Interaction in the unheard

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LARM CONFERENCE: Digital Audiovisual Memory
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Outline

• Research questions – what was our purpose?

• Unheard Avantgardes – what are they?

• Methodology – what did we do?

• Interaction and user experience – what did we learn from users?
Two research goals

• **Interaction** – how do interactive features contribute to the visitor’s experience and understanding?

• **Methodology** – how do we collect sensory information: walk-along, observation, sensor data, log?
Study focus

Usability

• Usability focus on interaction between user and product: time, error, click
• How useful is the product
• Pragmatic qualities (do-goals)

User experience (UX)

• UX focus on that emotions and experience that the product provoke
• How the user feel about the product
• Hedonic qualities (be-goals)

Hassenzahl, 2008; Vermeeren et al., 2010
Sound Art. Sound as Medium of Art
Unheard Avant-gardes [in Scandinavia]
The exhibition, 12 installations

Three platforms, specifically built for this exhibition

- Elektronmusikstudion (EMS): Sweden (1964-today)
- POEX 65 (POetry EXperiment 1965): Interdisciplinary event CPH 1965, broadcasted by DR
  - Three installations: Chairs, Radar, Tapes

Additional platform


Additional artworks

- 6 Remakes of 1960’ies Sound art from Scandinavia
“Arty Archives”

3 Archives

1. “Hørbar” (Audio-bar/Audible)
   - A collection of audio clips at Museum of Contemporary Art, Roskilde (DK)
   - The installation = the archive = the platform

2. EMS
   - A selection of avant-garde electronic music produced at EMS
   - An iPad
   - The device = the archive = a part of the installation, which is the same as the platform

3. POEX 65 – Tapes
   - A selection of multimedia/interdisciplinary pieces from DR-archives, invoking the POEX-event in 1965
   - The installation = the archive = a part of the platform
Map of the special exposition “Unheard Avant-gardes [in Scandinavia]”
Classifying the installations

Activation

• Interactive
  • The sound depends on the audience’s active choices: different choices produce different sounds
• Reactive
  • The sound is a response to the audience’s presence: this presence always produces the same sound
• User-independent
  • The sound is produced by an endless loop, independent of the audience’s presence or choices

The 3 archives are all interactive
Classifying the installations

User’s choice

• No choice
  • Reactive activation
  • User-independent activation

• Choice
  • Optimum choice: the user chooses what sound art precisely to hear
    • “Consultation” (Bordewijk & van Kaam, 1986)
  • Randomized choice: the user selects the category but not the choice of actual sound art
    • Idiosyncratic categories
    • Proper categories
      • Request followed by “Allucation” (Bordewijk & van Kaam, 1986)
Classifying the installations

The user’s performativity

- Continuum
  - Low: at a distance from the installation
    - The user’s bodily postures and movements do not contribute to the installation itself
  - Middle: some role in the installation
  - High: part of the installation
    - The user’s bodily postures and movements are significant for the realization and appreciation of the installation
EMS Documentation space (2012)

Produceret af Sanne Krogh Groth og Mats Lindström (EMS)
EMS Documentation Space

A platform consisting of different elements

- Photos
- Videos
- iPad, Archive
  - Activity: Interactive
  - Choice: Optimal
  - User Performativity: Low
  - User Control: High
    - The user controls what to choose
    - The pieces to choose (play-list) from are transparent
    - The user controls the sequence of choices
    - The user can repeat the pieces, skip through them, etc.
POEX Chairs - The Debate (2012)

Koncept: Mogens Jacobsen, Martin Luckmann og Morten Søndergaard

Interaktive voice-interface
Modifierede stole, sensorer, computere, MP3-afspillere, optaget stemme

Mix: Emil Alenius Boserup

Sound Produktion: Emil Alenius AEOEAA
POEX Radar (2012)

