Prototyping UX - From Sketch to Prototype

Interaction Design - Alexander Wiethoff - SS2016
Ludwig-Maximilians Universität München
Recap Session Day 4:
The diagram illustrates the relationship between different research methods and the nature of opportunities and needs they address.

- **Statistical** methods, which are macro techniques (many people), are used to measure and analyze explicit opportunities and needs.
- **Video Ethnography** is a method also used for measuring and analyzing explicit opportunities and needs, but it is more interpretive (few people).
- **Focus Groups**, on the other hand, are micro techniques (few people) that focus on latent opportunities and needs.
- **Observational Techniques** are both micro and interpretive, used to measure and analyze latent opportunities and needs.

Source: [8]
ANALYSIS
Definition of the system
What is the problem?

EVALUATION
Possible alternatives
What future do we want?

SYNTHESIS
Design of final solutions
What do we implement?

The designer is a 'problem-scouter'
The designer is a 'story-teller'
The designer is an 'executor'

source: [4]
**Fly on the Wall**

**How**
Observe and record behaviour within its context, without interfering with people’s activities.

**Why**
It is useful to see what people do in real contexts and time frames, rather than accept what they say they did after the fact.

**Example**
By spending time in the operating room, the designers were able to observe and understand the information that the surgical team needed.

source: [7]
Four key issues

• Setting goals
  – Decide how to analyse data once collected

• Relationship with participants
  – Clear and professional
  – Informed consent when appropriate

• Triangulation
  – Use more than one approach

• Pilot studies
  – Small trial of main study

source: [2]
Interviews

**Unstructured** - are not directed by a script. Rich but not replicable.

**Structured** - are tightly scripted, often like a questionnaire. Replicable but may lack richness.

**Semi-structured** - guided by a script but interesting issues can be explored in more depth. Can provide a good balance between richness and replicability.

source: [8]
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.
Summary Creating a Good Questionnaire:

• Keep your questionnaire short. In fact, the shorter the better.

• Use simple and direct language. The questions must be clearly understood by the respondent.

• Begin with a few non-threatening and interesting items.

• Place the most important items in the first half of the questionnaire.

• Leave adequate space for respondents to make comments.

• Perform iterative pre-tests and eliminate or replace questions that are hard to understand or lead to useless / unsatisfying results.

• Accommodate all answers.

source: [10]
Summary

• Three main data gathering methods: interviews, questionnaires, observation
• Four key issues of data gathering: goals, triangulation, participant relationship, pilot
• Interviews may be structured, semi-structured or unstructured
• Observation may be direct or indirect, in the field or in controlled setting
• Techniques can be combined depending on study focus, participants, nature of technique and available resources

source: [8]
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Overview:

- Intro & Designprocess Phase
- Values and Levels of Prototyping
- UX Prototyping Techniques
- Prototyping Case Study
Overview

Key Data Collection → User Research → Data Analysis → Design Concepts → Experience Prototypes

Evaluation Cycle
INTERACTION

How do you...

..feel?

I handle a button

cool hot

path

how do you...

know?
User Experience Design

usable
valuable
findable
credible
useful
desirable
accessible

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http://semanticstudios.com
Overview

Tell a story
Make it tangible

Prototype
Overview:

• Intro & Design process Phase
• Values and Levels of Prototyping
• UX Prototyping Techniques
• Prototyping Case Study
For the Designer:
- Exploration
- Visualisation
- Feasibly
- Inspiration
- Collaboration

For the End User:
- Effectiveness / Usefulness
- A change of viewpoint
- Usability
- Desirability

For the Producer:
- Conviction
- Specification
- Benchmarking

source: [5]
It’s really hard to design products by focus groups. A lot of times, people don’t know what they want until you show it to them.

