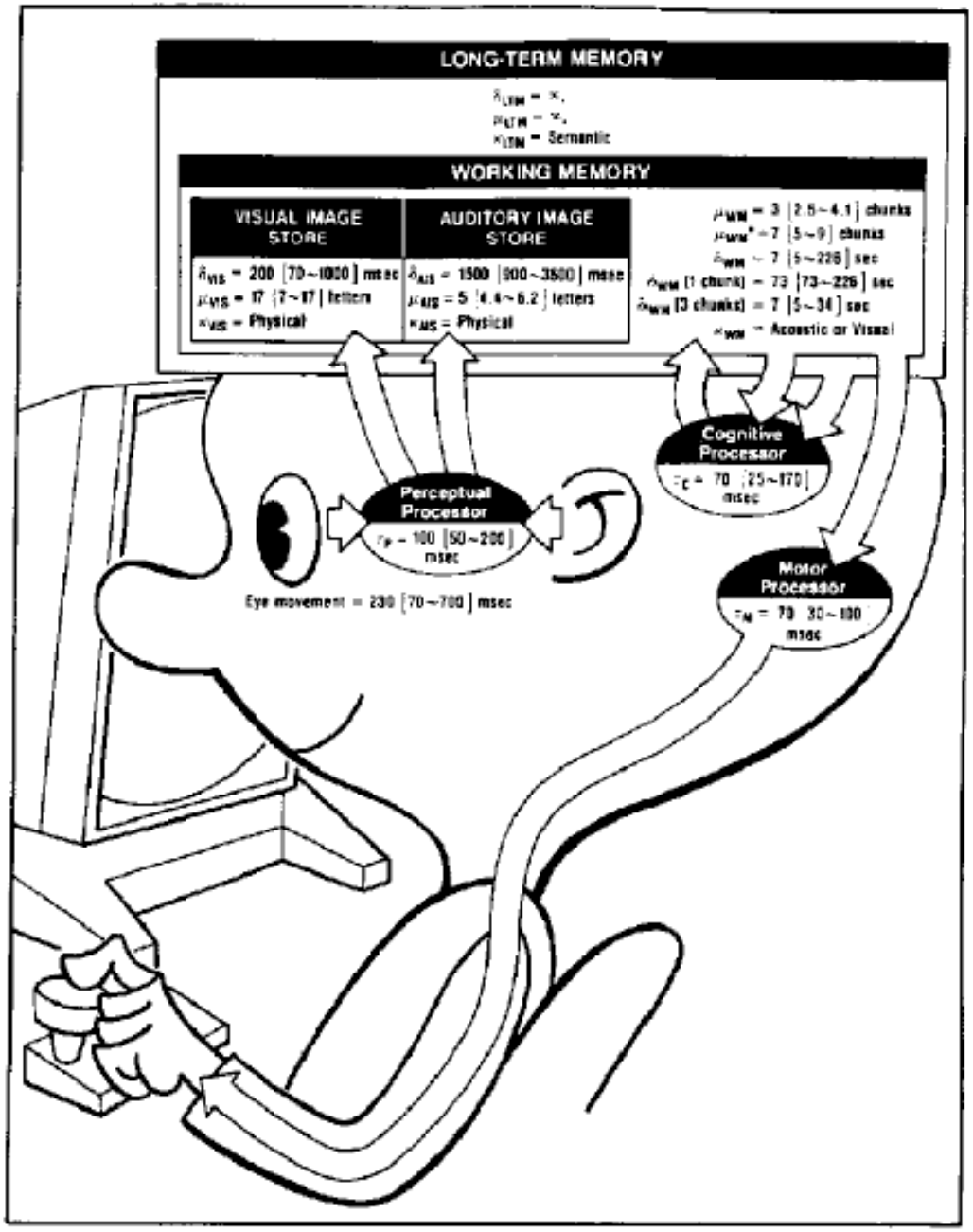
Computer Mediated Activity

Susanne Bødker

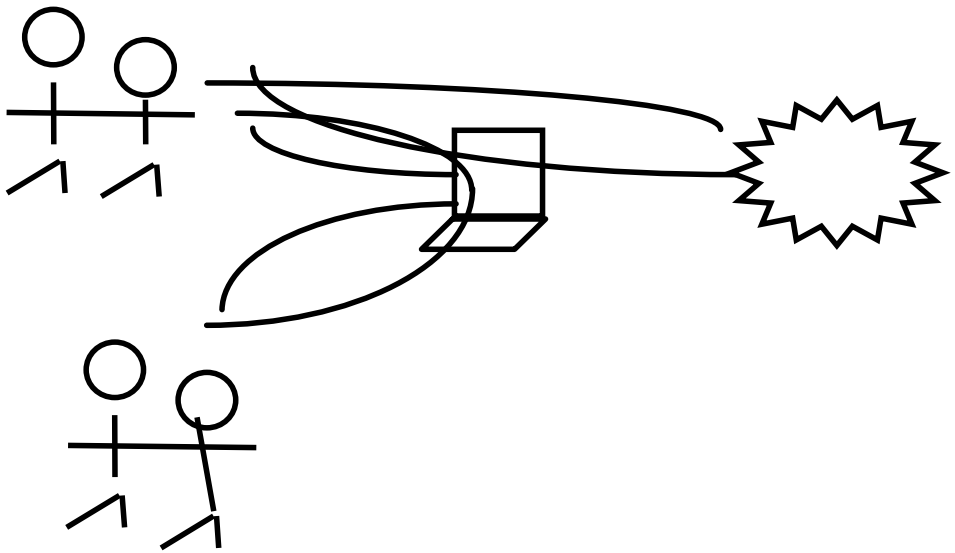
1985

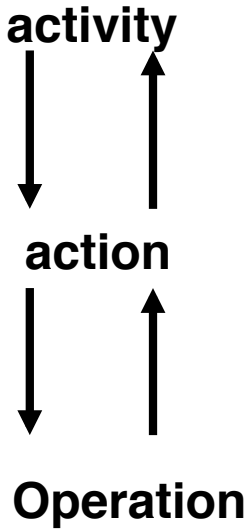
- The Model Human Processor
- Card, Moran & Newell



Mediation – "Through the Interface" 1991

- Focus on actual use
- Mediation, routines, learning and breakdown
- Artefacts, mediators, objects through the computer





Levels of activity –
Bærentsen & Trettvik

Levels of activity	Mental representation	Realizes	Level of description	Analytical question
Activity	Motive (need)–not necessarily conscious, but may become conscious	Personality	The social and personal meaning of activity, its relation to motives and needs	Why?
Action	Goal–conscious	Activities (systems of actions organized to achieve goals)	Possible goals, critical goals, particularly relevant sub-goals	What?
Operation	Condition of actions (structure of activity)–normally not conscious, only limited possibilities of consciousness	Actions (chains of operations organized by goals and concrete conditions)	The concrete way of executing an action in accordance with the specific conditions surrounding the goal	How?

