Understanding Users: Qualitative Research

School of Computer and Communication Sciences

EPFL

Pearl Pu

1

Introduction

- Old way - design a product and try to sell it

- Design thinking way - identify needs and use them as the starting point

- The new way flips the traditional product development cycle on its head.

HOW DO WE IDENTIFY USERS' NEEDS?

- Why don't we just ask them?

    - They either don't know them

    - they may not be able to articulate them

We offer "qualitative research" as a tool

- Qualitative vs. quantitative to gather data on user behaviors

- Normally we think quantitative methods are valid approaches, but qualitative methods can be equally valid

- Qualitative method is less expensive and more feasible to do

  - you need less users

  - if done correctly, it gives superior results (the **whys**)

- Behaviors, attitudes, and aptitudes of potential users
- Technical, business, and environmental contexts - the domain - of the product
- Vocabulary and other social aspects of the domain in question
- How existing products are used

THREE TOOLS FOR QUALITATIVE RESEARCH

1. Domain research (literature review)
2. Competitive analysis
3. User interviews & Observations

Today we cover the first two

2

Domain Research

- Researching the domain where your product operates

- Consider the following examples:
  - online wine recommender system
  - travel planning tool
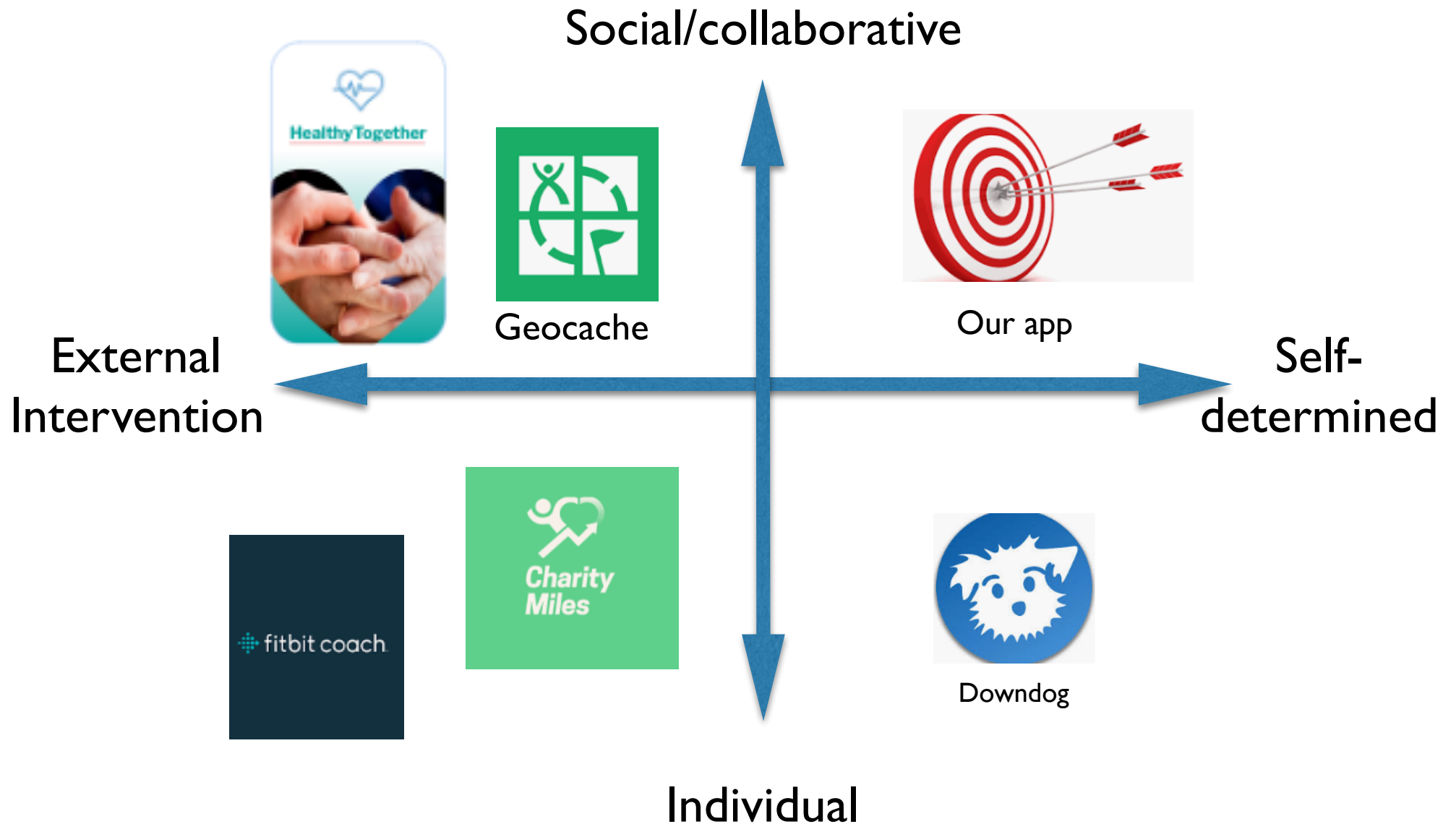 - mobile apps to help people jog better

3

Competitive Analysis

- Survey existing products addressing the same design problem

- Avoid re-inventing the wheel

- Understand what's not being addressed - define your value proposition (unique selling point)

