

PETER GALL KROGH

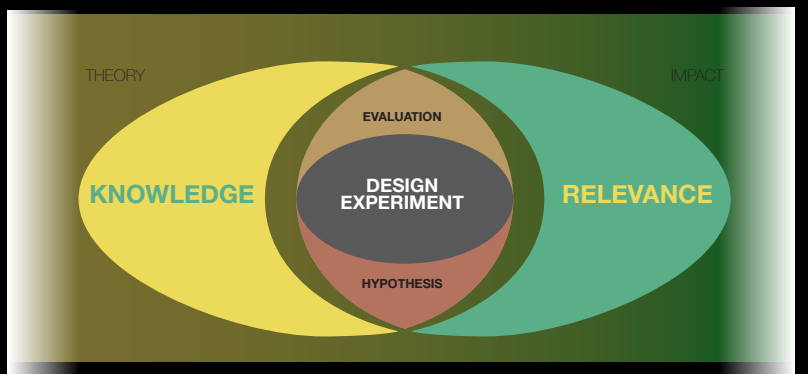
Professor, Architect

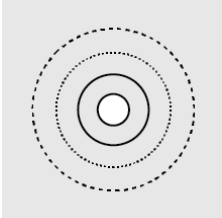
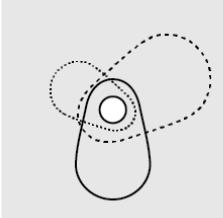
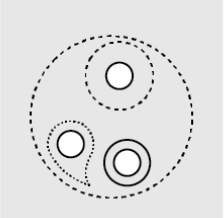
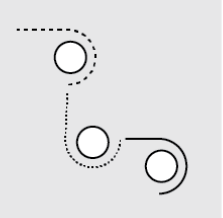
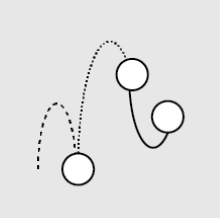
Digital Design, Department Communication and Culture

ARTS, Aarhus University, DK

Peter Gall Krogh,
Professor MAA,
ARTS - Digital Design

Three take aways



Epistemic tradition	METHODIC	PROGRAMATIC	DIALECTIC	PRACTICE	
Contribution ideal	Predictability	Frameworks	Mutual learning	Imagination	
Approach	 <p>ACCUMULATIVE</p>	 <p>COMPARATIVE</p>	 <p>EXPANSIVE</p>	 <p>SERIAL</p>	 <p>PROBING</p>

Me...

- Architect MAA - Arkitektskolen Aarhus, DK
- Head of Innovation, Alexandra Instituttet (GTS)
- Visiting professor: Milano, Eindhoven, Hong Kong and currently Wuxi (Kina)
- Co-designer of BA and MA programs in IT-Product Design and Development and MA in Experience design - all AU

From Drag'n Drop through Twist'n Shout to Insights and dialogue

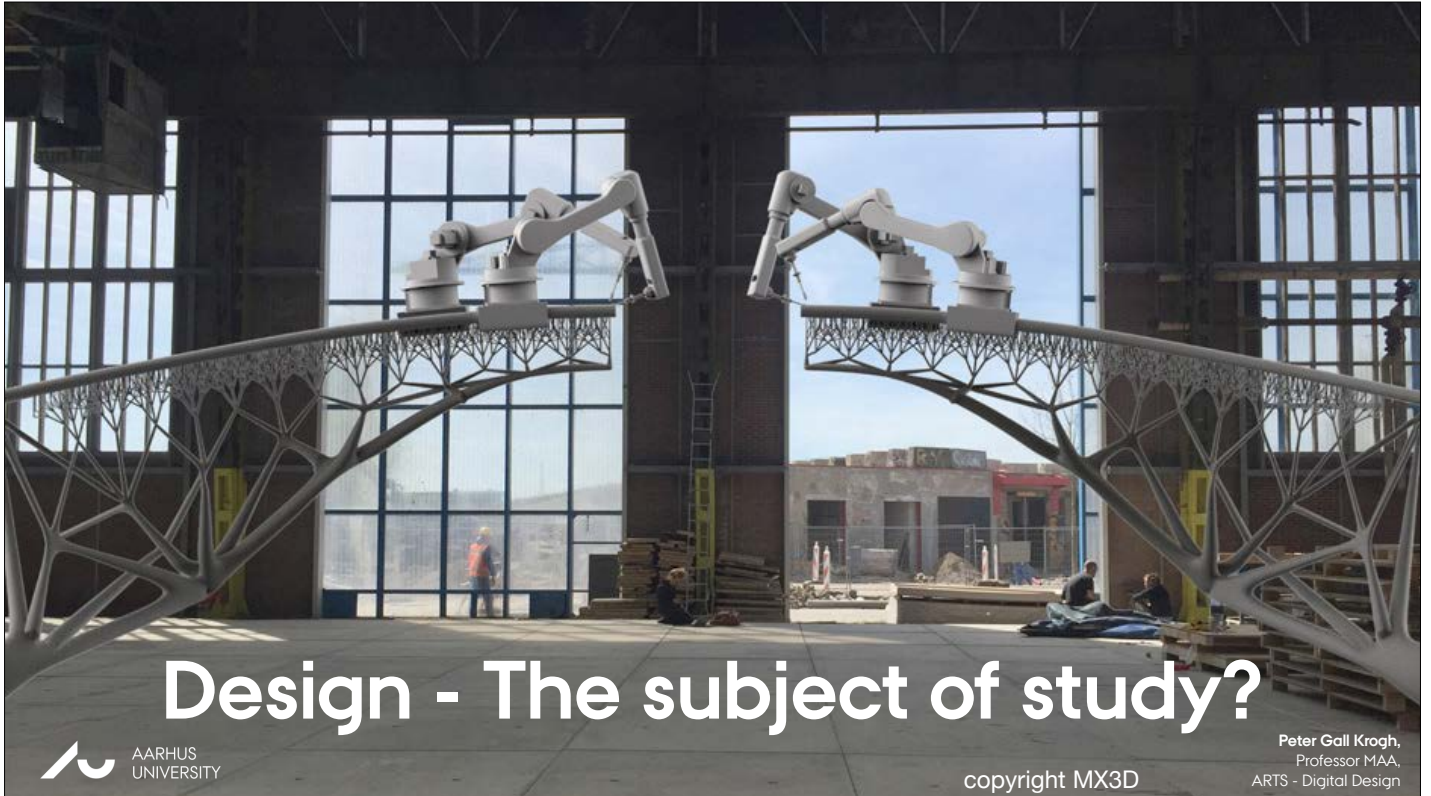


Constructive design research

When you design with the objective of building knowledge

Disclaimer constructive design research

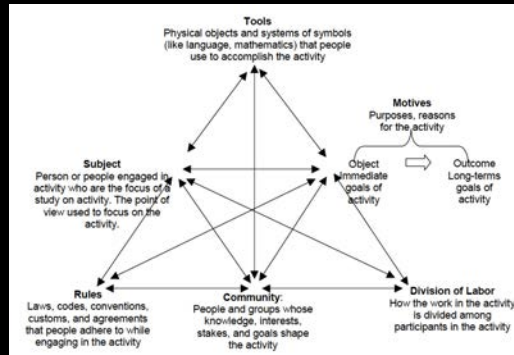
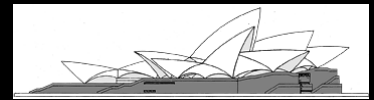
- Practice-based
- Research about/ into/ through design
- And more...



Design - The subject of study?

The shift to knowledge

- Exemplars - Particulars - The designer
- Theory - Generalisability - Beyond disciplines



Ill-behaved problem solvers

- Counter brief
- To what **question** is this **project** an **answer**?