Affordances

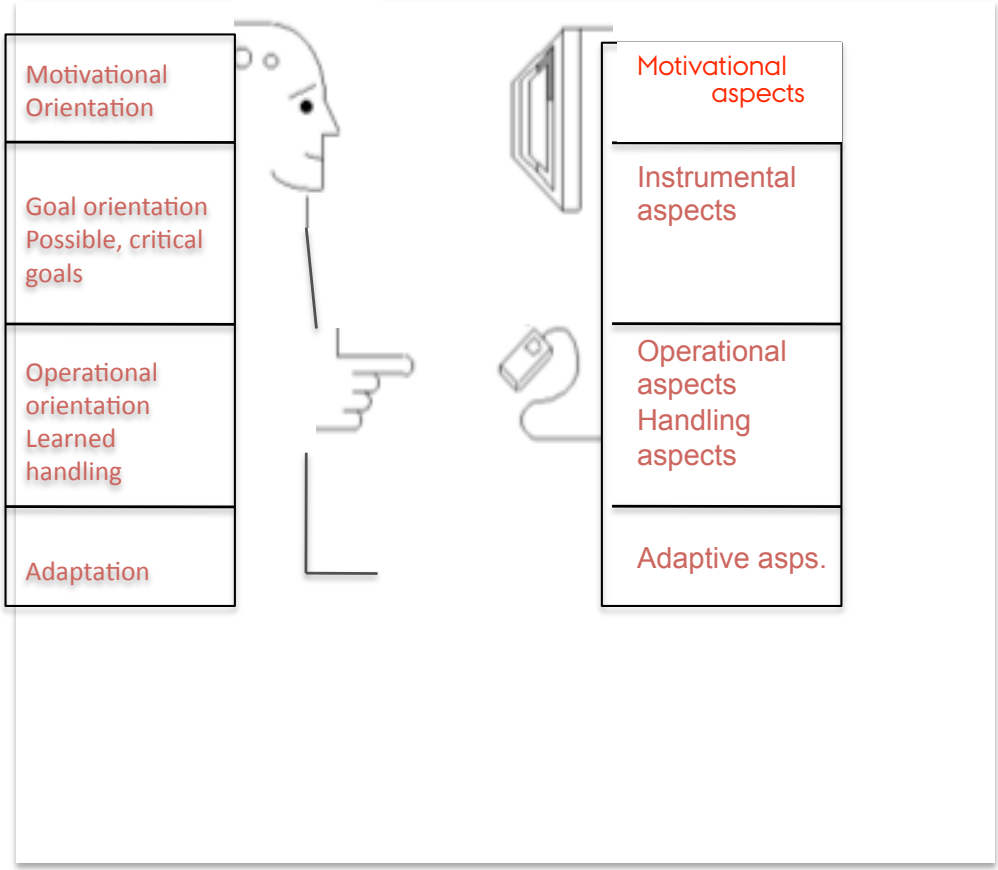
Gibson and Norman

Perceiving as action possibilities:
Chairs are sit-able, cups drink-able, etc.

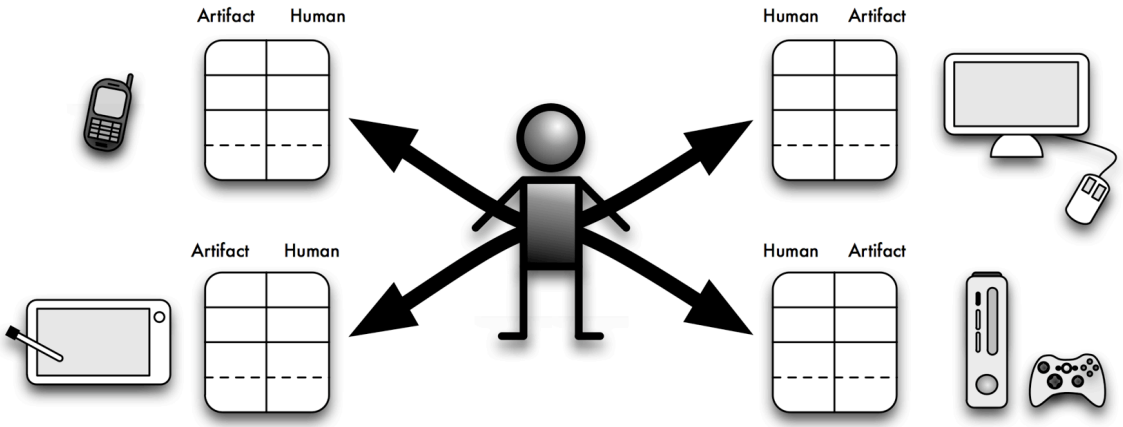
Learning as extending the repertoire of action possibilities (differentiating, e.g. cup from glass, big hammer from small)

