MLMI 10
Designing Intelligent Interactive Systems

User-Centred Design Techniques

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Contents

Recruiting

Recruiting

- The importance of recruiting the right participants
  - Understand your target audience
  - Under the experience of people who are actually going to want to use, understand, and buy your product
  - Anyone else will be of marginal use and can even result in deceptive results
- Finding, inviting and scheduling the right people for your research is called **recruiting**
- The three steps of recruiting:
  1. Determining the target audience
  2. Finding representative members of that audience
  3. Convincing them to participate in your research

Pick your audience

- The longer a company has been around, the more likely the company knows its audience (customers and/or procurers)
  - Detailed information about customers (and end-users) might be available and could be used for recruiting
- Early-stage research to discover business opportunities require first identifying who the users could be
  - You should find out how your company defines its audience and recruit those people in an initial round of research to confirm your assumptions
  - If those people are not interested in your product or service you might need to recruit different people for another round

Purchasers vs. end-users

- It is important to question assumptions about audiences
- Companies used to traditional marketing research often want purchasers or final decision markers (such as general managers) as participants
- The reality is often that purchases and final decision makers do not use the products or services they are responsible to purchase
- If you recruit them (based on for example client requests) there is a risk that you are designing for an audience that do not use your product or service
- This is a very common phenomenon in industry and often a source of pain for end-users stuck with the product or service
- In such a situation you might argue for **two** studies, usability research with end-users and surveys and/or interviews with decision makers about purchasing behaviours

Defining “right people” for an audience

- The **behavioural** criterion:
  - You want people who actually do (or want to do) the things your product or service supports
- The **technological** criterion:
  - For some products or services it is important to know how intensively they use (or don’t use) certain computing and communication technology
- The **demographical** criterion:
  - Age, gender, geographical location, household income, etc.
  - For new products or services this criterion might unnecessarily restrict your recruitment pool
  - For established products and services it can be important that participants model your existing demographical profile of your existing customer (end-user) base

Profiles of products' and services' target audience, initial version

- Example: Website helping people to plan a night out; primary audience might be single professionals
- (From Goodman et al. [2012])

Initial Date Planning Profile

<u>*Demographics*</u>

- Ages: 25-55
- Gender: male or female
- Single
- College educated
- Income: £30K+

<u>*Behaviours*</u>

- Go out on a date at least once a month

<u>*Technology Use and Experience*</u>

- Use the web at least one hour per day
- Access the web from a mobile device at least four times per week
- Have gone online to get information about local restaurants, entertainment, or events in the past year

Revise the profile

- Ask yourself what makes the ideal participants different from the target audience as a whole
  - What kind of people will give the best feedback for the specific research you are doing?
- Ask yourself:
  - Which *segments* of your audience do you need to focus on? (For example: The people planning dates or the ones getting invited out?)
  - How much experience should they have with *your product?* (Do you want fresh users?)
  - How much experience should they have with *competing products?*
  - Are you targeting a single group of users or multiple groups? (For example: city-dwellers and suburbanities might be two groups)
  - What are undesirable *characteristics* that should be avoided? (For example: people who consider themselves experts on their cities might not provide useful feedback)
- Explore answers to these questions and revise the profile
- Remove factors that are not going to affect how people use or view the product and add information
- Focus on isolating the factors that will make them an ideal audience

Profiles of products' and services' target audience, revised version

- Example: Website helping people to plan a night out; primary audience might be single professionals
- (From Goodman et al. [2012])

Revised Date Planning Profile

Demographics

- Ages: 25-55
- Gender: male or female
- Single
- College educated
- Income: £30K+

Behaviours

- Invite someone out on a data at least once a month
- Choose places and activities for dates
- Consult friends and local media sources for ideas when planning dates

Technology Use and Experience

- Use the web at least one hour per day
- Access the web from a mobile device at least four times per week
- Have gone online to get information about local restaurants, entertainment, or events in the past year

The “average user” and multiple profiles

- The “average user” is not always an appropriate model
  - If you are looking for new ideas to improve or differentiate a product or service, people who use it intensively, have an unusual way of doing it or have special needs might provide more useful input
  - Sometimes it is even useful to interview people who have not used the product or service
- It is possible to split a profile into multiple profiles
- A profile should not be over-determined
- If you think criteria in your profile makes it unlikely for you to recruit participants or some restrictions are mutually exclusive then split the profile into multiple profiles