- Tip: try to use one or two competitive products yourself

- Final step: build a competitive analysis map

Social/collaborative

Geocache

Our app

External Intervention

Self-determined

Charity Miles

Downdog

Individual

Competitive Analysis

	Basic Alarm	Alarmy	Relaxing Melodies	Fitbit
Wake alarm	✓	✓	♪	✓
Bedtime reminder	✓		♪	✓
Configurable Sleep music		✓	♪	
Track of sleep	✓			✓
Sleep log	✓			✓
Needs an external device				✓
Offers something innovative for waking up		✓		
Offers something innovative for going to the bed				
Offers any kind of gamification				

2
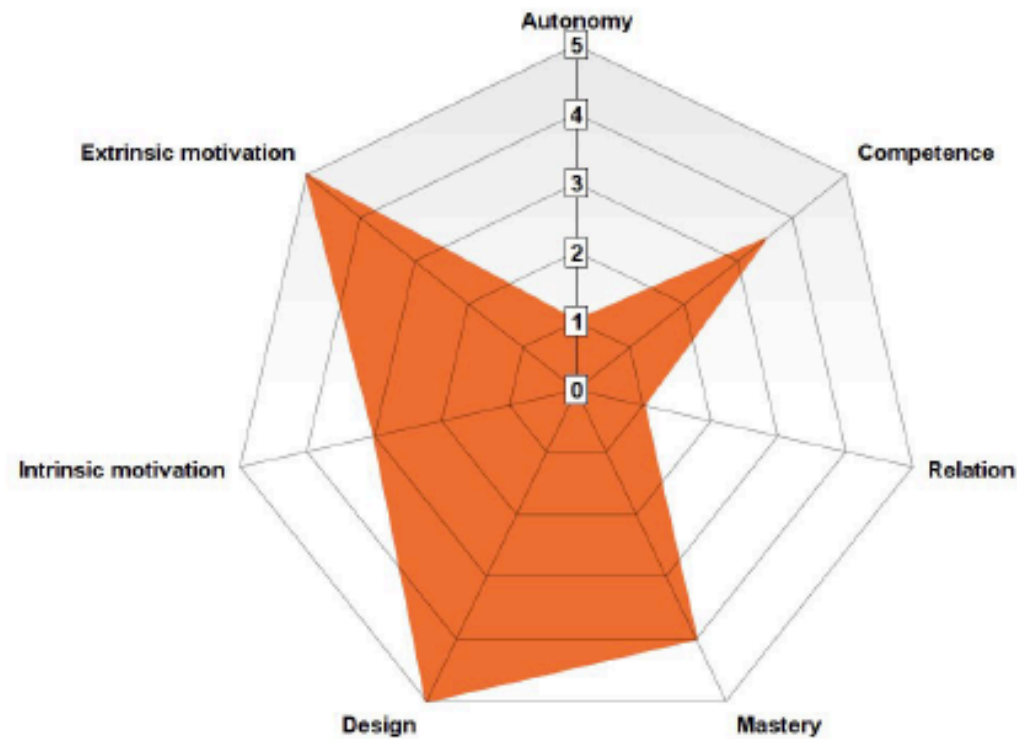
The competitive analysis includes a nice table of whether the new app has a certain feature or not. But it's not clear in what ways the new app stands out.

Competitive Analysis Map
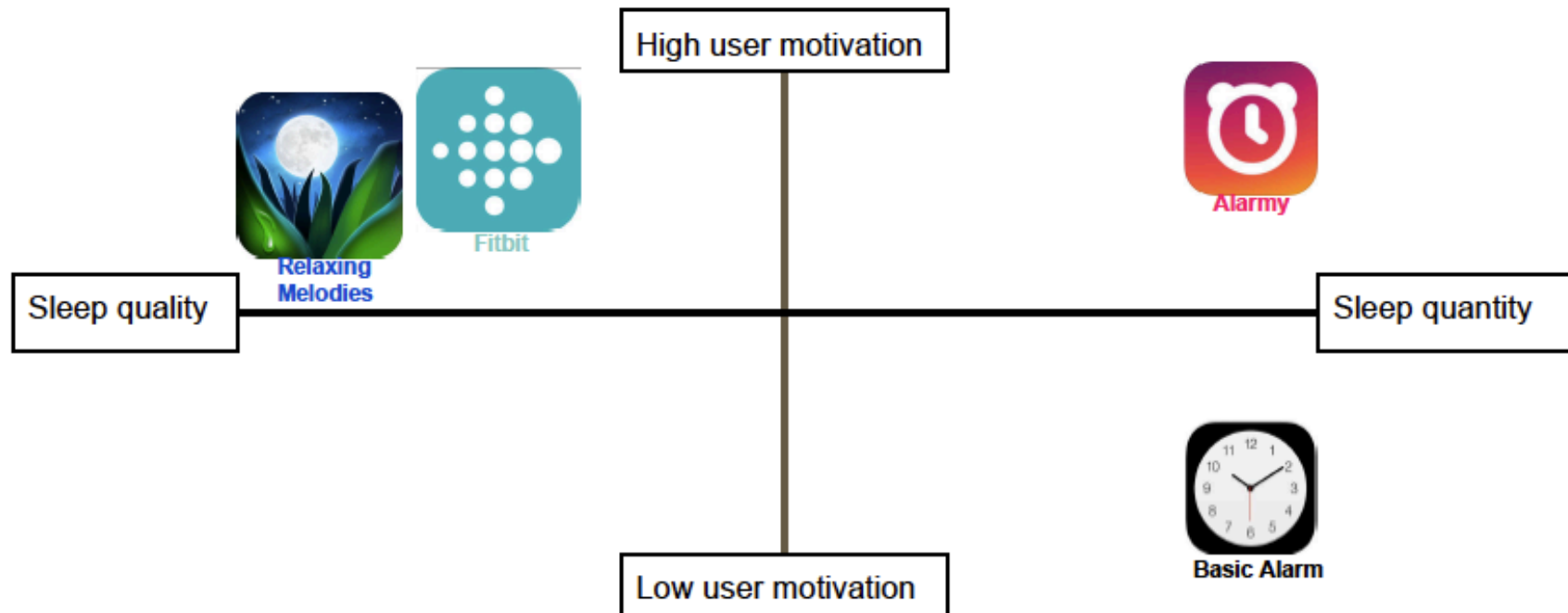
Sleep quantity is usually part of the quality criterion. The criteria forming the opposite axes have to be different.

