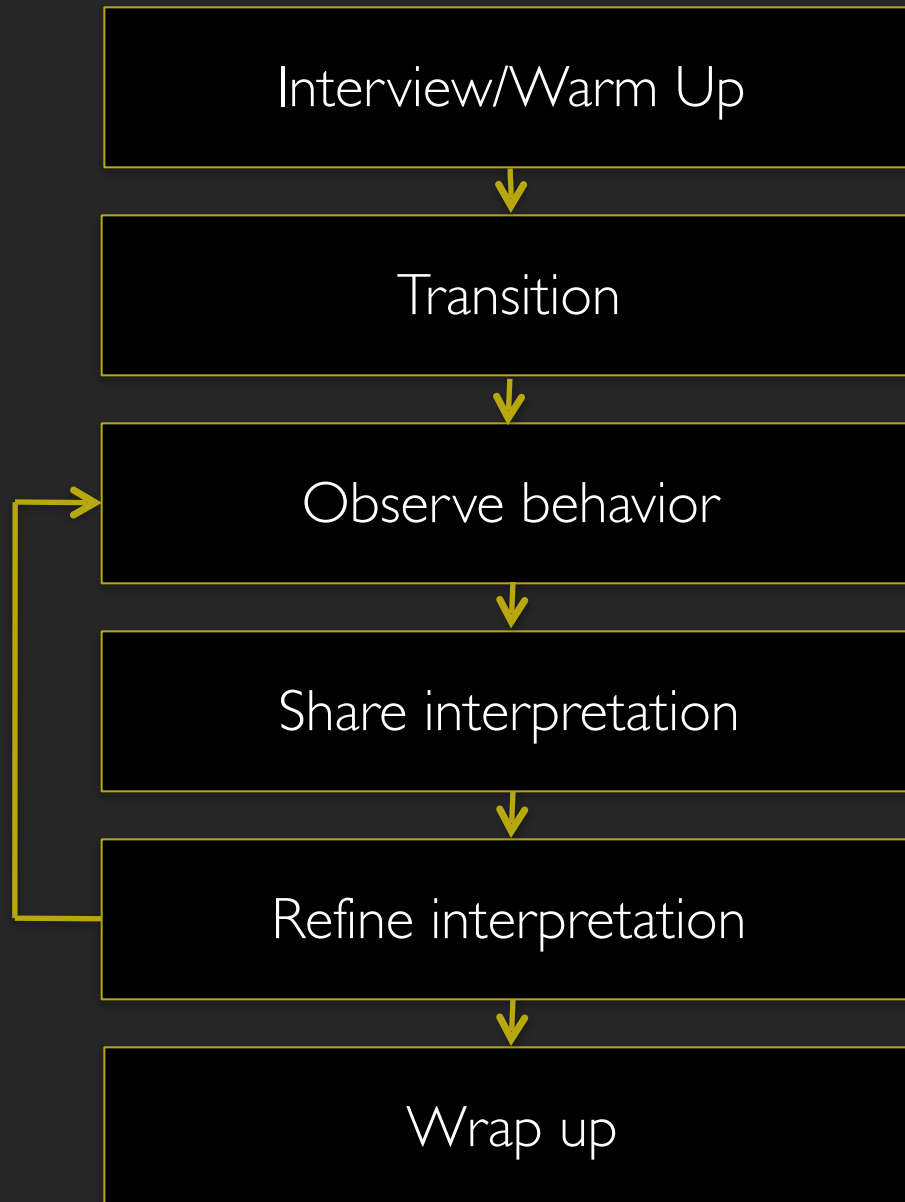
Interviewer / Interviewee - Not based on context or ongoing activities

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

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

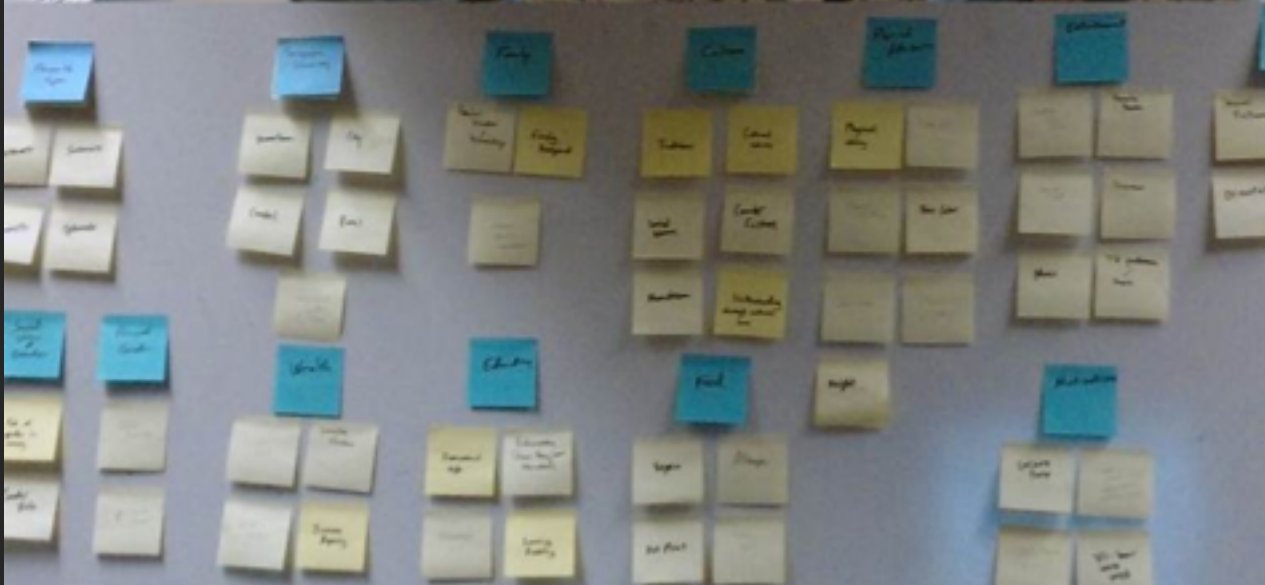Rat-hole Watcher - avoids breaking protocol or wasting time