Find your audience

- Once the profile is complete, you need to find participants
- There are two primary pools
  1. People already in contact with the company making the product or service
  2. Everyone else
- It is easier to recruit people from pool 1 above
- However, sometimes that pool is small or consists of people who do not fit your profile well

Recruiting on your own from existing contacts

- Existing contacts:
  - Current customers
  - People who have created an account on your website
  - People who have signed up for your newsletter
  - People who have given you business cards at trade shows or events
  - Your company’s friends/fans/followers on Facebook, Twitter, LinkedIn and other social media networking services
  - Your employees’ own families and friends
  - Brand-new employees
- Channels used for interacting with customers can also be used to recruit participants
  - Company website
  - Email newsletter
  - Facebook page
  - Tweet
- Specific sets of current users can be contacted directly based on your profile and data you have about existing contacts

Recruiting on your own from a wider population

- Community email lists and online forums
  - Some communities have their own email lists and online forums
  - Never send unsolicited emails
  - Personalise the invitation and make it clear why you're sending the message and what the benefits of participation are
- Neighbours
  - Corporate neighbours could be a great resource
  - Might be familiar with your company and it is easy for them to access your office at for example a lunch break
- "Friends and family"
  - You do not want to recruit close friends or family members because of unavoidable biases
  - However, people you do not know as well can be perfectly legitimate
  - This can be a particularly useful resource for recruiting niche groups (relying on *their* friends)
- Ads
  - Online ads are easy, inexpensive and reaches many people very quickly
  - Ad recruitment can be more successful when recruiting based on a hobby or deep personal interest
  - Ads need to include the location of the study and incentives
- Traditional methods
  - When you need people to come in to your office, traditional classified ads online or in local newspapers can work
  - Leaflet distribution services can also work

Other recruiting methods

- Using a commercial recruiting service
  - Commercial recruiters have databases with thousands of people
  - They identify participants via a database search based on your criteria
- Keeping track of people available for recruiting
  - Keep a database of people who are willing to have you contact them directly for user research
  - Record how you got in touch with each person
  - Also keep a list of people who do *not* want to be contacted
  - A rule of thumb is that you require at least ten times more people in your database than you actually need for a research programme
- Additional recruiting tips
  - Include information about the research programme on a website and link to it in emails ,etc. The website can be updated with an FAQ and it should make it clear it is not a job advert.
- Clearly state the location of the research
- Keep track of when and how people found out about your research programme
- Diversify recruitment
  - Do not rely on all participants getting recruited via an identical process
- Try to keep the number of repeat recruits down, if possible
- Keep track of participants who provide exceptional feedback so that if you require a small number of reliable people these can be contacted directly
- Run a recruiting test

Screener

- The **screener** is a script used to filter the general population based on the criteria specific to your research programme
- The screener is a very important part of the recruitment process
  - It selects good responses from the ones that merely match your basic criteria
- The screener can be applied in a number of ways
  - It can be an online form as part of an online survey
  - It can be a script that is read by the recruiter over the phone
  - Etc.
- A correct screener means recruiting people who are likely to be interested in the product or service and can speak about their experiences intelligently and eloquently
- An incorrect screener means recruiting people who are, at best, only marginally interested in what you have to offer and, at worst, uninterested and inarticulate

Common screener rules

- Stick to 20 questions
  - Most target audiences can be defined in 10-15 questions
  - Prescreening might mean five questions are enough
- Make it short
  - The screener should take more than 10 minutes over the phone
- Be clear and specific
  - The respondent should know exactly what kind of answers are expected
- Never use jargon
  - Use simple, straightforward and unambiguous language
- Ask for exact dates, quantities and times
  - Eliminates one respondent using the word “occasionally” as another respondent would use the expression “all the time”
- Every question should have a purpose
  - Each question should help determine whether this person is in the audience or not
  - Do not ask “nice to know” questions
- Start with the questions that will screen people out
  - The more people a question is likely to eliminate from the pool, the earlier the question should be asked
- Questions should not lead
  - There should be no value judgments or answers implicit in the question
- Clearly state the format of the research
  - State what the research is for, when it’s going to happen, how long it’s going to take, how much the incentive is, and whether the participants should do anything ahead of time (and whether they should do nothing ahead of time)
- Build in flexibility
  - Let the recruiter know the acceptable parameters for answering each question to avoid dismissing people who could provide valuable feedback
- Priortise helpful participants
  - Avoid people who hates talking or cannot follow directions
  - Include open-ended questions to help the recruiter guess whether a person will be responsive and articulate

