Lecture 1

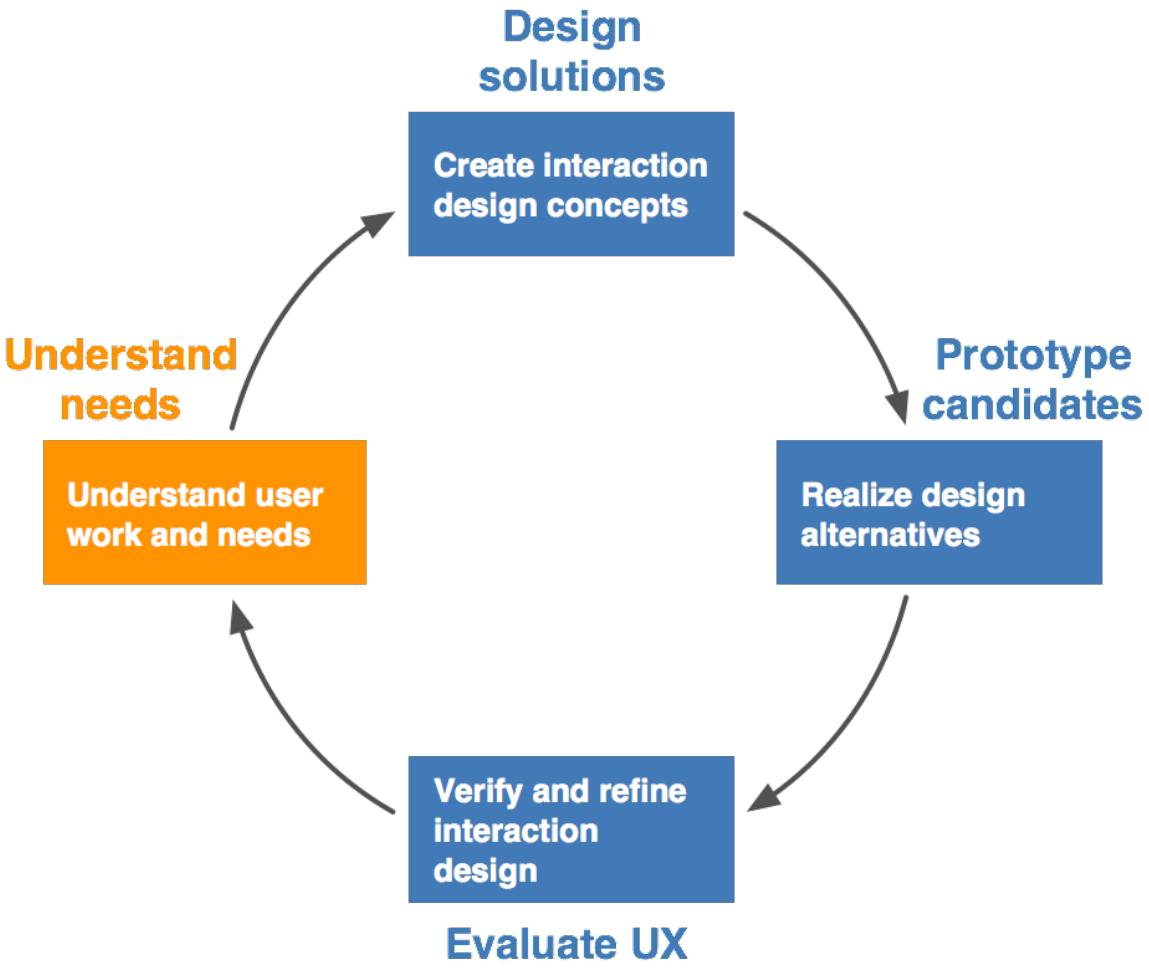
Chapters 2, 4, 7, 11

Today's Topics

- Design Process/Lifecycle (CH 2, 4) (13)
- Data Elicitation (Ch 7, 11)
  - Interviewing techniques
- Identify and understand users (if time)

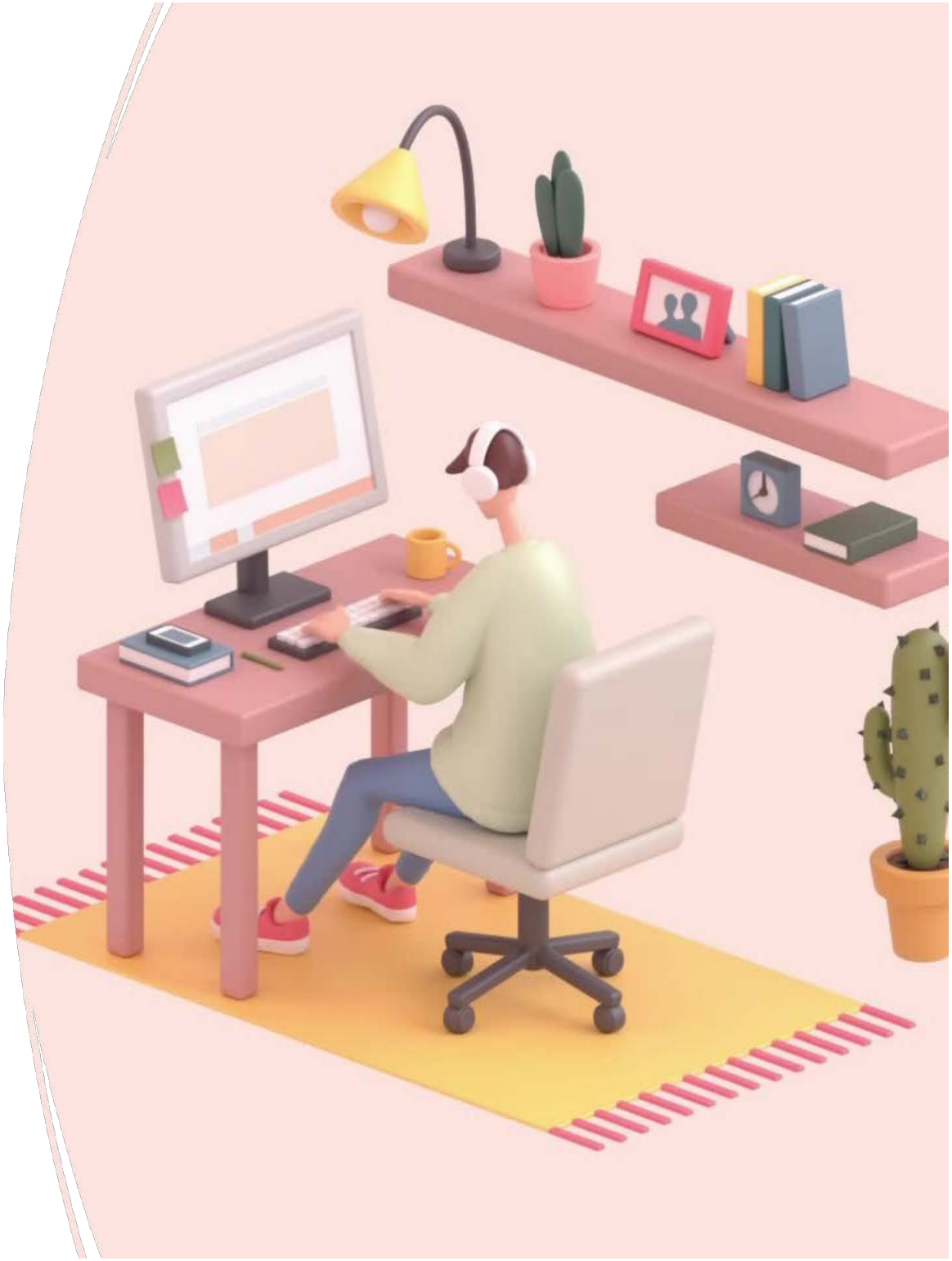
Design Process

- Four main Aspects:
  - Understand User Needs
  - Design Solutions
  - Prototype Candidates
  - Evaluate UX
  - Repeat…
- Today – we're focusing on Users Needs
  - In particular:
    - Data elicitation
    - Data Analysis
    - Data Modeling



Why study HCI and Users and UX Design?

