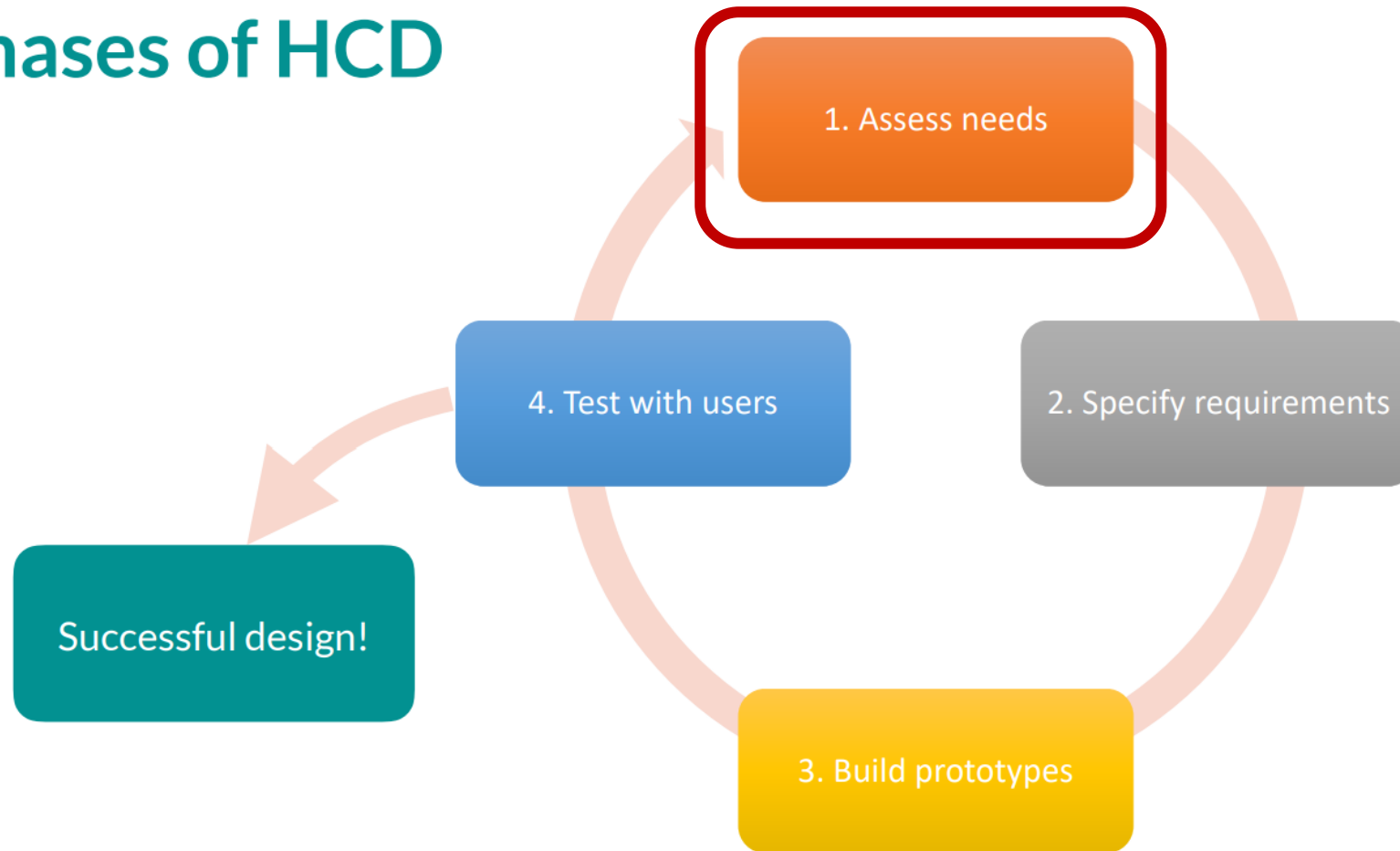


CSE 4451: HUMAN- COMPUTER INTERACTION

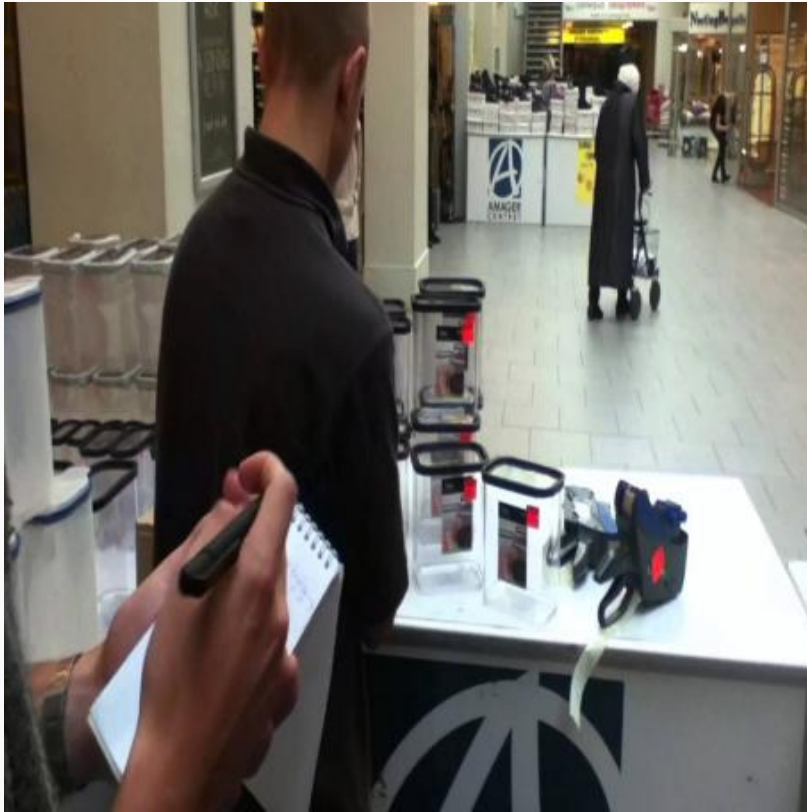
Class 3: Contextual Inquiry and
Interviews

Phases of HCD

Phases of HCD



Contextual Inquiry (CI)



- Can be thought of as **applied design ethnography**
- “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.
 - Do that, and you can’t help but gain a better understanding of your customer.”
- Effectively, observation + interview

Contextual Inquiry (CI): Four principles

- Context
- Partnership
- Interpretation
- Focus

Four Principles of CI: Context

- Must be “where the work happens”
- Useful for understanding the underlying work structures rather than people’s perceptions of those structures

Four Principles of CI: Partnership

- Aim to follow a master/apprenticeship model
- You're the apprentice, watching and asking questions to understand why things are done a certain way
- The transfer of knowledge happens when people talk about how they work while they're doing the work

Four Principles of CI: Interpretation

- All data must be interpreted for meaning before developing design implications
- Merge insights from your observations with insights from your questions
- Double-check your interpretations with your participants, where participants are allowed to make changes

Four Principles of CI: Focus

- Usually, researcher enter the field with a narrower focus, but be open to expanding on your initial focus or assumptions
- Any time you're surprised by a participant or find their actions odd, it's an opportunity to ask questions
- Aim to see their perspective rather than your own

Examples of CI:

- Design to support the visually impaired people in cooking ([paper link](#))