Sample screeners

- There is a sample phone screener and a sample online screener in your textbook (Goodman et al.; pp. 108-114)

Scheduling

1. Write the invitation
2. Invite primary candidates
3. Receive responses and schedule primary candidates
4. Invite secondary candidates
5. Receive responses and schedule secondary candidates
6. Confirm primary candidates
7. Confirm secondary candidates
8. Send thank-you notes to unscheduled candidates
9. Make email or telephone confirmation calls to all participants the day before their scheduled time
10. Create and distribute a schedule to all participants
11. Direct participants and/or researchers to the location where the study will be held

Invitations, confirmations and reconfirmations

- Invitation
  - Reiterate what the research is about
  - Why participation is important
  - How much the participant will be paid
  - Where the research will take place
  - When participants should show up
- Confirmation
  - Short, clear message (date, time)
  - Ensure participants confirm
- Reconfirmation
  - Address
  - Specific details (session length, compensation)
  - Contact information for cancelling

Recruiting pitfalls

- The wrong people
  - Miswording of a key screener question
  - Forgetting a key element when determining the target audience
  - Recruiter only picking the minimal criteria when you only wanted a couple of people with that description
  - Avoid by preparing, having a good screener and carefully choosing the target audience
  - If this happens either cancel the session and re-recruit or carry on and try to get as much information out of the group, hoping that some feedback will be usable
- No-shows
- Bias
  - Bias is often unavoidable but needs to be acknowledged
- Anonymity
  - Preconceptions about your company can bias attitudes
  - Famous names can be intimidating
  - An unknown company, product or service can seem more trivial than it really is
  - It might help to maintain an "alternative identity" (note: no deception)
- Building and space preparation
  - The venue is unprepared to greet participants
  - If participants are scheduled to arrive in an office, all staff should be expecting them

Interviewing

Interviewing

- Most user experience research is using **interviewing** as a primary research technique
- Observations are critical but to really understand user experience it is often vital to ask the user about it in an interview
- User research interviewing is not the same as interviews carried out by investigative journalists or prospective employers
- The interviewing process is more formal and standardised and it is a nondirected interview that tries to minimise the perspective of the person asking the questions

Interview structure: six phases

1. Introduction
   - All participants introduce themselves
   - In groups, a group introduction emphasises the similarities between all participants (including the interviewer)
   - In individual interviews, the introduction establishes the role of the interviewer as a neutral, but sympathetic, entity
2. Warm-up
   - The warm-up gets people to step away from their regular lives and focus on thinking about the product or service
3. General issues
   - The initial product- or service-specific round of questions centre around experiences with the product or service, attitudes, expectations and assumptions about it
   - Asking these questions early prevents assumptions of the product development team to skew people’s perceptions
4. Deep focus
   - The product, service, or idea is introduced and people concentrate on the details of what it does, how it works, whether they can use it, and what their immediate experience of it is (for field studies, the interview may never reach this phase)
5. Retrospective
   - Enables participants to evaluate the product or service in a broader light, compare to the *general issues* phase earlier, but the discussion is focused on how ideas introduced in the *deep focus* phase affect the issues discussed earlier
6. Wrap-up
   - Completes the interview so that participants are not left hanging after the last question

Nondirected interviewing

- Example from Goodman et al. (2012):
  - “Does your employer or his representative resort to trickery in order to defraud you of a part of your earnings?”
- Question used in a survey by a famous scientist (who?)

Nondirected interviewing

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  - “Does your employer or his representative resort to trickery in order to defraud you of a part of your earnings?”

- Question used in a survey by a famous scientist (who?)

Karl Marx!

Leading questions

- The quote is an example of a **leading question**
  - What makes this a leading question?
  - What in it implies a “right” answer?
  - What is the actual information the author is trying to elicit?
  - What would have to be different for the question to not be a leading question?

> – “Does your employer or his representative resort to trickery in order to defraud you of a part of your earnings?”