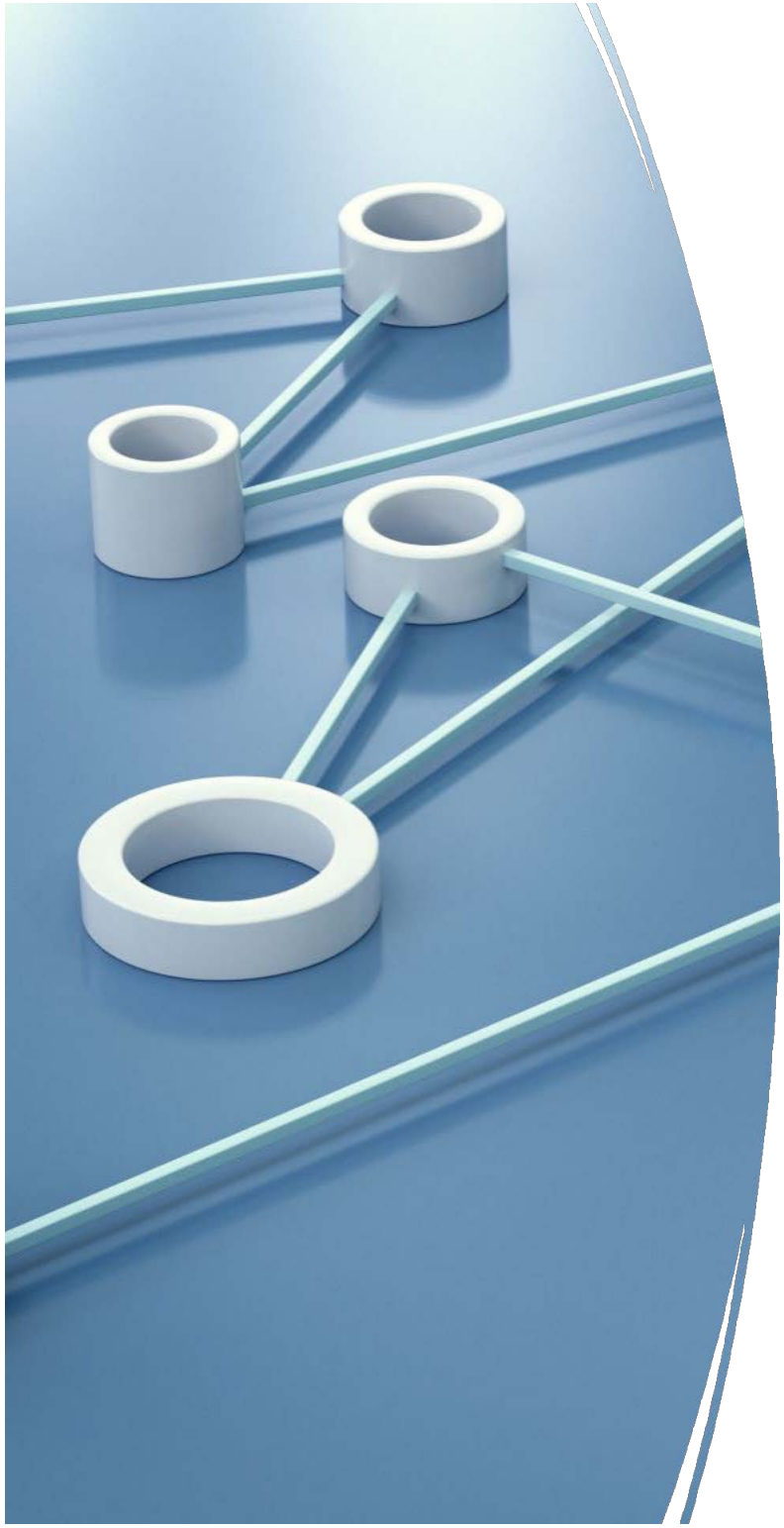
- Design is more difficult
- Systems do ‘more’ and ‘less’
- Computers are more ubiquitous
- People often neither “know” nor “like” computers



Good Design

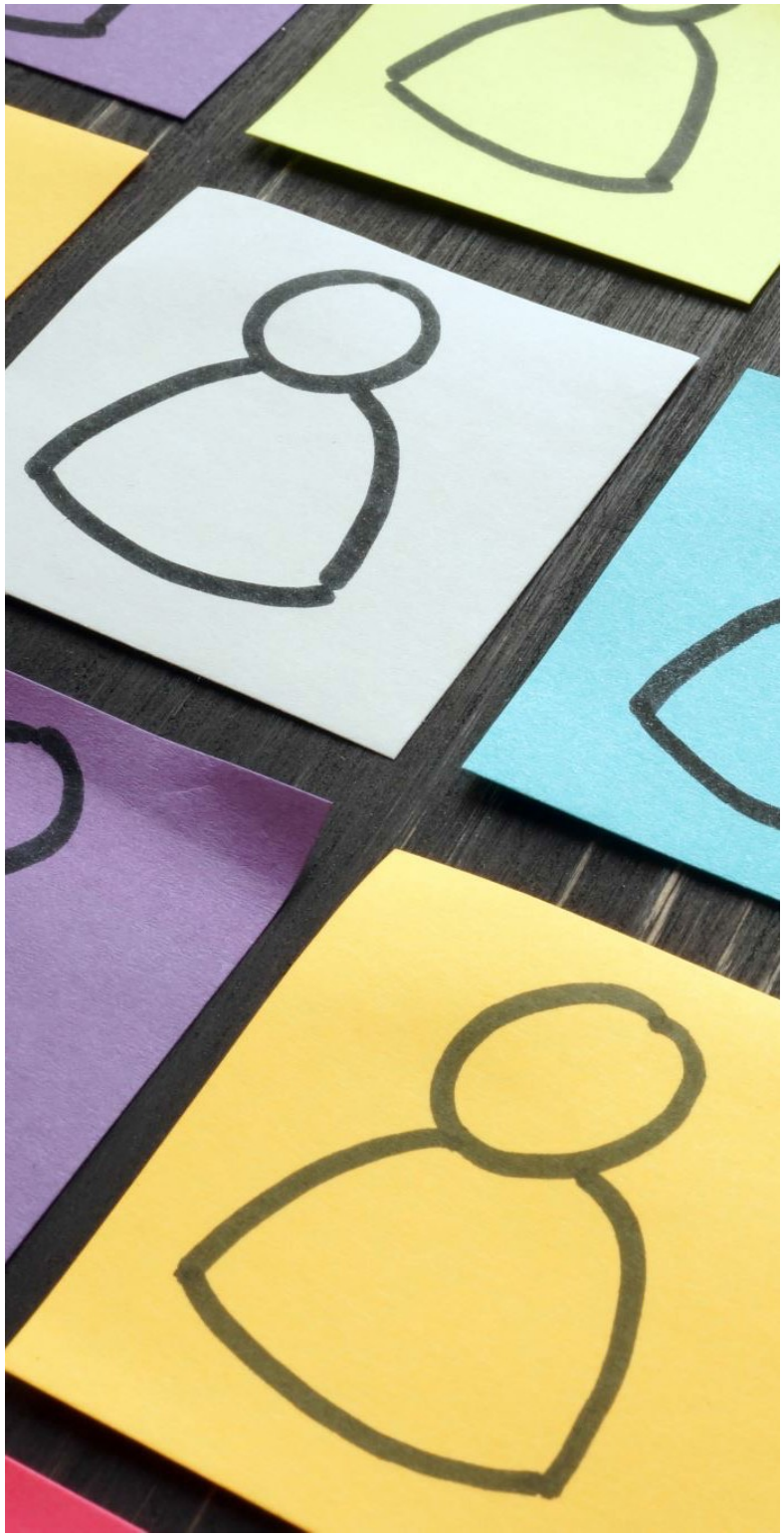
- Remember to the user often the user interface is the system

Users are not concerned with the underlying technology just with what they see and how they interact



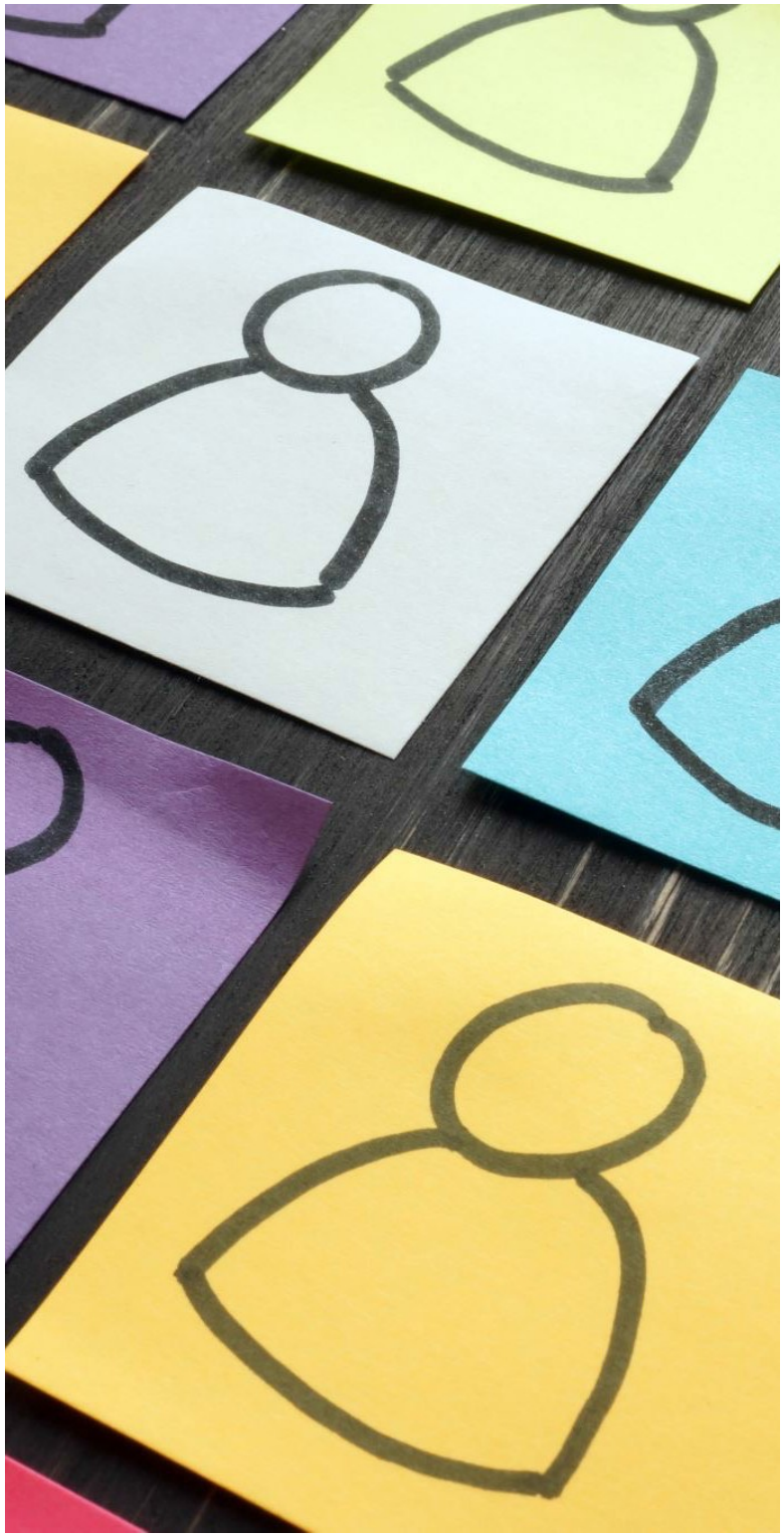
What is User-Centered Design?