How can we contrast?

GOOD EXAMPLE OF CA MAP

Social/collaborative

Our app

Improve
Sleep quality

Wakeup
Intervention

Calm

Basic Alarm

Individual
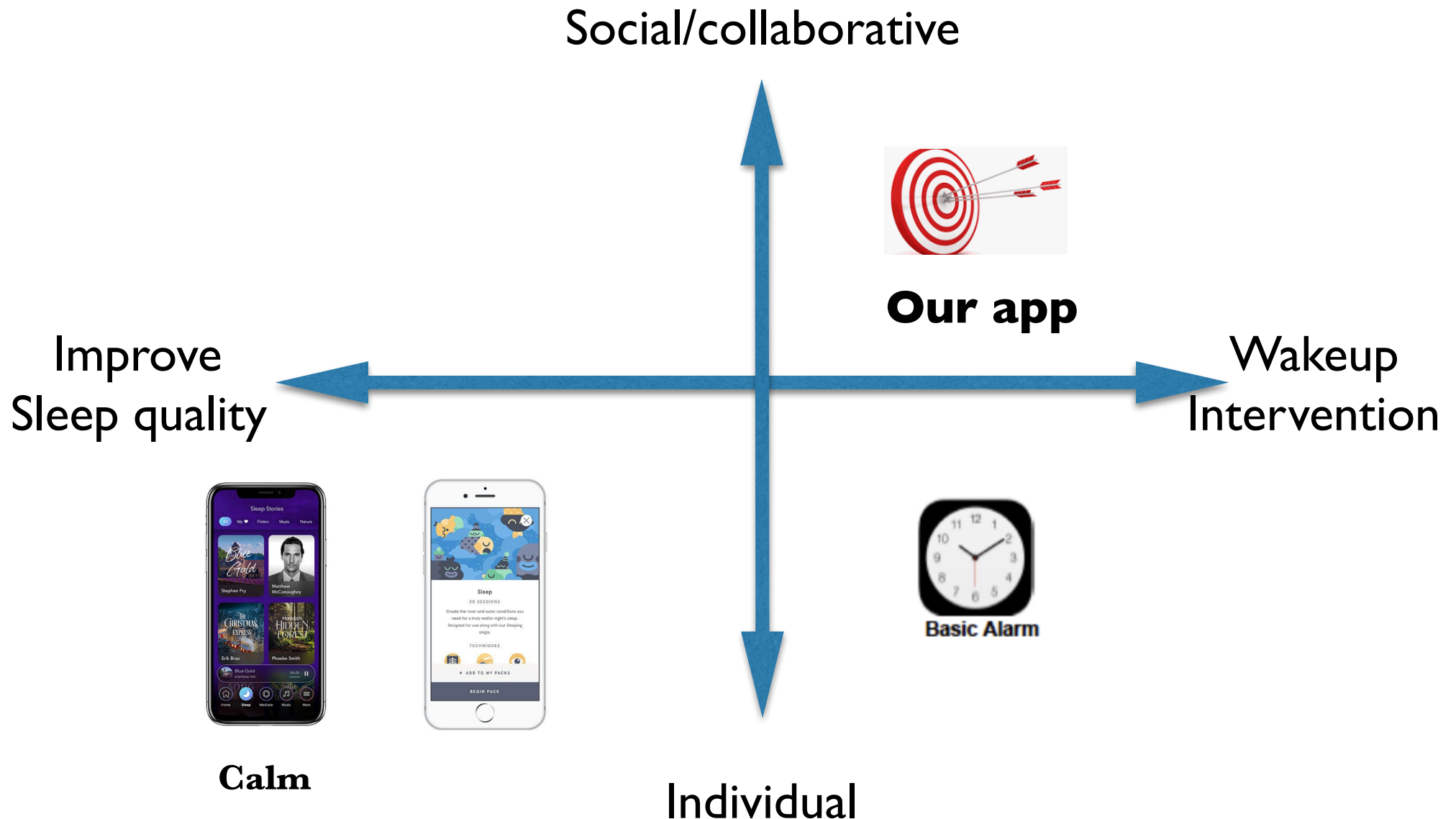
4

Ethnographic Study

Recall

1. Domain research
2. Competitive analysis
3. User interview & observation

Ethnographic Study

Today we cover the last item

- An ethnographic study (a method borrowed from anthropology) is a qualitative method where researchers completely immerse themselves in the lives, culture, and conditions of people they are studying

- It is a combination of immersive observation and directed interview techniques

How to conduct interviews?

- Group vs. Individual

- Remote vs. In-person

- Degree of structure

  - Structured

  - Semi-structured

  - Unstructured

How to conduct interviews?