(a) Overall Kitchen View



(b) Stationary Camera View



(c) Chest-Mounted Camera View

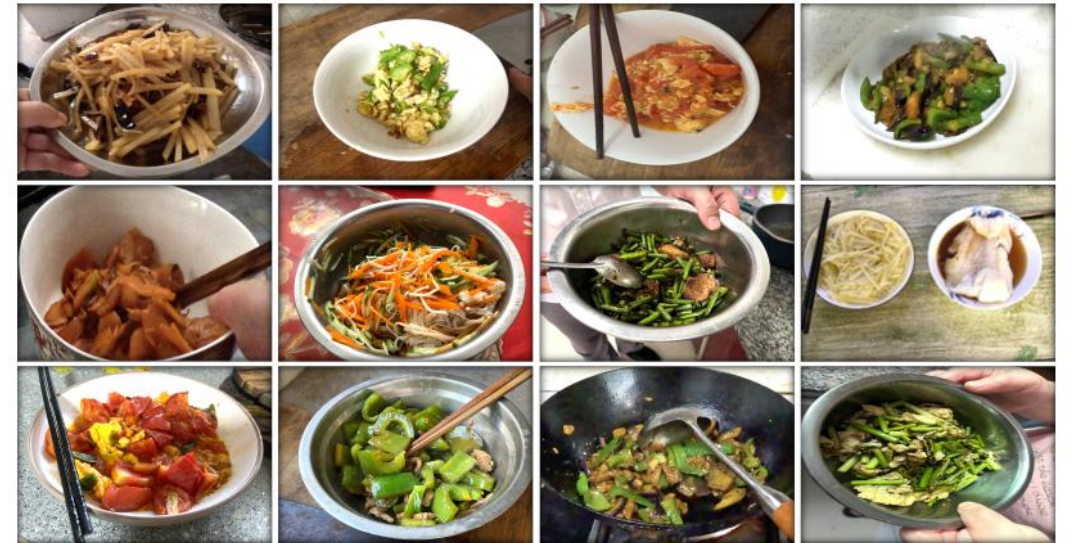


Figure 3: Dishes made by our participants during the contextual inquiry in their kitchens.

Examples of CI:

- Design to support the visually impaired people in cooking ([paper link](#))



Figure 4: Some visual information can have health implications. Left: Sliced tomatoes still have stickers attached (highlighted); Right: Some vegetables were overlooked and left on the cutting board (highlighted).



Figure 6: Unique containers differentiate contents. Participants use and reuse unique containers to help identify objects.



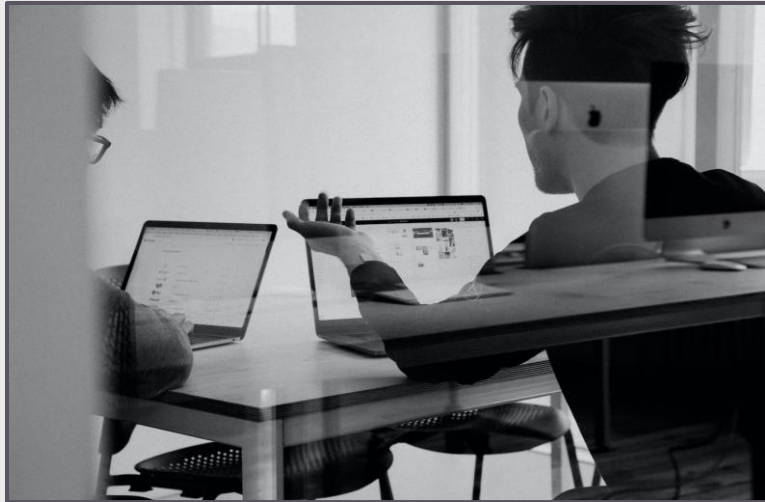
Figure 7: P4 used a knife as a “container” for scallions or minced garlic.

Hawthorne Effect (Observer Effect)

- Individuals modify an aspect of their behavior in response to their awareness of being observed
- Named for experiments on the Hawthorne Works factories in the 1920s & 1930s
- Can interfere with Contextual Inquiries: how?
- How might you avoid the effect?
 - *build rapport with the participants*
 - *normalizing the observation*
 - *use multiple methods*



Interview within CI and outside CI



- Within a contextual inquiry,
 - interview questions should stay subtle
 - again, you're acting as an apprentice
 - follow your curiosity, but don't divert the participant's workflow too much
- Interviewing can also be a standalone formative method
 - Maybe you're investigating something hypothetical; participants have no established workflow
 - Standalone interviews can be more intrusive; follow-up questions are expected
 - But it may require triangulating with other sources

Contextual Inquiry: Interview Tips

- Aim for participants to be comfortable
- Let participants finish their thoughts
- Make them feel heard
 - take notes, give eye contact, offer acknowledgments like “I see” or repeating them •
- Show empathy (but be genuine) •
 - “That must have been frustrating”, “I’m sorry that happened to you”

Contextual Inquiry: Interview Tips

- Have questions prepared ahead of time (a guide)
 - But allow yourself to go off-script if appropriate
- Anticipate different responses
 - If a participant has or has not experienced something, used a technology, etc.

