How to integrate individual Interests into a public Presentation? - Designing a user study

Barbara Großmann-Hutter
Saarland University
Germany

Contents
- Introduction
- Snapshot of a presentation
  - Procedure of presentation
- Parallel presentation
  - Goals
  - Focus of attention
  - Types
- Design
  - Scenario
  - Parallel presentations used
  - Experimental variables
  - Questionnaire
- Possible adaptation
Introduction – Device Platforms used

Fixed information systems
- No additional Device
  - loudspeaker
  - Wall sized display
- Usable by several users in common
- Common presentation for all users

Mobile information systems
- Privat device
  - PDA screen
  - Earphones
- Individual use
- Selection of individual information

Introduction – Basic Presentation Idea

Presentation constraints
- People with varying interests are using altogether a public information desk
- General information on a public device
- Individual interests should be taken into account
- Additional presentations for private devices is provided.
Introduction – Basic Presentation Idea

Scenario

- ‘You are here´ map -
  - Different interests: destinations, purposes
  - Group interests : medium
  - Personal guide

- Info desk in a big store
  - Different interests: objects, intentions
  - Group interests : low
  - Personal note pad

- Museum guide
  - Different views
  - Group interests : high
  ⇒ Application of highest interest

A Presentation snapshot

public

private

The Röchling Family

Life around the Ironworks
Snapshot of a Presentation – Procedure

- Mixed Presentation
  - Introduction
    - Public
    - Basic information about the topic
  - Main Information
    - Public / Private in parallel
    - General view presentation
      - Public
    - Selection of special view presentations
      - Private
      - User requested interactively the presentation of her choice

Parallel Presentation - Goals

- Is a parallel presentations a valuable way to increase learning, at least by presenting information of user’s interest?
- Is a user able to learn out of both information streams?
- How does the presentation type influence learning?
- Which are types of presentations that a user would like to use?
Parallel Presentation – Audio Part

- Gender of speakers
  - Male voices are easier to understand in noisy environments than female voices
- Natural versus synthetic voices:
  - Subjects prefer natural voices.
  - Understanding of natural speech is easier than understanding of synthetic speech.
  - Understanding of mixed speech is even poorer than synthetic speech's.

⇒ Synthetic Speech

Parallel Presentation – Focus of Attention

- How to guide user's focus of attention
- Fixed locality bindings for presentation parts
- Eye: locality = devices
  - private - PDA screen
  - public - wall mounted display
- Ear: locality = voice gender
  - private - male voice
  - public - female voice

- User selects a private presentation actively ⇒ she shifts her focus in awaiting the requested information
### Parallel Presentation - Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Public</th>
<th>Time Schedule</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Visual</td>
<td>Audio</td>
<td>Visual</td>
</tr>
<tr>
<td>a</td>
<td>pictures</td>
<td>text</td>
<td>pictures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>parallel</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>pictures</td>
<td>sounds</td>
<td>pictures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>parallel</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>pictures and icons</td>
<td>text</td>
<td>partially parallel</td>
</tr>
</tbody>
</table>

### Design - General

- **Participants**
  - 18 students (age 20 – 30)
- **Procedure**
  - **Instruction**
    - Subject visits the museum as member of a group of friends with different interests (students of different faculties).
  - **Learning**
    - 6 presentations
    - Varying sequence
- **Questionnaire**
  - Objective success
  - Subjective success
Design - Scenario

- Scenario
  - Völklinger Ironworks
- Views
  - Technical
  - Working
  - Historical
- Presentations
  - parts of a sightseeing tour
    - Blast furnace
    - Sintering plant
    - Blowing engines
    - Coking plant
    - Recuperators
    - History

Design – Parallel Presentations

- select the best suitable presentation type for the material
- creating enclosed presentations

<table>
<thead>
<tr>
<th>Presentations</th>
<th>Type</th>
<th>Information types</th>
</tr>
</thead>
<tbody>
<tr>
<td>sintering plant</td>
<td>a</td>
<td>private text &amp; picture</td>
</tr>
<tr>
<td>history</td>
<td>a</td>
<td>private text &amp; pictures</td>
</tr>
<tr>
<td>blast furnace</td>
<td>a</td>
<td>private text</td>
</tr>
<tr>
<td>coking plant</td>
<td>b</td>
<td>private text &amp; picture</td>
</tr>
<tr>
<td>Blowing engines</td>
<td>c</td>
<td>private text</td>
</tr>
<tr>
<td>recuperators</td>
<td>c</td>
<td>private text &amp; picture</td>
</tr>
</tbody>
</table>
Parallel Presentation – Experimental Variables

- Independent variables
  - Types of parallel presentations
    - Levels of parallelity in visual and/or audio perception channels
    - Concurrent versus additive information

- Dependent variables
  - Objective
    - Learned material out of both presentation parts
  - Subjective
    - Personal efforts and profits

Design - Questionnaire

- Subjective success
  *What does a user thinks about her efforts and profits during learning?*

  - Subject estimates her ability to follow both parts of a parallel presentation
  - Rating of presentation types
Design - Questionnaire

- Objective success
  *How much information has a user learned?*

- Previous knowledge ignored
- Questions on public and private information parts
  - *Woher kam das verwendete Erz?*
  - Public
  - *Wie wurde das Erz antransportiert?*
  - Public & Private
  - *Wer kaufte Völklingen?*
  - Private

Possible adaptation

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>technical</td>
<td>technical</td>
<td>technical</td>
<td>technical</td>
</tr>
<tr>
<td>working</td>
<td>working</td>
<td>history</td>
<td>working</td>
</tr>
<tr>
<td></td>
<td>architecture</td>
<td></td>
<td>architecture</td>
</tr>
</tbody>
</table>

ABIS03
Summary

- Presentation platforms
- Goals
  - Creating presentations to take into account group and individual interests
  - Measuring learning in parallel presentations
  - Acceptance by users
- Parallel presentation
  - Types
  - How to support user's understanding and learning
- Design of the user study
  - Scenario
  - Types of parallel presentations used for learning
  - Questionnaire
- Use for adaptations