Leading questions, continued

- Leading questions is a common source of error in all social research
- Leading questions inject the prejudices of the person asking a question into a situation that should be completely about the person answering it
- Avoiding directed questioning is hard and requires constant awareness of the person asking the questions and expertise with nondirected interviewing
- **Nondirected interviewing** is the process of conducting interviews that do not lead or bias the answers
- Nondirected interviewing minimises the effects of the interviewer’s preconceptions in order to explore the user’s thoughts, feelings and experiences

The neutral interviewer

- The task is to:
  - step outside of everything you know and feel about your product or service
  - forget all the hard work and creativity
  - put away all hopes for success and all fears of failure
  - see it in a neutral light, as if it is not yours at all
- This is necessary to:
  - understand the feedback people give you, both positive and negative
  - be able to relate feedback to the process of making the product into what *they* want or need, not what you think they want or need

The neutral interviewer, continued

- Asking questions so as to not bias the respondent’s answer involves a lot of self-imposed distance and a rigorously critical examination of your assumptions
- This can be especially difficult when you are intimately familiar with or emotionally invested in the product or service under examination
- Experience will clarify which questions lead people and how to phrase questions neutrally

Presenting a neutral face

- Asking nondirected questions is the art of “talking without really saying anything”
- Interviewers need to encourage people to talk without telling them what to say
- Often, that means keeping quiet and letting the participant think
- When tempted to interrupt, try to squeeze your hand or take a sip from a glass of water instead
- Experienced interviewers have a repertoire of generic conversational cues
  - Non-verbal: “uh-huh”, “mm-hm”
  - Sympathetic but bland: “that’s interesting”, “oh, really”
  - Asking for more detail without specifying a correct answer: “Can you tell me more about ______?”
- In face-to-face interviews, leaning forward and nodding occasionally can help communicate engagement
- Whether verbally or nonverbally it is very important to make sure people know you are paying attention to them

Composing nondirected questions

- **Every question should be focused on the person answering it**
  - It should focus on experience, not extrapolation
  - Our understanding of our own behaviour rarely corresponds to how we really behave
  - When we try to put ourselves into other's shoes we idealise and simplify
  - This is rarely useful in understanding users' behaviour
- "Is this a useful feature?"
  - Can be easily misinterpreted as "In the universe of all things, do you think that someone somewhere could find some use for this feature?"
- "Is this feature valuable to the work you do right now?" clarifies the perspective

Composing nondirected questions

- **Questions should concentrate on immediate experience**
- People’s current behaviour predicts their future behaviour better than their predictions
- “Is this interesting to you?”
  - Might get someone to imagine that at some point they could find it interesting and say yes
  - However, interesting in theory is not the same as things that people will remember and return to
  - If they find something compelling right now, they’re likely to continue to find it comeplling
- “If it were available today, would you use it? Why?” is more useful

Composing nondirected questions

- **Questions should avoid judgmental langauge**
- The person answering the question should not think that you’re expecting a specific answer or that any answer is wrong
- You should state this explicitly, but it is more effective if the question reinforces that view
- “Don’t you think that this would be better if it was also available on smart phones?”
  - Implies that the person asking the question thinks this and will disapprove if they hear otherwise
- “Is there any other way you might use a feature like this?” is better, and then follow-up and ask about smart phones after they have stated their initial thoughts

Composing nondirected questions

- **Focus questions on a single topic**
- An “and” or an “or” linking two ideas is ambiguous
- Divide questions such as “How would this product be useful to you in school or at work?” into two questions

Composing nondirected questions

- **Keep questions open-ended**
- If forced to choose, people will pick something, even if none of the options match what they believe
- “Which feature from the following list is important to you?”
  - Assumes that there *are* features that are important and it assumes that there is one that’s more important than any other
- “Rate from 1 to 5 how important each of the following features is to you, where 1 is least important and 5 is most important. Put 0 if a feature is completely unimportant. Write down any features we may have missed”
  - Is better
- Alternatively: “Does the product do anything that’s particularly useful to you? If so, what is it? What makes it useful?”

Composing nondirected questions

- **Avoid binary questions**
- Binary questions are of the form “yes/no”, “true/false” or “this/that”
- They force people to make a black-and-white choice when their attitude may not lie near either extreme
- “Is this a good product?” is a bad binary question as it misses a lot of subtlety
- “What, if anything, do you like about this product”
  - Captures more nuances

Running a nondirected interview

- Define terms
- Don’t force opinions
- Restate answers
- Follow up with examples, but always wait for an undirected answer first
- Use artifacts to keep people focused on the present and to trigger ideas
- Be aware of their own expectations
- Never say the participant is wrong
- Listen carefully to the questions people ask you
- Keep questions simple, both in language and in intent
- Review your recordings when possible
- Often two people conduct interviews, one asking questions and one taking notes

Common interviewing problems

- Loaded words or words with multiple meanings
- Asking people to predict the future
- Invoking authority or peer pressure
- Assuming that they can answer the question
- People won’t always say what they believe
- People will sometimes answer a different question than the one you asked