- An approach to UI development and system development.
- Focuses on understanding:
  - Users, and
  - Their goals and tasks, and
  - The environment/context (physical, organizational, social)
- Pay attention to these throughout development



ISO on User-centered Design

- ISO 13407 describes human-centered design processes for interactive systems
- Principles of human-centered design:
  - Active involvement of users
  - Appropriate allocation of function between user and system
  - Iteration of design solutions
  - Multidisciplinary design teams



ISO on User-centered Design

- **Essential activities** in human- centered design:
  - Understand and specify the context of use
  - Specify the user and organizational requirements
  - Produce design solutions (prototypes)
  - Evaluate designs with users against requirements

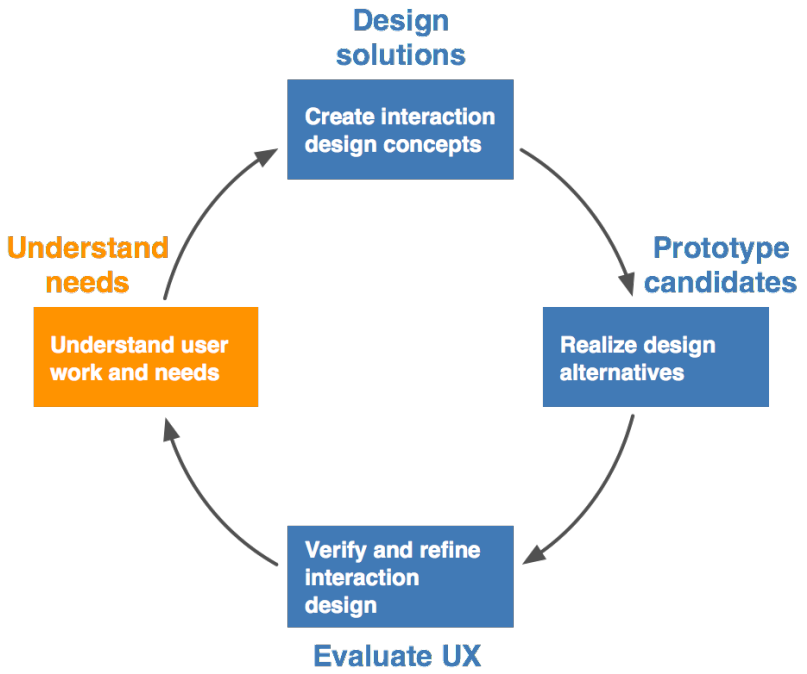
What is a user-centered approach?

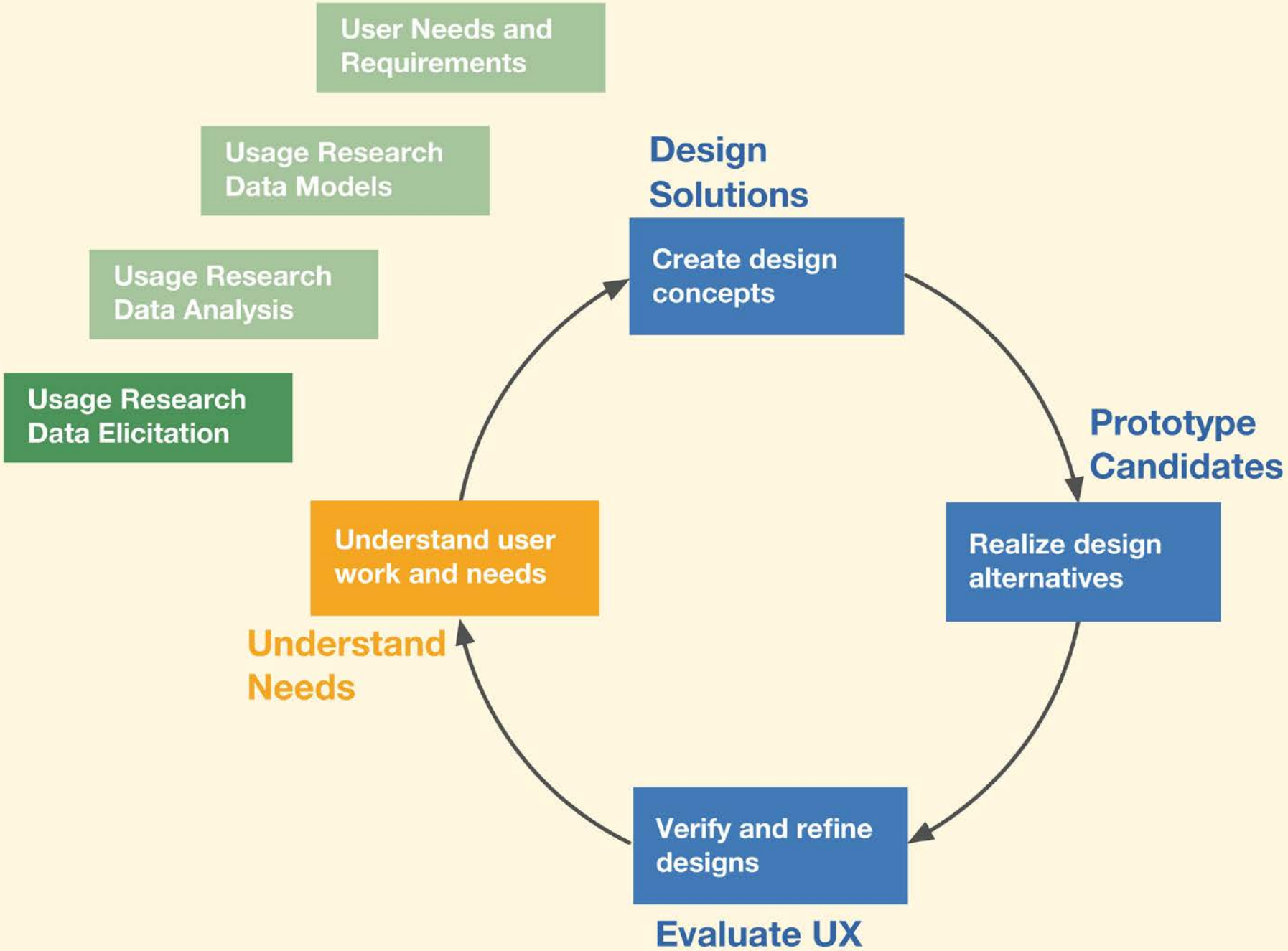
User-centered approach is based on:

- **Early focus on users and tasks**: directly studying cognitive, behavioral, a & attitudinal characteristics
- **Empirical measurement**: users' reactions and performance to scenarios, manuals, simulations & prototypes are observed, recorded and analysed
- **Iterative design**: when problems are found in user testing, fix them and carry out more tests

Understanding users and their needs

- Need to conduct research usage
- Includes:
  - Data elicitation
  - Data Analysis
  - Data Modeling
- User needs and requirements




User Needs and Requirements
Usage Research Data Models
Usage Research Data Analysis
Usage Research Data Elicitation
Design Solutions
Create design concepts
Prototype Candidates
Realize design alternatives
Evaluate UX
Verify and refine designs
Understand Needs
Understand user work and needs