- Group vs. **Individual**
- **Remote** vs. **In-person**
- Degree of structure
  - Structured
  - **Semi-structured**
  - Unstructured
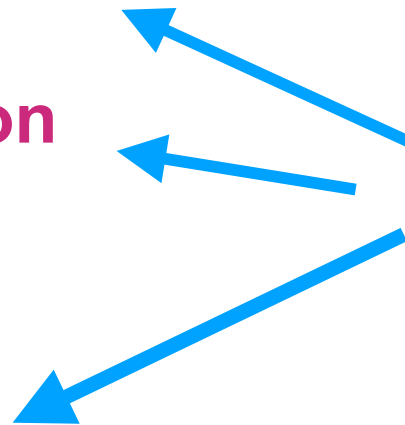
Focus in this course

Semi-Structured Interviews & Observations

- Balance between
  - Researchers' interests and focus
  - Open, free-form discussion

- Interview guide

- Conversational style

- Expect to go off-script!

Why do we interview users?

- Why people would want to use a product or service

- How people actually use a product? Why they don't use a product or service

- What people like or dislike about a product?

- What else people might want from a product or service?

Validate and develop more insights!

WHEN TO DO A SEMI-STRUCTURED USER IO

- Before any design phase
  - Before designing something new
  - Before a re-design

- Any time questions or problems arise
  - What causes users to want our service?
  - Why don't customers go beyond the home page?
  - What frustrates users of our product?
  - How could we improve the client's experience?

Needs assessment to understand users' goal

A travel planning tool

- Detailed understanding of how do users input the destinations of their trip?

- Do they first have the idea of a trip? Or do they first see a photo of a beach or an event on social media?

- What else do they need besides airplane tickets? Car rental? Bus tickets? Concert tickets?

A therapeutical chatbot

- how it was that he/she came to be looking for this type of chatbot?

- How do they talk to counsellors currently? Do they expect the same thing from a chatbot?

- When they have strong feelings, how do they expect to be treated? mirroring, acknowledging, or advising?

4.1

Who to interview? How many?

- Who

  - user/potential user of product

  - Typical member of group you are interested in

- Where

  - Where participant normally uses product

  - Where participant feels comfortable

- When

  - Schedule in advance

  - Mutually convenient time

  - When participant normally uses product

- Potential users
  - people who are going to be the target users of your system

- Existing users, but also non-users
  - suppose you are designing a better version
  - existing users, but also broaden the user base

- Enthusiastic, but also hesitant users
  - to understand pain points

- Avoid self-referential design
  - you should interview users who are different from you

- Experience level (IT experience)
  - design for the beginners and intermediates.

- The persona hypothesis

  - An assumption about who potential users are

- To develop that hypothesis

  - We can describe their age, gender, profession

  - Not entirely correct

  - Correct - likely behaviour patterns and what differentiate these patterns

- How might their needs and behaviours vary?

- What types of environments need to be explored?

Read further on persona hypothesis

Don't forget your homework!
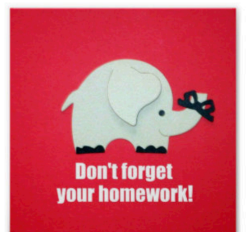
PERSONA HYPOTHESIS – STOPSHOP

Name			Why do you recruit them?
Sophie		Female 20s	potential users
Laura		Female 40s	older potential users
Kevin		Male 20s	male potential users
Francine		Female	Non-user, but can learn from her
Marion		Female	Potential users with different behaviour patterns

X

StopShop: Persona Hypothesis Table

- We ask students to provide more explanation as to why this hypothetical person should be recruited then what's provided in the previous slide

NEGATIVE PERSONA AND HESITANT USERS

- Negative persona

  - Those for whom you are not designing your app

  - Example: expert users who don't need the desktop interface for using the computers

  - **Do not interview them**

- Hesitant users

  - Those who have very negative attitudes towards your app

  - Interview them and they offer concerns for you to design around

HOW MANY, HOW TO USE THEM & HOW TO RECRUIT THEM

- Interview between 6-10 users for a small project

- Interview them one at a time, but plan the interview schedule ahead of time

- Recruit them from social circle, bulletin board, mailing list, and **crowd worker platform**

  - possible to interview them via skype

- Offer a small gift as token of appreciation

- Each IO lasts 40-60 minutes

4.2

Components of an Interview Guide?

- Overarching question

- Introduction

- Main interview
  - background/warm-up questions
  - Core questions

Hard!

- Observation
  - Think-aloud protocol
  - Observation questions
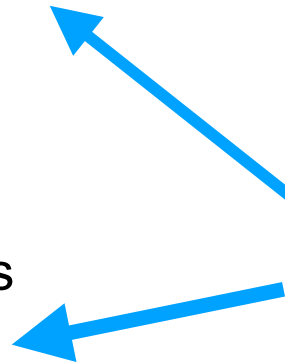
- Conclusion

- This is the big question you are trying to answer
- Keep it in mind throughout IO guide development and actual interview
- You will not necessarily ask the interview participant this question directly

Overarching question = Design Problem Statement

We show you ways to turn DPS into overarching questions

- **A teenage girl with a bleak outlook needs to feel more socially accepted when eating healthy food, because in her hood a social risk is more dangerous than a health risk. -> original DPS**

- **Does a teenage girl have social acceptability problems when eating healthy food? -> overarching question1**

- **How can a teenage girl feel more socially accepted when eating healthy food? -> overarching question2**

- **How might we address the social aspect of eating healthy food? -> overarching question 3**

Pearl Pu

- Script for you to explain process to interview participant
    - Self-introduction
    - Goals of interview
    - Duration
    - Overview of components
    - Confidentiality
    - Voluntary nature
    - Permissions

- Background / warm-up questions
  - Short
  - Simple
  - Closed-ended
- Core questions

