

# **How to meaningfully integrate intelligent wearables into embodied practices:**

The case of emotion  
management and autism

**4TU Humans & Technology symposium**

Jelle van Dijk

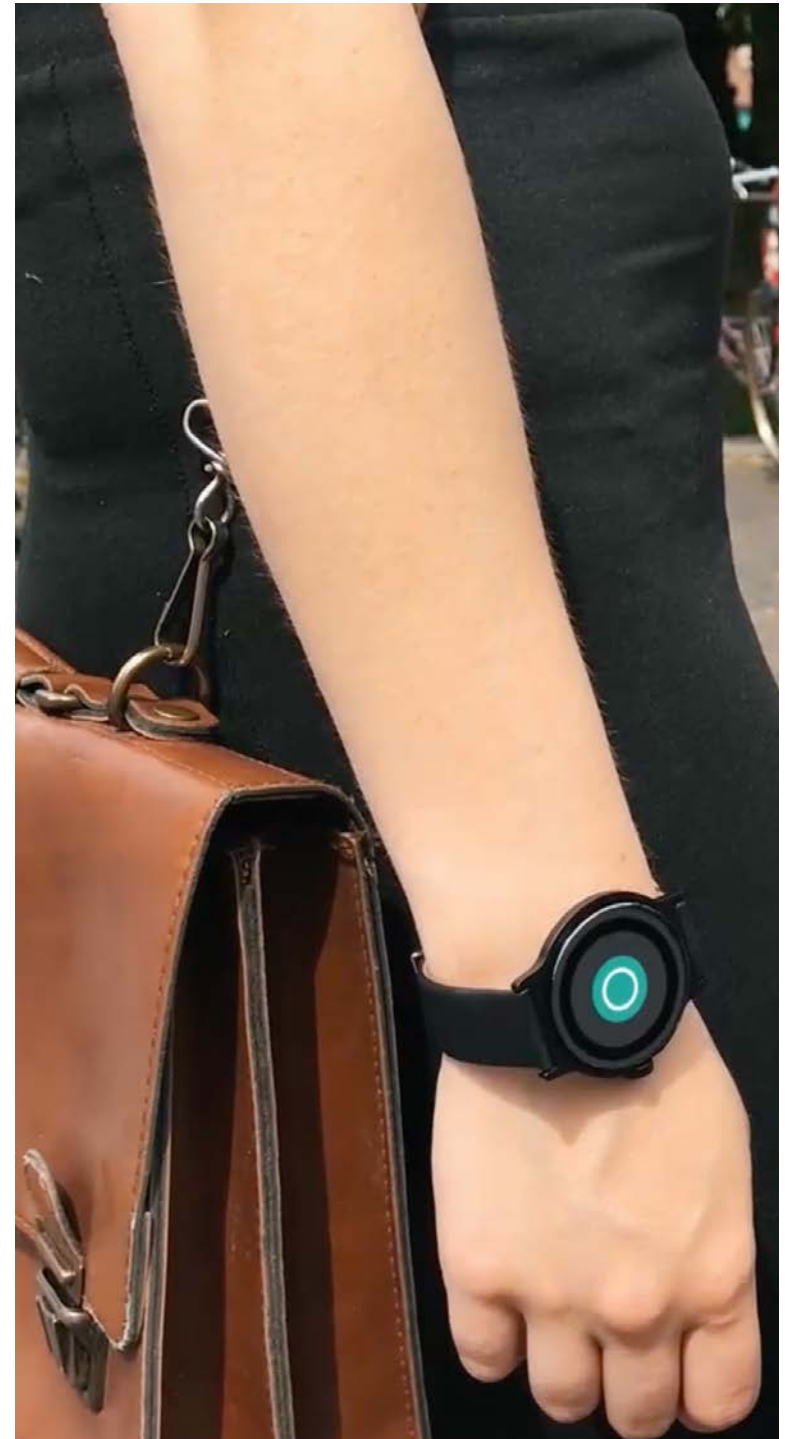
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# Interaction 'beyond the screen'