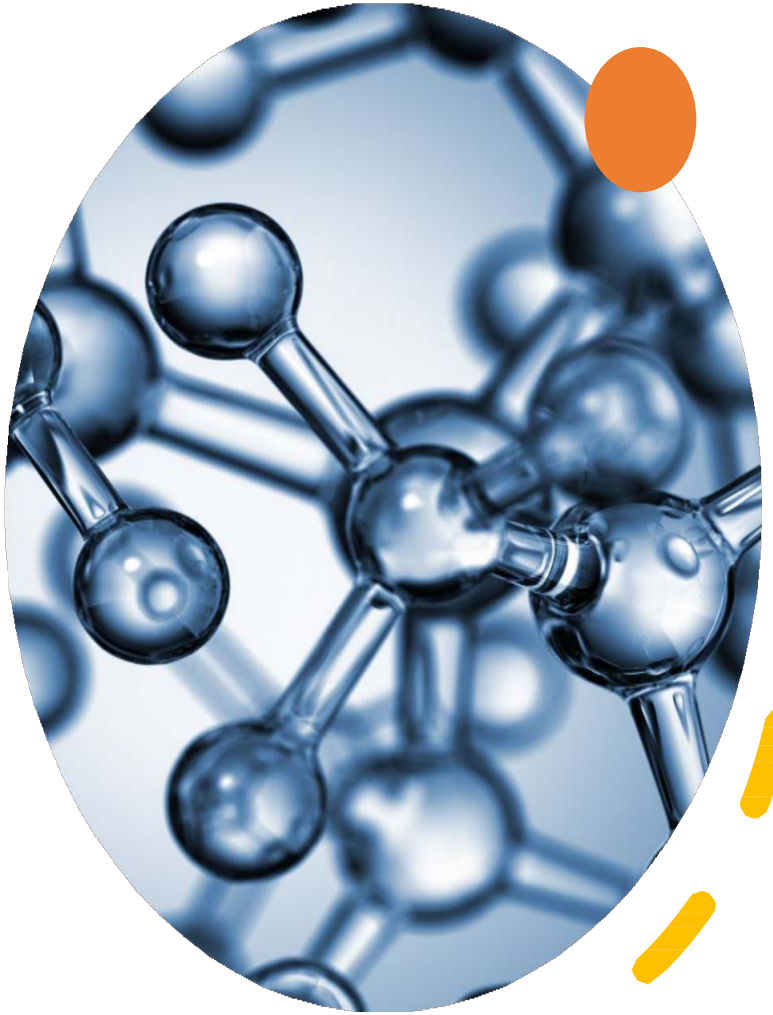
Usage research in industry

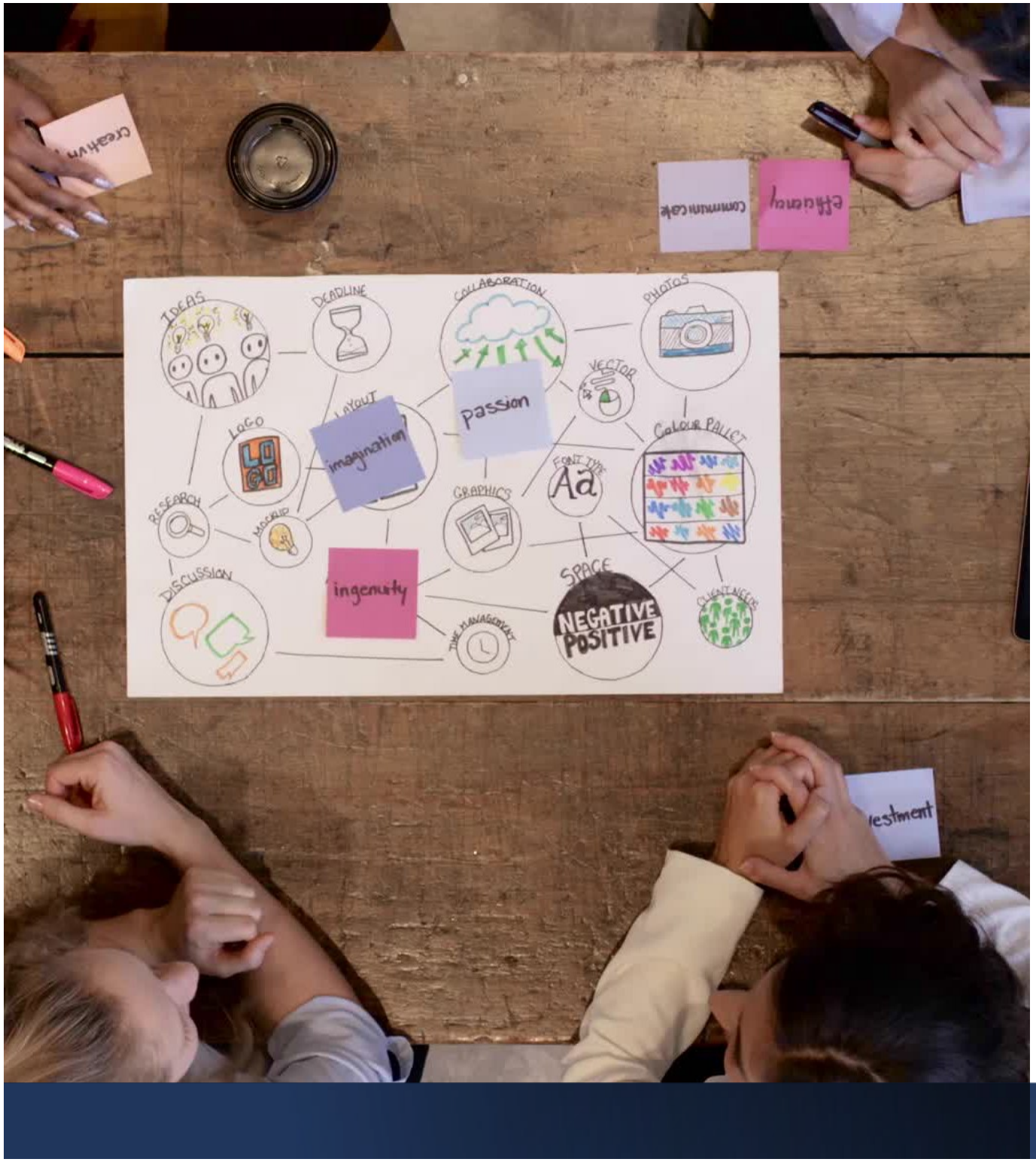
- To understand customer's work practice
- To inform design/redesign
  - To improve work practice and construct and/or improve system designs to support it
- Usage research is major UX method for the *Understand Needs* lifecycle activity
  - Gather detailed descriptions of customer or user work practice
- Not about "requirements" in traditional sense
- Not asking users what they want or need
- Rather, *it's the difficult task of understanding user's work in context*
  - How works gets done, what the breakdowns are, etc.
  - The type of tasks that people do and seeing how this task is down (e.g., observe steps)

Data elicitation

First step within the Understand Needs lifecycle activity which is all about gathering raw usage research data

Learning about existing work and work practice / people's needs and the tasks they do and how they do them





Understand the Context:

- Work: Set of activities people undertake to accomplish goals in work domain
  - Some activities entail system or product usage
  - Example: Using a CAD/CAM application to design an automobile
  - *"Work" includes play*, if it is a goal of user

  - Note, the textbook uses work as the main domain, but we should also consider UX design for a wide variety of users, domains, tasks etc. [i.e., it is not limited to just workplaces]

Example:

- If you were asked to help design for a company, then you would first need to understand the work domain and practice
- Work domain: Entire context of work and work practice in target enterprise or other target usage environment
  - Complete context of work practice
  - Context essential to understand the work
- Work practice: How people do their work
  - Instantiation of the work domain by a particular team/company
  - Is carried out in customary performance of a particular job to carry out operations of enterprise
  - Involves learned skills, decision making, physical actions, and social interaction
  - Can be based on tradition, ritualized, and habituated

Types of practices you may look at:

- Procedures
- Established actions
- Approaches
- Routines
- Conventions
- Customs
- Protocols
- Physical actions
- Manual activities

How to do Data Elicitation:

Plan and Prepare

- For system with complex work domain
  - Get feel for customer's organizational policies and ethos
  - Look at their online presence
    - Website
    - Participation in social networks
  - Understand vocabulary and technical terms of work domain
- Learn about the competition (if applicable)
- Learn about culture of work domain in general
  - Example: Conservative financial domain vs. laid-back art domain
- Recognize differences in perspectives between managers and users (or other sets of users)

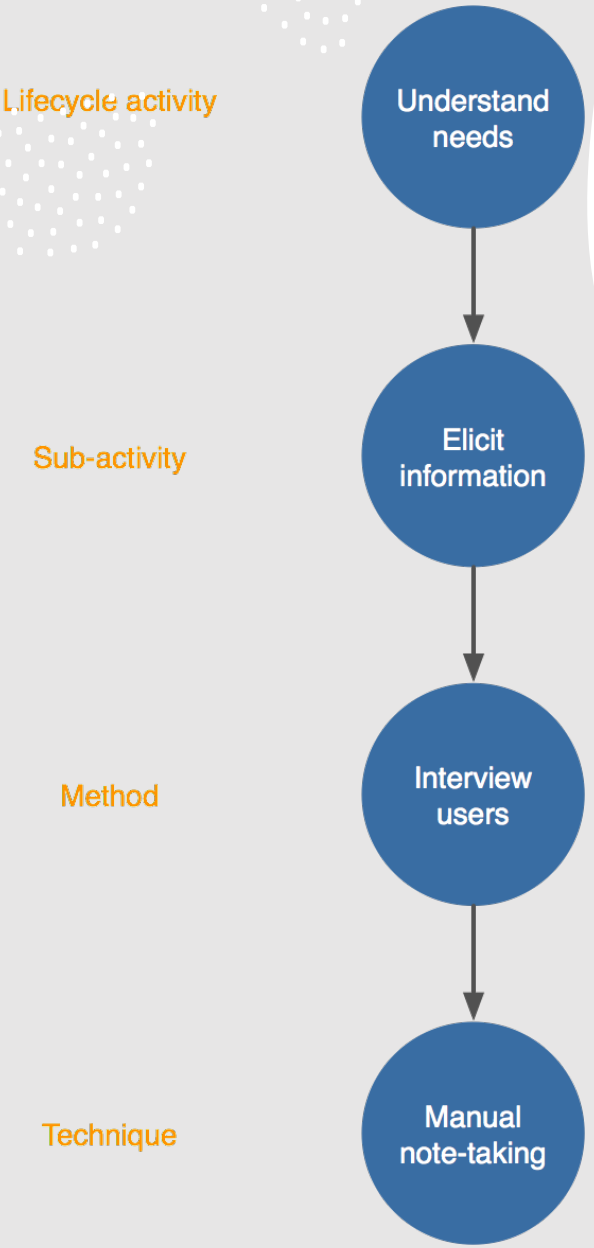
How to do Data Elicitation:

Decide on data sources:

- Users of current product or system
- Subject-matter experts (SMEs)
- Focus groups: Group work practice discussions
- User surveys
- Competitive analysis

- We will continue with users, and you can adapt process to other data sources

Example: Data Elicitation sub-activity instance



Need for both *observation* and *interviewing* data elicitation

Interviewing: What they say

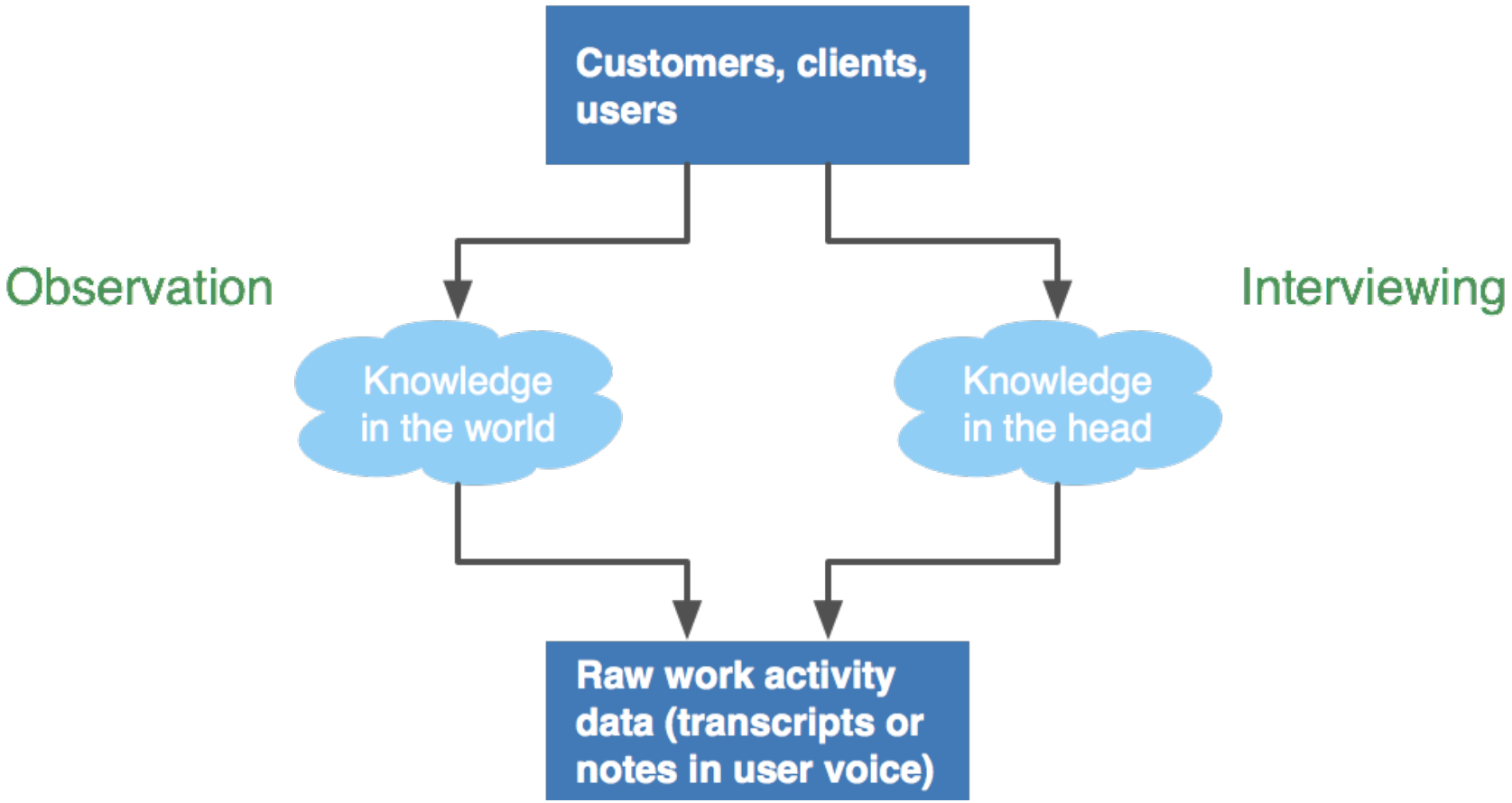
Get them to think aloud while working

Narration can add “hidden” information

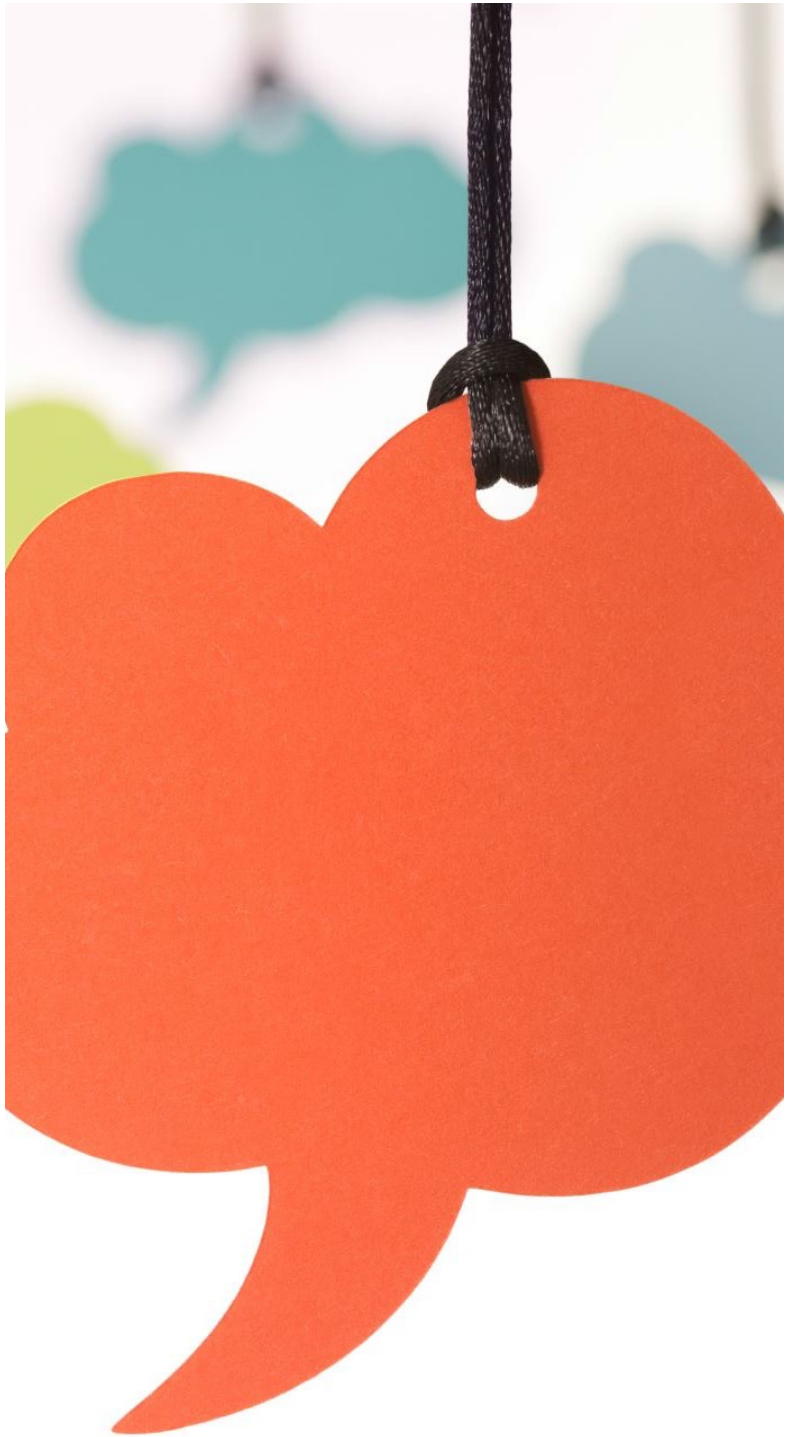
Observing: What they do

See actual behavior, which often differs from what they say

Usage research data elicitation

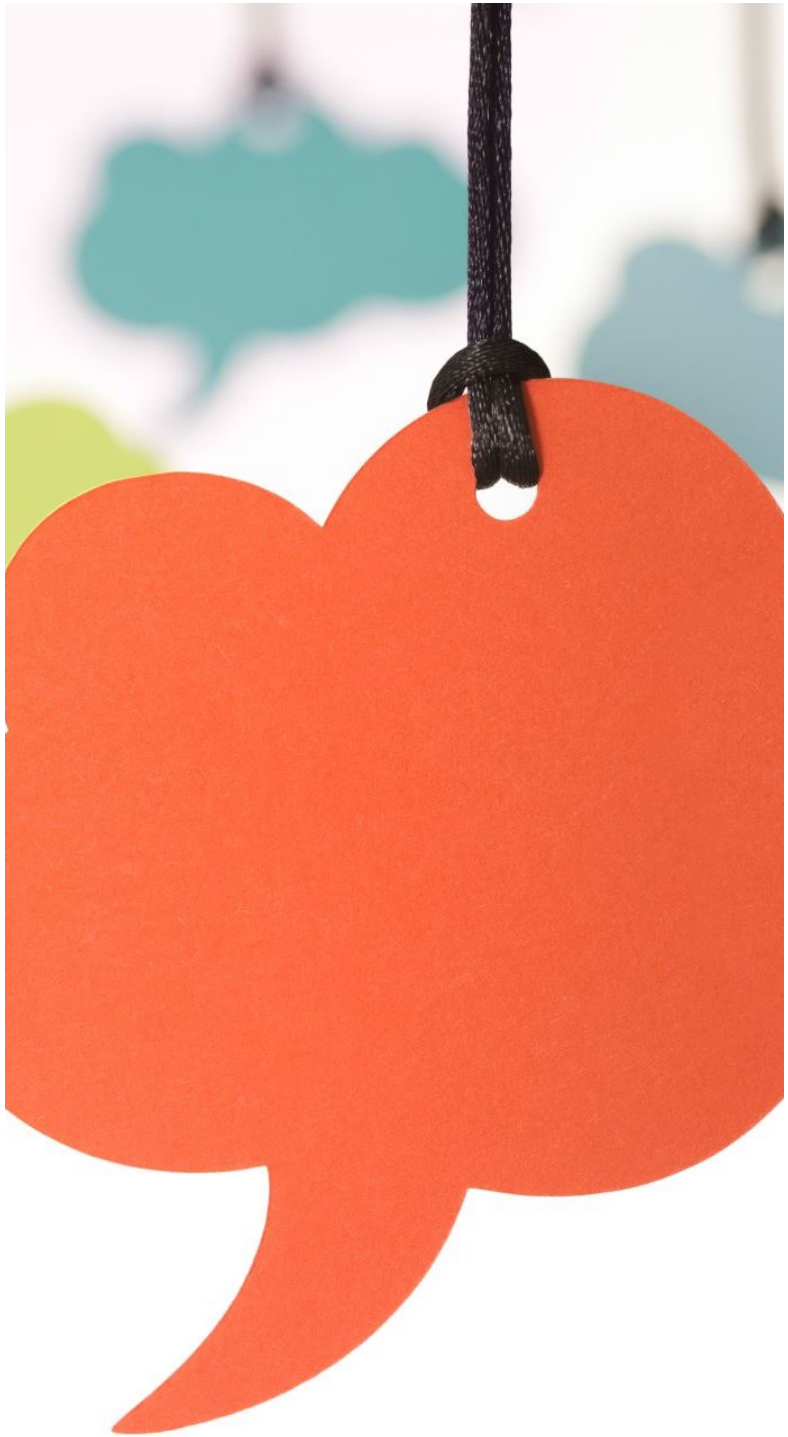


- Identify appropriate people to meet, observe, and interview: customers, users
  - Especially frequent users, managers
  - Cover as many usage roles as possible
    - Usage role defined by the job, not the person
    - Examples: Ticket buyer, ticket seller
  - What if you cannot find real users? Hmmm….
- Use other data sources
  - Be your own domain expert (BE VERY CAREFUL HERE)
    - If you have the experience and knowledge
  - Subject-matter expert (SME) interviews
    - Especially if access to real users is limited



Focus of data elicitation

- Are we gathering data on an existing system or a new system?
  - You are thinking ahead about the new system
  - **But remember - usage research inquiry is about the *way things are done now***
    - If you are gathering data on the new system (i.e., asking them about ideas you have), you are not doing data elicitation.
    - You are doing requirements (this happens a lot; just be aware)



Focus of data elicitation

- However, ***if*** the proposed new product/system is different enough from the old
  - At end of each data elicitation session can ask:
  - *"In what ways might you want to use the features of the proposed new product/system?"*

- But be careful when asking people what they want – their thinking may be limited by the old system
  - *"If I had asked people what they wanted, they would have said, faster horses"* — Henry Ford

When doing Data Eliciation Look For:

- Surprises
- Problem areas and barriers to performance
- Emotional and social aspects
- Meaningfulness (long-term emotional impact) in work or play practice
- Opportunities for “shadowing”

- Document the customer journey
- Example: Being processed within a large health organization

Information Categories for Data Elicitation

Consider:

- User work roles: Jobs users perform
- User personas: Specific user characteristics
- Inputs to user stories: Narratives describing features, capabilities
- Work practice artifacts: Information and other things users employ, manipulate, share
  - *Examples*: Menus, order forms, work orders

Interviewing is…

Talking and **listening** to people

Verbally asking participants questions and hearing their point of view in their own words

Done face-to-face or over the phone or video

One to one (one interviewer and one interviewee)

Interviews

Advantages

- Deep and free response
- Flexible, adaptable
- Glimpse into participant's tone, gestures
- Ability to probe, follow up

Disadvantages

- Costly in time and personnel
- Requires skill
- May be difficult to summarize responses
- Possible biases (interviewer, participant, situation)

Interviewing Tips

Language	Avoid	Rapport + Respect	Timeframe	Listen