Hardest questions

  - Open-ended
  - Conversational
  - Focused on overarching questions

USE CORE QUESTIONS TO FIND OUT FROM

1. The context of how the product fits into their lives or workflow: when, why, and how the product is or will be used

2. Domain knowledge from a user perspective: What do users need to know to accomplish their goals?

3. Current tasks and activities: both those the current product is required to accomplish and those it doesn't support

4. Users' goals and motivations for using the product

5. Mental model: how users think about their goals, tasks, and activities, as well as what expectations users have about the product

6. Problems and frustrations with current products or simila

Usually need ten questions

Goals & mental models

- Think-aloud protocol

  - Encourage participant to verbally explain what they are thinking and doing

  - Awkward at first; gets easier

- Observation questions

  - Prompts to perform tasks

  - Questions you can anticipate

  - Focused on overarching questions (how might we offer a service for the user so he can achieve his end goal)

- Script for the end of the interview and observation
  - "anything to add?"
  - Thank you
  - Follow-up plans
    - Additional questions
    - Report back
  - Your contact information
  - "Any questions?"
  - Thank you, again!

Next: tips on How to do the science

- Preparation
  - Interview participant background
  - Topic background
  - Interview protocol
  - Overarching questions

- Improvisation
  - Rapport with interview participant
  - Attention to the unexpected
  - Unscripted questions
  - Focus on overarching question

- Open-ended
  - "why did you..?"
  - "How did you go about …"
  - "Can you tell me about …"
  - "Why do you think that is?"
  - "How did you handle that situation?"

- Lead questions
  - "Do you want X?"
  - "How many times a week do you …?"
  - "What is your favourite …?"

Sometimes, lead questions are appropriate, but they shouldn't dominate the IO guide.

Good vs. Not so good questions

- Specific, concrete
  - "Tell me about the last time that you did …"
  - "Can you think of a specific instance when …"

- Abstract, generalised
  - "What do you normally do when…"
  - "What is the typical way in which…"

These aren't bad questions, but you want to be sure you've asked for concrete details first.

- Non-leading, judgment-free

  - "what option do you prefer?"

  - "What do you think was the reason for that?"

  - "How did you try to address the problem?"

- Leading, judgmental

  - "So, you prefer X over Y?"

  - "Was it because of a bad process that the task was difficult?"

  - "Why didn't you use feature Z?"

- Under each core question, prepare follow-up questions
  - Use bulleted lists

- Generic
  - "Why?""How did that happen?""Tell me more."
  - Prompts for specific issues: "Did you think about X?" Or Y?"
  - Repetition: "Could you tell me about another time when …?"

4.3

Tips for the art part of interviewing

- Rapport with interview participants

- Attention to the unexpected

- Unscripted questions

- Focus on overarching question(s)

- Have a "softball question"
- Interview where the interaction happens
- Avoid a fixed set of questions
- Focus on goals first, tasks second
- Avoid making the user a designer
- Avoid discussions of technology
- Encourage storytelling
- Ask for a show and tell

- Make them feel comfortable
  - Do not jump right in
  - Start with small talk
    - Find something in common
    - Complimenting
    - Discuss the weather

- Master apprentice relationship
  - You are there to learn
  - Users are the expert of their problems & mental models
  - Adapt
  - Listen, listen, listen

Have a 'softball question' ready

Please tell me a little bit about how you buy your clothes?

Could you tell me about how you may want the website to help you….

Please tell me how you currently get wine recommendations?

- Interview them where they perform their tasks
  - consider this interview a field study

- Keep your eyes open

- Don't snoop around without permission, but if you see something that might be interesting, ask to discuss it.

- We don't know enough about the domain to presuppose the questions that need asking

- This doesn't mean we cannot prepare a set of questions before hand

- We just don't want to use a fixed set of them, nor in a fixed order

- You need to develop this set of questions iteratively

- Goals of IO guide:
  - Preparation
  - Guide during interview

- Memorize the overall flow of the guide

- **Reminder - you should not read guide questions one after the other**

- Try to understand the *why* and *how*

  - What motivates the behaviors of individuals?

  - How do they hope to ultimately accomplish this goal?

- How would they expect to interact with the product to achieve the goals?

- It's really important to ask why

- But users may not be comfortable with them

    - why were you looking …?

    - Replace it with

    - Tell me how it was that you came to be looking for this technology solution that day?

- Guide the interviewee towards examining problems and away from expressing solutions

- If it happens, possible transitions are

"What problem would that solve for you?"
"Why would that be a good solution?"

- Don't treat them as a programmer or engineer

- Do not attempt to solve their problems during the interview/observe phase

- Bring the subject back to goals and motivations by asking "How would that help you?"

- Encourage users to tell specific stories about their experiences

    - How they use an existing product (if a previous version exists); what they think of it; what are the problems?

- Encourage stories that talk about typical cases, but also unusual examples

- Encourage them to replay a past situation

- Ask them to show artefacts related to the design problem
  - Those related to the domain
  - Software interfaces
  - Tours of the work environment

- What you want to know from them?
  - ask them to show you how they currently do their activities.

