

Week 7

Participatory Design: Sketching and Prototyping

COMP3503/IENV7933 Interaction Design

Interaction Design:

“Interaction design is concerned with the behavior of products, with how products work.

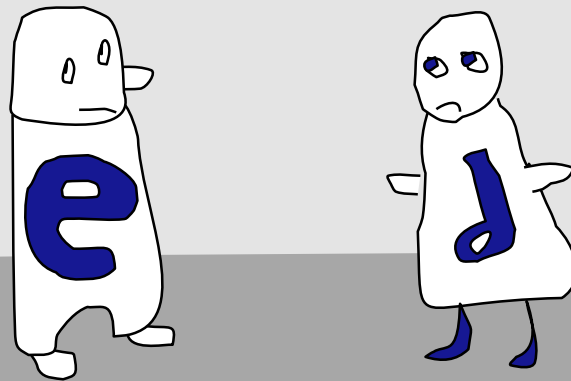
To me, it's not about interaction with a product (that's industrial design) or interaction with a computer (that's human-computer interaction). It's about making connections between people.

It's making things pleasurable to use, affecting emotions. It's about asking not only how should this work, but why : Should this be done at all? Will it affect people's lives in a positive way?” (Saffer, Dan, 2007)

<http://www.odannyboy.com/blog/archives/001000.html>

Questions from active listening

- What is PD, when can it be used for and what are examples of it actually being used?
- Relationship between PD and ethnography: are they the same thing, do they conflict?



Questions from active listening

- How does PD fit in to design process? If users aren't designers, how can we get to what they want/need? How often do users forget the analogy a system was originally designed around, eg the library model for the UQ online library?
- Can PD and UCD be used together? When should one be used over another?
- How do you initiate a PD process? Do you approach the boss or the staff directly?
- When can prototyping begin in PD?
- Is it beneficial to train users a little before utilising them in a PD process?
- Paper or computerised prototypes? When is it best to use each? Isn't PD just stripped down ethnography? Are they separate?
- Have you got any references to a real PD success story for something non-trivial? Are there particular design problems where PD is most suitable?

Participatory Design (PD)

- Scandinavian tradition of information systems development
- Political commitment to involve users directly in the design process,
- Empowering and enhancing skills, etc., rather than degrading them.
- Achieved through close cooperation with trade unions, and direct collaboration between designers and users.

Participatory Design

Scandinavian

Involve users
(workers) in the
design process

Political
Commitment

Empowering,
enhancing skills,

Tacit knowledge
and skill

Collaboration,
Co-designing

Hands-on
design activities

Key concepts of Participatory Design

- People should be in control of the technology they work with.
- Build on the tacit knowledge and skills of labour.
- Use computers to augment and support worker skills, not replace them.
- Tacit knowledge and skills cannot be adequately represented in formal models and abstractions
- Systems design is a political and social process.

- Participation

The client: Case Study:
'adapting [braccetto] collaborative technology
solution for use in another context'

Case study of hospital scenario. Removed to
protect non-disclosure agreements and privacy of
data

Advantages of Sketching:

- Quick: A sketch is quick to make, or at least gives that impression.
- Timely: A sketch can be provided when needed.
- Inexpensive: A sketch is cheap. Cost must not inhibit the ability to explore a concept, especially early in the design process.
- Disposable: If you can't afford to throw it away when done, it is probably not a sketch. The investment with a sketch is in the concept, not the execution. By the way, this does not mean that they have no value, or that you always dispose of them. Rather, their value depends largely on their disposability.
- Plentiful: Sketches tend not to exist in isolation. Their meaning or relevance is generally in the context of a collection or series, not an isolated rendering.

