PERSUASIVE DESIGN OF TEL MODELS AND CHALLENGES

Kristian Stoffregen Tørning
AGENDA

1. About me (1 slide)
2. Persuasive Design and TEL (21 slides)
3. Questions (1 slide)
ABOUT ME: KRISTIAN TØRNING
MOTIVATION

• I am interested in the design of design models.
• What is the current state of persuasive design models?
• Do their approach comply with standards for TEL centered design research?
• What would it take to create a TEL centric Persuasive Design model?
METHODOLOGY

Subject persuasive design models to evaluation employing the TEL research design principles developed by Wang and Hannafin (2005): "Design-based research and technology-enhanced learning environments", Educational Technology Research and Development, vol. 53, no. 4, pp. 5-23.
“To generate practical, credible, and contextual design theories, however, rigorous, disciplined, and iterative inquiry is needed [...] we identify nine principles central to planning and implementing TELE design-based research” (p.15).

-Wang and Hannafin (2005)
LIMITATIONS

• I am stretching Wang and Hannafin beyond their intended domain
• However, design models can be regarded as a form of designs.
• Design models must also comply with sound standards of design research.
METHODS, MODELS & PROCESS…


System design brief involving influencing user behaviour

Inspiration mode

- Architectural
  - Positioning & layout
  - Material properties
  + 4 more patterns
- Error-proofing
  - Defaults
  - Interlock
  + 6 more patterns
- Persuasive
  - Self-monitoring
  - Kairos
  + 8 more patterns
- Visual
  - Prominence & visibility
  - Metaphors
  + 6 more patterns
- Cognitive
  - Social proof
  - Framing
  + 5 more patterns
- Security
  - Surveillance
  - Atmospherics
  + 6 more patterns

Six lenses with two ‘headline’ patterns for each, applicable to a wide range of target behaviours. Lenses arranged as an ‘idea space’ with illustrated examples for each pattern; links to more detail and other patterns.

Prescription mode

- User-system interactions: 7 target behaviours
- User-user interactions: 4 target behaviours

For each target behaviour, a subset of the most applicable design patterns from the six lenses is suggested, with illustrated examples. Typically there may be 15-25 patterns applicable to each target behaviour.

Use the patterns and examples suggested to inspire the generation of concept solutions for the brief.
Figure 1. Phases in Persuasive Systems Development

Understanding key issues behind persuasive systems:
1. IT is always on
2. Commitment and consistency needed
3. Direct and indirect routes
4. Incremental
5. Open
6. Unobtrusive
7. Useful and easy-to-use

Analyzing the persuasion context:
- The Intent
- The Event
- The Strategy

Design of system qualities:
- Primary task support
- Dialogue support
- System credibility support
- Social support

Behavior and/or attitude change
1. Choose a simple behavior to target
2. Choose a receptive audience
3. Find what is preventing the target behavior
4. Choose an appropriate technology channel
5. Find relevant examples of persuasive technology
6. Imitate successful examples
7. Test & iterate quickly
8. Expand on success
## PRINCIPLE 1

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<tr>
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<tbody>
<tr>
<td>1: Support Design with Research from the Outset [Integrating previous findings i.e. by literature review]</td>
<td>• Clearly offers many references to previous work from a plethora of research fields. The model's perspective on 'design' is made very clear. • Each 'lens' is backed up by clear references.</td>
<td>• Offers a variety of references anchoring the work mainly in Information Sciences, Psychology, Social Psychology and Human Computer Interaction (HCI).</td>
<td>• Builds mainly on the author’s personal experience. • Offers author's website as a reference, where several references are listed. However it is unclear, how these references were integrated into the design process.</td>
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<td>2: Set Practical Goals for Theory Development and Develop an Initial Plan</td>
<td>• Does not explicitly mention or address theory development. • Offers very clear research goals for the model by offering a section (2.1.3) elaborating on the evolution of the method.</td>
<td>• Explicitly addresses theory development i.e. “This article is conceptual and theory-creating by its nature…” • Clearly synthesizes several theories (that are described as such). • Offers very clear research goals with regard to developing the model.</td>
<td>• Does not explicitly mention or address theory development, but rather refers to the design process as ‘best practice’: “…in this paper I draw on my 15 years of experience in studying and creating persuasive technologies to offer what I consider to be “best practices”…”</td>
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<td>3: Conduct Research in Representative Real-World Settings</td>
<td>• Offers a comparative clear design case using the design of an ATM machine. It is however an armchair study (no users involved). The behaviour targeted is to ensure that people don’t forget their credit card, when withdrawing money.</td>
<td>• Offers an example design (Nike 2013) in the form of a thorough and convincing analysis employing the Persuasive Systems model.</td>
<td>• Does not offer research representative of a real-world setting, but uses plausible thought up examples to exemplify some points.</td>
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| 4: Collaborate Closely with Participants | • The Method was developed through a series of workshop sessions (with design students and recent graduates).  
• Does not offer clear guidelines for involving users in applications of the DwI model. | • The Persuasive Systems Design Model was developed by two researchers and does not mention validation with others.  
• The model does not offer clear guidelines for involving users in applications of the model. | • The Design Process is centred on the activities of a ‘design team’, but was developed by a single researcher, by drawing upon his personal experiences and does not mention validation with other designers. |
## PRINCIPLE 5

