Using Theoretical Ideas to Stimulate Creativity and Participation in Design

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Outline

• Illustrative example
  – Furniture design
• Goal and working hypothesis
• Conceptual framework for analysis and design
• Two inspirational ideas
  – Reflection-in-action; Generalized Other
• Software realization
  – Janus; FLE-Assistant
• Open issues and summary
• Comparison to themes discussed at the workshop
Illustrative example

- Design inspired by orange peels falling to the ground
- “Peel chair” by Olav Eldøy, produced by Stokke (2002)
- Combining creativity and utilitarian design (comfort)
Goal and working hypothesis

• Goal
  – Inspirations that originate outside design fields are used to ground the unfamiliar (artifact) in something familiar (nature, context, previously designed artifacts, etc.)
  – Incorporating inspirations as features (usable or non usable) in the artifact during construction, so that the inspirations can be communicated to end users via product

• Working hypothesis
  – In a similar manner, theoretical ideas might serve as inspiration for designers of software applications
  – Exploiting similarities and differences of physical artifacts (furniture) and computational artifacts (applications)
Conceptual frameworks

• A social-cultural approach to retrospective *analysis* in order to study the developmental trajectory of artifacts
  – Extrinsic motivation
  – Appropriation (Wertsch)
  – Externalization (Vygotsky)

• A corresponding transformational approach to theory-informed *design* of applications to guide designers
  – Selection
  – Appropriation
  – Translation
Transformational approach to design

- Selecting a theoretical idea from a field of research one wishes to explore, understand and communicate, stimulated by extrinsic motivation for accomplishing it;
- Appropriating the idea so that its basic elements stand out in a contemporary design context;
- Translating the elements into a user interface design as an act of externalization.
Two inspirational ideas communicated by concrete designs

• Originating in American Pragmatist tradition
  – Pierce, James, Dewey, Mead, Schön,

• Two ideas I have been working with for long time
  – Reflection-in-action
    • D.A. Schön
  – Generalized Other
    • G.H. Mead
Software realization

- Janus
- FLE Assistant
## Transformation map

<table>
<thead>
<tr>
<th>Sub-processes</th>
<th>Janus</th>
<th>FLE-Assistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection <em>(theoretical idea)</em></td>
<td>Reflection-in-action (D.A. Schön)</td>
<td>‘Generalized other’ (G.H. Mead)</td>
</tr>
<tr>
<td>Appropriation <em>(break up)</em></td>
<td>Action, reflection, action-present, back-talk</td>
<td>Game, roles, rules, roles-organized-according-to-rules</td>
</tr>
<tr>
<td>Translation <em>(GUI components)</em></td>
<td>Work area, design units, critic messages argumentative hypertext</td>
<td>Participation measure, statistics, aggregated performance conceptual awareness, advice</td>
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</tbody>
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**User interface**
Janus

Argumentative hypertext

Design units

Work area

Critic messages
FLE Assistant

Conceptual awareness

Aggregated performance

Statistics

Advice

Participation measure

ЧI’07 Design WS: San Jose, CA, 290407
Open issues

- It is not enough for a designer to say one has been inspired by a certain idea; it is also necessary to identify relevant success criteria?
- To what extent can one say an idea has been successfully incorporated in a specific design?
- How to distinguish good design from poor designs, along the way it is done in arts and design (e.g. master pieces vs. kitsch design)
- (Kitsch def.: an inferior copy of an existing style)
Summary and conclusions

• Re: contributions to a science of design
  – A science of design should be about *processes of designing*
    • Methods, techniques, concepts, tools, and examples
  – The creative act has to integrated with the design process (as it have with other design disciplines)
  – Integration of theory-based design and participatory design to form *theory-informed collaborative design*
  – A socio-cultural approach to retrospective analysis
  – Concrete examples to illustrate the approach
Themes from the workshop (1):
Design process of ICT

- Expressed in simple (scientific) terms
- $A_t_1 \rightarrow D_t \rightarrow U_t \rightarrow A_t_2$
- Could be followed by EUD and Meta-design ($D_t_2$)
Themes from the workshop (2): Design rationale cost/benefit

- Previous studies have shown deficiencies of design rationale; i.e. the cost of creating it is not paid back to those who put in the work.
- Think about design rationale integration with a product as “appropriation work”.
- Then benefits for designers become more visible (extrinsic motivation; seeing ones inspirational idea be expressed in durable form, etc.)