A spectrum for design traveling towards realisation

Intention-driven

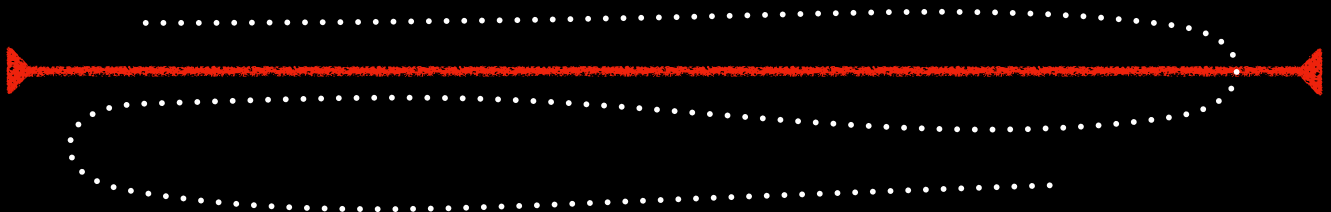
Rigour
Tame
Reason
Conscious

Intuitive
Bias
Un-Conscious

Imaginative
Attribute: valorise, maligne
Sub-Conscious

Emergent-Friendly

Relevance
Wicked
"Design thinking"
Consciously-not knowing



Artefacts, experiments and theory in an erratic discipline

- The design world is filled with stuff and realities that doesn't add up to a coherent theory - so why at all talk about research?
- Theory always underspecifies design (Gaver)



A nexus of theories (Carroll and Kellogg)

The bottom of the dispute

- What is science? What is knowledge?
 - What is the role of design in its production?
- And:
- Is scientific knowledge the only relevant in design?
- Is there a single epistemology?, or more? Or even a generic in the making? (Schmid & Hautchel 2014)

Accountability

Bill Gaver:

- Epistemological accountable (the scientist)
- Aesthetic accountable (the designer)

To whom are you accountable?

- The auteur - the designer herself?
- Which design discipline -
 - graphics and fashion have their ideals,
 - products others,
 - while service design and interaction design yet further others...
- Which community of science/ research
- Art?
- Specification of fire and use safety, marketability, efficiency of production, packaging...

Practice-based design research Koskinen et al (2011)



Lab



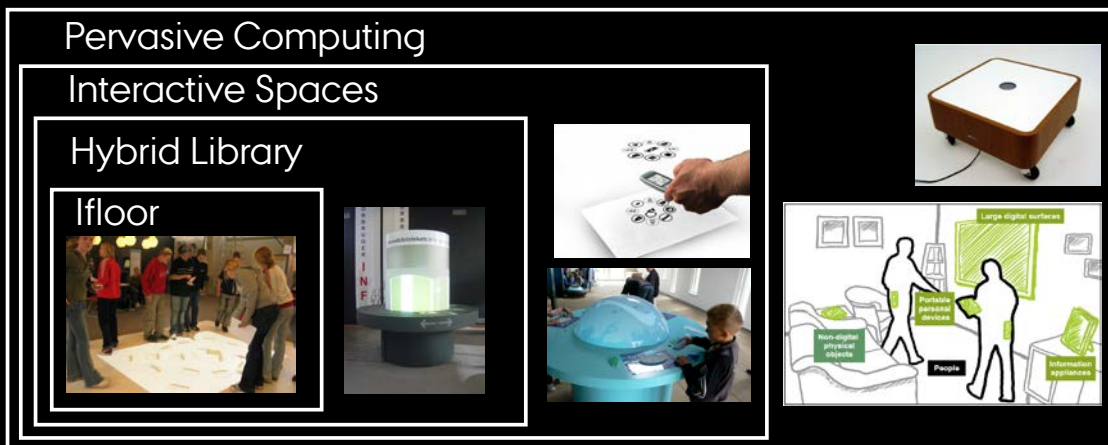
Showroom



Field

Johan Redström: Making Design Theory (2017)

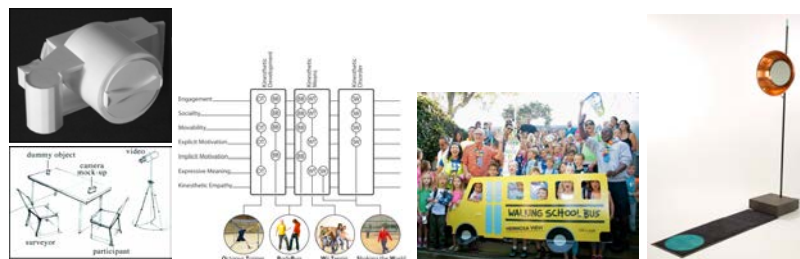
- 4 P's: Product, project, program, paradigm



Drifting by intention

4 Epistemic traditions

Constructive design research



Epistemic tradition	METHODIC	PROGRAMATIC	DIALECTIC	EXPERIENTIAL
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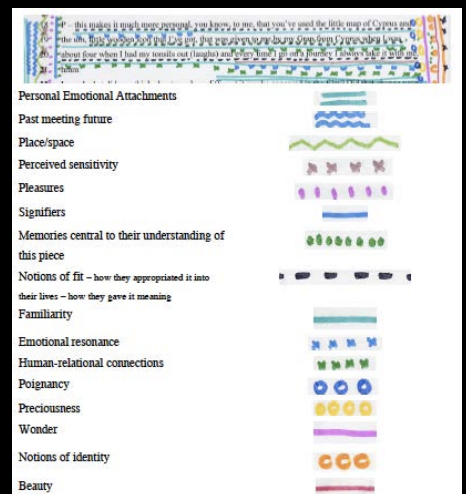
Experiential

- Theory underspecifies design (Bill Gaver)
- Drifting is central element of the design process and needs no justification
- The artefacts are hypotheses in themselves:
 - The produced objects elicits experiences along the line of thinking of the designer?
 - The project is considered a succes if the hypothesis is confirmed

Jayne Wallace 2007



Emotionally Charged:
A Practice-Centred Enquiry of Digital Jewellery and Personal Emotional Significance



Mo Michelsen Stochholm Krag (2017)



**Transformation on
Abandonment:**
A New Critical Practice?



Peter Gall Krogh,
Professor MAA,
ARTS - Digital Design

Experiential practice and hypothesising

- Products are hypotheses
- They are qualified through comparison
- Annotated portfolios



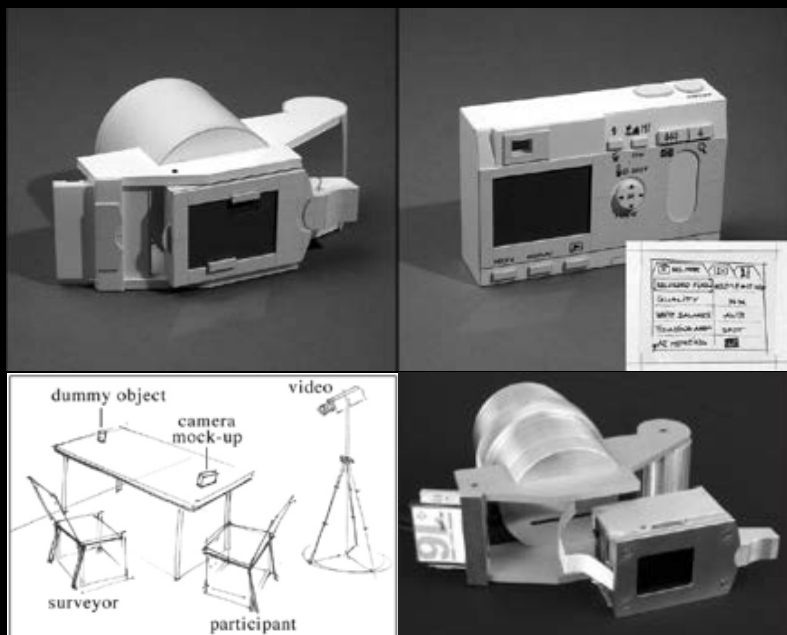
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Methodic