Keep language in line with the participant	Avoid long questions Leading questions	Create comfort Be respectful	Establish a time frame (and stick to it!)	Listen carefully Probe answers

Example: How to Interview

- Suppose I wanted to create a new app for an ice cream shop and decided that I want to talk to people to learn about ice cream.

Some questions

- Do you like ice cream?
- Do you eat ice cream?
- Is vanilla ice cream your favorite?
- Do you eat your ice cream in a cone?

Suppose I asked 20 people these questions – what could I learn??

15-20 people like ice cream

17-20 eat ice cream

5-20 people like vanilla best

10-20 eat ice cream in a cone

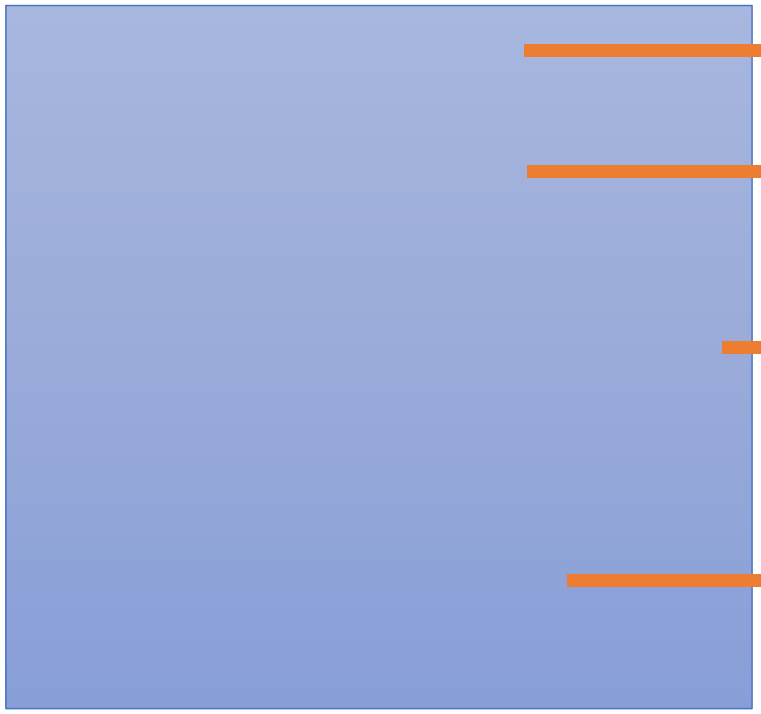
But what don't I know

For example:
15-20 people like ice cream
17-20 eat ice cream
5-20 people like vanilla best
10-20 eat ice cream in a cone

BUT DO WE KNOW?

What is everyone's favorite flavour of ice-cream?
If you don't eat ice cream in a cone, how do you eat it?
Why they eat ice cream?

How can we make the questions better?



Better: Do you like ice cream? Why or why not?

Better: Do you eat ice cream?
Why do/don't you eat ice cream?

Better: What are your favorite three flavours in order? Why is the top one your favorite?

Better: What are all the ways you eat your ice cream? AND how often for each? AND why for each?

Favorite Flavours of Ice cream

15-20 people like ice cream
17-20 eat ice cream
5-20 people like vanilla best
10-20 eat ice cream in a cone

Like about Ice cream

- Great on a hot day (15/20)
- Creamy (10/20)
- Fun (9/20)

Dislike about ice cream

- Too cold – hurts teeth (5/20)
- Melts in the summer (12/20)

Ways to eat ice cream	Frequency
Cone	65%
Bowl	30%
Out of carton	5%

Structured interview

- Uses script and questionnaire
- No flexibility in wording
- No flexibility in question order
- Closed response options
- Open response options
- Thorough and consistent but can not probe answers

Unstructured interv flexible)

- Most spontaneous
- Focused topics or questions are not predetermined or structured
  - But can have general ideas of initial areas of interest
- Questions emerge from the situation and what is said
- Can be difficult to run but you may get more information as it is user driven (need experienced interviewer)
- Individualized and relevant to the situation
- Harder to compare between users

Semi-Structured interview

- Outline of topics or issues to cover
- Some questions may be standard
- May vary wording or order of questions
- May probe interesting responses
- Fairly conversational and informal

Example Question Topics

Behaviors - what a person has done or is doing.

Opinions/values - what a person thinks about the topic.

Feelings - what a person feels rather than what a person thinks.

Knowledge - to get facts about the topic.

Sensory - what people have seen, touched, heard, tasted or smelled.

Background/demographics - standard background questions, such as age, education, etc.

Probing

- Q: What did you like best about the interface?
- A: “I liked everything”

- Interviews allow you to probe answers. You could now ask:
  - “Can you give me an example?”
- BUT be careful not to ask a leading question though…

Probing

- Avoid using clichés, and words which may not mean much (e.g., do you find it intuitive?)
- It is okay to ask participants to be more precise or explain/define what they mean or terms they are using.