Wearables, -in textile, clothing, shoes, bags

Haptic, graspable, tangible interaction

Smart objects, smart spaces

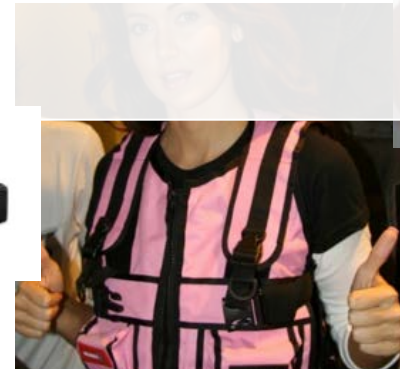
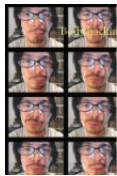
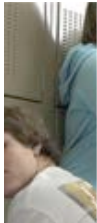
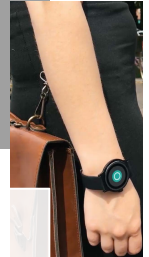
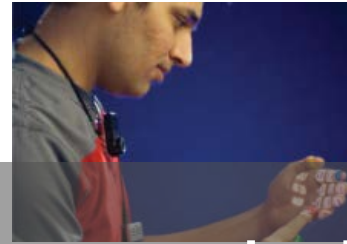
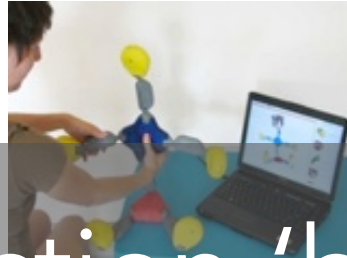
Internet-of-things