<https://www.nngroup.com/articles/user-interviews/>

One question solicits information

Think for a few moments about some time when you booked a trip online.

Wait for a response

User indicates she has a trip in mind.



User indicates Boston.



Can you tell me a little about why you chose Boston?

Four questions to solicit the same information

Think for a few moments about some time when you booked a trip online.

Wait for a response

User indicates she does *not* have a trip in mind.



Can you think of any places you traveled to in the last year?



User indicates she has a few trips in mind?

Where did you go?



User lists some places she went.



Do you remember who booked the travel for any of those trips?



User indicates trips (including Boston) booked by friends, family, colleagues, and herself.



For the Boston trip that you scheduled, can you tell me a little about why you chose Boston?

Contextual Inquiry: Interview Tips

- Avoid leading questions
 - Bad: "Why do you enjoy using the Acme product so much?"
 - Better: "Why do you use the Acme product?"
 - Bad: "What do you like about X?"
 - Better: "What do you think about X?"
- Avoid closed questions
 - Bad: "So, you use the Acme product every morning?"
 - Better: "Can you tell me about how you use Acme?"
- Practice follow-up questions
- Prompts are good ways to get participants to say more
 - Silent, echo, agreeing, tell me more, clarifying

Can you tell me more about that?

Wait for a response

I want to make sure I understand this. Can you explain more?

Wait for a response

NNGROUP.COM **NN/g**

Contextual Inquiry: A few guidelines

Gaining access and building rapport

- Before you can do anything in an ethnographic project, you must gain access to your site and informants
- Must additionally gain confidence and trust
- Recognize some potential reactions you could have
 - Excitement about the project and site
 - Culture shock
 - Cycle of entering and leaving can have an emotional impact

Contextual Inquiry: A few guidelines

Recording your observation

- Video recording
- Note taking and memos
- Interviewing
- Be mindful of your access permissions and participant's comfort levels

Contextual Inquiry: A few guidelines

What to record

- Begin with your research questions
- Do not overly constrain yourself
- Take notes on
 - What is directly relevant
 - What strikes you as interesting
 - Everything else

Contextual Inquiry: A few guidelines

The process of recording

- Your data are only as good as you are
- Sometimes it is possible to record in the moment
- Other times it must be done after the event
 - Write down the important things first
 - Then replay the day and slot them into order

Contextual Inquiry and Interviews

Strengths

- Extremely rich data
 - You get to watch what people do and talk to them!
- “Real world” and unfiltered, or as close as you can get
- The methods are led by participant’s needs and interests, not your preconceived notions

Contextual Inquiry and Interviews

Weakness

- Participants do not necessarily know what is important to you
 - Probing questions or observation can help, but they're not sufficient
- People's memories are warped and flawed
 - They may say one thing in interviews and do another in practice
- The methods are resource-intensive
- You can hear from tens of people at best, making generalization challenging
- Participants can find it awkward to be watched or open up



CONTEXTUAL:
YOU INTERACT WITH
THE PARTICIPANT IN
HER/HIS NORMAL
ENVIRONMENT, CONTEXT.



INQUIRY: YOU ASK QUESTIONS
→ TO CLARIFY WHAT YOU'VE
OBSERVED
→ TO BETTER UNDERSTAND
THE TASKS

CONTEXTUAL INQUIRY

UX Knowledge Base Sketch #51



ALSO CALLED:
SITE VISIT



YOU CAN GET INSPIRATION
FROM ETHNOGRAPHIC RESEARCH



ADDITIONAL METHOD:
SHADOWING



GOAL: IN-DEPTH UNDERSTANDING OF THE

- ↳ CONTEXT
- ↳ ACTIVITIES, TASKS
- ↳ PAIN POINTS, ISSUES, FRUSTRATIONS
- ↳ BEHAVIOR
- ↳ PROCESS, ROLES, INPUTS & OUTPUTS

WHILE IT IS IMPORTANT
TO LEARN ABOUT
PAIN POINTS,
YOU SHOULD
GO FOR A BALANCED SESSION:
YOU ARE THERE TO UNDERSTAND
HOW TASKS ARE ACCOMPLISHED
(AND WHAT ISSUES OCCUR DURING
COMPLETION)



KEEP THE SESSION
BALANCED!