- Asking a hypothetical question may encourage your interviewee to talk more. For example, if someone has had an adverse experience with a health service, you could ask:
  - What would you like to have happened?
  - Ideally, how would you like to be treated by nurses/doctors?

CAVEATS

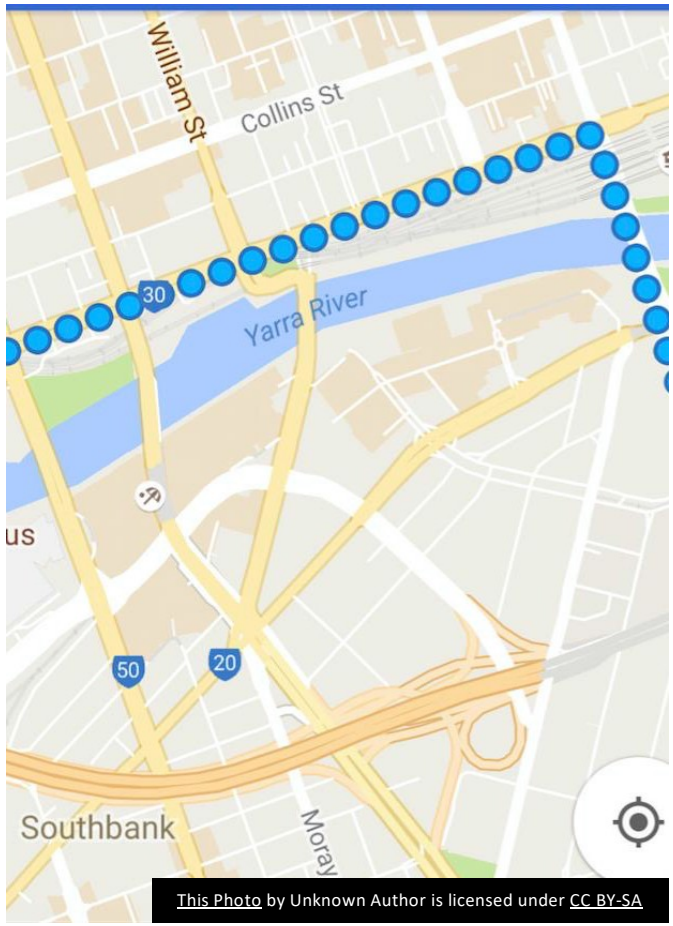
- You can conduct a great interview, but not achieve your research goals.
- Why?
  - Interviewing the wrong people
    - Omit a segment of the target population
    - Recruitment strategies could bias population
  - Asking the wrong questions
    - your interview questions don't adequately address the research questions
  - Incomplete data collection
  - Faulty analysis of data collected

Some More Hints for Interviews

- **Think of themes** that you want to investigate and then structure questions around it. I'll go through an interview we used after a study that explored google maps for exploring a location. We organized the questions according to main themes we were interested in.
- **Have a main question/s for each theme**, then a list of questions under it that could help probe the participant more (note. some participants didn't need the extra questions because they included all the details in their response to the main question)

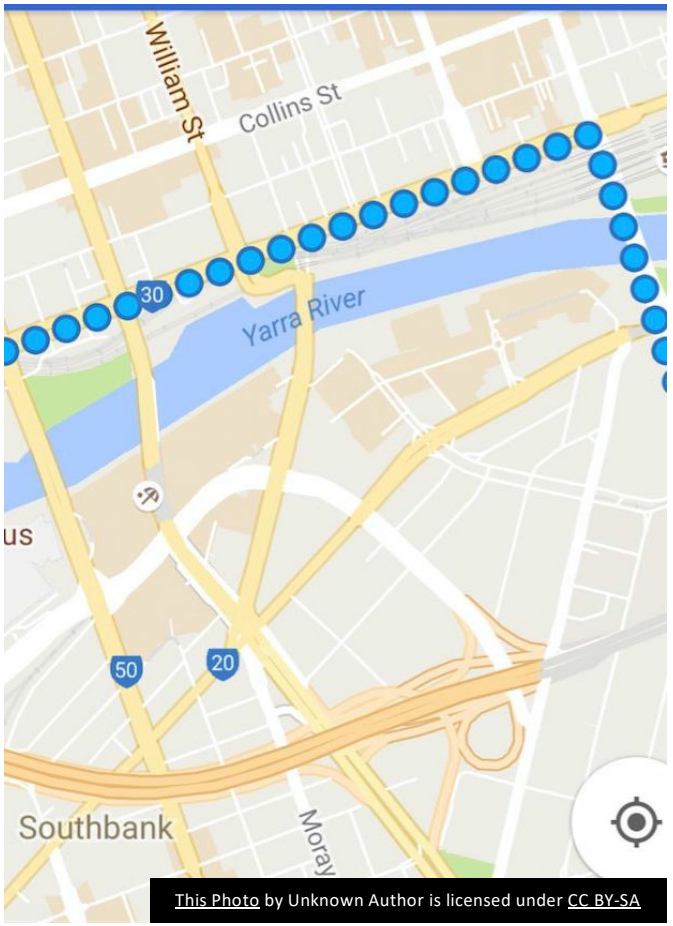
Background for the next slides

- A while back, we ran a study to better understand how people use Google maps to plan walking routes with multiple locations to visit
- E.g., you need to run errands (drop off your dry cleaning, pick up coffee and bread from a grocery store, and get a birthday card for your friend) before meeting your friend for lunch. You need to plan what you do first –i.e., where to go…



Themes we used for Interviews

- Theme 1: Creating a Route (how do people create a route to follow e.g., how do they choose which place to visit first)
- Theme 2: Navigating to Places (how do people navigate to the location e.g., what views do they use, do they use landmarks?)
- Theme 3: Lost and Reorienting (if they get lost, how do they get back on track)
- Theme 4: Orienting to a Location (at different locations can they figure out where the other places are relative to where they currently are)



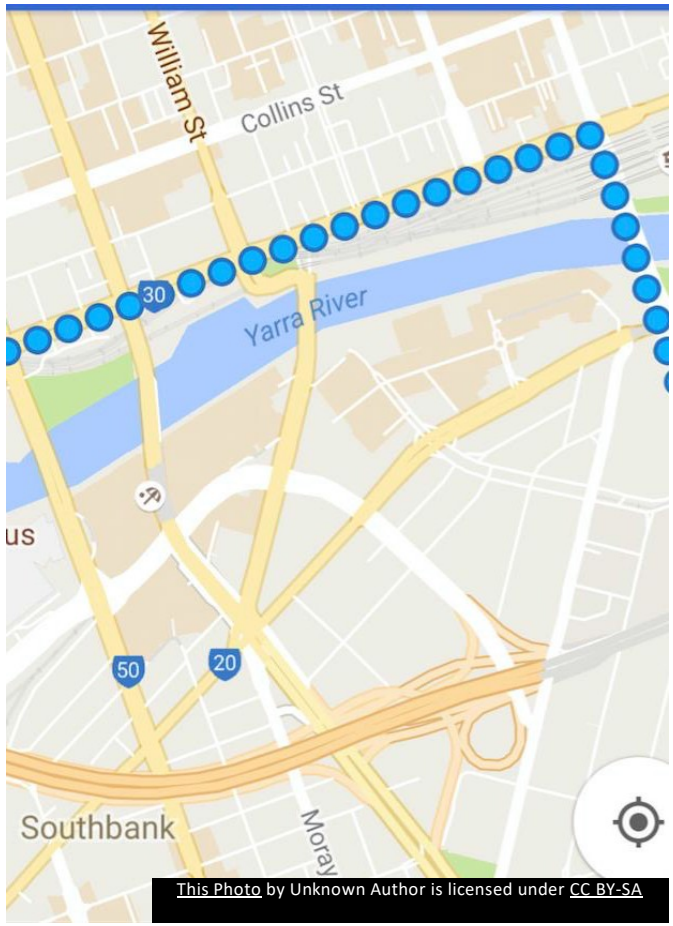
Questions Theme 1: Create a Route

At the beginning of the study, you chose to go to [first location] followed by [list of other ones]. Why did you create this route?

- What views in Google maps did you use to help you find the location of each place at the start? Why did you used this / these views?
- Why did you use the different views?

For [the location] you chose to visit [name]. Why did you choose this location over the others?

- What views in Google maps did you use to help you decide on the place you visited? Why did you used this / these views?
- [if applicable] Why did you use the different views? How did these 'views' [talk about each] help you decide?