Ubiquitous computing, Ambient Intelligence

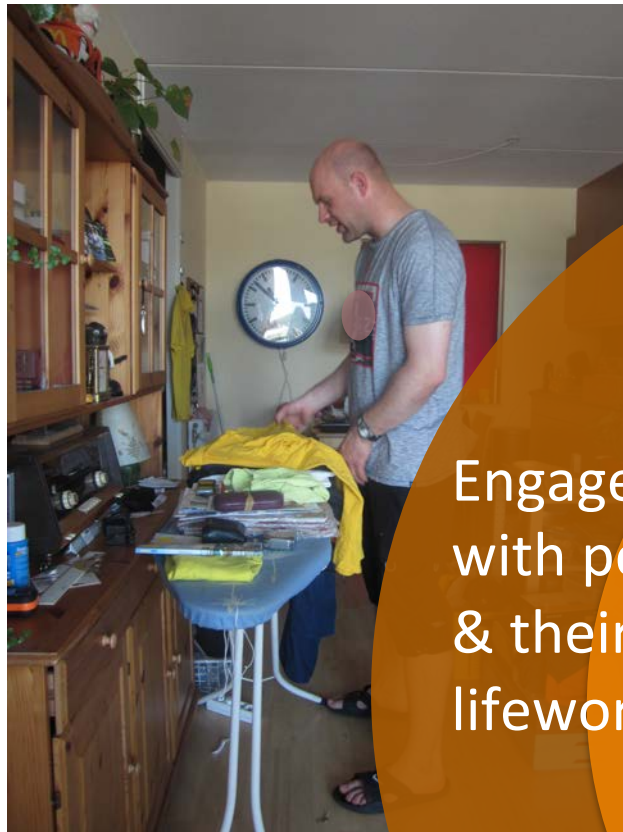
Virtual Reality, Augmented Reality

Robots

Brain-Computer Interfaces







Engage  
with people  
& their  
lifeworld

Design  
with  
technology

REFRAME

Reflect  
with theory

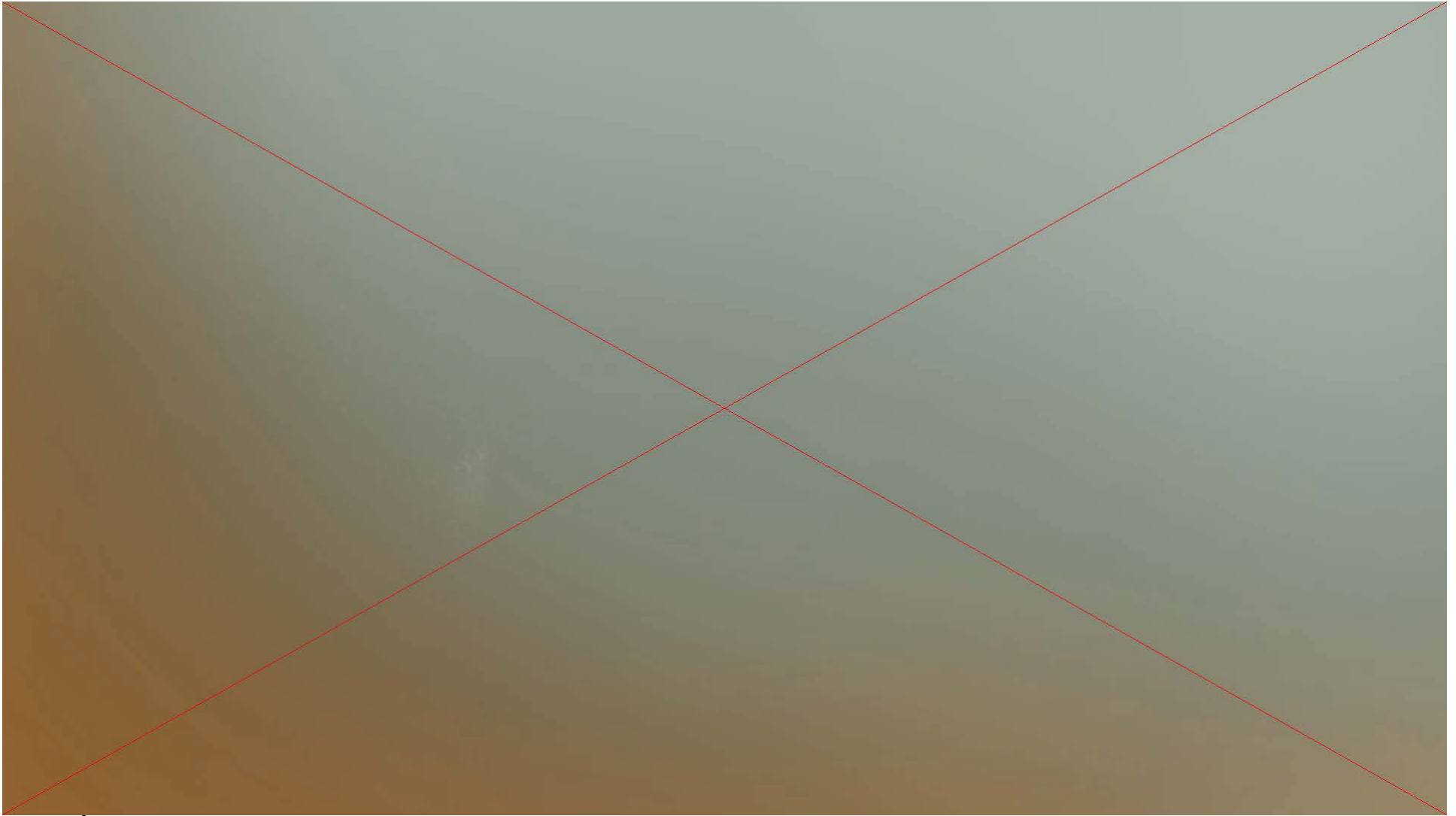
BOTTOM PART (CLIP)



