User Centred Innovation

Project Group 4

Personal Photography Experience

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Introduction

• Which area to study?
• Project proposal selection
• Evaluative criteria reference
• Project Framework
• Qualitative research
• Field research
• Data analysis
• Transform voices into requirements
• Identify themes
• Propose solutions to needs
• Scoring method example
• Concept scoring
  – Concept scoring result
  – Concept ranking and choice
• Final concept
• Conclusion
  – Q/A
Project proposal selection?

- Each member suggested proposals
- Used evaluative matrix to rank and discuss
- Final choice was ‘personal photography experience’

How we decided to study ‘personal photography experience’

Maria
Evaluative criteria reference

- Cost
- Ease of use
- Suitability for a project
- Potential of technical success
- Potential of market success
Project Framework

- Adopted phase/gate approach
  – JC Ballard

- Four stage design process
  – Nigel Cross

Gather inputs from Users
- Use different methods to gather data
- Capture contexts
- To sample most important contexts we need to know the most important data flows

Stage Gate Approach
1. Investigate
2. Interpret
3. Innovate
4. Incorporate
**Qualitative research phase**

**Methods use to gather Data**

- Conducted in-house training to ensure consistency among team members during interviews.

1) **One-on-one interviews**
   - Constructed interview questions based on different Benefit categories. The Cost categories will only be considered at the Third Gate – Innovate, when evaluating viable solutions.
   - Technical
   - Operational
   - Economic
   - Emotional
   - Network

**Reference:** [www.rapidinnovation.com](http://www.rapidinnovation.com)  
Dr. Ballard

2) **Observation**
   - Video recorded some sessions to capture unexpressed needs
   - Visit locations where cameras are used a lot
   - Contexts help show what users already know
   - Keep and revise diaries of activities to note sources of frustrations/obstacles
   - Present wide scenario to brainstorm with users
   - Could you demonstrate how you use some of these special features?
Field research data

- **10 people interviewed**
  - Text
  - Audio
- **Voice to text**
- **Post to website**

- Validate our interpretations in order to ensure that users' goals are the same as 'needs' crafted from data gathering
Step 2:
• **Brainstorm then Cluster First Pass**
  – Web enable
  – Picture quality
  – Cost
  – Easier to use
  – Family
  – Valuable
  – Design aesthetics
  – Sharing
  – Significant event
  – Need easier way to sort photographs
  – Need other people
  – Need to show journey

Transforming voices into requirements
Transforming voices into needs

Step 3:
• *Cluster Second Pass* (convert to ‘needs’)
  – Need picture quality
  – Need low cost
  – Need ease of use
  – Need to hold family together
  – Need to guard memory
  – Need to look good
  – Need to share
  – Need to mark event
  – Need easier way to sort photos
  – Need security
  – Need photos of self
  – Need to tell story
  – Need better picture from other person
  – Need to capture movement
  – Need stability
  – Need better control
Analyze NEEDS

Step 4:
- **Create a grid**
  - Vertical
    - Met/unmet
  - Horizontal
    - Potential for innovation
Converge

Step 5:

- **Identify themes**

  We wanted to identify needs that were unmet and also had high potential for innovation.

  The theme that we chose were:
  
  - Full Self Photo
  - Stability
  - Capture movement
  - Hold family together
  - Ease of use

  Thomas
Brainstorm: Propose solutions to **NEEDS** (diverge)
Score proposed solutions to **NEEDS** (converge)
Scores

1. Laser frame(4) CM(capture movement)
2. Fold-out foot(3) ST(stability)
3. Give-away button(6) SF(self photo)
4. Picture reminder(3) HF(hold family)
5. One shot many captures(1) CM
6. Big Screen(1) EOU (easy to use)
7. Video plus photo(6) CM
8. High speed capture(2) CM
9. Less keys(1) EOU
10. Audible count-down(4) CM
11. Forward screen(3) SF

