Today

Homework: Review interviews (individual)
Lecture: Analyzing use
Class work: User Profile
Personas and Extreme Characters
Use Scenario
Lecture: Generating ideas
Class work: Oral brainstorming
Homework: Final Use Scenario (group)
Web Searches (individual)

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Go to: insitu.inria.fr/People/Mackay
and click on: Design and Evaluation of Interactive Systems
or
Website: http://insitu.inria.fr/People/DesignAndEvaluationOfInteractiveSystems

Homework due: Tuesday 4 December

1. Group: Choose a topic for your project topic
You need to identify a problem and a set of users

2. Individual: At least two interviews each
Use at least one critical incident question
Probe for details
Course project

You will create a video prototype of an original design of an interactive system that meets the needs of real users in a real setting.

Projects involve in-class exercises and homework attendance is critical!

Most projects involve groups of 3-4; some activities are individual, others are in groups; you may choose your own project or one of ours.

Mid-term video prototype due: 8 January

Executive summary (5 pages max) to describe the design
- Who is the audience?
- What is the design concept?
- Which design resources did you use?
- Initial scenario

Storyboard

Video prototype (5-7 minutes)

Project possibilities

Discovering information about the Plateau de Saclay app or web site

Getting to and around CHI’13 app or website

Your own project …
- Research?
- Startup idea?

Decide by next week … 4 December 2012

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Web Searches (individual)
Discovering who is the user?

- Collect information: Introspection, Observation, Interviews, Questionnaires.
- Analyze information: Grounded theory categories.
- Resources for design: User profile, Persona, Use scenario.

Techniques for Discovering the User

- Gather inputs: Introspection, Interview, Observation, Questionnaire, Diary study.
- Analyze data: Grounded Theory coding & categories, Use examples, User needs.
- Design resources: User profile, Persona, Extreme character, Use scenario.
- Interactive thread: Cultural probes, User workshops, Lab studies.
- Task analysis: Contextual inquiry, Survey analysis, Protocol analysis.
- Design brief: Functional spec, Design requirements.

How to ask questions

- The form of the question provides the form of the response (habitable sub-languages).
- If you want specific, real answers, you must ask the questions correctly.
- If not, you will get vague general answers that provide little help with design.

Careful! We are not conducting marketing surveys. Our goal is to better understand users to design a better system.
Choose questions that support design

- **Question order matters!!!**
  - Start specific then general
  - Start with directed then open
  - Start with facts then opinions

Choose questions that **support design**

- **Interviews**
  - Few answers
  - Can delve deeper to find out more
  - Analyze by hand

- **Questionnaires**
  - Many answers
  - Difficult to ask follow-on questions
  - Automated analysis possible

**Today**

- Review homework: Interviews (give to Jérémie: garcia@lri.fr)
- Lecture: Analyzing use
- **Class work:** User Profile, Personas and Extreme Characters, Use Scenario
- Lecture: Generating ideas
- **Class work:** Oral brainstorming
- Due 11 Dec: Group: User Profile, 3 personas, Use Scenario, 10 web searches

**Creating design resources**

- **Goal:** Ground the system design in real-world use

  1. **User profile**
     - Description of the needs and characteristics of users

  2. **Persona or extreme character**
     - A specific, imaginary person who represents a member of the user population.
     - Normally, personas represent ‘typical’ users. However, it is sometimes useful to create extreme characters to help you push the limits of the design.

  3. **Use Scenario**
     - A realistic description of a series of events and activities of one or more users (personas) in a real-world setting. Scenarios provide a composite view of the most important or relevant actions identified in interviews and observation.
## User profile

- Factual description of the needs and characteristics of the target group of users

- Top-down analysis of the user population:
  - Who is the audience for the system you are designing?
  - What did you discover from your studies of users?
  - What are the key problems to solve?
  - (Consider surprises, breakdowns and user innovations)

- What are the user’s most important, relevant characteristics?
  - Use the Grounded Theory categories you identified

- Which of the users needs will you address?
  - Forms the basis for the design your system

## Creating design resources

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## Persona

<table>
<thead>
<tr>
<th>Personal details:</th>
<th>Name, age, gender</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical description</td>
</tr>
<tr>
<td></td>
<td>Occupation, relevant activities</td>
</tr>
<tr>
<td></td>
<td>Representative or Extreme user?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality:</th>
<th>Describe the person with design-relevant details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Likes, dislikes?</td>
</tr>
<tr>
<td></td>
<td>Capabilities, weaknesses?</td>
</tr>
<tr>
<td></td>
<td>Unusual characteristics?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities</th>
<th>Typical, breakdowns, user innovations</th>
</tr>
</thead>
</table>

Identify the relationship with real users interviewed or observed.

## Extreme character

Identify people who are extreme along one or more dimensions:

- Normal hands
- Arthritic hands
- Takes vitamins
- Cancer patient
- Exercises regularly
- Athlete
- Adult
- Child

It is useful to brainstorm ideas about what it means to be extreme in the context for which you are designing, even if you do not end up using such extreme characters.
Creating design resources

Goal: Ground the system design in real-world use

1. User profile
   Description of the needs and characteristics of users.

2. Persona or extreme character
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3. Use Scenario
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Use Scenario

Goal: Create a realistic description of the user in context emphasizing opportunities for design

Procedure
- Identify activities and critical incidents from your data
- Choose from multiple users
- Include; normal and unusual situations
- Planned and unplanned activities
- Effective and problematic incidents
- Choose a specific day, setting and hypothetical, realistic user
- Tell a story, step-by-step of what the user does
- Include relevant detail in a series of interaction points
- Ideally, go over the scenario with at least two users