Design-research approach



## Design Case: Dynamic Balance

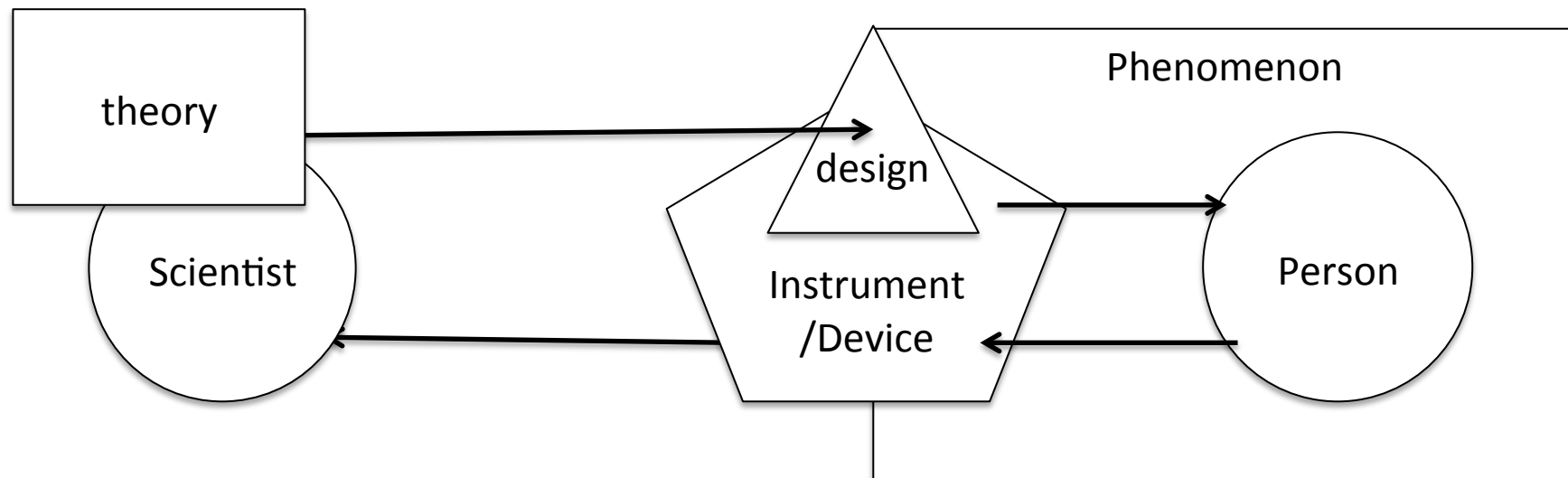
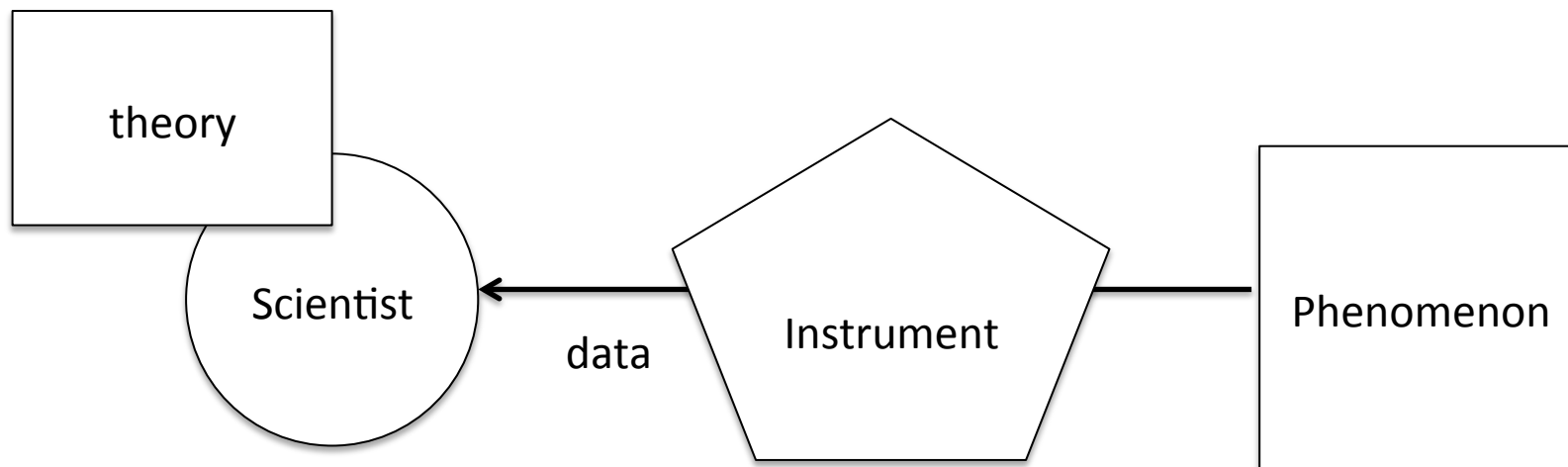


Mencke, V. & Van Dijk (2017) Embodied Emotion: designing interactive products for a person's emotional being-in-the-world. Sider 2017, Delft.

Four *frames* to question (and perhaps reframe)

- The *rational scientist* frame
- The *information processing mind* frame
- The *average person* frame
- The *person as an object* frame

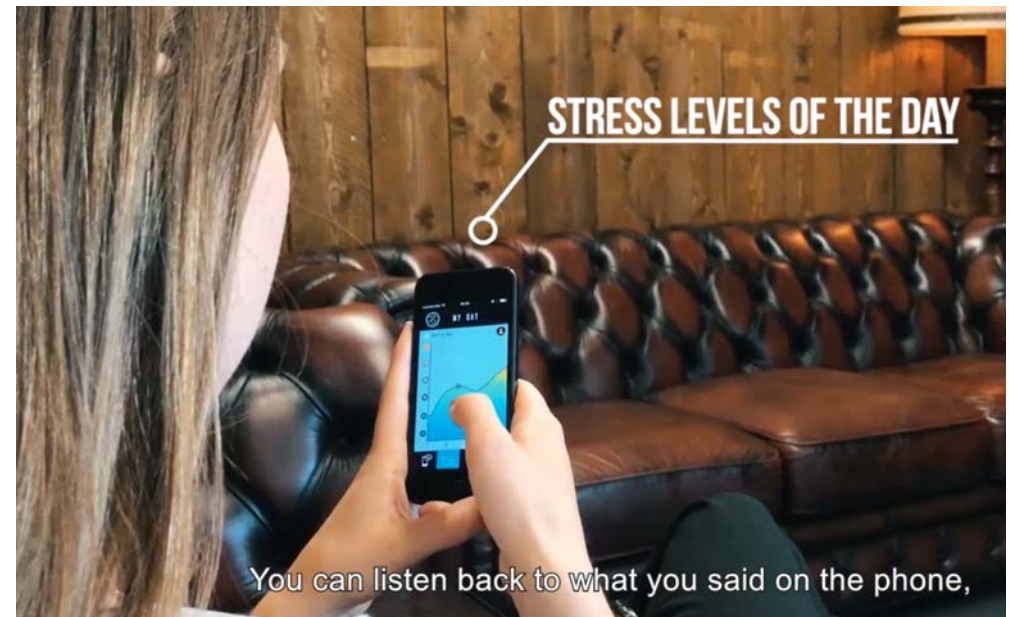
The rational scientist frame?  
→ What is the 'instrument' doing, for whom?