THIS UNDERSTANDING
WILL HELP TO MAKE
INFORMED
DESIGN DECISIONS



CONDUCTING A CONTEXTUAL INQUIRY HELPS

- (IN)VALIDATING YOUR ASSUMPTIONS (E.G. IS THAT USER NEED EXIST?)
- FINDING CLUES, SIGNALS IN THE ENVIRONMENT TO POSSIBLE ISSUES (E.G. CHEAT SHEETS ON A STICKY NOTE) ⇒ POTENTIAL AREAS FOR IMPROVEMENT!
- DISCOVERING ARTIFACTS & ACTORS YOU'VE NOT THOUGHT ABOUT
- CREATING MORE REALISTIC PERSONAS, SCENARIOS, JOURNEY MAPS ETC.

**DURING THE CONTEXTUAL
INQUIRY**



BE A FLY ON THE WALL!
OBSERVE, CAPTURE
(EVERYTHING - AT THIS POINT
YOU DON'T KNOW WHAT
THINGS ARE RELEVANT!)
E.G. TRICKS &
SHORTCUTS!



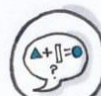
CONDUCT "TRADITIONAL"
SHORT INTERVIEWS!
→ GET AN OVERVIEW OF
THE ACTIVITY
→ BUILDING RAPPORT
WITH THE PARTICIPANT



"MASTER-APPRENTICE"
RELATIONSHIP
• ASK FOR DEMONSTRATION
INSTEAD OF EXPLANATION
• AGREE ON THE "RULES"
OF INTERRUPTION BEFOREHAND
NAÏVE
QUESTIONS
ARE GREAT!



DOCUMENTATION!
- NOTES & SKETCHES
- PHOTOS
- RECORDINGS
(IF ALLOWED)



SUM UP WHAT YOU'VE OBSERVED,
ASK WHETHER YOUR UNDERSTANDING IS VALID OR NOT
⇒ THE DIFFERENCE BETWEEN WHAT YOU SAW &
HOW THE PARTICIPANT INTERPRETS THAT
IS A VALUABLE INSIGHT!



A TOO BIG GROUP CAN DISTURB THE PARTICIPANT,
HOWEVER, A TEAMMATE CAN HELP YOU CAPTURE MORE,
AND YOU CAN DISCUSS YOUR IMPRESSIONS LATER.



MAIN ADVICE: GO WITH THE FLOW, YOU MIGHT GET
UNEXPECTED INSIGHTS! E.G. NEW USER NEEDS



SOME CHALLENGES:

- MOTIVATING THE PARTICIPANT TO SHOW EACH RELEVANT STEPS (VS. RUSHING THROUGH)
- PRIORITIZING WHAT YOU PLAN TO OBSERVE (SO YOU DON'T RUN OUT OF TIME)
- EXPLAINING WHAT THE METHOD IS ABOUT & WHAT YOU ASK THEM TO DO
- IT CAN BE HARD FOR THE PARTICIPANTS TO SWITCH FROM A MORE PASSIVE POSITION TAKEN DURING THE INITIAL INTERVIEW TO AN ACTIVE ROLE OF PERFORMING TASKS
- MINIMIZING THE NUMBER OF OBSERVERS