Focus groups

Focus groups

- Structured, moderated group discussions
- Elicits the target audience’s:
  - Conscious preferences
  - Recalled experiences
  - Stated priorities
- Information that can be gained:
  - What features people value the most and why they valu them
  - What people like best about competitor’s products or services
  - Where competitor’s products and services fail
  - Previously unknown competitors or applications for a product or service
- Focus groups require:
  - Good moderator
  - Careful analysis
  - Appropriate contextualisation
- Focus groups are used:
  - Early in the development cycle
  - To generate generate ideas, prioritise features and understanding the needs of the target audience

http://commons.wikimedia.org/wiki/File:Meeting.jpg

Four types of focus groups

- Exploratory
  - Held early in the development cycle
  - Identifying general attitudes on a given topic
  - Helping to understand how eventual users will understand a product or service, which words they will use to describe it and what criteria they will use to judge it
- Feature prioritisation
  - Held right after the beginning of the development cycle, when it is clear what the general outline of the product or service is going to be
  - Determining the features that are most attractive to the focus group and why
  - Assumes participants are already interested in a product or service and discussions centre around what participants think the product or service should do for them
- Competitive analysis
  - Held to understand what people value in the feature set that a product or service provides
  - Goals might include understanding people’s associations with a competitor, what aspects of a the competitor's user experience they find valuable and where it doesn’t satisfy their needs or desires
- Trend explanation
  - Held as part of redesign cycle or in response to specific concerns
  - Identifying the primary cause of an identified trend

Conducting focus groups

Conducting focus groups

- Choosing topics
- Choosing the target audience
- Scope of the research
- Schedule

Choosing topics

- Typically 3-5 topics are investigated
- A group should be able to discuss a topic in about ten minutes
- Topics should be broader than the actual questions participants are asked and they should not be goals

Choosing a target audience

- Careful selection of participants is **crucial**
- Participants need to know that other people in the group will not judge them, or they will not want to talk about their experiences and their values
  - Therefore, focus groups often rely on homogeneous audiences
- From the ideal target audience, choose a subset or several subsets that are likely to provide you with the most feedback on your topics
- Often it is useful to choose several groups (with different experience)
- Define **similarity** of subgroup members
  - If certain groups of people are not likely to feel comfortable discussing topics with each other then do not join them into a single group
- Start dividing groups by considering demographics and technology use and then do further subdivision by factors such as race, sex, class, age, job and technical know-how (more factors exist)
- Do final subdivision according to behaviour: who does what, what else do they do?
- The goal is not group together people who think identically but people who will likely feel comfortable sharing different opinions and experiences

Recruiting

- Recruiting for focus groups is slightly different than the standard recruiting process we talked about before:
  - The exact profile of the participants is more important
  - Never recruit people who already know each other
  - Avoid people who frequently participate in focus groups
  - Ensure none of the participants have significant more knowledge about any of the topics than the others
  - Ensure you do not recruit anyone employed by the specific companies that will be discussed

Defining scope

- The number of groups
- The number of participants in each group
- Never hold one focus group as there are factors that might seem important to the group that might simply have arisen due to group dynamics
- More than four groups is rarely necessary
- The fourth group should confirm the trend in the previous three—if there is still a lot of new information in the fourth group then further groups might be necessary or the audience for the groups is too broad
- A good size for a focus group is 6-8 participants, sometimes only four if you want to get a lot of depth from each participant

Writing a guide

- The **discussion guide** is a script for the moderator to follow
- It forms a consistent framework and schedule for the focus group series
  - Groups here the same questions in roughly the same order with similar context
  - All topics are given enough time

Focus group questions

- Carefully ordered
  - The frame of mind of participants depend on previous questions
  - This can be exploited by carefully ordering the questions so that each question puts participants in a certain frame of mind, which may help the flow of the group discussions feel more natural
  - Typically, questions are ordered from most general to most specific
  - Questions that are likely to generate consensus should generally be ordered earlier than questions likely to cause friction
- Nondirected
  - Questions should not imply an answer or value judgement
- Open-ended
  - Do not constrain answers to fixed-responses
  - Encourage people to open up and share experiences
  - Longer responses are less ambiguous and share a greater part of the story
- Focused on specifics
  - Encourage people to be specific in their answers
- Personal
  - People often attempt to generalise their experiences to the general public
  - Avoid this, seek individual views, values and experiences
- Unambiguous

Example guide

(pp. 156-161 in Goodman et al. (2012))