- Ensure collaboration through compliance
- Methodologies, procedures and process tools steward the design work
- Strive for verifiability
- Identify measures
- Any drift needs to be justified by reason
- In its extreme any personal assessment should be ruled out

Joep Frens (2006)

***Designing for Rich
Interaction:
Integrating Form,
Interaction, and Function.***



Methodic tradition and hypothesising

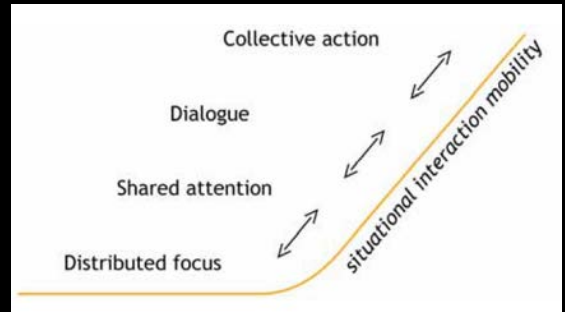
- Concepts from literature form the basis for something to be tested by design
- Theoretical work creates a structure of meaning
- This is as close constructive design research goes to become a science...

Programatic

- Frameworks and theories as outlets and evaluative criteria of research
- Pervasive in HCI and geographically in Scandinavia and the USA
- Drifting happens in the design work - but most importantly it happens when conceptualising the work, and debating pros and cons
- Knowledge is build on research predecessors and may drift depending under which theoretical perspective work is viewed - this may be viewed as an ambiguity that thus needs to be declared

Martin Ludvigsen

(2006)



Designing for Social Interaction

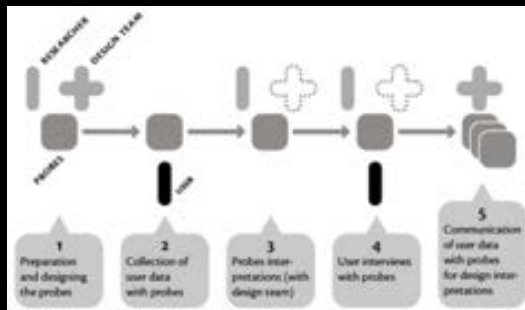


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Tuuli Mattelmäki

(2006)



Design Probes



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Programmatic tradition and hypothesising

- Artefacts are understood with regard to the research program they are a part of
 - both literature tested by design
 - and design being understood by frameworks
- It is dependent on its community - and the community defines itself on examples and the framework that document them

Dialectic

- A key driver is mutual learning between prospective users, stakeholders and designers
- The objective of the design process may not be the what is designed, that the process facilitated change
- Drifting and progress is based on the involvement of people
- User-centred and participatory design are different approaches

Christian Dindler

(2010)



Fictional Space in Participatory Design of Engaging Interactive Environments.

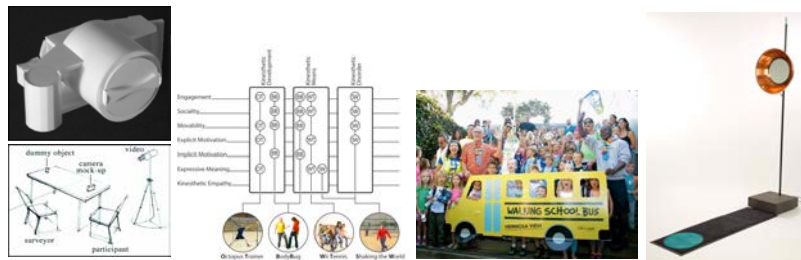
Dialectic Tradition and Hypothesising

- the result of a dialogue between multiple agents
- Mutual learning - collective hypothesising
- The hypothesis has a life on its own...
- ...dialectically pointing to a potential future
- Participatory, adversarial, user-centred

Knowledge - accountability

- Epistemology - the way we know things, and checking if we can trust our senses...
- We claim that the way in which knowledge and practice work depends crucially on how we understand knowledge.
- Knowledge for us is more than scientific knowledge; it is also practical.
- To put it on standard philosophical terms, when design becomes research, i.e. leaves the context of discovery and has to play the game of “context of justification”
- Knowledge takes many forms - and scientific is not the only of value here
- It is at least Janus-headed

4 epistemologies



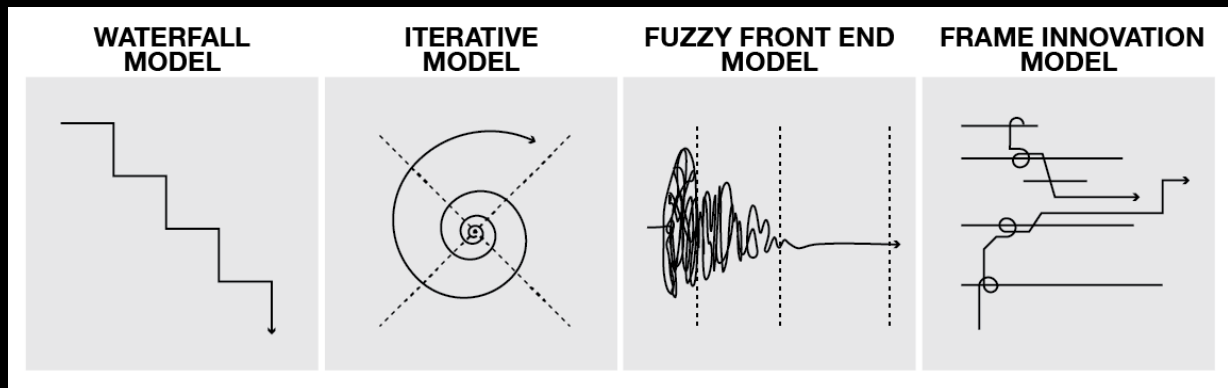
Epistemic tradition	METHODIC	PROGRAMMATIC	DIALECTIC	EXPERIENTIAL
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Break

