Interaction Design

Chapter 7 May 28th, 2014, 9am-12pm):
Prototyping UX - From Sketch to Prototype
Recap Day 6:
The diagram illustrates the relationship between statistical and observational techniques in interaction design.

- **Statistical** techniques focus on macro-level data from many people. These include:
  - **Surveys** for explicit opportunities and needs.
  - **Video Ethnography** for latent opportunities and needs.

- **Observational** techniques offer a more interpretive approach with micro-level insights from fewer people. These include:
  - **Focus Groups**
  - The highlighted **Observational Techniques**

The diagram categorizes techniques based on who is involved (many vs. few people) and the emphasis on explicit vs. latent opportunities and needs.
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]
BMW Racing Cockpit

image source © BMW
Different user types and usage frequency will require dedicated solutions.
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]
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

Note the difference between interviews and questionnaires!

source: [10]
Overview:

- Intro & Design Process Phase
- Values and Levels of Prototyping
- UX Prototyping Techniques
- Prototyping Case Study
User Experience Design
User Experience Design

- useful
- usable
- valuable
- findable
- desirable
- accessible
- credible

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http://semanticstudios.com
Getting the right Design and the Design right...

Bill Buxton - Sketching User Experiences
The Purpose of User Studies

Research Aims: Reliability, Validity, and Generalizability

Research Methods and Experimental Designs

Ethical Considerations

HC-related and practical information for your own studies

Interpretation of Data and Presentation of Results

Front Stage

Back Stage

Double Diamond

DISCOVER  |  DEFINE  |  DESIGN  |  DELIVER

source: [8]
Double Diamond

Why? and How?

source: [8]
We focus on
Overview

Tell a story
Make it tangible

Prototype
Overview:

- Intro & Designprocess 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]
Low Fidelity

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

High Fidelity

- 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]
Overview:

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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/-CBtuuiif7rZ4/U0MBJkCUfgI/AAAAAAAAEi4/fYp1bJQcdVY/s1600/Canon+XF205+left+side+view.jpg
Acting out the Scenario
Quick Kiosk Mock-up
Sketching with Hardware
higher level  lower level

basic stamp  bx 24  basic atom  pic

MAX MSP  ActionScript  Java  C++  Assembly
Atmel AT Mega 328

Raspberry PI
Thermistor  Bend Sensor  PIR Sensor
Force Sensor

Potentiometer

Magnet Switch
Distance IR Sensor

Touch QT Sensor

Ultrasound Sensor
Quick video overview
Overview:

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Some Examples from a school called Copenhagen Institute of Interaction Design (CIID)
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He noticed that his neighbor Helga often get visits from her grandchildren. Apparently they look at old photos but the album looks a bit strange.

One day he asked them what kind of trip was in the album. They told him the whole story about Helga’s husband and Norway.

The photo is showing Helga’s husband on a vacation in Norway in 1964. The photo cover the whole screen, so no other button 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
What a lovely war
Glenn Gauer
1978, Radio Theater
Thanks for your attention!
References (books)

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

Bill buxton: sketching the user experience
  Publisher: Morgan Kaufmann (March 30, 2007)
  ISBN-10: 0123740371

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
  www.arduino.cc
  http://www.useit.com/papers/guerrilla_hci.html