# What is the role of reflection (based on data about your behavior)?

Reflective practice is “a dialogue of thinking and doing through which I become more skillful.”

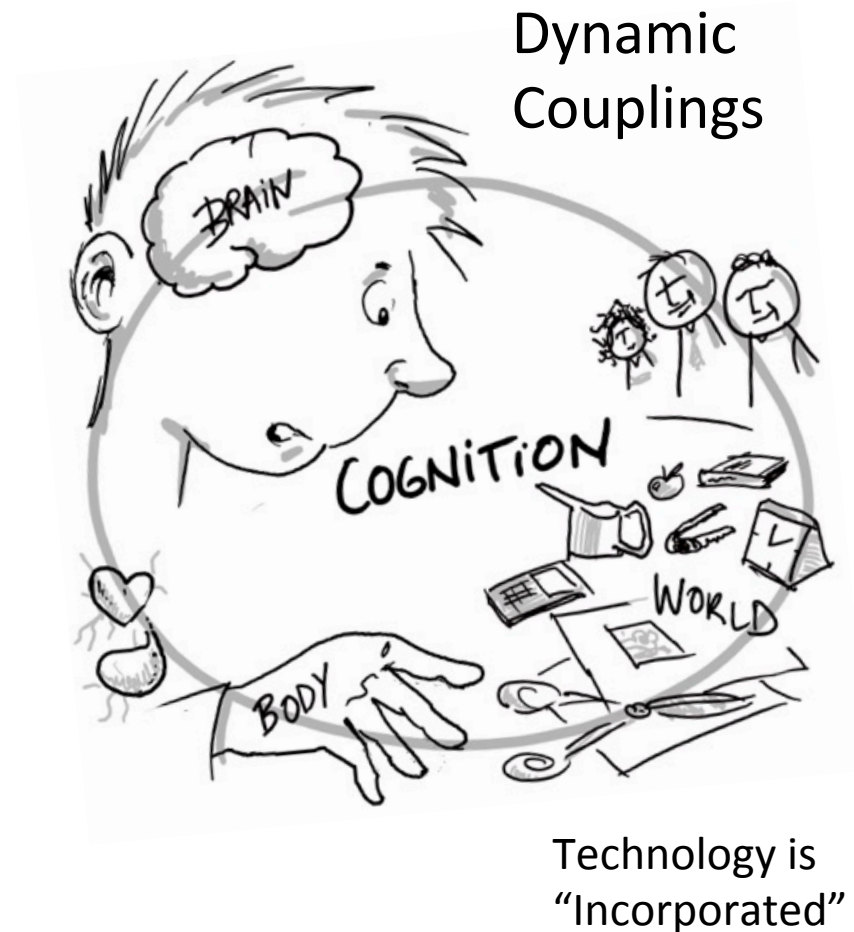
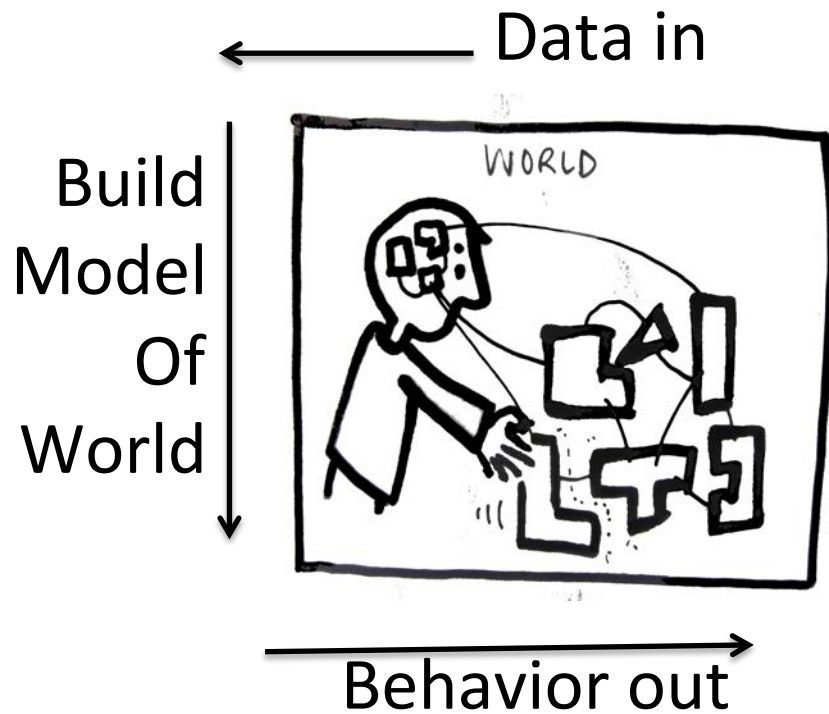
- Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action* (New York: Basic Books Inc., 1983) at 31.