Experimentation

Constructive design research
Pursuing knowledge and relevance

Models of Design progression and status of solution

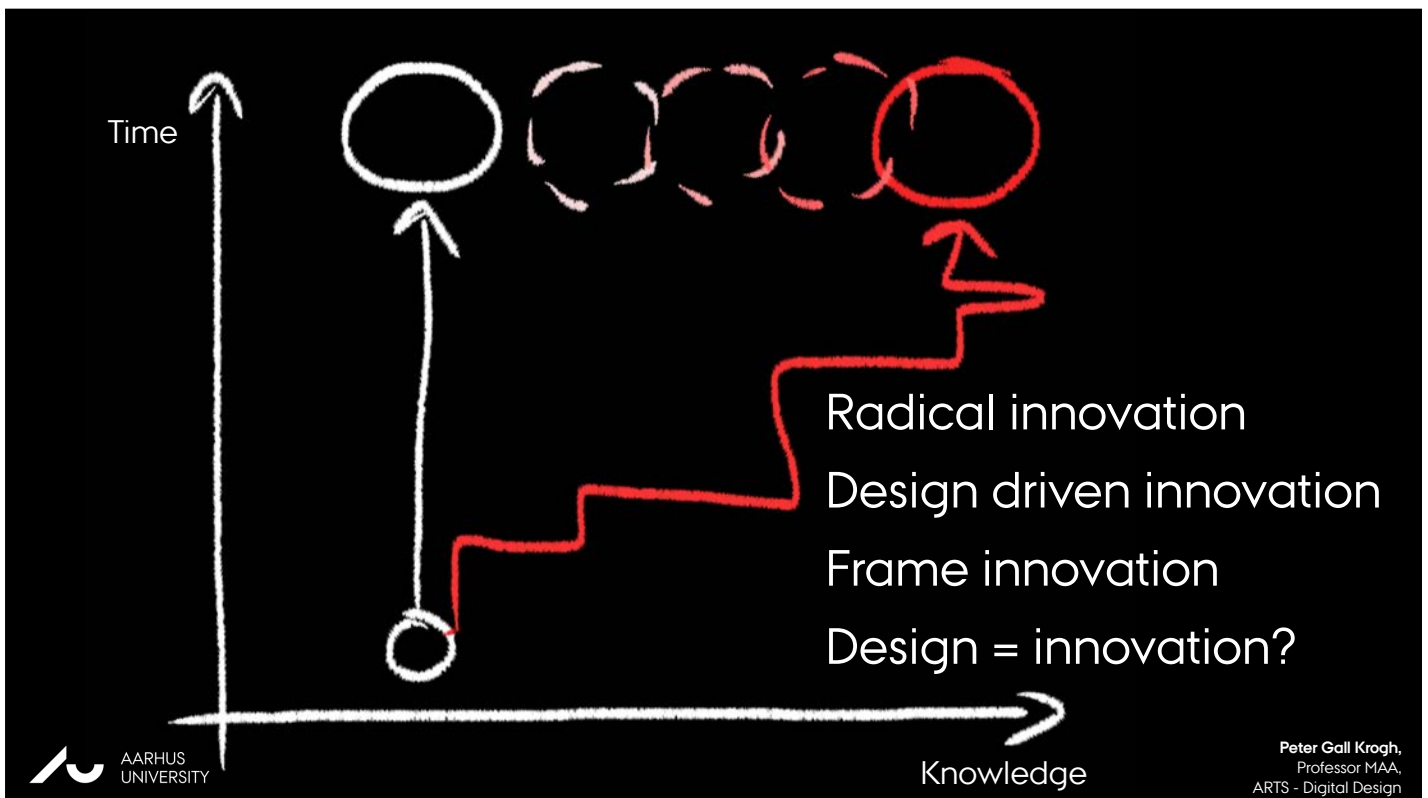


A note on experiment

- In science experiment concerns testing a hypothesis
- In design and art experiment concerns exploration

Experiments change characteristics over the course of a project

- Experiments change characteristics as they are conducted at different times during a constructive design research process.



Time

Time

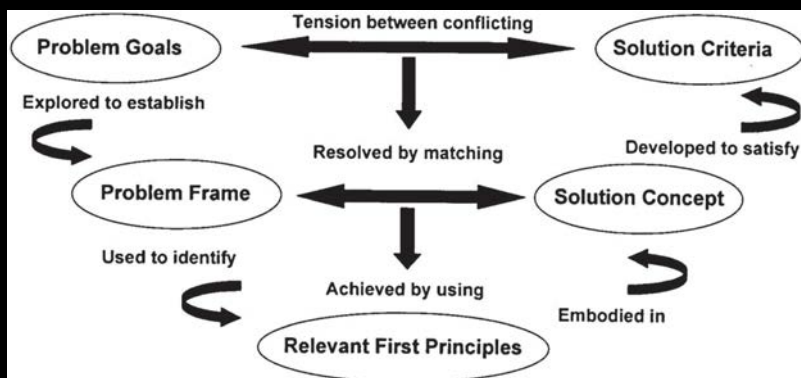
Drifting by intention

- Design beyond ideas

- Designers **drift** (and so do many others)
- We like **success**
- We change course because we **learn**
- We **navigate** agilely
- **Design activity in itself** is a way of gaining knowledge

Knowledge

Knowledge and the design process



Nigel Cross 2002

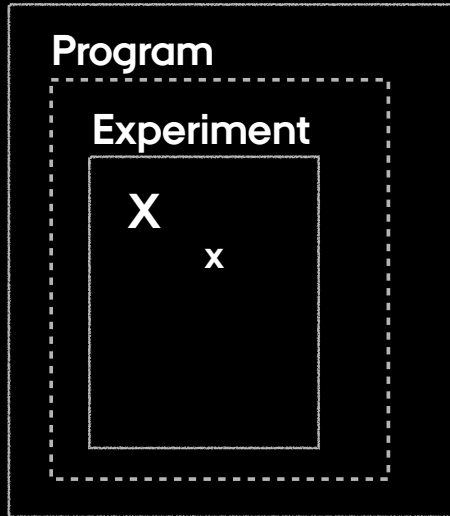


Jan Pieter van Stappers 2006

Question

Program

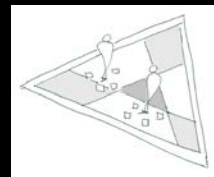
- “Provisional Knowledge Regime”
- Indicated, experientially and academically substantiated

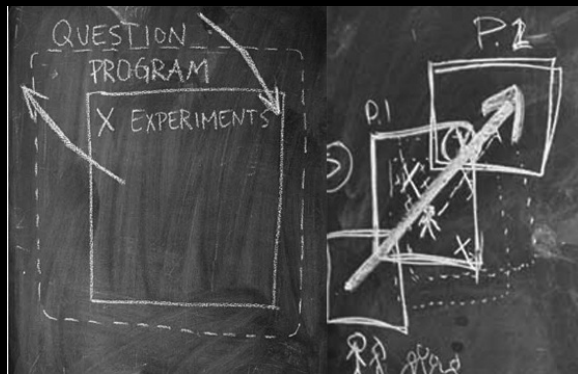


Binder and Redström 2006

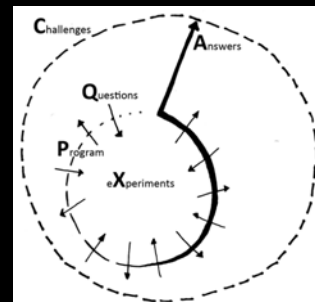
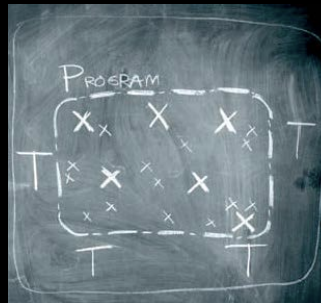
Ideas on and roles of experiments

Donald Schön (1984)	Binder and Redström (2006)	Bang and Eriksen (2014)
Exploratory experiments	Beginnings	Initiating Driving Framing
Move testing experiments	Perform	Drift Reframing Maturing Stabilising
Hypothesis-testing experiments	Intersections	Closure Finalizing





- (x) Experiments
- (X) exemplars



Knowledge and relevance

- When experimenting in design research we serve two concerns:
- **Knowledge** production
- Pursuing **relevance**

The Knowledge/Relevance model

THEORY

IMPACT

KNOWLEDGE

DESIGN
EXPERIMENT

RELEVANCE

EVALUATION

HYPOTHESIS



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ARTS - Digital Design

Interactive Interior and Proxemics Thresholds:

Empowering Participants in Sensitive Conversations for Value-Driven Healthcare



Josephine Raun Thomsen,

Peter Gall Krogh,

Jacob Albæk Schnedler

Hanne Linnet

Design, Department of Engineering,
Aarhus University, Aarhus, Denmark

Department of Oncology, Herning
Hospital, Herning, Denmark



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UNIVERSITY



PROMETHEUS
empowering patients



Interreg
Deutschland - Danmark

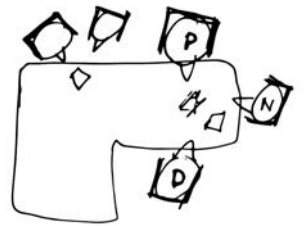


EUROPEAN UNION
Dieses Projekt wird gefördert mit Mitteln des Europäischen Fonds für regionale Entwicklung

Peter Gall Krogh,
Professor MAA,
ARTS - Digital Design

A balanced user-centred and PD process

- 19 observations of existing consultations
- 4 Workshops each with
 - healthcare personel
 - former patients
 - relatives
- Provotypes



Proxemics
Post-structural notions
of power

THEORY

KNOWLEDGE

Interactive technologies and the spatial enactment of social relations



How may we understand the relations between socio-spatial configurations and power?