- Clear vocabulary: The style in which a sketch is rendered follows certain conventions that distinguish it from other types of renderings. The style, or form, signals that it is a sketch. The way that lines extend through endpoints is an example of such a convention, or style.
- Distinct gesture: There is fluidity to sketches that gives them a sense of openness and freedom. They are not tight and precise, in the sense that an engineering drawing would be, for example.
- Minimal detail: Include only what is required to render the intended purpose or concept. Lawson (1997, p.242) puts it this way: "... it is usually helpful if the drawing does not show or suggest answers to questions which are not being asked at the time." Superfluous detail is almost always distracting, at best, no matter how attractive or well rendered. Going beyond "good enough" is a negative, not a positive.

- Appropriate degree of refinement: By its resolution or style, a sketch should not suggest a level of refinement beyond that of the project being depicted. As Lawson expresses it, "... it seems helpful if the drawing suggests only a level of precision which corresponds to the level of certainty in the designer's mind at the time."
- Suggest and explore rather than confirm: More on this later, but sketches don't "tell," they "suggest." Their value lies not in the artifact of the sketch itself, but in its ability to provide a catalyst to the desired and appropriate behaviors, conversations, and interactions.
- Ambiguity: Sketches are intentionally ambiguous, and much of their value derives from their being able to be interpreted in different ways, and new relationships seen within them, even by the person who drew them.
- (Buxton, Bill, 2007)

Prototyping in participatory design



- Provide opportunity for direct user involvement in the design process
- Easier for users to understand
- Focus on the particular on the actual, not general aspects but on an actual scenario. This is more likely to lead to specific questions, recommendations, and improvements

How accurate a prototype to build?

95% time on designing
5% on production of design

5% time on designing
95% on production of design



**Low Fidelity
Prototype**

**High Fidelity
Prototype**

Lo-fi prototypes

- Low-tech representation of design concept
 - Sketches, storyboards, video
 - Low detail foam / cardboard / foamcore models Mock-ups
 - Cardboard, foam-core, post-its, etc.

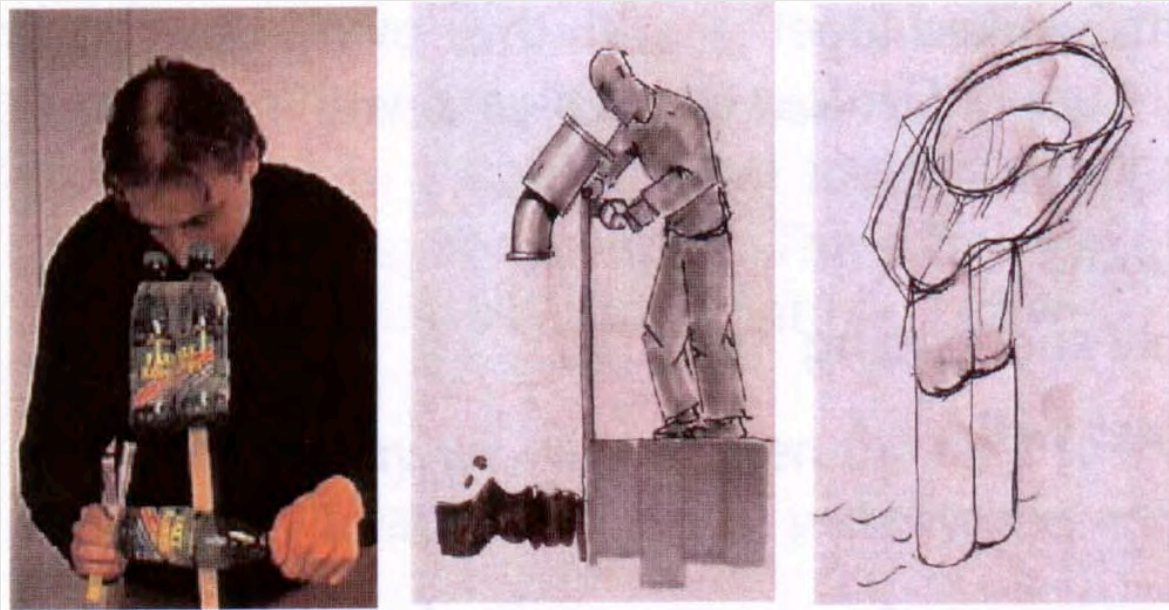


Image source:
Jacob Buur
Danfoss User Centred Design
Group

Why go lo-fi?