Steve Jobs
Fidelity v. Resolution

low resolution
low fidelity

high resolution
low fidelity

high resolution
high fidelity

source: [5]
High Fidelity

Low Fidelity

- Open Discussion
- Prompting Required
- Quick and Dirty
- Early Validation

- Sharp Opinions
- Self Explanatory
- Deliberate and Refined
- Concrete Ideas

source: [5]
Low Resolution

- Less Details
- Focus on core interactions
- Quick and Dirty
- Early Validation

High Resolution

- More Details
- Focus on the whole
- Deliberate and Refined
- Concrete Ideas

source: [5]
1st Iteration
low-res/low-fi
4th Iteration
high-res/high-fi
80/20 rule
A principle for setting priorities: users will use 20% of the features of your product 80% of the time. Focus the majority of your design and development effort (80%) on the most important 20% of the product.

source: [7]
Paper-prototyping
What is it?

Paper prototyping is a widely used method in the user-centered design process, a process that helps developers to create products/screen based applications that meets the user's expectations and needs.

It is **throwaway prototyping** and involves creating rough, even hand sketched, drawings of an interface to use as prototypes, or models, of a design.
History

Paper prototyping started in the mid 1980s and then became popular in the mid 1990s when companies such as IBM, Honeywell, Microsoft, and others started using the technique in developing their products.
Paper prototype of a typical form-filling screen

Paper prototype of a tabs-based design

User test of a low-fidelity paper prototype of a website

Typical set-up of the usability laboratory for a test session with a paper prototype

Photo credits © NN Group
User test of a device-based interaction

User test of a high-fidelity paper prototype of a homepage.

Testing hardware user interfaces: mockup of a kiosk.
Video-prototyping

http://2.bp.blogspot.com/-CBtuui7rZ4/U0MBJkCUfgI/AAAAAAAAEi4/fYp1bJOcdVY/s1600/Canon+XF205+left+side+view.jpg
Acting out the Scenario
EXAMPLES
Video Prototypes
low resolution
low fidelity
(a whole new world)
A whole new world
low resolution
high fidelity
(crossing on demand)
Zebra Zone
The Smoke & Mirror Approach
Sketching with Hardware
Atmel AT Mega 328

Raspberry Pi

http://upload.wikimedia.org/wikipedia/commons/3/3d/RaspberryPi.jpg
http://www.onlymine.de/wp-content/uploads/arduino-nano-board-z.jpg
Thermistor

Bend Sensor

PIR Sensor
Force Sensor

Potentiometer

Magnet Switch

photo credits © wikimedia
Distance IR Sensor

Touch QT Sensor

Ultrasound Sensor
Quick video overview
Overview:

- Intro & Designprocess Phase
- Values and Levels of Prototyping
- UX Prototyping Techniques
- Prototyping Case Study
Some Examples from a school called Copenhagen Institute of Interaction Design (CIID)
Some Examples from a school called Copenhagen Institute of Interaction Design (CIID)
The photo is showing Helga’s husband on a vacation in Norway in 1964. The photo covers the whole screen, so no other buttons can be pressed. She touches the photo again, and it shrinks to its original size.
On the right side of the screen is something that looks like a big wheel. Helga puts her hand on the screen, where the wheel is, and moves it up. The wheel starts rolling and numbers representing years start moving. When the year 1964 is centered, she removes her hand.
Viseaften
Journalistforeningen
1968, Music
Thanks for your attention!
References (books)

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  Publisher: The MIT Press; 1 edition (October 1, 2007)  
  ISBN-10: 0262134748

Bill buxton: sketching the user experience  
  Publisher: Morgan Kaufmann (March 30, 2007)  
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Don norman: the design of everyday things  
  Publisher: Basic Books (September 17, 2002)  
  ISBN-10: 0465067107

Kevin mullet: designing visual interfaces  
  Publisher: Prentice Hall PTR (December 15, 1994)  
  ISBN-10: 0133033899

links:  
  www.ciid.dk  
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  http://www.useit.com/papers/guerrilla_hci.html  
  www.medien.ifi.lmu.de/id