Koncept: Mogens Jacobsen, Martin Luckmann og Morten Søndergaard

Modifieret radar, motor, sensor, computer, MP3-afspiller, optaget stemme, digitaliserede billeder
POEX Tape (2012)
Martin Luckmann (f. 1982)
med Mogens Jacobsen og Morten Søndergaard

Interaktiv lydarkiv grænseflade
Infrarød LEDs, Wii controllere, projektorer, database,
Arduino-platform, plexiglas, openFrameworks
POEX65

A platform consisting of three installations

1. Chairs – The Debate
2. Radar
3. Tape, Archive
   - Activity: Interactive
   - Choice: Partly randomized
     - Requests elicits a “chance” response by the system
   - User Performativity: Middle
   - User Control: Middle
   - The user controls the category of choice, not the actual piece
   - The pieces to choose (play-list) from are not transparent for the user
   - The user can rewind (repetition) and fast forward
   - The user can not control the sequence of actual pieces
“Hørbar” (Audio-bar/Audible)

Hørbar (2007)
Koncept: Mogens Jacobsen og Morten Søndergaard
Interaktiv lydinstallation
260 glasflasker, træ, hylder, bord, stole, akrylglas, autolak, RFID-tags og læsere, to arbejdsstationer, to fladskærme, belysning, elektronik, lyddatabase, forstærkere, højtalere, HP-servere, RFID-antenne
Udlånt af Museum of Contemporary Art, Roskilde (DK)
“Hørbar” (Audio-bar/Audible)

One platform consisting of one installation made up of three elements

• Bottles, bar, screen
• Activity: Interactivity
• Choice: Partly randomized
  • Requests elicits a “chance” response by the system
• User Performativity: High
• User Control: Low
  • The user controls the category of choice
    • These categories are partly idiosyncratic
    • The system decides what piece from the category is being played
  • The pieces to choose (playlist) from are not transparent for the user
  • The system controls the sequence of pieces in the same category
    • The user can not on his/her own repeat a piece
Classifying the archives

User control

- **EMS**: high control
  - The user controls what to choose
  - The pieces to choose (play-list) from are not transparent for the user
  - The user controls the sequence of choices
  - The user can repeat the pieces, skip through them, etc.

- **POEX65**
  - The user controls the category of choice, not the actual piece
  - The pieces to choose (play-list) from are not transparent for the user
  - The user can rewind (repetition) and fast forward
  - The user can not control the sequence of actual pieces

- **“Hørbar”**: rel. high randomization, rel. low control
  - The user controls the category of choice
    - These categories are partly idiosyncratic
    - The system decides what piece from the category is being played
  - The pieces to choose (play-list) from are not transparent for the user
  - The system controls the sequence of pieces in the same category
    - The user can not on his/her own repeat a piece
## Comparison of “Arty Archives”

<table>
<thead>
<tr>
<th>Choice</th>
<th>User Control</th>
<th>User Performativity</th>
<th>Status in platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS</td>
<td>optimal</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>“Hørbar”</td>
<td>partly randomized</td>
<td>low</td>
<td>high</td>
</tr>
<tr>
<td>POEX 65</td>
<td>partly randomized</td>
<td>middle</td>
<td>middle</td>
</tr>
</tbody>
</table>
Walk-along method

• Qualitative method
• Researcher walk around with participants
• Real-life setting
• Researcher is involved and collaborative
• Multi-sensory data about experience and emotions

(Kusenbach, 2003; Lykke&Jantzen, 2013)
Facts walk-alongs

- 32 walk-alongs
- 3 days in June 2012
- 4 researchers from Aalborg University
- 59 participants
- 14 single-person walks and 18 group walks
- Walk time between 10 to 90 minutes
# Interview guide