How may we enable the patient better options for power?



physical tokens and peoples positions will help structuring consultation and balanced exercise of power

Shared structuring
Review conversation

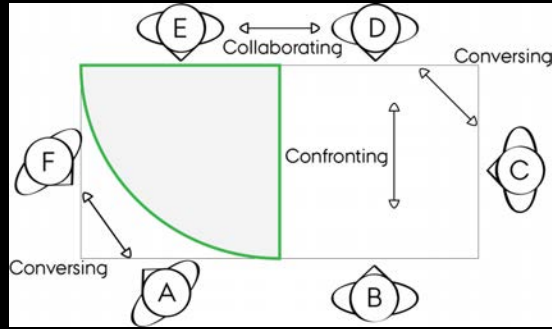
IMPACT

ADVANCE

Patient consent
Increase outcome of consultations

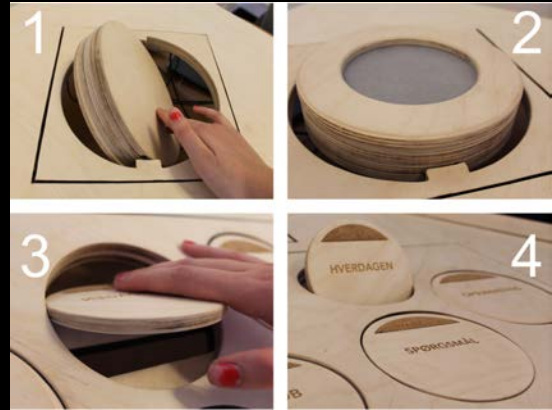
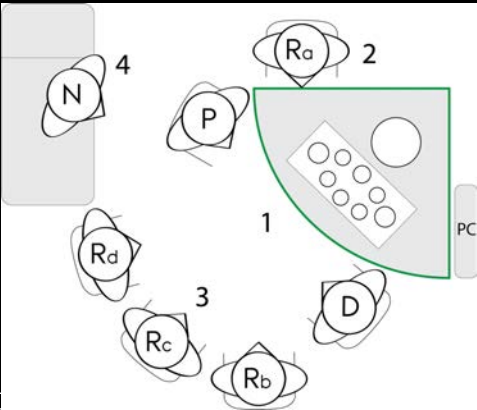


In conversation



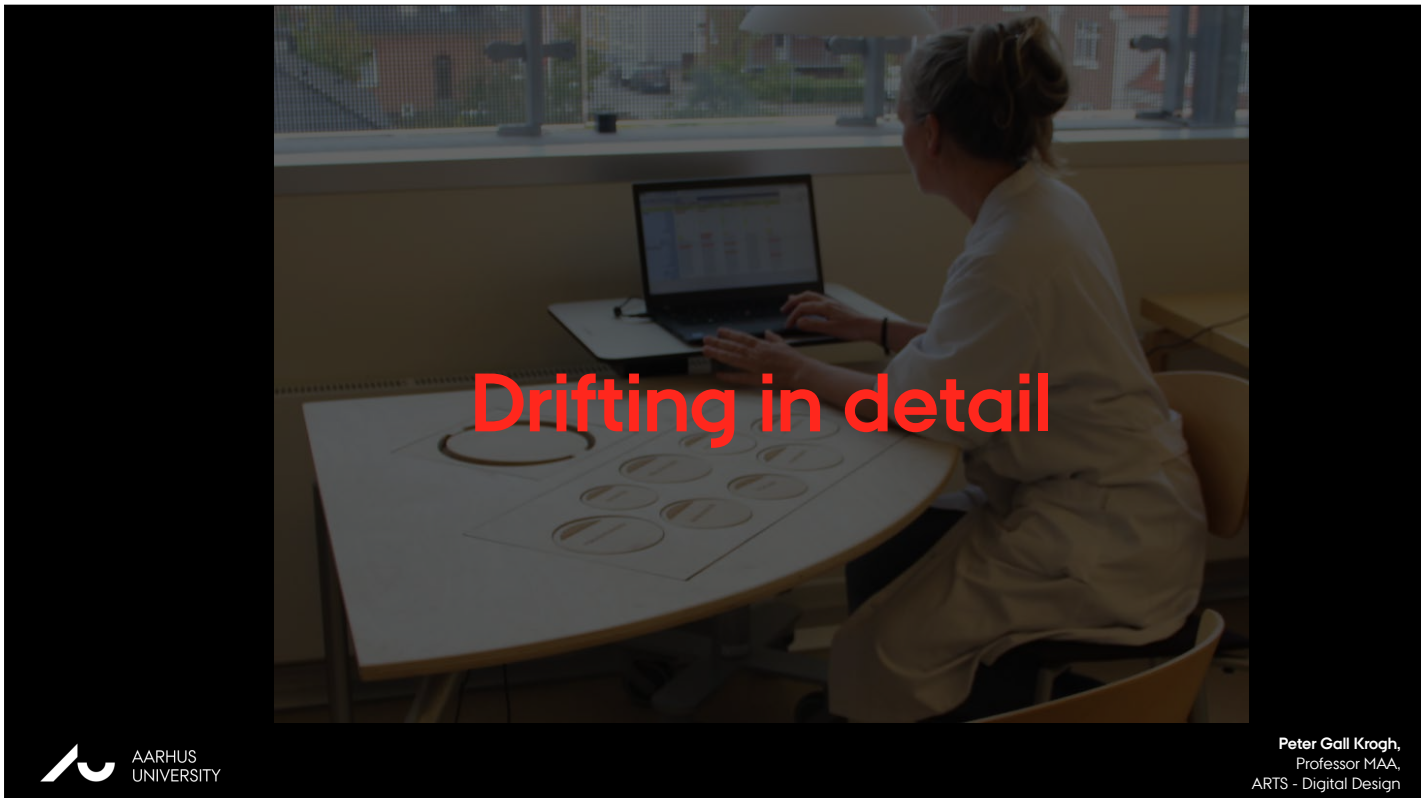
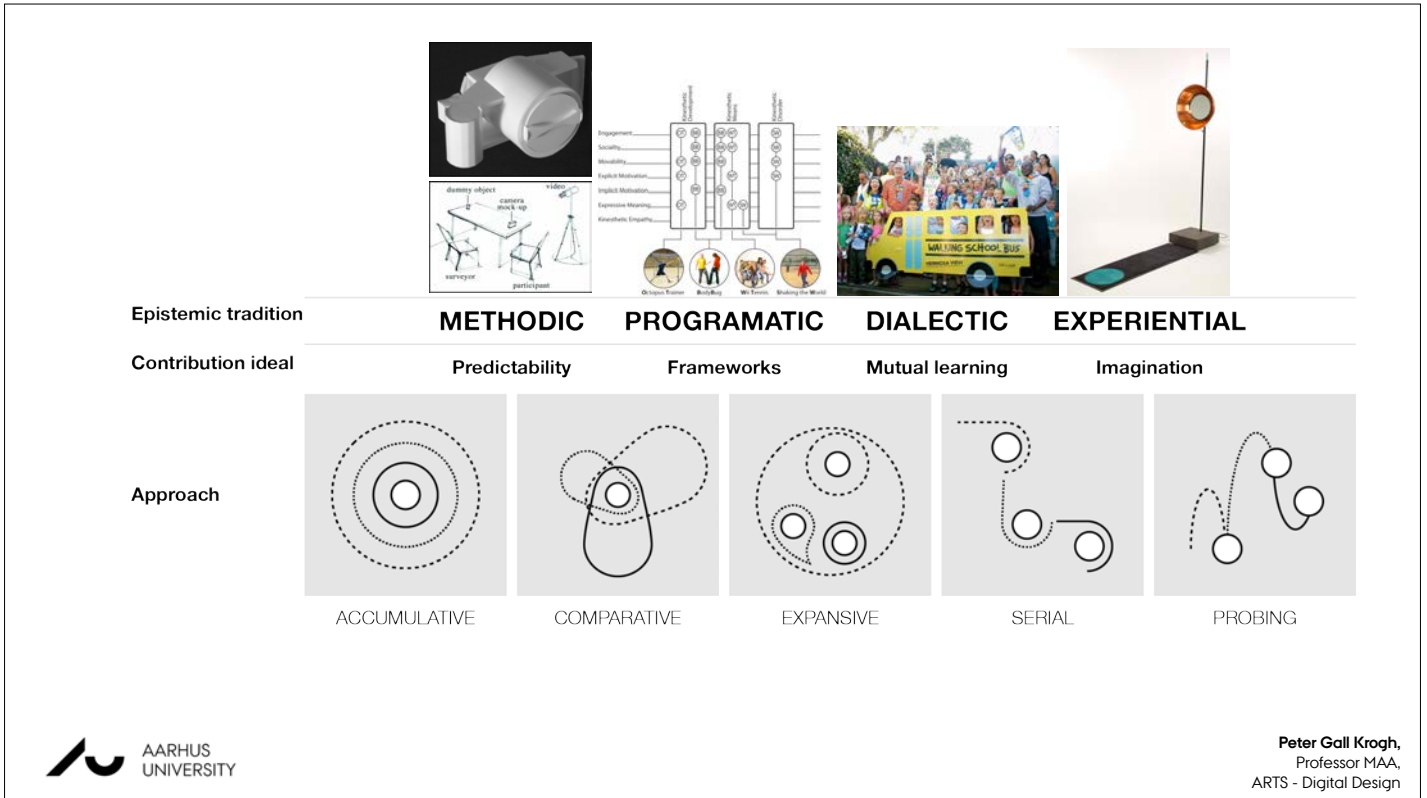
B. Lawson:
Language of
Space