Paul, 57

Renate, 65

Manfred, 75

Olaf, 65

Christel, 71

Martine, 55
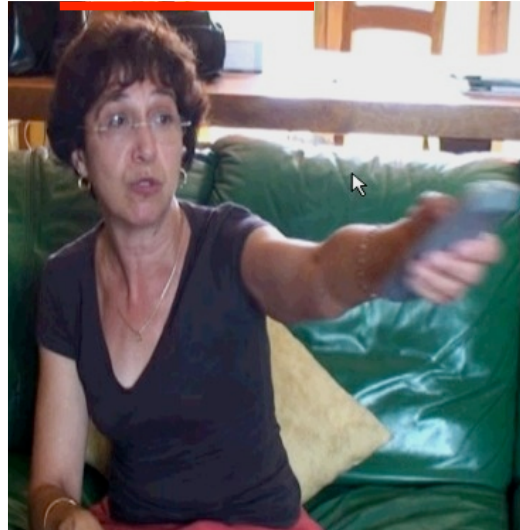
Fillippo, 44

Marion, 93

4.4

More tips

OPEN VS. LEAD QUESTIONS

Open-ended questions	Lead questions
YAY	**NAY**
Who	Did
What	Have
When	Are
Where	Were
Why	Will
How	

What were you trying to do?

Were you trying to do A or B?

- Do you need an intelligent refrigerator? 👎

  - it's a lead question

  - better approach: probe about her household, how much time she spends making a list of what everyone wants, stocking food and drinks in the refrigerator, etc.

  - it's more valuable to ask users about their lives and their goals

- How often do you go grocery shopping? 👎

  - it's a hypothetical question which is hard to answer

  - better approach: how often did you go grocery shopping last week? in a typical week?

- exploratory questions in the early phase of i/o
- more structured and focused questions in later phases
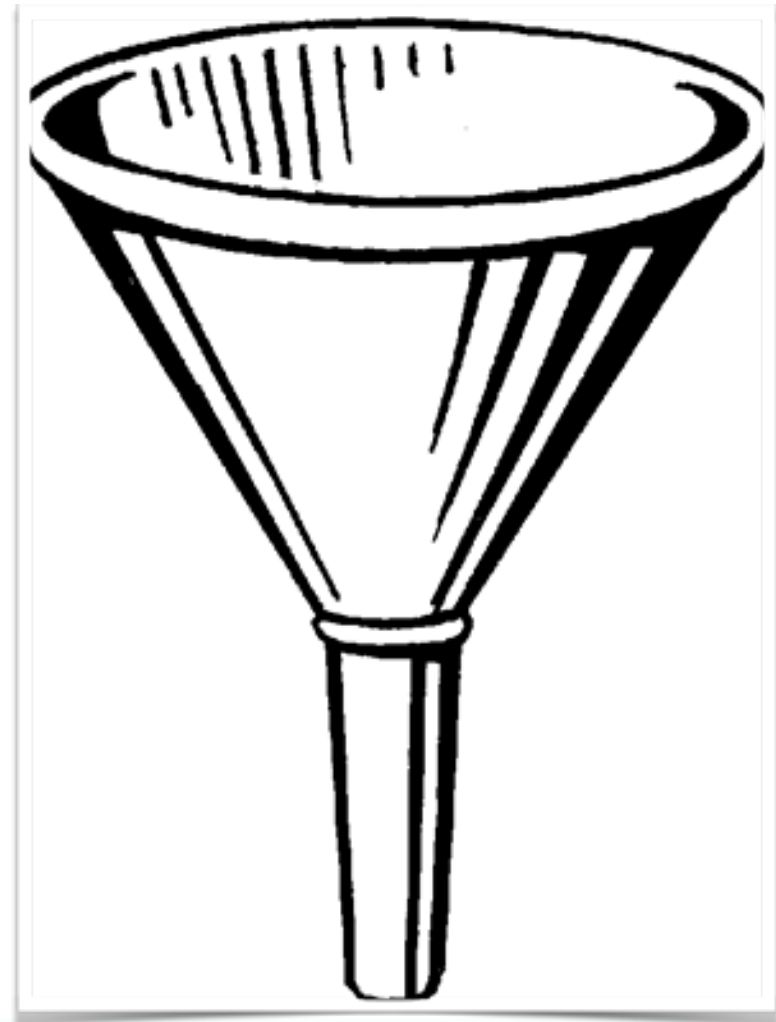
- **Language**. Refrain from giving too much information about the project, but maintain a hospitable presence

- **Dress**. Dressing too casually or too formally might be distracting

- **Well-planed Procedure**. Greeting interviewee, getting the letter of consent signed, setting up the recording device, preparing well-rehearsed script and considering what questions and concerns the interviewee might ask

- **Other Preparations**. Backup batteries, plug-ins for recording device, pens, quiet place, etc.

(Cone 2007)

- **Expectancy Effect**

  - Our expectations as interviewers might shape the outcome of the interview

  - People will tell you what they think you want to hear

- **Third-Party-Present Effect**

  - An interviewee might modify answers due to the presence of a third party

- **Threatening Questions**

  - An interviewee would avoid the questions they think threaten their values, e.g., political questions.

Don't Judge

e.g. You sure you don't want this feature?

Whom you should be careful with?

How to deal with difficult people

- Be careful with users with negative attitudes

  - users who are not ready to adopt your product

  - users who are not enthusiastic about your product

- Ask them why they are not ready

- Turn negativism/skepticism into opportunities

  - identify the impediments

  - identify what can alleviate the concerns

Listening to body languages

Yes!

Not so much.

The quiet one

- Encourage them to say more

- How does this (part/page) compare with what you were expecting?

- Could you tell me more about your story on using this device?

- What did you do when the problem happened.

Tell me more…

What do you mean by…

What else can you tell me about…

Can you tell me the story about that?

Help me understand better

This is confusing...

Confusing...

Yes, confusing. I wasn't sure whether...

Conversational disequilibrium

I wanted to download that application, but the instructions were so confusing… (trails off and stops talking)

The instructions were confusing?

And you expected…

Confusing?...Because….

So then you…

Mmmm hmmm.

The chatty one

• Bring them back on track immediately and politely

• That's really interesting, thanks for telling me about that. To come back to....