Checklist

- Consent forms and incentive receipts
- Paper for table tents
- Food and drinks
- Supplies for object-based techniques (big sheets of paper, markers, post-its, etc.)
- Note-taking supplies
- Audio and video recording tools
- Projector
- Whiteboard and/or poster-size paper pads

Physical layout

- Use a comfortable room with good ventilation, temperature control, and few distractions
  - It should be large enough but not so big that people feel lost in it
  - Windows to an outside office area should be covered
  - Conference rooms, living room setups, etc. (depends on context)
- Ensure participants can see each other and that no seat is obviously better than any other
- Ensure the group cannot be distracted by people entering the room
- Eating together can help release tension

Creating a seating order

- Mark each participant's position using for example a folded piece of paper with the participant's name printed on both sides
- Identify the quiet and outspoken people by visiting participants in the waiting area and by making small talk with the group
- Long-winded people should sit close to the moderator to allow the moderator to break eye-contact without disturbing the group dynamic
- Quiet people should sit across the moderator so the moderator can make eye-contact easily and elicit comments

Moderator

- Always in control
- Always moving forward
- Nonjudgmental
- Respectful
- Prepared
- Good sense of timing
- Good short-term memory
- Ability to diffuse uncomfortable situations

Moderating the discussion

- Actively manage group dynamics
- Probe for different perspectives
- Go with the flow… up to a point
- Help people express themselves
- Asking questions
- Speak the language of your participants
- Ask key questions verbatim
- Writing before talking
- Prioritise lists

Handling focus group problems

- Misleading results
  - Groupthink: the illusion of consensus where none actually exists
  - Failing to question apparent consensus can lead to misleading results
  - Careful recruitment can minimise groupthink
  - Misleading results can also occur via the discussion guide has fundamental misunderstandings about people's experience
- Rough emotions
  - Focus on ideas rather than feelings
- Dismissing participants
  - Participating fitting the audience so poorly as to disrupting the conversation
  - Participant who is hostile or bullying

When focus groups are suitable

- Focus groups are used to find:
  - Desires
  - Motivations
  - Values
  - Memories
- Focus groups operate in an environment where participants feel comfortable in revealing their thoughts and feelings
- Allows designers to understand the beliefs of users that lead to certain preferences and choices
- Can generate concrete, detailed discussions about products and services people want in their lives
- Can allow quick examination of users' preferences or attitudes across a range of products or services
- Can help identify and prioritise features later in the development cycle—knowing why people value certain features and how they respond to what you present can help determine which features get developed first

When focus groups are unsuitable

- People are poor at predicting whether they will use actually want to use a product, service, or feature in practice
  - Therefore, focus groups do not provide an understanding of what people *actually* do
- Focus groups do not generalise to the wider population
  - They do not have sufficient statistical power and cannot replace for example surveys when it comes to making conclusions about the general population (more on this when we talk about statistical analysis later in this module)
- Literal statements made in focus groups can mislead researchers
  - People do not always understand the implications of what they request
  - People do not always understand the trade-offs that are necessary to accomplish what they ask for
  - People are not always able to predict what they will enjoy or find useful in practice

Object-based techniques

Object-based techniques

- Some information that people know and feel about the world is difficult for people to express in words
- **Object-based techniques** supplement information that can be gained by interviewing and observing people by adding objects that participants can use as props to think with and through
- Object-based techniques are not used to answer direct research questions, rather the techniques are used to generate questions in directions the researcher has not anticipated

Photo elicitation

- The use of images to stimulate vivid, concrete, meaningful words
- Participants respond to images shown to them
- Images require active interpretation by the viewer
- Viewers discussing images provide an understanding of what they see in them and those interpretations can be applied to the research project
- Images are either **user-generated** or **researcher-assembled**
- Analogous to focus group questions, the order images are presented to participants matter

Collage

- Individuals and groups make a new composition out of existing elements
- The goal is to aid participants to express themselves
- Typical criteria for selecting elements:
  - Use preliminary research to guide the elements provided to participants
  - Vary image subjects and the human environment portrayed
  - Balance positive and negative images
  - Avoid a consistent style or mood
  - Include only a few images that depict the research topic
  - Generic components such as icons and shapes
- Typical elements are 100 photographs and 100 words
- Avoid quantitatively analysing the collage directly, instead go back to an audio and/or video recording and analyse the discussions around each element in the collage