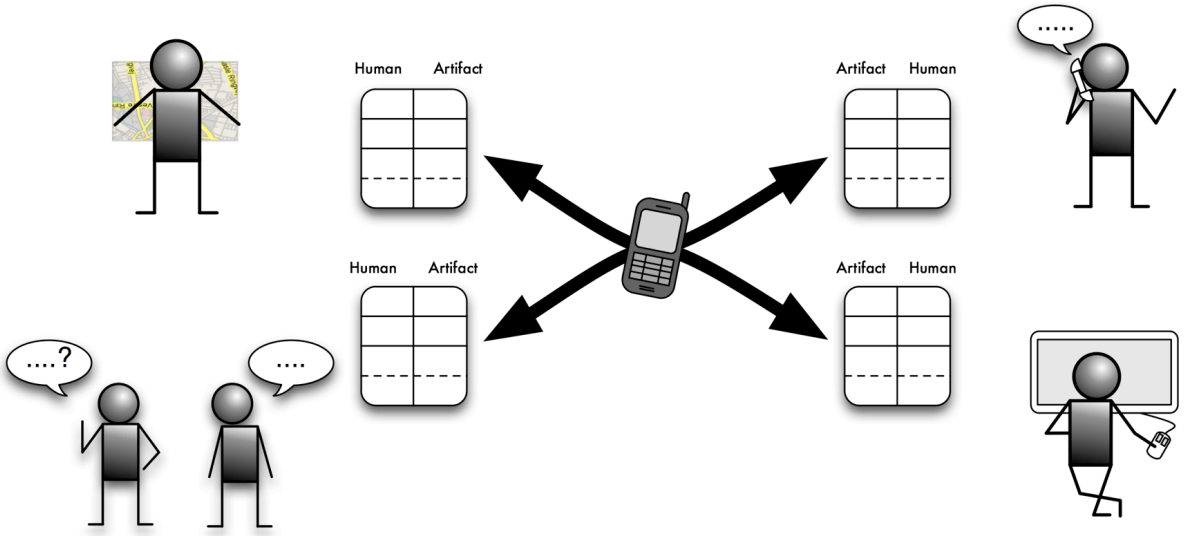
Building affordances into the interface?

The human artifact model



	Artifact	Human
Why?	Motivational aspects	Motivational orientation
What?	Instrumental aspects	Goal orientation
How?	Operational aspects – Handling aspects	Operational orientation – Learned Handling
	– Adaptive aspects	– Adaptation


Artifact Human
Human Artifact
Artifact Human
Human Artifact


Human Artifact
Artifact Human
Human Artifact
Artifact Human
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....?
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Comparing

Hartson, H.R. (2003). Cognitive, physical, sensory, and functional accordances in interaction design, *Behavior and Information Technology*, vol. 22, no. 5, 315-338 - **Natural affordance**

Winged Corkscrew	
Apply little force to uncork bottle Minor damage to cork Cheap	Drinking wine Drinking wine without cork pieces Reusability of cork to close bottle Use little force to open bottle ...
Uncork wine	Uncorking wine
Screw helix into cork Press down wings	Principle of leverage Fastening a screw
Handle and wings sized for human operation	Using fingers to turn handle and press down on wings

Nut and Bolt Corkscrew	
Apply little force to uncork bottle Minor damage to cork (less than the winged) Exclusive	Drinking wine Drinking wine without cork pieces Reusability of cork to close bottle Use little force to open bottle Keeping up appearance ...
Uncork wine	Uncorking wine
Lock handle to spiral Screw helix into cork Lock releases Continue turning handle to uncork	Physics of bolts and nuts Fastening a screw
Handle sized for human operation	Using fingers to turn handle

“Natural” affordance or learned operations?

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Operations only?