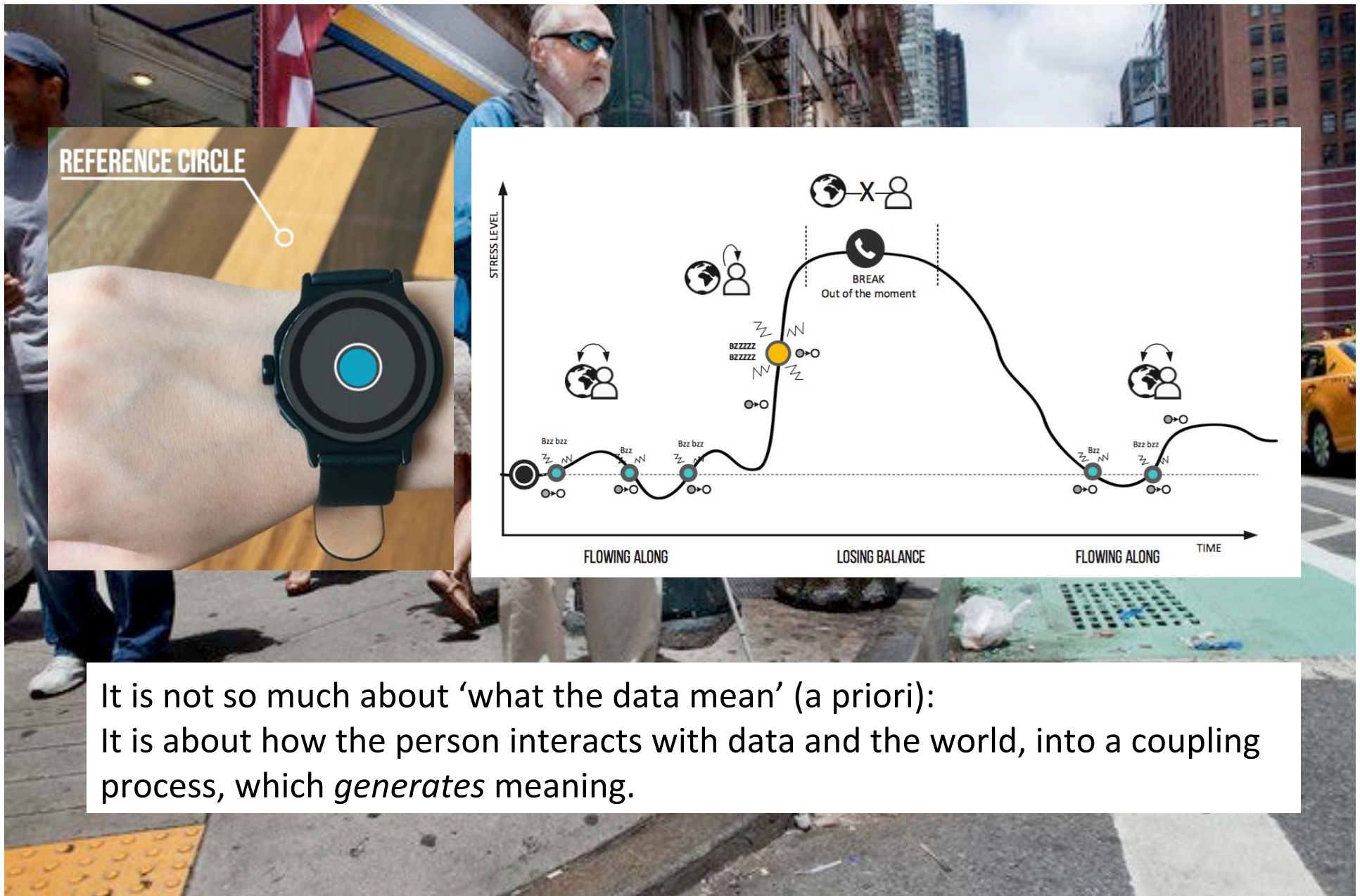


# The information processing mind frame?

→ Sensorimotor couplings!







