

COMP203P
Software Engineering and Human Computer Interaction (HCI)

Lecture 1b: Understanding Users - 1

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Recap

- In the last lecture we looked at what HCI is
- We saw that understanding the following is crucial when designing interactive systems:
 - Who your users are (WHO)
 - What their goals are (WHAT)
 - The context in which they are acting (WHERE/WHEN/HOW)

Overview of this lecture

- In order to build usable systems that meet users' goals and work within their context of use we need to conduct research to understand user needs.
- In this lecture, we'll cover the key methods that can be used to gather user needs.

User-centred development
Sharp, Rogers & Preece (2011)

- **Identify needs/requirements**
- (Re)design
- Build an interactive version
- Evaluate
- Iterate, iterate, iterate

User-centred development process

- You will study design lifecycles and processes more in the software engineering part of this course
- In the HCI lectures, we cover the three key activities of user-centred development:
 - Understanding user needs
 - Design
 - Evaluation

Why understand user needs

We need to understand as much as possible about the **users**, their activities and the **context** of that activity, so that the system under development can support them in achieving their **goals**

An example...

Box 3.4

Wanted: an interface that the police can use

In 2004 the San Jose police department installed a new mobile dispatch system in every police car that used a windows-based touch-screen computer. But the system was found to be too complex and difficult to use (Hafner, 2004). Part of the problem was that routine tasks, e.g. calling for assistance, that should have been straightforward to do were transformed into overly complicated tasks, requiring long sequences. The system was designed to aid police in rapid decision-making

when driving their cars, but the interface was found to be too cluttered and behaved too much like a Windows computer. As one police officer said: “do you think if you’re hunkered down and someone’s shooting at you in your car, you’re going to be able to sit there and look for Control or Alt or Function? No you are going to look for the red button.” After consultation with police officers the interface was designed to be much simpler and with fewer steps required for critical actions. ■

Functional Needs

- Needs can be functional: things the system should do
- In the previous police example, a functional need might be:
 - The system must allow officers to send a call for backup

Non Functional needs

- Or they can be non-functional
 - e.g. how easy it needs to be to use, what environment it needs to be able to operate in, what constraints it needs to work within (e.g. hand size, disabilities, operators wearing equipment) etc.
- Non functional needs related to the police example might be:
 - The backup call function must usable without any training, easy to access while driving via a single button press, and must be able to be performed eyes free

This may sound familiar....

- User needs are a form of REQUIREMENT, which you'll cover in the Software Engineering part of this course
- For the purposes of avoiding confusion between the two, we will refer to these as USER NEEDS in these lectures and in your coursework

Methods for gathering user needs

- Interviews
- Observations
 - In the “wild”
 - In the lab
- Reviewing competitor products
- Questionnaires

Documenting User Needs – this template should be used in your coursework

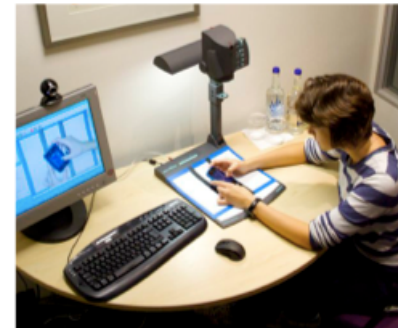
USER NEEDS FOR <i>[PRODUCT NAME]</i>	
Number <i>[a unique number to identify the need]</i>	
Description <i>[a description of what the need is]</i>	
Rationale <i>[how was this need identified, and why is it important]</i>	
Type (functional/non-functional)	

Interviews



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

Observations in the lab



www.serco.com



Photo courtesy of Sony Computer Entertainment Europe User Research Team

Ethnography - Observations "in the wild"



<http://www.ft.com/cms/s/0/cb32d166-8ca9-11e2-8ee0-00144feabdc0.html>



Photo courtesy of Sony Computer Entertainment Europe User Research Team

Ethnography – observations in the wild



Photo courtesy of Sony Computer Entertainment Europe User Research Team

Competitor Analysis



Questionnaires



When considering user needs, you need to think about:

- Who are your **users**?
- What are their **goals**?
- What is the **context of use**?
- And then, **what does this mean** for the design of my system?

Exercise...

- In pairs, discuss the following scenario....
 - You have been asked to redesign the UCL online timetable.
 - From your own experience as users of the current system, and imagining it from the perspective of new users, please come up with:
 - At least two functional user needs
 - At least two non functional user needs
- I'll ask you to report back in 10 mins....

Summary

- In this lecture, we've looked at what user needs are and I've briefly presented a number of methods of gathering user needs
- In the next lecture we will explore how to use some of these methods in more detail, and look at the first tasks for your coursework.

What is expected from you in the HCI part of the course

- To demonstrate your ability to follow a user centered design process.
- To show you can conduct the following stages:
 - Understanding user needs
 - Representing users in personas and scenarios
 - Designing a system that meets user needs and follows established design principles
 - Evaluation

Questions?

- Recommended Reading:
 - Interaction Design, Chapter 1 and Chapter 10