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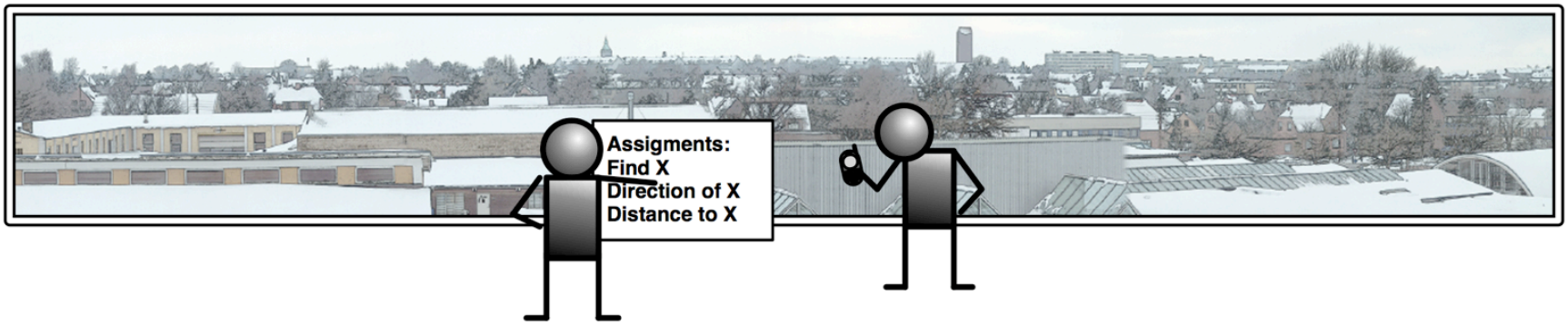
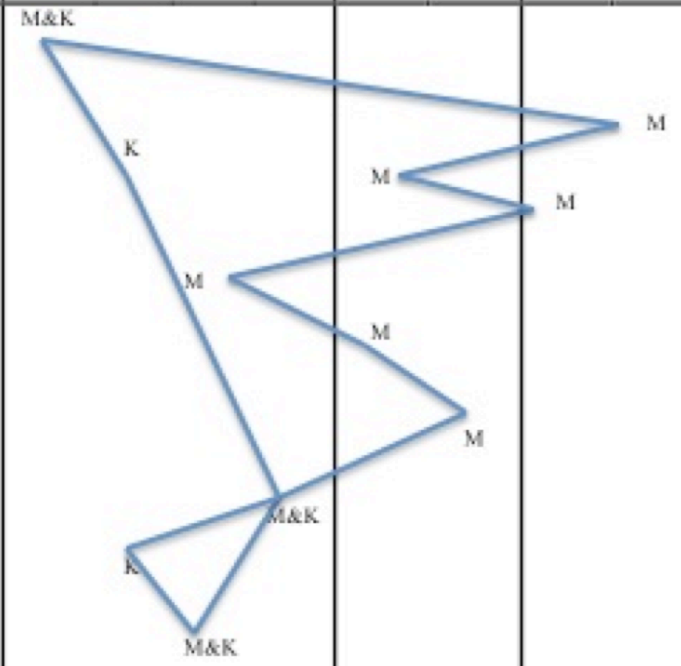