Mapping

- A map is a visual representation of relationships between people, objects and spaces
- Help participants add concrete details to otherwise abstract answers
  - Help prompt richer, more interesting stories
- It is often easier to visually analysing and comparing different maps of the same place (for example, home vs. work place)
- Maps reflect people's beliefs about the spaces and objects around them
  - How spaces and objects are defined, categorised and how participants feel about them
- Spatial mapping
  - For example: "What's your route to work?", "Where's the nearest place to get some coffee?", "How would you tell a guest cooking in your kitchen where to find a frying pan, eggs, salt, butter and a plate?"
- Social mapping
  - Relationships, for example participants are in contact with once a week or more in their work place (to map out work place communication)

Field visits

Field visits

- Field visits provide information about the environment people live in that you could not otherwise get
- Meet people where they are most comfortable (habitual places and activities)
- Understand both **how** and **why** people do what they do
- Field visits clarify and focus initial project ideas by providing concrete insights into the situation, what the situation entails, and how people cope with it
- Field visits are often carried out at the very beginning of a development cycle

Outcomes of field visits

- Specifying concrete details about actual use
  - Requirements gathering
  - Help write concrete requirements
- Surfacing hidden understandings
  - Detecting people’s experiences that people cannot recall, or explain abstractly when asked
  - Elicits discussion and descriptions of how tools and technologies play a role in social relationships and internal states
- Challenging assumptions
  - Challenging assumptions about the intelligence, competence and dignity of end-users

Selecting participants

- Two strategies:
- Typical user strategy
  - After specifying the target audience, identify the most important activities and groups of customers
  - “Depth-focused” investigation
- Extreme/lead user strategy
  - After specifying the target audience, ensure as much diversity in key factors as possible
  - An attempt to understand the envelope

Learning the domain

- Familiarise yourself with the domain
- Ensure you understand the tasks

https://commons.wikimedia.org/wiki/File:Air_traffic_control.jpg

Making expectations explicit

- Write down how and when you expect people to do things are important to your product and what attitudes you expect they will have toward certain elements
- Keep these scenarios in mind when you are in the field
- Use situations that do not match your expectations to trigger more investigation

Risks of relying on video

- Can misleadingly give the impression that it is an objective and complete recording of what happens
  - Video captures one perspective—the perspective of the person recording
  - One possible workaround is to let a participant handle a second camera so the participant can document his/her own perspective
- Camera management can lead to missing out on crucial observations
  - Don't focus on video to the point that you can't ask questions and make decisions on the fly
  - Possible workaround is to delegate camera management to a colleague
- Video is sometimes not appropriate
  - Privacy
  - Informed consent might be impossible to obtain
- Video takes a long time to analyse

Establishing a relationship

- Two patterns to establish rapport with participants:
  - Master/apprentice model: the interviewer is the apprentice
  - Partnership: the interviewer partners with the participant in discovering the details of work
- Relationships to avoid:
  - Interviewer/interviewee: the participant’s work and thoughts should drive the interview, not the interviewee
  - Expert/novice: your task is not to solve problems then and there
  - Other relationships to avoid: being the complaint department (being someone participants can vent to), the guest (getting taken care of by participants) or big brother (critisising participants)

Structuring time

- Introduction
  - Explain the research
  - Show your notebook and explain the kind of things you will be writing down
- Main observation period
  - Observing what people are doing, what tools they are using and how they are using them
  - Ask participants to give running descriptions of what they are doing, as to an apprentice
  - Occasionally ask for explanations and clarifications or walkthroughs of actions but stay unobtrusive
- Wrap-up
  - Follow-up interview with in-depth questions

Knowing what to look for

- AEIOU framework
  - Activities: goal-directed sets of actions
  - Environments: the entire area where activities take place
  - Interactions: interactions between a person and someone else or something else; building blocks of activities
  - Objects: building blocks of the environment
  - Users: the people providing behaviours, preferences and needs
- Contextual inquiry
  - The tools used, the sequences in which actions occur, the methods of organisation and the kinds of interactions participants have
- Pay more attention to the environment (properties of the environment, the physical arrangements and dimensions of the environment, the tools that exist in the environment)
- Seek out workarounds (ad-hoc responses to problems)
- Collect artefacts (tools people use to solve their tasks)

Note taking

- Ensure there is a balance between note taking and paying attention to what is happening
- Note taking and audio and video recording are complementary activities
- Excessive note taking can be interpreted as rude and may lead to missed observations
- Need to differentiate actual observations from interpretations of observations, such as by highlighting interpretations with brackets or asterisks or other typographic marks