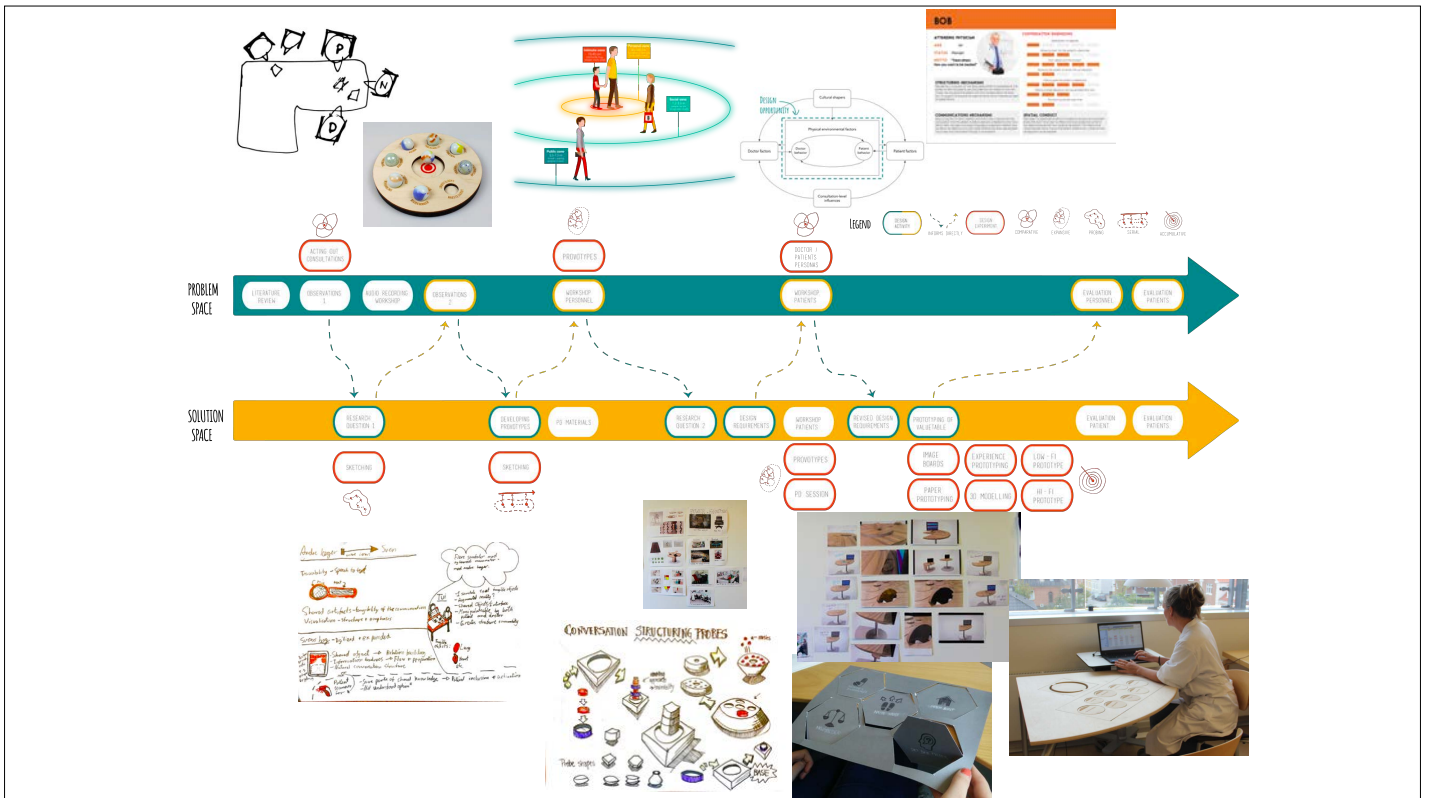
Patient,
Doctor,
Nurse and
relatives
Concerted