AFFINITY DIAGRAMMING

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

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

ETHNOGRAPHIC METHODS

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 - mostly participant-observation

Analysis and writing style - inductive analysis, use of 'thick description' and narrative, "emic" accounts

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

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?

dream recorder

Wat is uw favoriete apparaat?
1. camera.
2. brother electrische schrijf machine
3. video.
4. naai machine

Groeten,

Pauline.
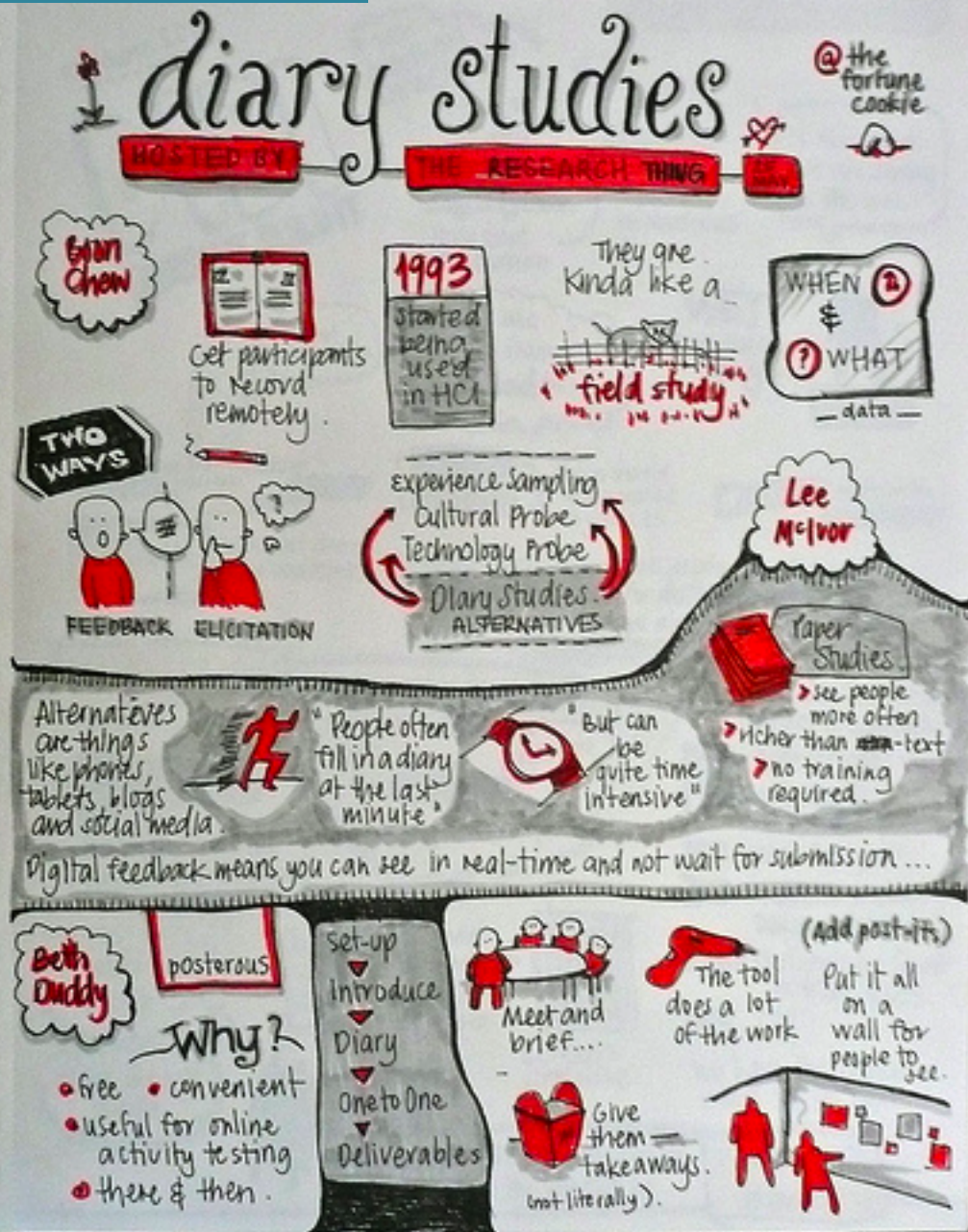
14.6.97

Bill Gaver & Ton
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17 OCT 1997

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

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