<table>
<thead>
<tr>
<th>Themes</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>How is it to interact with the art work?</td>
</tr>
<tr>
<td>Decentredness</td>
<td>How is it move around the art work?</td>
</tr>
<tr>
<td>Multiperspectivism</td>
<td>How is it to look from more angles?</td>
</tr>
<tr>
<td>Embodiment</td>
<td>How is it to touch the the art work?</td>
</tr>
<tr>
<td>Engrossment</td>
<td>Do the interaction make you feel captivated?</td>
</tr>
<tr>
<td>Immediacy</td>
<td>Does the interaction make you feel close?</td>
</tr>
<tr>
<td>Learning</td>
<td>Do you learn anything from the interaction?</td>
</tr>
</tbody>
</table>
Coding categories

• Characteristics of installation art (Bishop, 2010)
• Experience design criteria (Jantzen et al., 2011)
Facts observation

• Non-participant, semi-structured observation
• Behaviour data
• 57 observations
• Walk time btw. 0.5 and 22 min
• Average walk time 4.4 min.
Informants

<table>
<thead>
<tr>
<th>Age</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Senior</td>
<td>3</td>
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<tr>
<td>Adolescent</td>
<td>25</td>
</tr>
<tr>
<td>Young</td>
<td>22</td>
</tr>
<tr>
<td>Child</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
</tr>
</tbody>
</table>

![Pie chart showing the distribution of informants by age group: adolescent, young, child, and senior.]

<table>
<thead>
<tr>
<th>Single</th>
<th>Group</th>
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</thead>
<tbody>
<tr>
<td>14</td>
<td>18</td>
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</tbody>
</table>
Informants

<table>
<thead>
<tr>
<th>Nationalitet</th>
<th>Antal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>49</td>
</tr>
<tr>
<td>USA</td>
<td>5</td>
</tr>
<tr>
<td>Italy</td>
<td>2</td>
</tr>
<tr>
<td>Romania</td>
<td>1</td>
</tr>
<tr>
<td>Austria</td>
<td>1</td>
</tr>
<tr>
<td>Spain</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>59</strong></td>
</tr>
</tbody>
</table>
Comments characteristics
N=151

No category
Multiperspectivism
Contextual conditions
Ease of use
Learning
Embodyment
Interaction

0 10 20 30 40 50 60 70
Comments user experiences
N=151
EMBODIMENT *positive* effect on:
Experience of Interactive and Understanding

Low EASE OF USE *negative* effect on:
Experience of Understanding

Low LEARNABILITY *negative* effect on:
Experience of Understanding

Poor CONTEXTUAL CONDITIONS *negative* effect on:
Experience of Learning
Experience per archive
N=151
**Comparison of “Arty Archives”**

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<td>element</td>
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<tr>
<td><strong>POEX 65</strong></td>
<td>partly randomized</td>
<td>middle</td>
<td>middle</td>
<td>installation</td>
</tr>
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</table>

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<thead>
<tr>
<th></th>
<th>Interactive</th>
<th>Involving</th>
<th>Learning</th>
<th>Interesting</th>
<th>Understandi ng</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EMS</strong></td>
<td>Low (7)</td>
<td>Low (2)</td>
<td>Low (3)</td>
<td>High (9)</td>
<td>High (15)</td>
</tr>
<tr>
<td><strong>“Hørbar”</strong></td>
<td>High (26)</td>
<td>Middle (6)</td>
<td>Middle (6)</td>
<td>Low (0)</td>
<td>High (14)</td>
</tr>
<tr>
<td><strong>POEX 65</strong></td>
<td>Middle (14)</td>
<td>Middle (4)</td>
<td>Middle (6)</td>
<td>Middle (4)</td>
<td>Middle (11)</td>
</tr>
</tbody>
</table>
Take aways

- **High playability** - high degree of user performativity increases the sense of interactivity – and vice versa
- **Low playability** - high degree of user control seems to diminish the sense of involvement in challenges
- **Comprehension** – embodiment increases understanding
- **Usability** – low degree of usability diminish sense of understanding
- **Framing** – poor contextual conditions diminish sense of learning
Literature