Maria
## Concept Scoring

<table>
<thead>
<tr>
<th>Needs Description</th>
<th>Neil</th>
<th>Boemo</th>
<th>Thomas</th>
<th>Maria</th>
<th>Average</th>
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<tbody>
<tr>
<td>1 Laser Frame</td>
<td>0.5</td>
<td>1.2</td>
<td>1.333333</td>
<td>0.75</td>
<td>0.945833</td>
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<tr>
<td>2 Fold out foot</td>
<td>4.5</td>
<td>1</td>
<td>1.285714</td>
<td>2.333333</td>
<td>2.279762</td>
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<tr>
<td>3 Give away button</td>
<td>2</td>
<td>1.75</td>
<td>1.75</td>
<td>0.875</td>
<td>1.59375</td>
</tr>
<tr>
<td>4 Picture reminder</td>
<td>1.66667</td>
<td>0.875</td>
<td>0.75</td>
<td>0.833333</td>
<td>1.03125</td>
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<tr>
<td>5 One shot many captures</td>
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<td>1.285714</td>
<td>1.75</td>
<td>0.714286</td>
<td>1.604167</td>
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<tr>
<td>6 Big screen</td>
<td>1.5</td>
<td>1.4</td>
<td>0.875</td>
<td>1.142857</td>
<td>1.229464</td>
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<tr>
<td>7 Video + capture</td>
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<td>1.66667</td>
<td>1.5</td>
<td>0.75</td>
<td>1.645833</td>
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<tr>
<td>8 High Speed Capture</td>
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<td>1.5</td>
<td>0.8</td>
<td>0.625</td>
<td>1.29375</td>
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<tr>
<td>9 Less keys</td>
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<td>1.66667</td>
<td>2.25</td>
<td>2.66667</td>
<td>2.020833</td>
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<tr>
<td>10 Audible count-down</td>
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<td>1.4</td>
<td>1.428571</td>
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<tr>
<td>11 Forward screen</td>
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<td>0.875</td>
<td>1.5</td>
<td>0.982639</td>
</tr>
</tbody>
</table>
Concept ranking and choice

- Fold out foot
- Less keys
- Audible countdown
- Video capture
- One shot many captures
- Give away button
- High Speed Capture
- Big screen
- Picture reminder
- Forward screen
- Laser Frame
Final concept:

123Freeze!
Final concept: **123Freeze!**

Step 1. Cycle through self timer options until ‘freeze’ icon is selected.

Step 2. Depress shutter

Step 3. Camera speaker audibly counts down to ‘freeze’ frame!
Conclusion

• Learnings/insights
  – Simple (cheap) processes and tools can be extremely effective
  – Design thinking works
  – Teams = more than the sum of their value

• Q&A
Appendix
Diverge / Converge vs Narrow / Expand

Often designers describe themselves as creating many options (diverging) and then narrowing down their options (converging). Alexander (1965) and other designers have described analysis as a process of breaking a problem into pieces—of "decomposing" it. Synthesia follows as re-ordering the pieces based on relationships, solving each sub-piece, and finally knitting all the pieces back together—"recomposing" the pieces. This decomposition-recomposition process also diverges and then converges.

We may just as easily describe the process by reversing the sequence (narrowing down, expanding out). Analyzing a problem leads to agreement—lo definition—a convergent process. At that point, hopefully, the "miracle" of transformation occurs in which the solution concept arises. Then, the designer elaborates that concept in greater and greater detail—a divergent process.

Later, we see this question arise again in the section on spiral models. Some obviously converge on a solution. Others (Bohm) diverge from a center, suggesting the accumulation of detail. (See pages 122-125.)
In Banathy's view, "We first diverge as we consider a number of inquiry boundaries, a number of major design options, and sets of core values and core ideas. Then we converge, systems. The same type of divergence-convergence operates in the design solution space. For each of the substantive design domains (core definition, specifications, functions, enabling systems, systemic environment) we first diverge as we create a number of alternatives for each, and then converge as we evaluate the alternatives and select the most promising and most desirable alternative."
Brown: MIT