<table>
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<tr>
<th>Principles 1-9</th>
<th>Design with Intent (DwI) Method</th>
<th>Persuasive Systems Design (PSD) Model</th>
<th>Eight-Step Design Process</th>
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<td><strong>5: Implement Research Methods Systematically and Purposefully</strong></td>
<td>• The Method does not offer advice or research guidelines e.g. observations, interviews, surveys, document analysis or field studies etc.</td>
<td>• The Persuasive Systems Design Model does not offer advice or research guidelines e.g. observations, interviews, surveys, document analysis or field studies etc.</td>
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## PRINCIPLE 6

|--------------------------------------|----------------------------------------------------------|----------------------------------------------------------|--------------------------------------|
| 6: Analyse Data Immediately, Continuously, and Retrospectively | • The Method does not offer advice or guidelines for data analysis.  
• The Method does not offer advice as to how to measure ‘persuasiveness’. | • The Persuasive Systems Design Model does not offer advice or guidelines for data analysis.  
• The Persuasive Systems Design Model does not offer advice as to how to measure ‘persuasiveness’. | • The Design Process does not offer advice or guidelines for data analysis.  
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<td>7: Refine Designs Continually</td>
<td>• Does not explicitly recommend that designers work in an iterative fashion. The Method suggests that designers innovate novel solutions but the Method does not go beyond that.</td>
<td>• The Persuasive Systems Design Model does not explicitly recommend that designers work in an iterative fashion. The general approach suggested is linear.</td>
<td>• Explicitly and at length recommends iterations i.e. “Step 7: Test and iterate quickly […] the next step is to test various persuasive experiences quickly and repeatedly. A series of small, rapid tests will teach more than one big test.”</td>
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### PRINCIPLE 8

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<td><strong>8: Document Contextual Influences with Design Principles</strong></td>
<td>• Explicitly addresses contextual influences with clear domain specific design principles in the form of ‘lenses’.</td>
<td>• Explicitly addresses contextual influences with clear domain specific design principles i.e. ‘use context’.</td>
<td>• Suggests that the design team must pinpoint why people are not performing the target behaviour, but offers no advice as to how to do the same.</td>
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<td>9: Validate the Generalisability of the Design</td>
<td>• Addresses the generalisability of the model claiming that it is generalisable. Yet, the only proof offered is the ATM-design case.</td>
<td>• Design case analysis is offered as proof of generalisability. The authors openly state that the work is conceptual and theoretical i.e. based on ‘postulates’.</td>
<td>• Mentions that the model is tailored for the early stages of persuasive technology design but does not address generalisability.</td>
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# OVERVIEW

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RECOMMENDATIONS

- **The DwI model**: Seems to offer the most especially in situations, where one is designing a physical environment or an actual product e.g. for a classroom setting (it offers researchers the possibility to extend the model).

- **The PSD model**: If researchers are to address web-based e-education Learning Management Systems (such as Fronter, Blackboard or Moodle), the PSD model will certainly offer significant guidance.

- **The Eight-Step model**: Most appropriate if researchers wish to get quickly acquainted with PD-thinking and reasoning.
HOW DO WE PERSUADE PEOPLE INTO LEARNING?

WHAT EXACTLY ARE WE PERSUADING OF?
PERSUASIVE DESIGN IS A RHETORICAL ACT; BUT WHAT IS THE RHETORICAL CONTEXT OF ‘LEARNING’?
FROM A SCIENTIFIC STANDPOINT; WHAT IS THE MOST ROBUST WAY TO DESIGN A DESIGN MODEL?