Concerns and responses about field studies

- Time consuming
  - Field visits can be brief
- Too high cost
  - Field visits can avoid spending money on into products and services that turn out to be undesirable or unusable
- Faster results obtainable via market research and focus groups
  - People are not good at reporting what they do or predicting what they will do
- Need for an expert
  - Field visits do require rigorous thought and skill
- Generalisability
  - How far does the research need to generalise? Is it product or service specific?
- Deliverables
  - Deliverables should be provided in a form that will be appreciated by designers markets and engineers

The fieldwork method

- Stay close to the work
- Do not dismiss anything as trivial or boring
- Be an observer and stay out of the way
- Be an apprentice and take a learning stance
- There is always something going on
- Reflect on what you have collected

Diary studies

Diaries

- Participants report their activities over time
- Diarists track mistakes they make, what they learn, how often they use a product, and anything else of interest to the project
- Diarists can also provide general insights into the working life of participants
- Diaries provide an unobtrusive method for gaining insight into people's lives without intrusive direct observation
- Diaries allow observation of infrequent or brief events
- Diaries reduce the time between an event and documentation (avoids asking participants to remember events of interest)

When to do a diary study

- Diary studies track usage of a product, document particular activities or follow a specific type of experience
- They typically either appear early in design to gather information for in-depth interviews or later in the process as a remote usability test

How to do a diary study

- Preparation
  - Pretested paper-based diaries in order to avoid vague instructions or having to modify an activity that is not delivering interesting results
  - Online diaries can be modified on-the-fly
- Recruitment
- Designing the study
  - Feedback activities: participants completing questionnaires
  - Elicitation activities: participants capturing media which later leads to interview questions
  - Duration: number of entries in total
  - Sampling rate: number of entries per day (or week)
  - Diary exercises: structured (for quantitative analysis) and unstructured (cultural probes, taking photos, drawing maps, etc.)
  - Diary exercises should be relevant, nondisruptive and nonbiased
- Follow-up activities
  - Follow-up focus groups or interviews can clarify participants' responses and enable the researcher to ask follow-up questions and check frameworks that are beginning to get developed

Cultural probes

Cultural probes

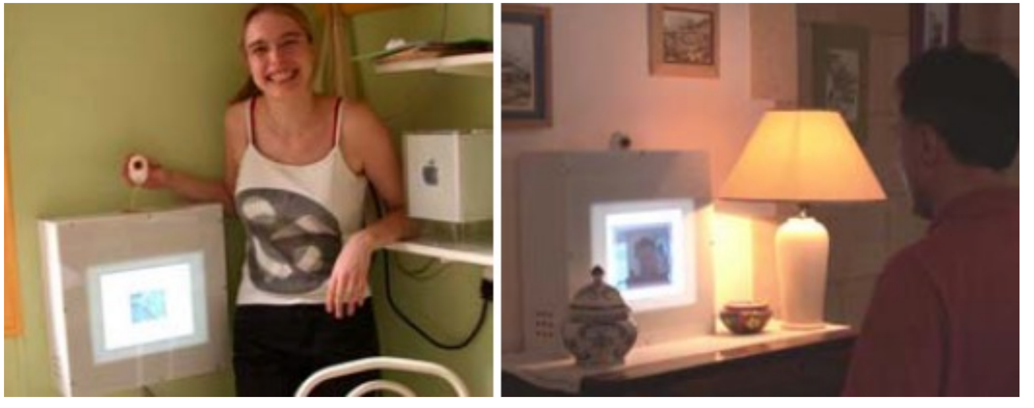
- Traditional diary studies are prescriptive and ask participants to record activities accurate, as they happen
- They do not encourage imaginative personal reflection
- Cultural probes elicit such responses via structured, playful exercises
- Stimulate creative discussions between designers and potential users
- Provokes imagination and generates empathy

Cultural probes

(External video)

Technology probes

- Simple, flexible, adaptable technologies with three interdisciplinary goals:
  - the social science goal of understanding the needs and desires of users in a real-world setting
  - the engineering goal of field-testing the technology
  - the design goal of inspiring users and researchers to think about new technologies



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Experience sampling method

Experience sampling method

- A self-report technique that enables researchers to study how people use technology in naturalistic settings
- Participants fill out several brief questionnaires every day by responding to electronic alerts
- Does not require participants to recall anything
- Researchers are decoupled which reduces bias
- Can use statistical methods to analyse data
- For a complete description of the method, see:
  - Consolvo, S. and Walker, M. 2003. Using the experience sampling method to evaluate ubicomp applications. *IEEE Pervasive Computing* **2**(2): 24-31.