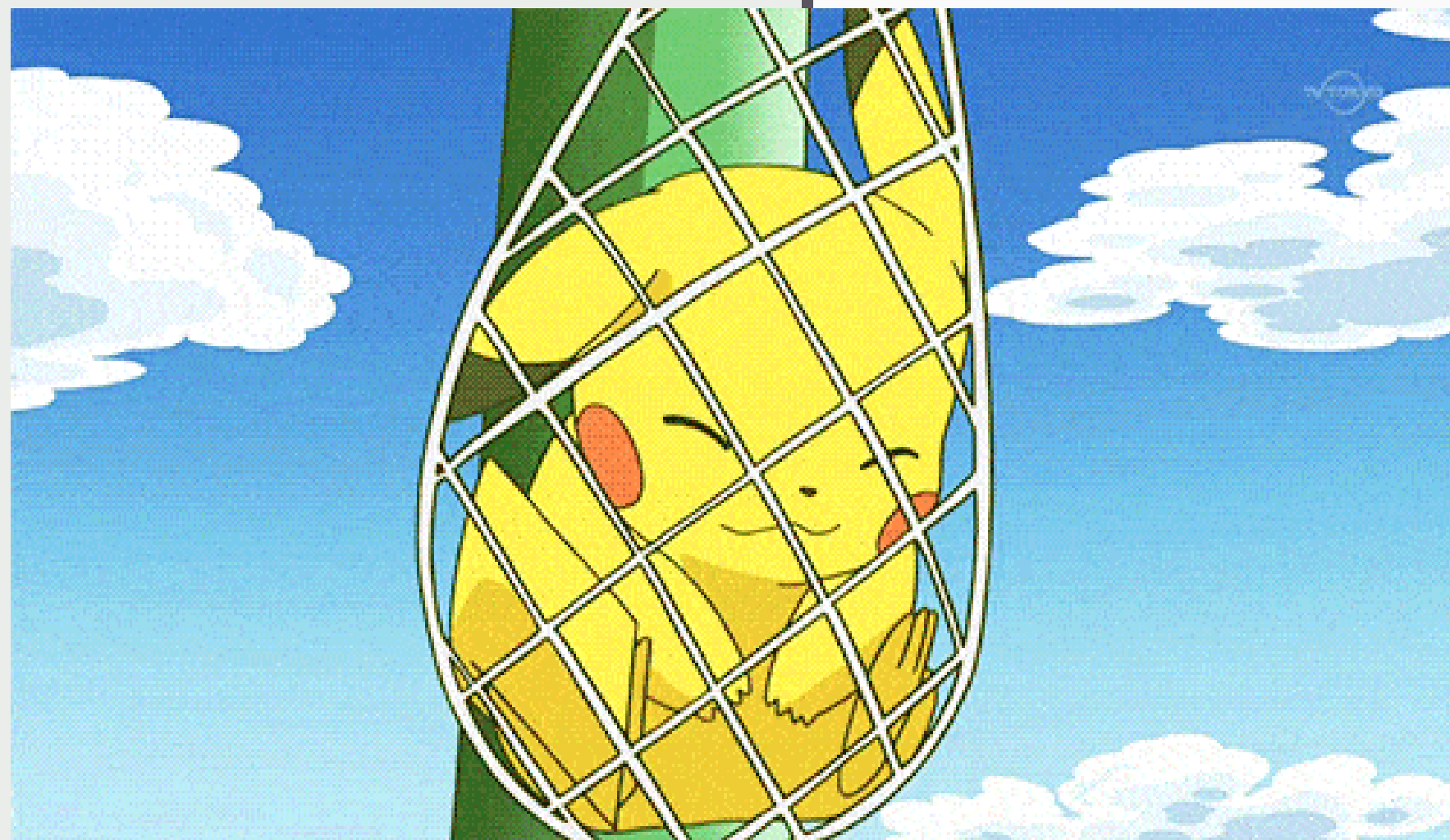


PREPARATION

- SCHEDULING; PLANNING TRAVEL (TIME & COST)
- BASIC UNDERSTANDING OF THE DOMAIN (E.G. FROM STAKEHOLDERS, DOMAIN EXPERTS)
- YOUR FOCUS - IDEALLY, YOU'LL OBSERVE MANY UNEXPECTED THINGS, BUT IF YOU NEED TO OBSERVE TASKS THAT RARELY OCCUR: EXPLICITLY ASK PARTICIPANTS TO PERFORM THEM
- LISTING OUT YOUR ASSUMPTIONS
- CONSENT FORMS
- INTERVIEW SCRIPTS (E.G. FOR MULTIPLE SHORT ONES)
- TESTING / PREPARING RECORDING EQUIPMENT
- EXPLAINING THE ESSENCE OF THE METHOD: PARTICIPANTS SHOULD KNOW WHAT TO EXPECT






AFTER THE CONTEXTUAL INQUIRY: ANALYZE DATA
E.G. WITH AFFINITY DIAGRAMMING - LOOK FOR PATTERNS!