- *hands-on experience*
 - Encourage user involvement beyond the detached reading of system specifications
- *understandable*
 - No confusion between the simulation and the real thing—everyone equally able to make modifications
- *cheap*
 - Many iterations and separate evaluations possible without massive resource cost
- *fun*
 - Therefore encouraging participation
 - Ehn & Kyng (1991)

Unpack sketching and expand on it

- Initial stages, simple sketches
- Annotate, develop more
- Develop ideas quickly
- Low-fi/ hi-fi same principles apply
- Looking at advances with sketching
- Interaction Design Movies (Bill Moggridge, 2007)
- Sketching as Design (Bill Buxton, 2007)

Lo-fi Prototype Strategies

- Assemble a kit of simple materials
 - foam core board, knife, glue gun, coloured paper, Post-Its, A3 paper, markers, transparencies
- Set a deadline
 - you won't get it right until you start putting your ideas into concrete form and begin working with them
- Take a crack at every important aspect of your problem in prototypes
 - quality comes through iterative refinement
- Construct models
 - find ways to make them as dynamic as possible
- Test the models
- Assess whether the model is of sufficient quality for the information you are trying to get at.
 - How could you improve it and at what level of effort?



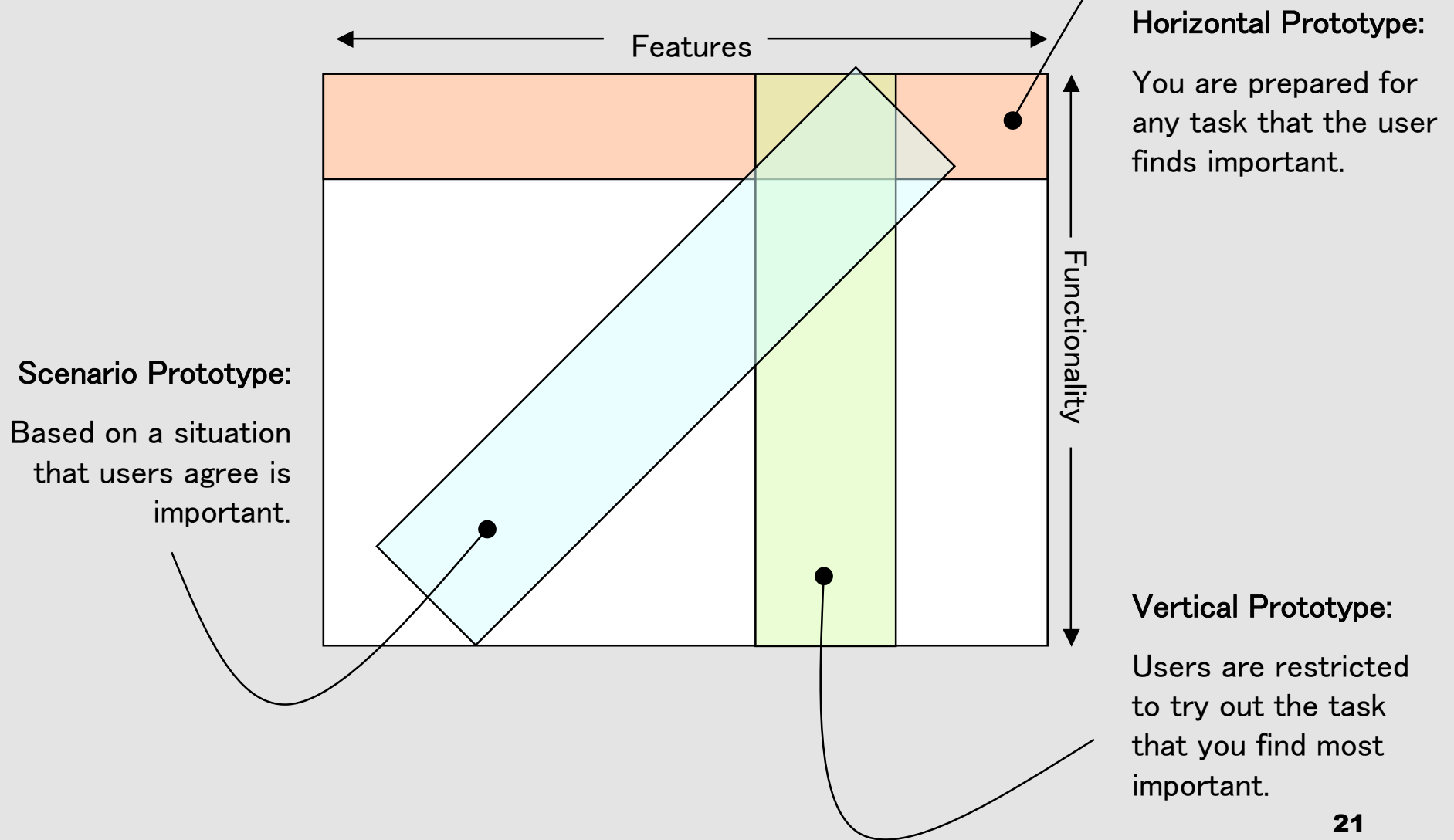
Prototyping *in the field*

- Mock-up design and collaboration on the spot
- Direct physical experience - Design is situated
- Users are more engaged and comfortable - willing to collaborate
- Reshaping the environment to imagine the future (‘decorate the existing equipment’)

Your thoughts on Participatory Design?

- Level of involvement (not designers).
- Involve the right end-users (active users)
- What is Participatory Design?
- Need for balance between participants
- Is it just workers and designers? Management, engineers, too?

