

Human-Computer Interactions

This slide set contains definitions and some guidelines. Please pay particular attention to the definitions of user interactions, usability versus user experience goals, and the iterative process of interaction design.

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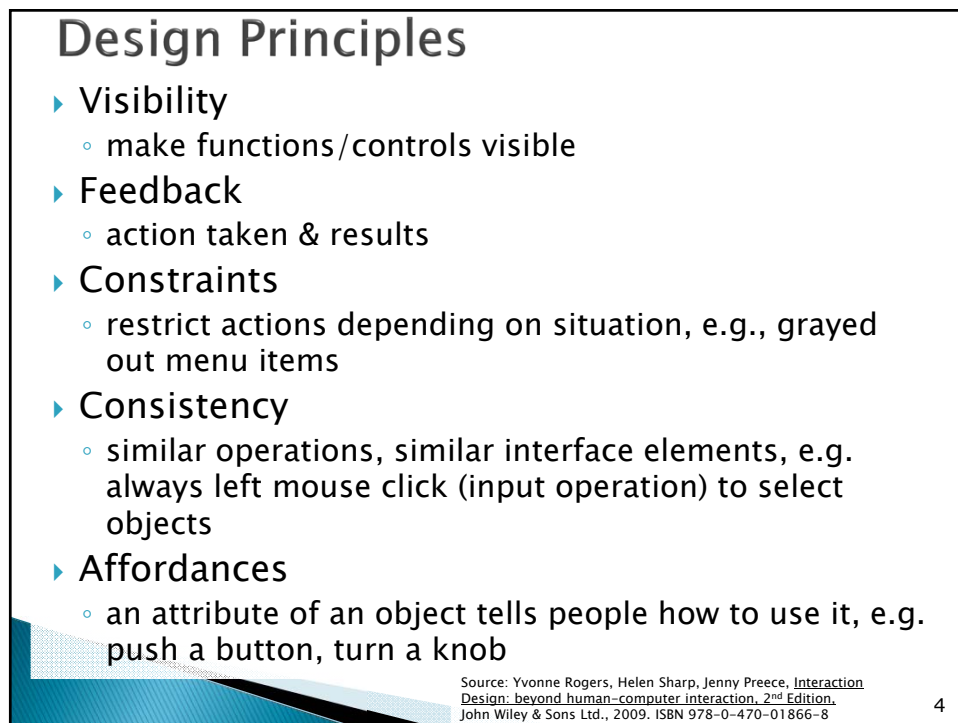
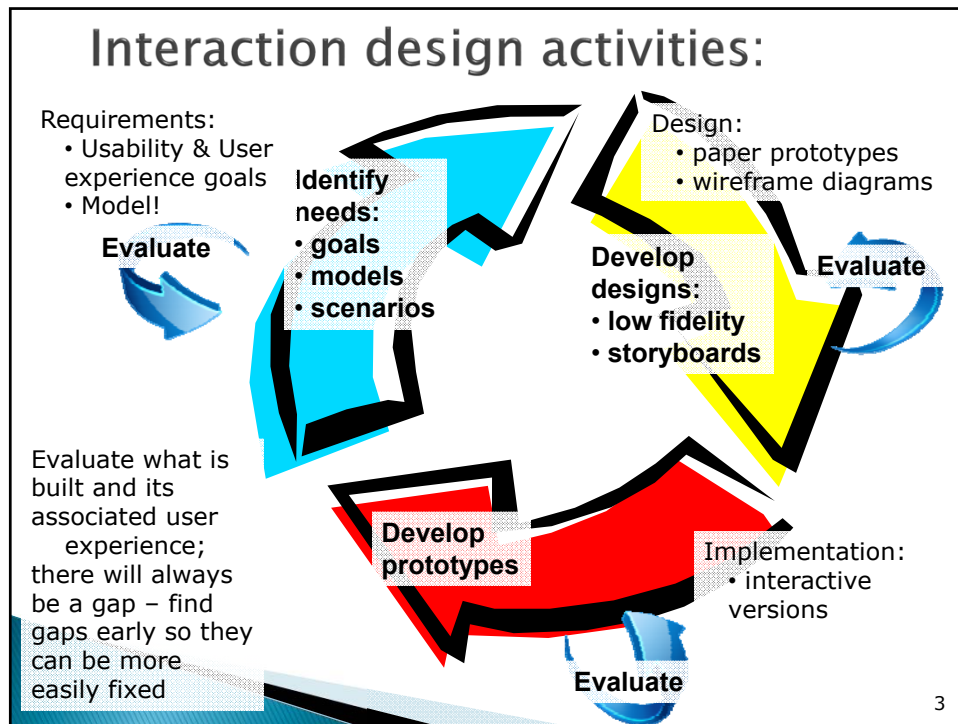
What is Interaction Design?

