

**COMP203P**  
**Software Engineering and Human Computer  
Interaction (HCI)**

**Lecture 2: Understanding Users - 2**

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**Recap**

- In the last lecture we looked at:
  - What user needs are
  - Why it is important to gather these
  - And gave an overview of the methods that can be used to do this
- In this lecture we will cover some of these methods in more detail, as you will use these for your coursework

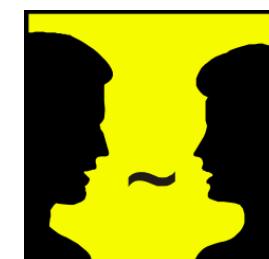
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**Aims of this lecture**

- To learn how to apply methods for gathering user needs

Now with no shouting out answers...

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**INTERVIEWS**

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## Why interview?

- **YOU ARE NOT THE USER**
- It's easy to get caught up in designing for yourself and lose sight of whether it is what your users need or works in a way they understand

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## Interviews

- **Unstructured** – exploratory and in-depth
- **Structured** – scripted with pre-written questions
- **Semi-structured** – guided by a script but can become more open as they progress
- **Group** (aka focus groups) – enable diverse views and more issues to be raised

Most common for HCI is semi-structured

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## Why interview?

- Interviews are a great way to **learn in depth** about your users, their goals and context of use and identify user needs
- You have a chance to ask them about **how they currently do things**, what tools they use, their motivations, frustrations, etc.
- You can then **analyse** these findings and then use the insights you find to inform the design of your product or service

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## Goal of interviews for requirements capture

- Think about what you need to learn from users to be able to identify user needs
- This might include things like:
  - What similar websites do they use/What issues do they have with those websites/etc?
  - What do they need from this new system/how would they use it/what would they want to do/how often might they use it/etc?
- Have a think yourself about what you want to find out, don't just use these lists above!

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## Question types

- Two types:
  - **Closed questions** have a predetermined answer format e.g. ‘yes’, ‘no’, ‘don’t know’
  - **Open questions** – no predetermined format e.g. ‘why do you shop in this supermarket?’
  - Open questions are generally better for gathering information on user needs

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## Avoid these question types

- **Long questions and compound sentences** that are difficult to parse e.g.
  - *‘Have you ever, having read about a product in a magazine, in situations like supermarkets, shopping centres or malls, purchased, or at least considered doing so, items for family members which were not birthday presents?’*

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## Avoid these question types

- **Leading questions** that confirm what you want to know e.g. ‘When you’re booking a holiday do you always go for the cheapest option?’



Loftus &amp; Palmer (1975)

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<https://www.youtube.com/watch?v=eJGOKpGWboM>

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## Planning interviews

- Choose participants
- Plan questions
- Agree location
- Think about how to record data (audio? video? notes only?)
  - Transcription
  - Cost to your attention (conducting in groups?)

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## Running the interview

- **Introduction** – introduce yourself, explain the goals of the interview, reassure about the ethical issues, ask to record, present any informed consent form.
- **Warm-up** – make first questions easy and non-threatening.
- **Main body** – present questions in a logical order
- **A cool-off period** – include a few easy questions to defuse tension at the end
- **Closure** – thank interviewee, signal the end, e.g., switch recorder off

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## Some key tips on interviewing

(from Portugal, "Interviewing Users", 2013)

- Don't make assumptions
  - Ask questions even when you think you know the answer, people may surprise you and you can learn more details about how things are done by asking and probing.
  - E.g. you might assume you know how someone would go about booking a flight, but it's worth asking them and having them show you. You WILL learn something

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## Some key tips on interviewing

(from Portugal, "Interviewing Users", 2013)

- Listen... REALLY LISTEN
  - In normal conversation we are often waiting for our turn to speak, and sharing conversation space equally. In an interview it's about you listening to them.
  - Don't interrupt, don't talk about yourself or your views.
  - Listen ACTIVELY – prompt them to tell you more about interesting things

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## Limitations of interviews

- Small sample size, so not a source of statistically significant data
- Not completely natural so won't capture actual behaviour (even if you interview in situ)
- Not good at predicting future behaviour... (e.g. how they would use a hypothetical system)

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“A lot of times, people don’t know what they want until you show it to them.”



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## Predicting future behaviour...

- Avoid asking users simply “what do you want from this new system”
  - Users are very bad at predicting the future, or identifying their unmet needs.
  - SO ask:
    - What they currently do
    - What are the limitations of current systems
  - Also **observe users using current systems** too and have them show you what they are talking about

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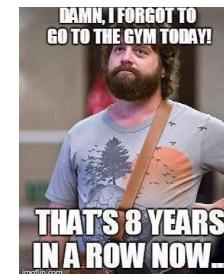
## An example

How might answers to these two questions differ?

How often will you go to the gym next week?

VERSUS

How often did you go to the gym last week?



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## Example: Understanding Social Media Use in Crises

### Background information

1. How long have you lived in this area?
2. How did the floods personally affect you?

### Social Media Use

3. What social media sites do you use most often?
4. How long have you used social media?
5. What do you typically use social media for?

### Social Media use during Floods

- When you needed information during the floods, where did you get that, or from whom?
- How did you use social media during the floods?