• Can I interrupt you? Sorry, I was actually curious if you could...

QUALIFICATION QUESTIONS FOCUS INTERVIEWERS' ATTENTION

- Ask for qualifications when people talk not about themselves, but about others e.g. *we, everybody, nobody, some people*

- What do you mean by "we", "everybody".

4.5

User observation - wait until lecture in week 6

- ## Re-design

  - Observe users when they use existing products

  - Think-aloud

- ## New design

  - First interview users to understand their goals

  - Build paper (low fidelity) prototypes

  - Use mid-interview and with the help of your paper prototype, elicit information of how they may use your product

- Consider this DPS - users can relax and enjoy the ride even when the driver is an autonomous vehicle

- Overarching question:

  - Can users enjoy their ride with autonomous vehicles?

- Consider DPS - users can relax and enjoy the ride even when the driver is an autonomous vehicle

- Overarching question:
  - Can users enjoy their ride with autonomous vehicles?
  - **Can such vehicles function inside a city where the only drivers are autonomous vehicles?**
  - **What can their social interactions be like?**

**But paper prototypes don't capture interaction**

A storyboard is a set of (hand-drawn) *illustrations* to visually show the important steps of the user experience. It's used in the early stage of design to communicate user interaction behavior.

newcomer

John moved to Chicago last week to start school. He's away from home for the first time and homesick for the young lady he left behind. He decides to take a walk downtown while he still has time in these last days before the semester starts. Meandering over a bridge from the lakefront to Millenium Park, he's reminded of the playground where he kissed his girlfriend for the first time, on top of a miniature bridge they were too big for. He pauses to record the memory in this spot. He choses to record audio because he thinks it sounds more personal and he can dictate it as a love letter. John delights to think that when Jenny visits in December, he'll bring her here and show her the message he left. When he finishes recording, he checks the map view for his area and notices a few other messages have been left in the park. With time to kill, he walks toward a spot on the map. He's eager to learn more about the city, feeling comfortable heading in this new direction.

Attribution: this story and the storyboard are from Georgia Tech.
http://homes.lmc.gatech.edu/~agrosz3/masters/design/scenarios-and-storyboards/

newcomer
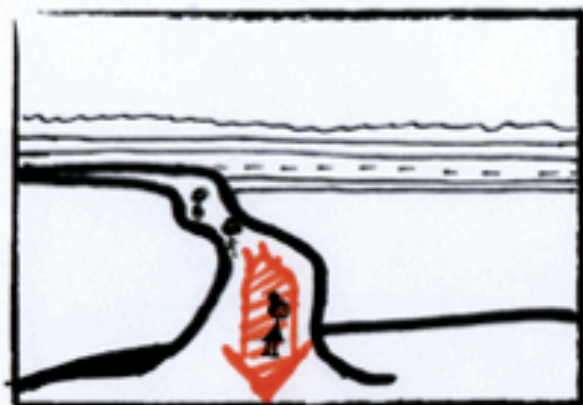
1 Feeling homesick, John takes a walk through a park in this new city

2. He takes note that the bridge he's walking reminds him of the playground bridge where he first kissed his girlfriend
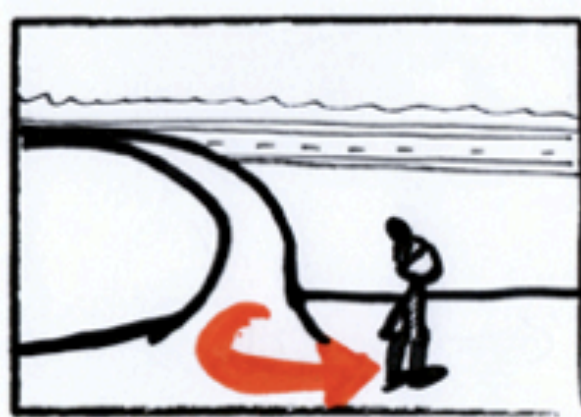

3 He records the memory as a dictated love letter to her

4 He saves the message, eager to return and show her the message when she visits in December

5 Returning to the app's main view, John sees other messages left nearby in the park

6 He heads in the direction of the landmark, happy with this new sense of direction and accomplishment

- Title

- Plot

  - setting (emotion, pain points, conflicts)

  - geo-location setting if necessary

  - design solution: transformation from pain points to joyful experiences

  - conclusion: personal reactions

- Number of panels: 6 - 20

- A vague solution is proposed (not just an insight)

- But the solution focuses on tasks/goals, rather than interface details.

- The task is mainly about how users will experience new things

- You decided to design an app called VirtualGraffiti
    - Sophie is waiting for a bus/metro to come; she is bored
    - She wants to draw a graffiti, but that may get her in trouble
    - she took out her phone and found the app VirtualGraffiti
    - she starts drawing a virtual graffiti
    - she then signs it, saves it, hoping to retrieve it later
    - she can also see someone else's virtual graffiti at that location

- Early interviews

  - Exploratory

  - Focus on gathering domain knowledge from the point of view of the user

  - Broad open-ended questions

- Middle interviews

  - Based on patterns you saw in early intervie[w] questions

- Later interviews

  - Ask questions about user behaviours related to tasks
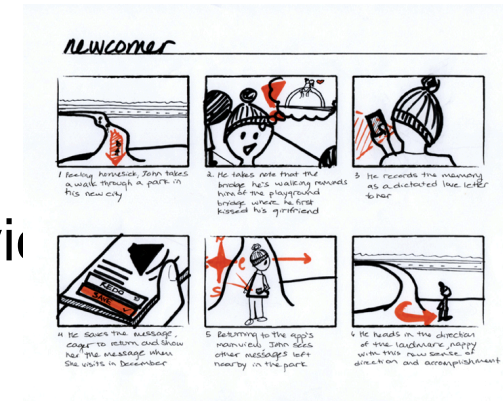
Present storyboard in middle and late phases