Activating the
microphone,
Agenda
setting
tokens,
bookmarking
audio file

Ways of Drifting

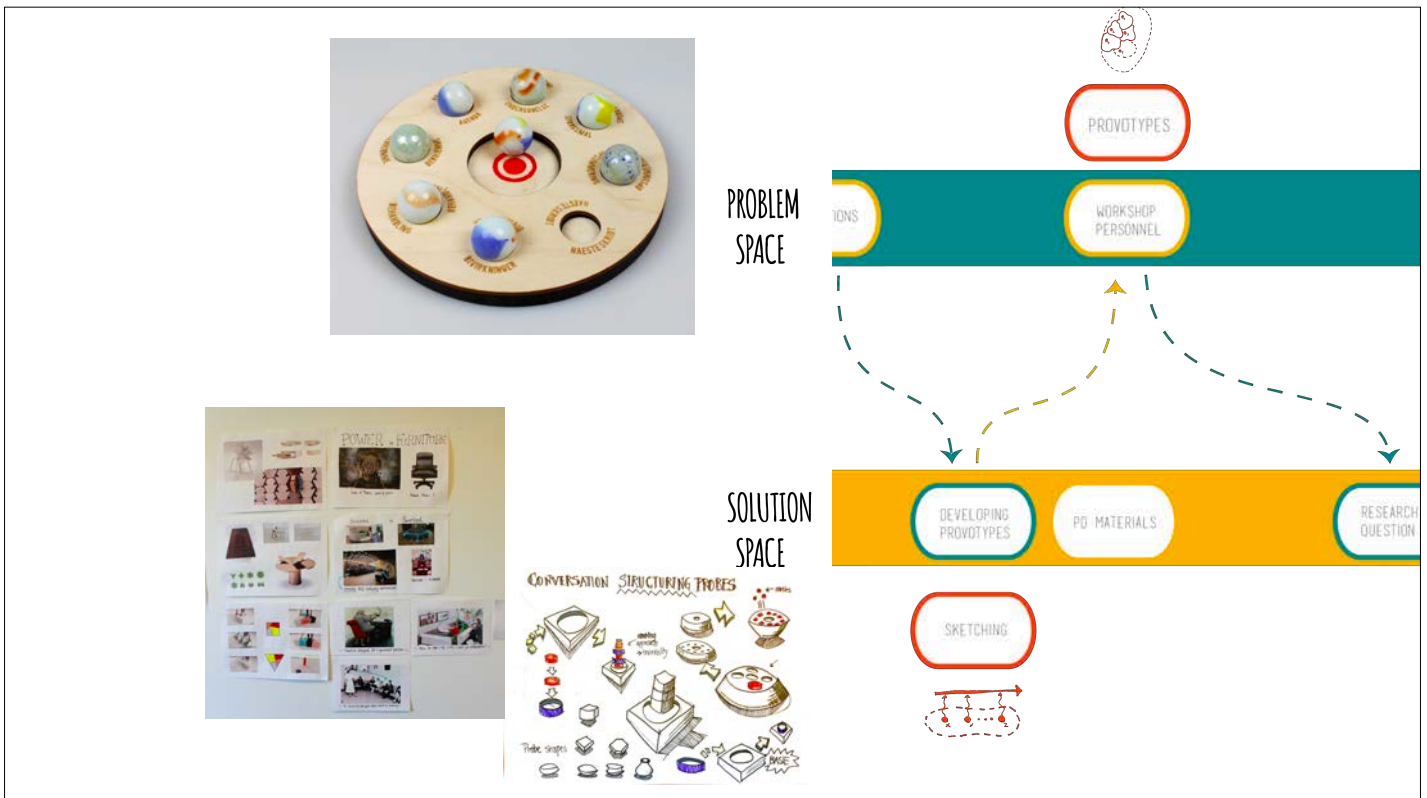
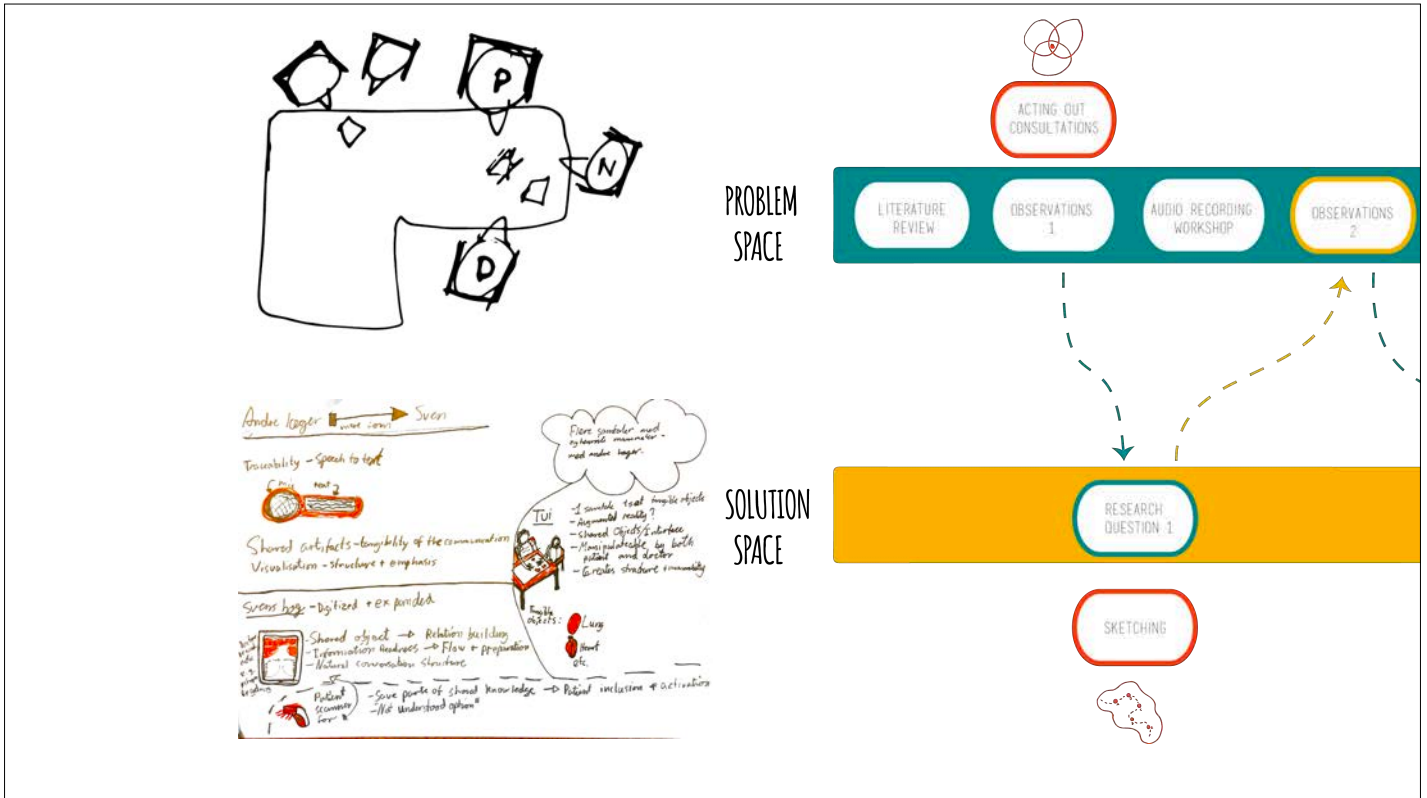




Drifting -

reflected in research question

- How may we by means of **IT** support the **doctor** in **conducting** the consultation?
- to
- How can interactive interior, comprised of “intelligent” surfaces and objects, facilitate a **balanced relationship** between **doctor** and **patient**?





BOB

ATTENDING PHYSICIAN

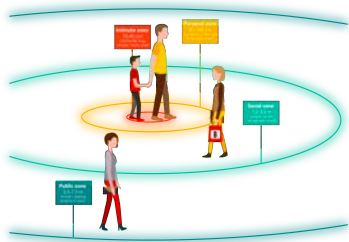
AGE: 64
 STATUS: Married
 NOTES: "Hesit others how you want to be treated?"

STRUCTURING MECHANISMS

CONVERSATION DIMENSIONS

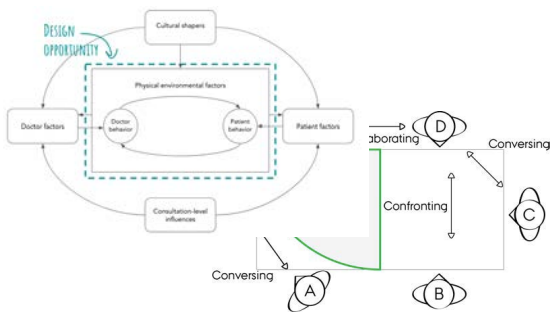
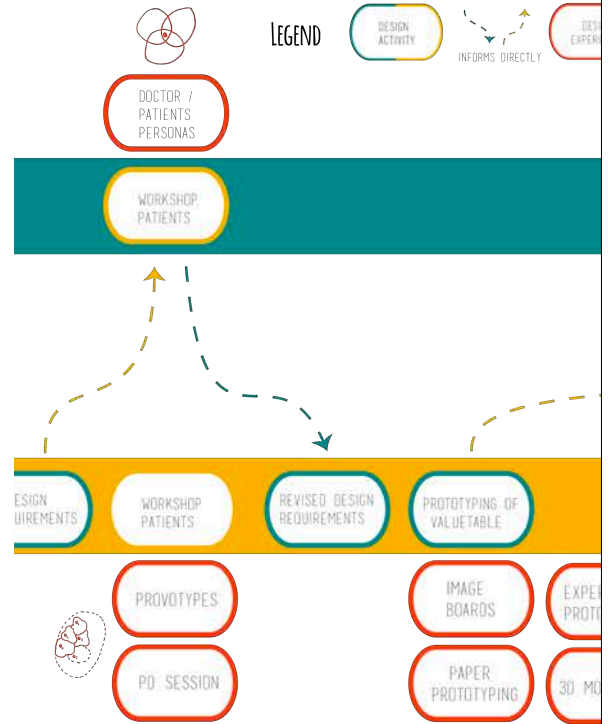
COMMUNICATIONS MECHANISMS