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## Contextual interviews



<http://research.microsoft.com/en-us/people/asellen/nordichfridgemagnets.pdf>

<http://www.system-concepts.com/articles/usability-articles/2014/contextual-interviews.html>

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## Focus Groups



NOTE: "Focus Group" is a term that is often used incorrectly. I've often been asked to do a "focus group" when the client actually means a usability test!

<http://www.usability.gov/how-to-and-tools/methods/focus-groups.html>

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## Questions about Interviews?

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## QUESTIONNAIRES

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### Why use questionnaires?

- To gather large sample sizes which is appropriate for statistical analysis
- To gather demographic information or the views of a large population
- To gather quantitative data like rating scales

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### Limitations of questionnaires?

- Not good for in depth data gathering
- Can be hard to get answers to open questions
  - Even when you do you don't have the chance to probe or follow up with other questions
  - Can be misunderstood
- Respondents may lack motivation to answer without a researcher present

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### Questionnaires can be used for requirements gathering or evaluation

#### 3. Which of the following activities do you do on your mobile or cell phone? (Check all that apply)

- Send or receive texts
- Send or receive photos
- Send or receive instant messages
- Send or receive videos
- Play videos (other than video games)
- General internet use (other than using social networking websites)
- Play games
- Make or receive phone calls
- Play podcasts
- Text

#### 1. How difficult did you find this level?

Very Easy      Easy      Average      Difficult      Very Difficult

Please provide reasons for your rating

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## Question Types

- Questions can be open or closed
- Closed questions are easier to analyze, and may be done by computer
- Most good questionnaires use a mix of these two
- For closed questions, good practice to add an “other” option, with space to explain

**OPEN**

2. What are your biggest concerns about buying products online?

**CLOSED**

4. What are your biggest concerns about buying products online?

Safety of my financial information  
 Product not arriving  
 Identity theft  
 Not being able to see/try the product first  
 Difficult returns process

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## Question and Response Format

- ‘Yes’ and ‘No’ checkboxes
- Checkboxes that offer many options
- Rating scales
  - Likert scales
  - Semantic scales
  - 3, 5, 7 or more points?
- Open-ended responses

**Semantic Differential Scale**

For each pair of adjectives place a cross at the point between them which reflects the extent to which you believe the adjectives describe policemen

clean :	:	:	:	:	:	:	dirty
honest :	:	:	:	:	:	:	dishonest
kind :	:	:	:	:	:	:	cruel
helpful :	:	:	:	:	:	:	unhelpful
fair :	:	:	:	:	:	:	biased

**Likert Scales**

Please circle the number that represents how you feel about the computer software you have been using

I am satisfied with it	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
It is simple to use	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

<http://www.hkadesigns.co.uk/>

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## Advantages of online questionnaires

- Responses are usually received quickly
- No copying and postage costs
- Data can be collected in database for analysis
- Time required for data analysis is reduced
- Errors can be corrected easily
- Try <http://www.surveymonkey.com/> to create your own

### A word of warning....

- Questionnaire design may seem easy
- But it's very easy to create a bad questionnaire that doesn't work (where you end up with data you can't use)

*How often do you always feel sad?*

Never      Sometimes      Often      Always

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### A word of warning...

- So... pilot it yourself, pilot it with some friends, check the data, and pilot it some more!
- Make sure the questions match up with your aims
- For guidelines on questionnaire design see  
Interaction Design Chapter 7

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Questions about Questionnaires?

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## OBSERVING USERS

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## Observing users

### In the “lab”

- More control
- Focus on **evaluation** of a particular system
- Users generally do predefined tasks



### In the “wild”

- Ecological validity
- Most common for **gathering requirements**
- See the use of technology in context to understand issues and opportunities

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**Observations in the wild can reveal where technologies are really being used**



<http://gigaom.com/2012/03/22/where-is-mobile-gaming-happening-at-home-in-bed/>

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## Observation in the lab

- Generally focused on **evaluation** of a particular system, or a prototype
- Involves one user (or multiple users) doing predefined tasks and being observed by a researcher
- They may also be asked to “think aloud”



Photo courtesy of Sony Computer Entertainment Europe User Research Team

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## Competitor Analysis

- What are competitor products doing and how are users responding to this?
- A review of existing competitor products to identify:
  - Strengths
  - Weaknesses
  - Opportunities
- Involves:
  - using and assessing the product yourself
  - doing online research to see what users think of it (using forums, and review sites)

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## Competitor Analysis

- This can help to identify:
  - **Functional needs**
    - What functions does your product need to have?
    - Are there functions missing from other products that you know users want (from your interviews)?
  - **Non functional needs**
    - What works well/badly in the user interface of competitor products.
    - What should you do or avoid?
    - (Check the list of non functional requirements from earlier in this lecture)

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## Competitor Analysis – an example template

- PRODUCT NAME

STRENGTHS	WEAKNESSES	OPPORTUNITIES

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## Reminder of user needs template

USER NEEDS FOR [PRODUCT NAME]	
Number [a unique number to identify the need]	
Description [a description of what the need is]	
Rationale [how was this need identified, and why is it important]	
Type (functional/non-functional)	

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## Summary

- In this lecture we've looked in detail at different ways to identify user needs
  - Interviews
  - Questionnaires
  - Observations
  - Competitor Analysis
- In the next lecture, we'll look at how to represent some of this data in personas and scenarios

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## Questions?

- Recommended Reading:
  - Interaction Design, Chapter 7
  - Portigal, Interviewing Users: How to Uncover compelling insights, Rosenfeld, 2013