Horizontal or vertical?



Summary

- Participatory design has a long tradition of people-centred design directly involving users in the design process
- Sketching facilitates detailed formative feedback on aspects of your design in the expansive stages
- Prototyping facilitates detailed formative feedback on aspects of your design before change becomes impractical
- Lo-fi prototypes allow rapid iteration of design ideas in collaboration with future users of the proposed system

Further reading

- Low-Fi/ Hi-Fi discussion on sketching:
- <http://www.dexodesign.com/2007/08/problem-with-sketching.html>

- Ehn, P. and Kyng, M. (1991), Cardboard computers: mocking-it-up or hands-on the future, In *Design at Work: Cooperative Design of Computer Systems*, J. Greenbaum and M. Kyng (eds.), 169–195, Hillsdale, NJ: Lawrence Erlbaum.
- Rettig, M. (1994), Prototyping for tiny fingers, *Communications of the ACM*, **37** (4), 21–27.
- Buxton, Bill (2007) *Sketching User Experiences*, Elseiver, Canada
- Beyer, H. and Holtzblatt, K. (1998), *Contextual Design: Defining Customer-Centred Systems*, San Francisco, CA: Morgan Kaufmann. (Chapter 19: Iterating with a prototype)
- Preece, J., Rogers, Y. and Sharpe, H. (2002), *Interaction Design: Beyond Human-Computer Interaction*, New York, NY: John Wiley. (Chapter 8: Design, prototyping and construction)
- Pedersen, J., J. Buur, et al. (2003). "Field Design Sessions: Augmenting Whose Reality?" *International Journal of Human-Computer Interaction* **16**(3): 461–476.

Questions from active listening... still?

- How does PD fit in to design process? If users aren't designers, how can we get to what they want/need? How often do users forget the analogy a system was originally designed around, eg the library model for the UQ online library?
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Next week...

Present theme movies to the class