BREAK TIME

More on Interviews

Interview Formats

Interview Formats	Unstructured Interview	Semi-Structured Interview	Structured Interview
			

Interview Formats

3 general interview types

Interview Formats	Unstructured Interview	Semi-Structured Interview	Structured Interview
	<ul style="list-style-type: none">- little knowledge about the interview topic- no guide and exploratory in nature due to high flexibility, off the cuff- go with the flow, the interview becomes the apprentice / learner	<ul style="list-style-type: none">- some knowledge about the interview topic- a less strictly defined guide with themes and questions you want to learn about- deviations are allowed and encouraged → probing but staying on topic	<ul style="list-style-type: none">- lots of knowledge about the interview topic- strictly defined list of interview questions- no deviations are allowed from topic or questions across interviews or participants

Let's look at an interview



What do you think about this interview?

What did you like?

What could be better?

<http://www.youtube.com/watch?v=U4UKwd0KExc>

Interview Stages | Preparation

1. Research your study participant

You have to come in with lots of knowledge about the person and the topic.

2. Prepare a set of themes to explore, draft an interview protocol

Determine the order that would allow the conversation to flow most naturally.

3. Be participant-centered

Ask what day, time, and location works for the individual you would like to interview.

4. Be early, be prepared

Make sure you know where you are going and be 10 minutes early. You want to make a good impression.

5. Define roles beforehand

Ideally two team members participate in the session: one leads the interview (ask questions), while the other takes notes and photographs (if appropriate). *Ask for permission to audio record the interview.*

Interview Stages | Execution

1. **Introduce** the project and yourselves

A good interview is a friendly conversation. Briefly describe your research and the goals of the interview.

2. **Dig for stories, feelings, and emotion**

Even when you think you know the answer, ask people why they do or say things. Ask open-ended questions, and continually ask the participant to provide concrete examples. Try not to say *usually* when asking a question. Instead, ask about a specific instance or occurrence.

3. **Notice inconsistencies** but don't correct them

Sometimes what people say and what they do are different.

4. Pay attention to **nonverbal cues**

Take notes of what they say and what they don't say. Be aware of body language and emotions.

Interview Stages | Execution **Common mistakes! [Don't do these]**

- **Avoid compound questions.** *E.g. How often do you check Snapchat and what is the reason? Also, tell me how do you gather information and who do you ask for help?*
- **Avoid leading/directive questions/ binary questions.** These questions may imply that there is a right answer or lead respondents to answer in a particular way. *E.g. Besides this website, what are other trusted sources? Friends?*
- **Don't fall into trap of leading expressions.** *E.g. nodding, saying aha, that's great, interesting, yeah, I see, etc.* Yet you have to balance with not being deadpan.
- **Don't suggest answers to your questions.** Even if they pause before answering, don't help them by suggesting an answer.
- **Don't be afraid of silence.** Allow for silence, they may reflect on what was just said and reveal something deeper.

Let's look at an interview ... again

How to do an Interview



What was different in this interview in comparison to the first interview you saw?

<http://www.youtube.com/watch?v=eNMTJTnrTQQ>

Things to be discussed:

Project (Proposal Submission) Deadline: 8/12/25

Prepare a roughly 1-page document addressing the following points:

- Your team members
- The problem: What is the pain point you're looking to solve in your design? Who is the target audience, and why are they using it?
- Formative component: How do you plan to understand the needs of your target audience? How do you plan to recruit them? Do you have any method(s) in mind?
- Design component: What fidelity do you plan to design at? What screens or features are necessary for the design, and what can be left out?
- Evaluative component: How do you plan to determine the usability of your design? Who do you plan ask to help evaluate? Do you have any method(s) in mind?