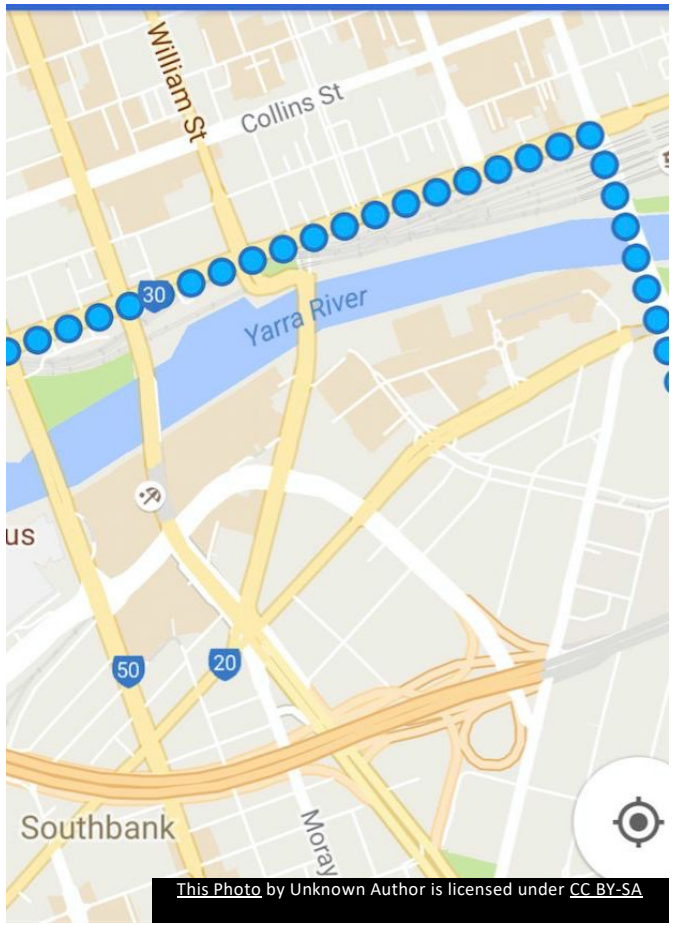


Note main questions are in blue, and follow-up/probing questions are underneath

Questions Theme 2: Navigating to places

What views in Google maps did you use to help you walk/navigate to the different locations? Why did you used this / these views?

- Did you switch map views when locating a particular location? Why? How did this help?
- How did these 'views' [talk about each] help you locate the places?



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Questions Theme 3: Lost and Reorientation

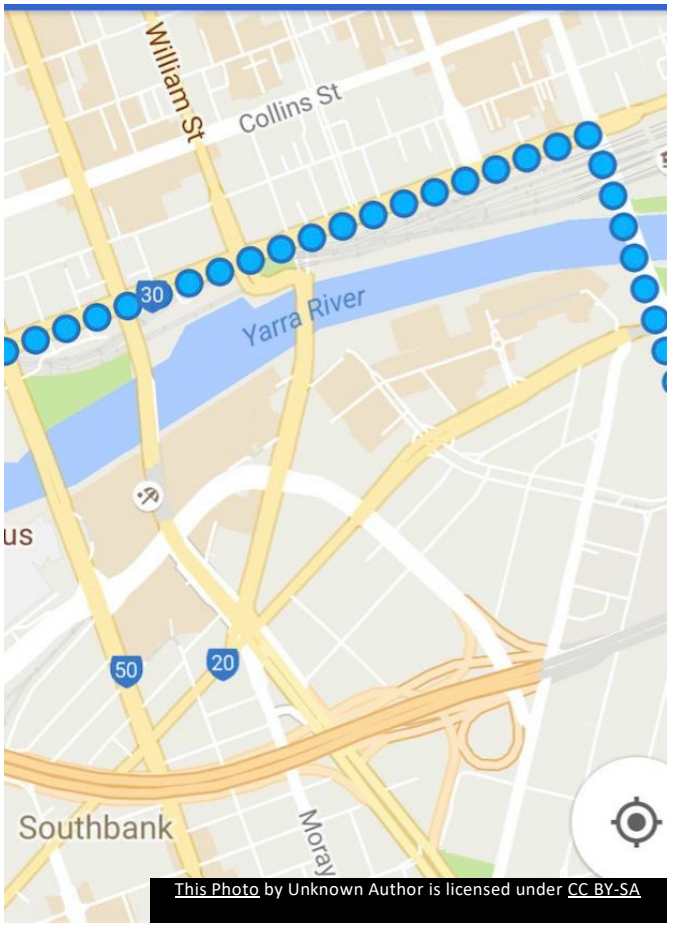
While finding the different locations, did you ever get lost?

YES

- How many times did you get lost? Can you tell me about it / them (e.g., for what location)?
- Why do you think you got lost?
- Were you using a particular map view at the time?
- How did you get back on route? What helped you?

If NO

- Was there any occasion where you were unsure that you were going in the right direction?
- If so, what happened to reassure you that you were going in the right direction?



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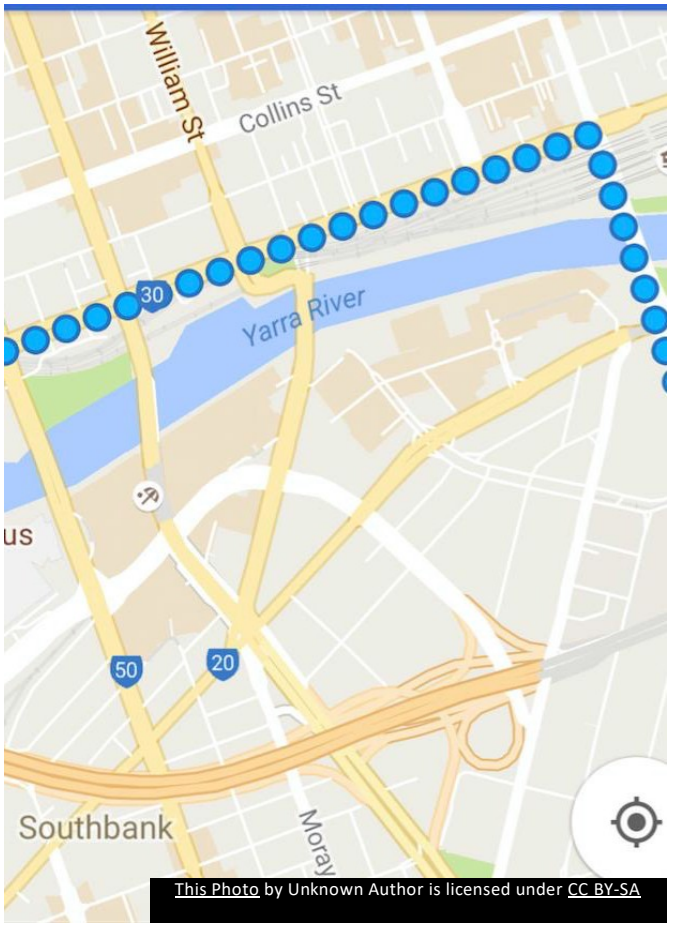
Questions Theme 4: Orienting to a Location

When you were asked to point to [landmark], which map view/s helped you?

- Did you ever find it hard to orient yourself with the landmark? Why? What did you do to help?

- Why did you use that/those views? How did it/they help you find the landmark/s?



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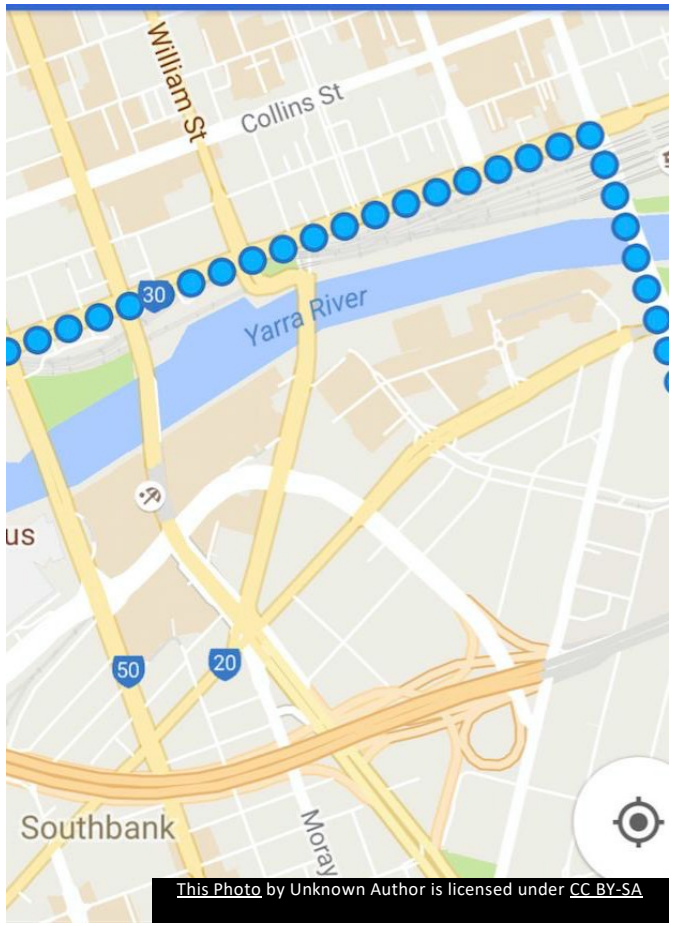
General Questions about maps

Did you find different map views to more helpful for certain navigation tasks?

- Which ones?
- Why?

In the past have you Google maps or another location-based application to help you navigate an area?

- How was it helpful?
- Did you use the same views as you did in this study – [what was different?]



Design Exercise

- Get into groups of 4-5 people: (5 minutes)
- Two topics (half of the groups will be assigned to one of the two topics):
    1. How does the weather affect how people plan their day?
    2. How do people choose how to get to school/work each day?
- Come up 2 themes and questions that you think would be important to understand the topic further (10 minutes)
    - For each theme, come up with 2 questions (including a couple of follow-up/probing questions)
- We'll be each others' users (I'll assign 1 or 2 students to try this out). Groups will record answers. (10 minutes)
- Go back into your original groups and use this info to name 2-3 possible features for a new app. (5 minutes)
- Post on Brightspace – may call on a couple of groups to go through their themes/questions/features