Designing interactive systems that help people interact and communicate with the system and with other people as they perform an activity or a job.

Key things to keep in mind:

- Who will be using the system?
- How is it going to be used?
- Where is it going to be used?
- What kind of activities are people doing when they interact with it?

2



Usability: How well interactions are optimized to help people do their work

- ▶ Framed as **measurable** questions.
- ▶ How useful/productive a system is from its own perspective.
- ▶ Goals:
 - Effectiveness – how well does the system do what it is supposed to do?
 - Efficiency – how are users supported in doing their tasks?
 - Safety – protect from dangerous/undesirable situations.
 - Utility – is the right functionality provided?
 - Learnability – how easy is the system to learn to use?
 - Memorability – how easy is it to remember how to do things once you've learned them?

Source: Yvonne Rogers, Helen Sharp, Jenny Preece, Interaction Design: beyond human-computer interaction, 2nd Edition, John Wiley & Sons Ltd., 2009. ISBN 978-0-470-01866-8

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User Experience: Subjective qualities

- ▶ Positive or negative qualities.
- ▶ From the user's point of view.
- ▶ Qualities:
 - satisfying
 - enjoyable
 - engaging
 - exciting
 - challenging
 - boring
 - cutesy
 - frustrating
 - pleasureable
 - entertaining
 - helpful
 - motivating
 - aesthetically pleasing
 - supporting creativity
 - cognitively stimulating
 - rewarding
 - fun
 - provocative
 - surprising
 - emotionally fulfilling
 - enhancing sociability
 - annoying

Source: Yvonne Rogers, Helen Sharp, Jenny Preece, Interaction Design: beyond human-computer interaction, 2nd Edition, John Wiley & Sons Ltd., 2009. ISBN 978-0-470-01866-8

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2 min break:

With the person sitting next to you, discuss:

How do usability and user experience goals differ, if they do?

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Data Gathering/Evaluation Techniques

| Technique | Purpose | Data | Advantages | Disadvantages |
|-----------------------------|-----------------------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Interviews | Exploring | Mostly qualitative, some quantitative | <ul style="list-style-type: none"> • Can guide interviewee • Encourages interaction between developers, users | <ul style="list-style-type: none"> • Can take a long time • Can intimidate interviewee |
| Focus groups | Collect multiple viewpoints | Some quantitative, mostly qualitative | <ul style="list-style-type: none"> • Finds consensus, conflict • Encourages interaction | <ul style="list-style-type: none"> • Dominant personalities can be a problem |
| Questionnaires | Specific question answers | Quantitative and qualitative | <ul style="list-style-type: none"> • Many people • Doesn't take many resources | <ul style="list-style-type: none"> • Design crucial • Response can be low |
| Direct observation in field | Understand context | Mostly qualitative | <ul style="list-style-type: none"> • Can find insights not otherwise possible | <ul style="list-style-type: none"> • Very time consuming • Lots of data |

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Questionnaires

- ▶ Ordering of questions can influence response
- ▶ May need different versions for different user types/populations
- ▶ Provide instructions!
- ▶ Balance length with white space (crowding issues)
- ▶ Response types:
 - Check boxes (ranges)
 - Likert scales
 - Measure opinions, attitudes, beliefs
 - Short statements: e.g. “home page instructions are clear”
 - Decide on scale: e.g. “strongly agree, agree, don’t know, disagree, strongly disagree”
 - Semantic differential scales
 - Explore range of bi-polar attitudes: “clear ... OK ... confusing”

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2 min break:

With the person sitting next to you:
Decide on ONE user experience attribute that would encourage you to buy your same cell phone again.

Example user experience attributes:

| | |
|------------------------|-----------------------|
| Satisfying | Enjoyable |
| Engaging | Exciting |
| Challenging | Boring |
| Cutesy | Frustrating |
| Pleasurable | Entertaining |
| Helpful | Motivating |
| Aesthetically pleasing | Supporting creativity |
| Rewarding | Fun |
| Provocative | Surprising |
| Emotionally fulfilling | Enhancing sociability |
| Annoying | |

2 min break:

With the person sitting next to you:
Decide the usability attribute that is most related to the user experience attribute you chose.

Usability attributes:

Effectiveness - how well does the system do what it is supposed to do?

Efficiency - how well are users supported in doing their tasks?

Safety - how well are users protected from dangerous or undesirable situations?

Utility - is the right functionality provided?

Learnability - how easy is the system to learn to use?

Memorability - how easy is it to remember how to do things once you've learned them?

2 min break:

With the person sitting next to you:
Create a usability goal - framed as a measurable question - for the usability attribute you chose.
The question must give you the most information possible about how to change the existing cell phone design to better meet the usability goal.
The question (usability goal) must relate to the user experience attribute you originally chose that would encourage you to decide to buy your cell phone again.

Hint: Yes/No questions don't give very useful information.