Maps on a tablet PC

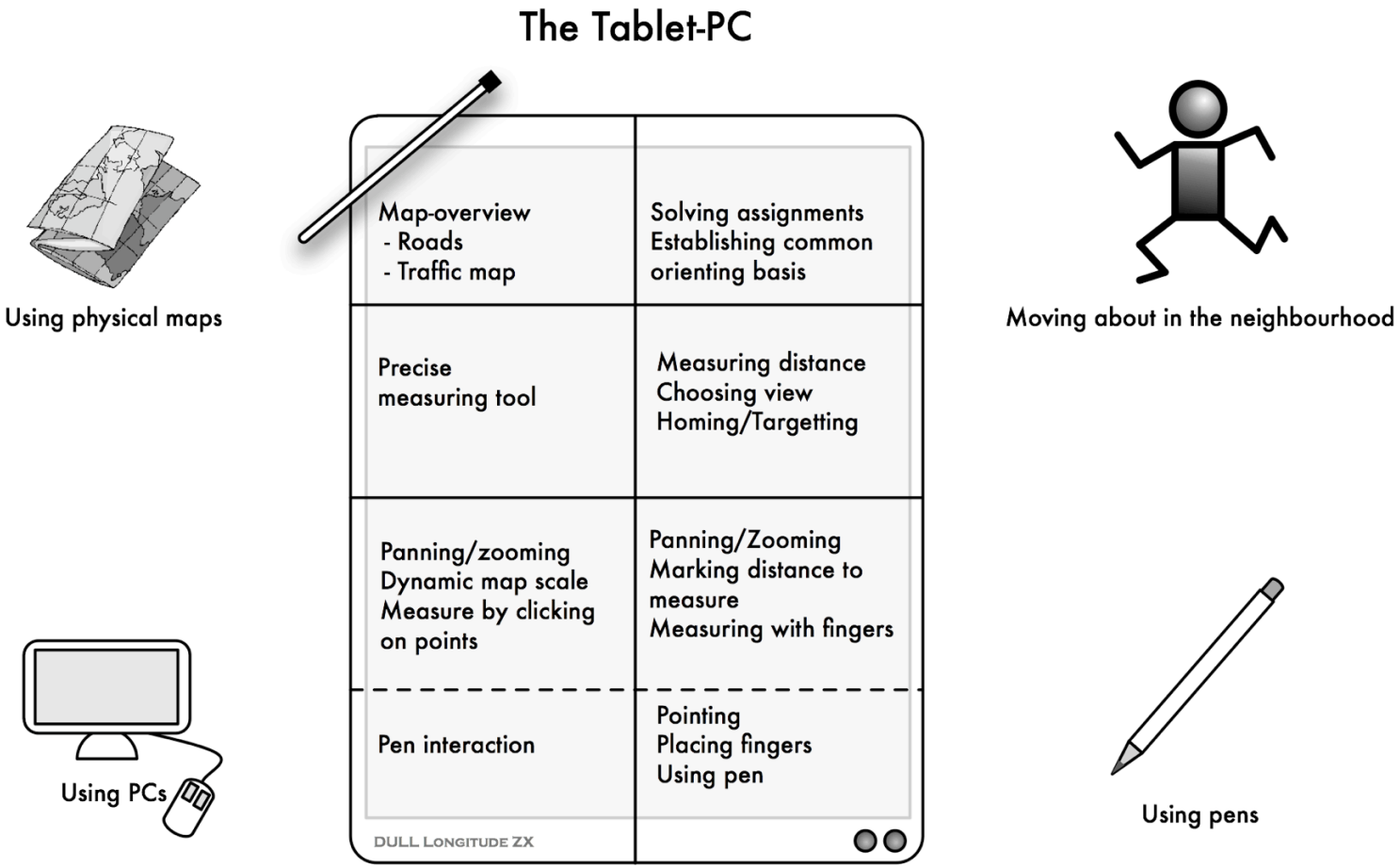
- Study of how people interact with maps on cell-phone, tablet PC and on paper