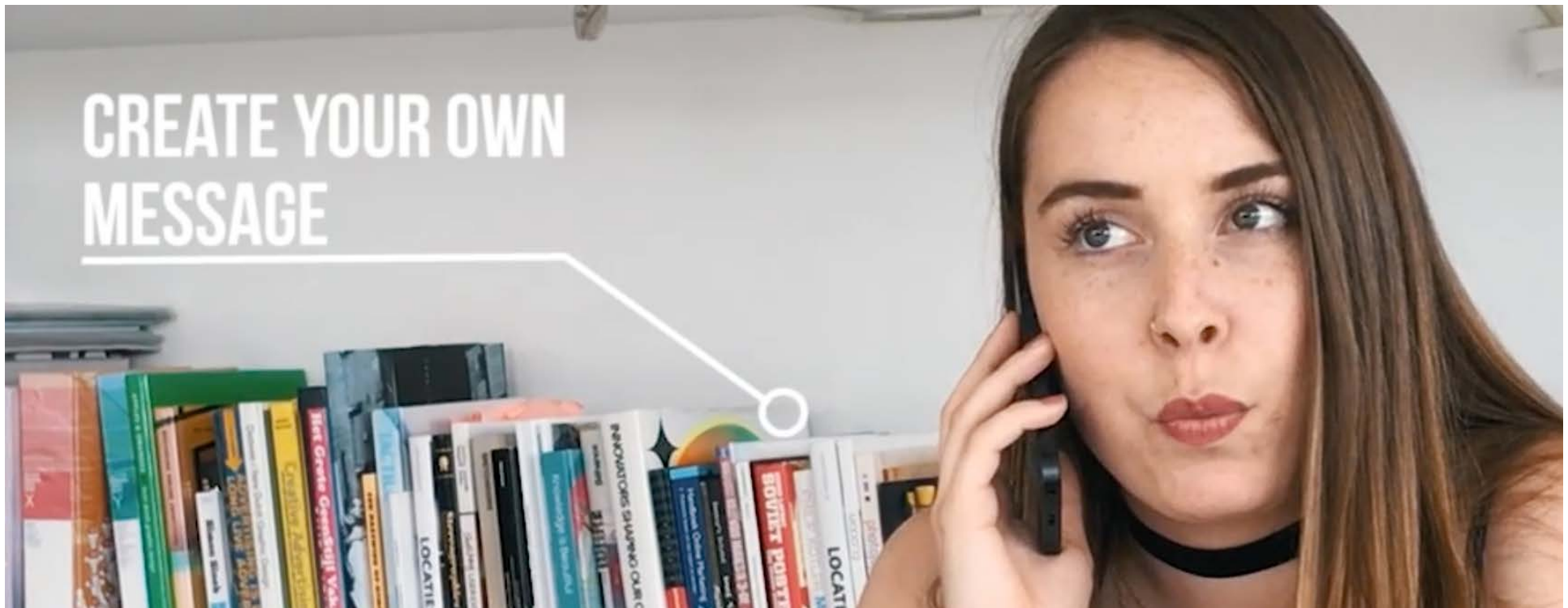
It is not so much about 'what the data mean' (a priori):  
It is about how the person interacts with data and the world, into a coupling  
process, which *generates* meaning.

Technology extending the skilled body

Merleau-Ponty, 1962;  
Dreyfus, 2010 9

# The average person frame?

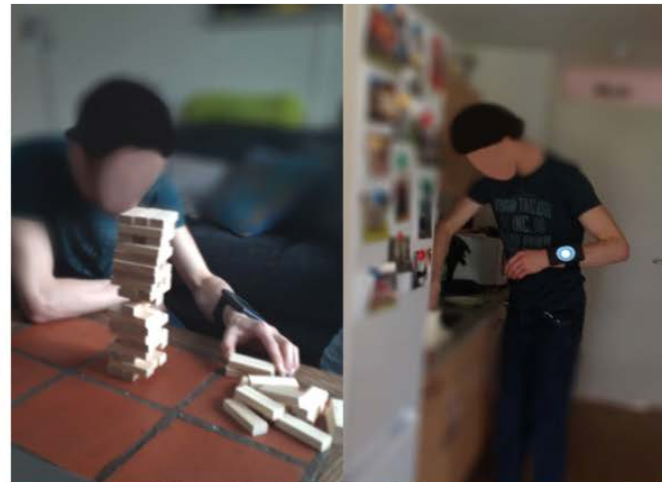
→ Personal ways of skilled coping



How can we enable people to *put the data to a meaningful use* within their own, personal practices?