Writing a use scenario

Potential design resources:
- Raw data:
  - Real-world observations, interviews
  - Personal experience (if applicable)
  - Research literature, marketing materials
- Interpreted data:
  - Analysis of user characteristics and needs
  - Design brief / design requirements
  - Personas and extreme characters

Use scenario: What happens now

Like a tiny, branching one-act play,
sub-divided into one-paragraph micro scenes
that describe a series of ‘interaction points’

Create one or more personas (characters), each with:
- name, age, gender, motivation
- usually with a profession, expertise
- usually with a goal or motivation

Create one or more realistic setting(s):
- date, time, place, context

Identify a series of events over a period of time
Today

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Use Scenario

Lecture: Generating ideas

Class work: Oral brainstorming

Homework: Final Use Scenario (group)
Web Searches (individual)

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Generative Design

- Discovery: Who is the user?
- Invention: What is possible?
- Design: What should it be?
- Evaluation: Does it work?
- Redesign: How to improve it?

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Invention

**What is possible?**

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Generating ideas

1. Collect ideas
   - Web search
   - Standard oral brainstorming
   - Video brainstorming
2. Analyse the ideas
   - Votes
   - Design axes
3. Design resources
   - Key ideas
   - Design space

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<table>
<thead>
<tr>
<th>Generative Design</th>
<th>Web searches</th>
<th>Oral brainstorming</th>
<th>Video brainstorming</th>
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</thead>
<tbody>
<tr>
<td>Invention</td>
<td></td>
<td></td>
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<tr>
<td>Discovery</td>
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<td>Invention</td>
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<td>Design</td>
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<tr>
<td>Evaluation</td>
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<tr>
<td>Redesign</td>
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<td>Redesign</td>
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</tbody>
</table>
Invention: What is possible?

<table>
<thead>
<tr>
<th>Gather inputs</th>
<th>Analyze data</th>
<th>Design resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web search</td>
<td>Group vote</td>
<td>Design alternatives</td>
</tr>
<tr>
<td>Oral brainstorming</td>
<td>Design dimensions</td>
<td>Design space</td>
</tr>
<tr>
<td>Video brainstorming</td>
<td></td>
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<tr>
<td>Body storming</td>
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</tbody>
</table>

How do you find the design concept?

- Based on your studies of users, choose a problem to solve specific to your audience.
- Generate a variety of ideas that offer potential solutions.
- Create a design space to embody the set of alternatives.
- Choose a concept to explore, not just functionality, but also interaction.

‘Problem finding’ …

… is really more like ‘opportunity seeking’.

Your goal is to observe users in natural settings and discover opportunities for design.

You will be influenced by what you are capable of designing as well as what users are likely to want or need.

REPETITION ALERT: Look for surprises and note them down as soon as you find them!

Avoid toy problems and stereotypes: seek new insights.

Generate new ideas

- Brainstorming: Imagine different situations in which users might interact with technology in a new way that meets a need or helps them do something new.
- Focus on interaction in context, not just a list of functions.
Brainstorming: What not to do

<table>
<thead>
<tr>
<th>Do not do</th>
<th>What to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss ideas</td>
<td>Just state each idea</td>
</tr>
<tr>
<td>Criticize ideas</td>
<td>Just ask a question to clarify</td>
</tr>
<tr>
<td>Argue why an idea is good/bad</td>
<td>Move to the next idea</td>
</tr>
<tr>
<td>Ignore each other’s ideas</td>
<td>Use them to create new ones</td>
</tr>
<tr>
<td>Shift topics</td>
<td>Stick to the key topic</td>
</tr>
<tr>
<td>Jump to abstractions</td>
<td>Keep it specific</td>
</tr>
<tr>
<td>Get stuck</td>
<td>Think orthogonally</td>
</tr>
</tbody>
</table>

Express interaction:

<table>
<thead>
<tr>
<th>Several levels of representation</th>
<th>Text: explain an idea in words (Standard brainstorming)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sketch: draw to illustrate an idea (Standard brainstorming)</td>
<td></td>
</tr>
<tr>
<td>Mockups: create and interact with paper prototypes (Rapid prototyping)</td>
<td></td>
</tr>
<tr>
<td>Theater: Act out the idea (Rehearse video brainstorming)</td>
<td></td>
</tr>
<tr>
<td>Video: Capture the details of the interaction (video brainstorming)</td>
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</tbody>
</table>

Brainstorming

**Goal:** Generate the maximum number of ideas possible

**Characteristics:**
- Small groups, ideally with different types of expertise
- Limited amount of time, usually 30-60 minutes
- Specific, well-targeted design problem

Oral brainstorming rules

**Phase I**
- Generate the maximum quantity of ideas
- Everyone participates
- Record every idea
- … and everyone contributes at least one stupid idea

**Phase II**
- Reread all the ideas
- Everyone has three votes: mark your favorite ideas
- Rank the ideas according to the number of votes
- Discuss these ideas with respect to your design concept
  - Don’t forget weird or unusual ideas
## Exercise: Oral brainstorming

Each group should choose:
- **Moderator**: Ensures that everyone participates
  - Stops discussions and critiques,
  - Keeps the time
- **Scribe**: Writes every idea
  - Reads the ideas at the end

Remember:
- Generate the maximum number of ideas without evaluating them
- Quantity is more important than quality
- Everyone must participate
- Everyone has to give at least one ‘stupid’ idea

## Opposites Technique

If you get stuck, push existing ideas in new directions

**Opposites:**
- simple: complex
- short: long
- direct: indirect
- good: bad
- direct: indirect
- text: graphic: haptic
- funny: serious
- process: objet
- start: end
- single: sequence

Or think of an idea involving a hamster...

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