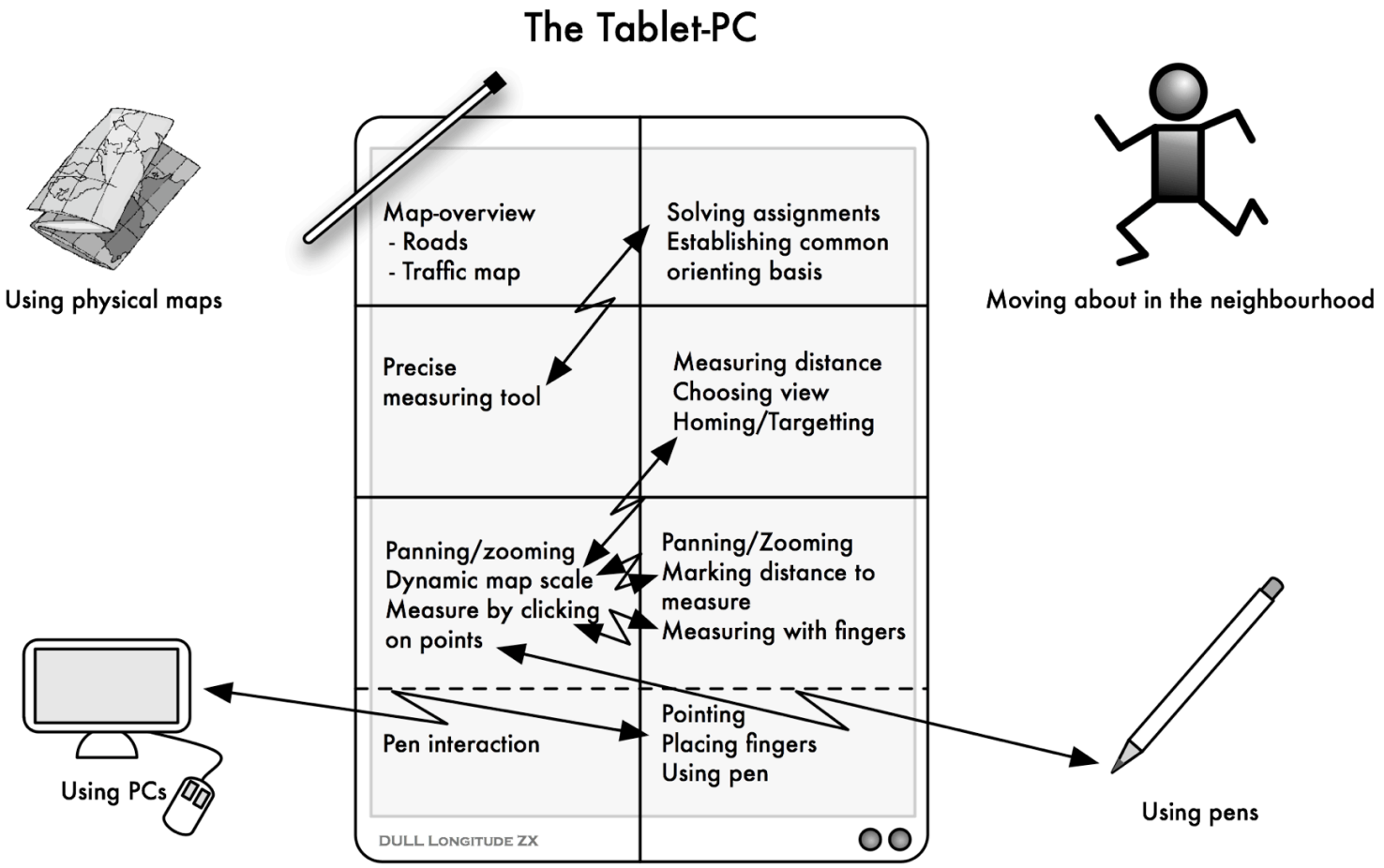
Focus shifts

		What Instrumental aspects School View Street Bus stop	How Learned handling Pan/ zoom Menu	How Adaptation Joy- stick Hold
Kate: The yellow building up there, Mary: So isn't that where you turn? Kate: It is further up? Mary: (sings) Mm, hm, hm, tsk, tsh (...) Mary: Oh what's the name of that street? I ride my bike there every morning Kate: I don't know if we can get much closer Mary: Ahh (sings). I cannot remember at all. The bus stop is called Polytechnics. Kate: Well yes, I pass that too, up that road, it is right after (...) Mary: Well, what is it called? The ice rink is on that street too.	They bend over the phone Mary holds the phone The both look up and on the phone Mary tries to pan Mary is concentrating on the phone, she tries to pan and zoom Mary uses cell-phone menu Kate looks out Kate gestures in the air in front of herself			

Experience and the artifacts



Tensions


The Tablet-PC
Using physical maps
Map-overview
- Roads
- Traffic map
Solving assignments
Establishing common orienting basis
Moving about in the neighbourhood
Precise measuring tool