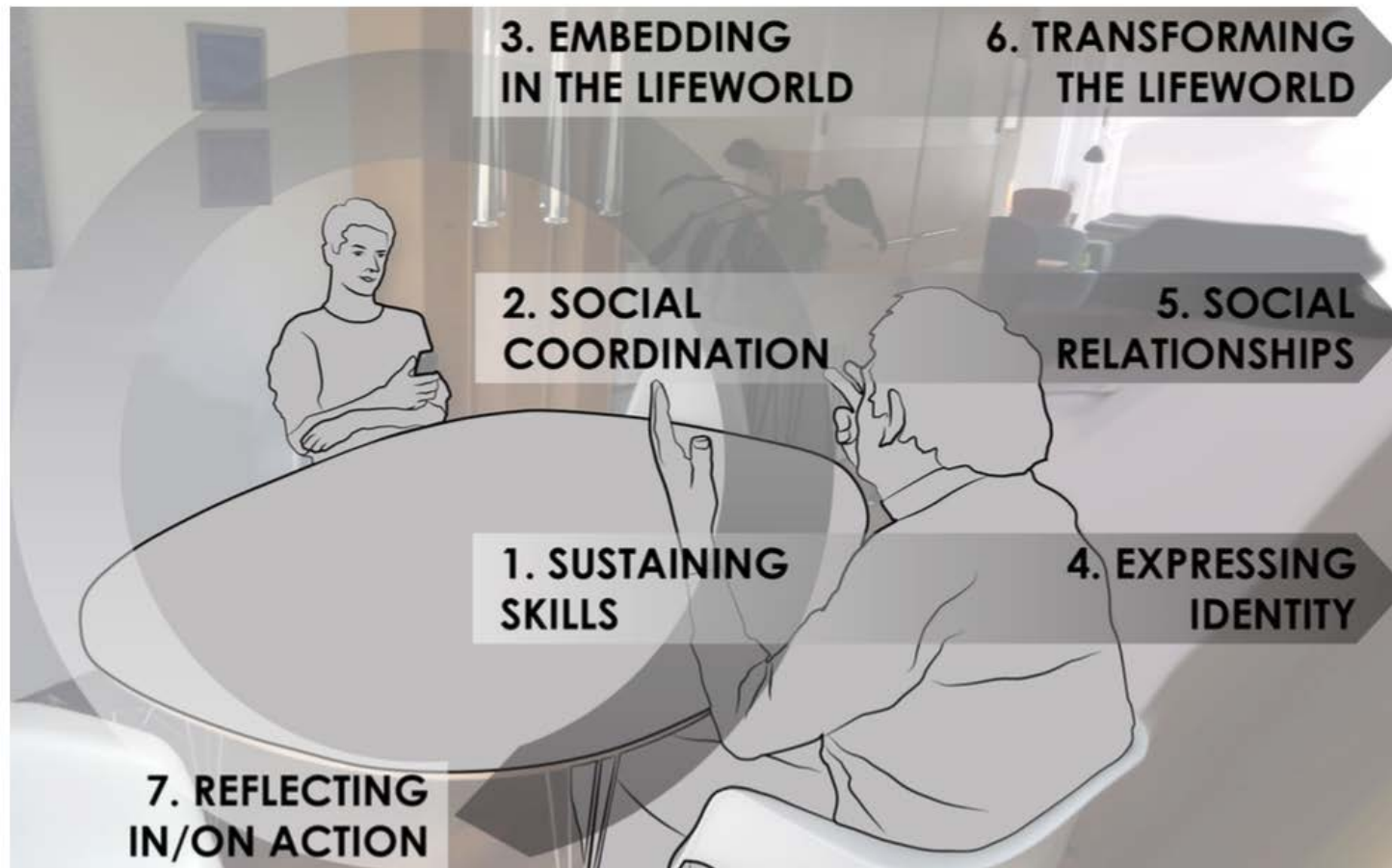
# The person as a research object?

→ The person as *co-designer*!





# Embodied Empowerment



Van Dijk, J. & Hummels, C.C.M. (2017).

**Designing for Embodied-being-in-the-World:** Two cases, Seven principles and one framework. Proc. of TEI'17, Yokohama, Japan.



# Conclusions/questions

- Implicit assumption: 'how scientists use measurement instruments' in the design logic of many wearables.
  - ☑ **Rethink the *role* the device will play in the life of the person**
- Implicit cognitivist assumption about data being representation about state of affairs that people then will perceive, process internally and use to decide on an action.
  - ☑ **Focusing on how technology can participate in people's sensorimotor couplings will yield different design solutions in form, behavior, and the kinds of data-processing required.**
- Implicit hope that people are a general category we can design for as a group
  - ☑ **How can we design for individual persons? Where does that leave 'evidence based' technology development?**
- Implicit objectification of person, even asking the person to see herself as an object whose behavior needs to be controlled (as a problem to be solved)
  - ☑ **How acknowledge the person as an active participant in the inquiry – how to enable that person to be most fully herself, with technology?**

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