- We use Qualitative Study techniques to find out

  - the domain where the product will operate

  - vocabulary of the subject matter

  - existing products and opportunities for improvement

  - goals, attitudes, motivations, mental models, behaviors, tasks, and aptitudes of potential product users
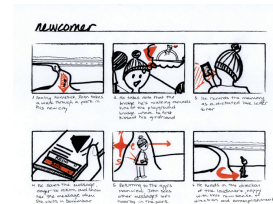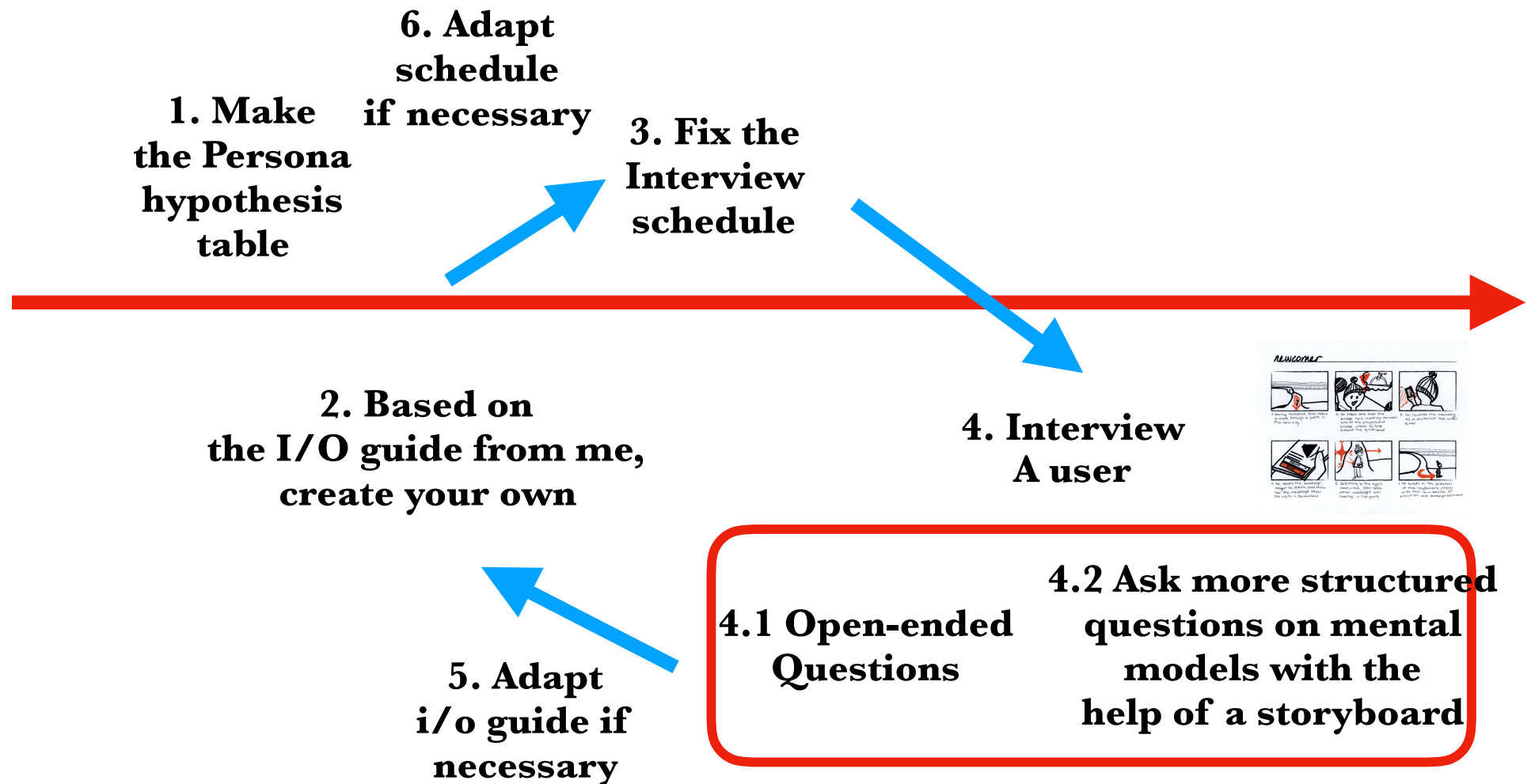
- We use Qualitative Study techniques to find out
    - the domain where the product will operate
    - vocabulary of the subject matter
    - existing products and opportunities for improvement
    - ~~goals, attitudes, motivations, mental models, behaviors, tasks, and aptitudes of potential product users~~ (too complicated)
    - **Goals** (based on needs) and **mental models** (based on behaviours)

1. Make the Persona hypothesis table

6. Adapt schedule if necessary

3. Fix the Interview schedule

2. Based on the I/O guide from me, create your own

4. Interview A user

5. Adapt i/o guide if necessary

4.1 Open-ended Questions

4.2 Ask more structured questions on mental models with the help of a storyboard

- Semi-structured interviews are like talking to people ✔

- Skills in talking to people help with semi-structured interviews ✅

- Interviewing users is a hit-or-miss like art ❌

- Preparing a well-structured IO guide is the science part ✅

- Respecting users and being prepared to learn from them increases our rapport with them ✅