Measuring distance
Choosing view
Homing/Targetting
Panning/zooming
Dynamic map scale
Measure by clicking on points
Panning/Zooming
Marking distance to measure
Measuring with fingers
Using PCs
Pen interaction
Pointing
Placing fingers
Using pen
Using pens
DULL LONGITUDE ZX

Read more

Bødker & Klokmose: The Human-Artifact Model, in press for Human-Computer Interaction 2011

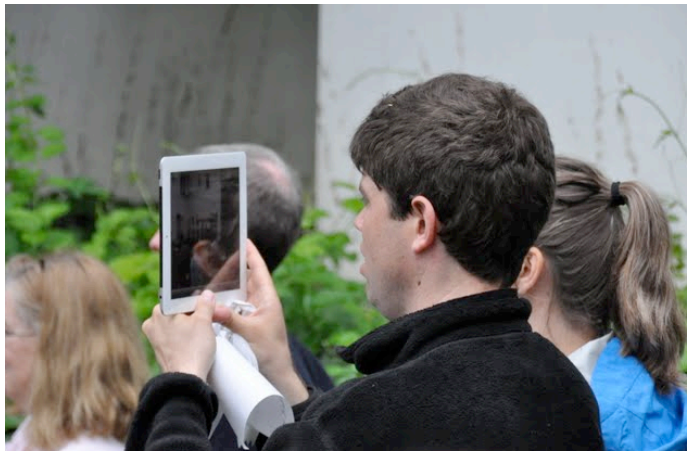
Revisiting the study after iPad

- "Fingers on" – already no longer an issue? People are used to touch on smart-phones
- Mobile map scale and coarse distance measure might still be
- Joint focus and map use for several users (which is actually different from a smart-phone)

What is possible now that was not 3 years ago, designwise?

How do we appropriate new technologies like the iPad -individually and together?

Google pictures



The group and it's activities

Susanne Bødker

Olav Bertelsen

PhD students: Morten Bohøj, Nikolaj G. Borchorst, Matthias Korn, Niels Mathiasen, Stefan Wagner

Current topics: Privacy, security and trust, appropriation, experience, citizens and democratic engagement, computing materials