SPATIAL CONDUCT



PROBLEM SPACE

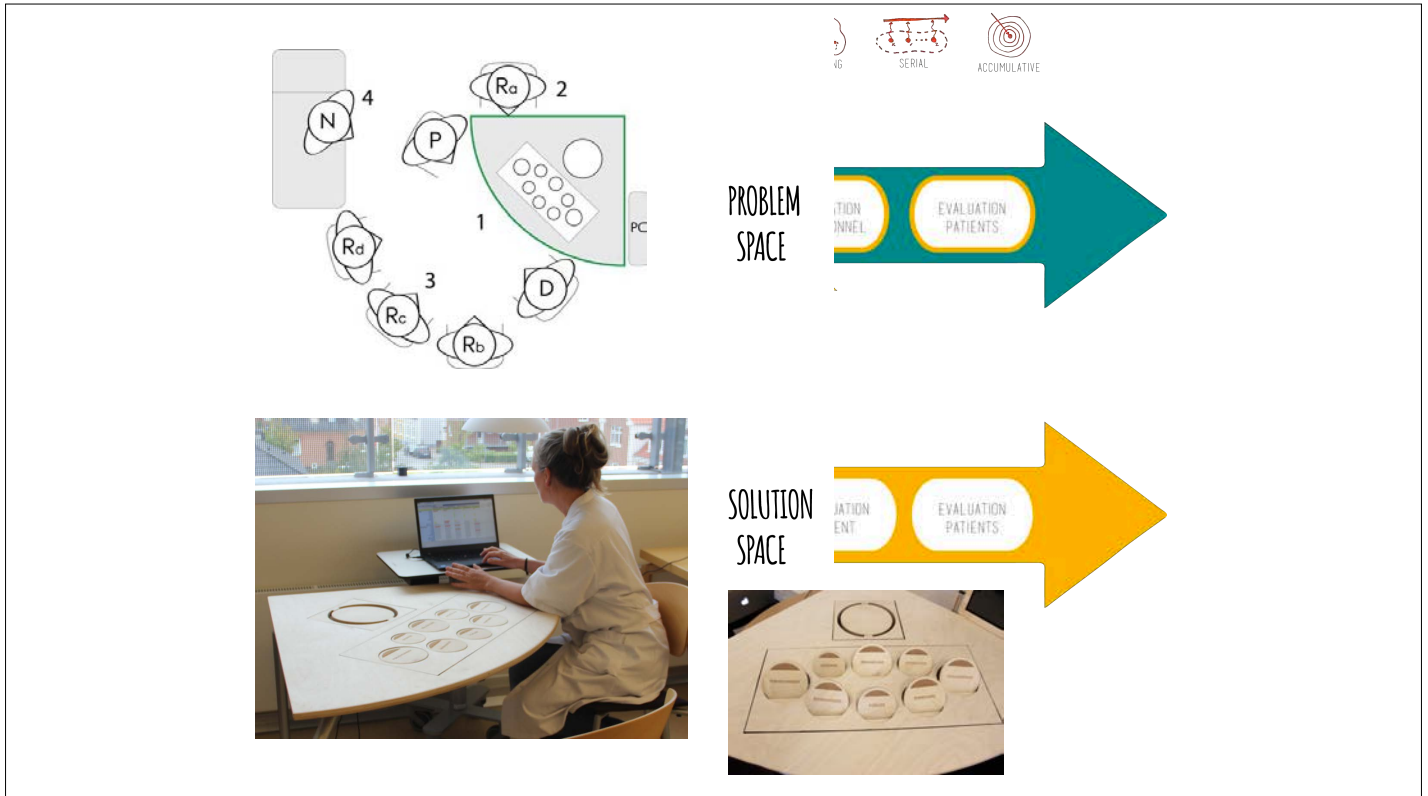
SOLUTION SPACE



PROBLEM SPACE

SOLUTION SPACE





Sum up - Drifting by intention

- Defined the concept of constructive design research
- Provided a way for constructive design researchers to participate in the language games of other research disciplines
- Identified four epistemic traditions within the field of research
- Provided the K/R model to map research activities and concerns
- Unravled to five ways and motives for experimental drift
- Pointed to the concept of accountability as a way to allow diverse appreciation of research work and supporting a rich variety of contributions without compromising credibility
- Unpacked how drift in discourse can be tracked and justified over the course of a project

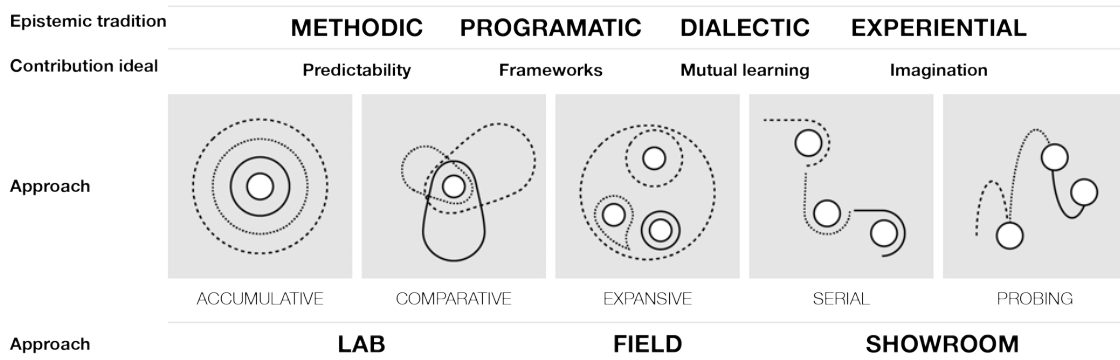
Drifting and Evaluation ...

An example

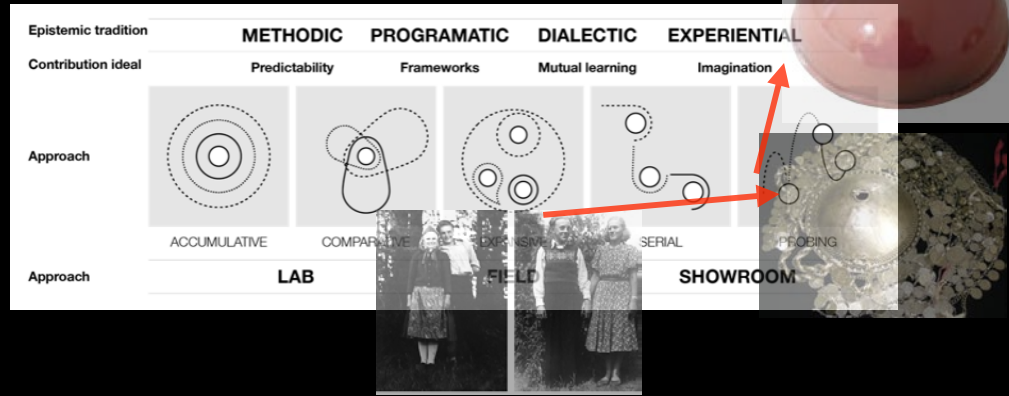


Evaluating

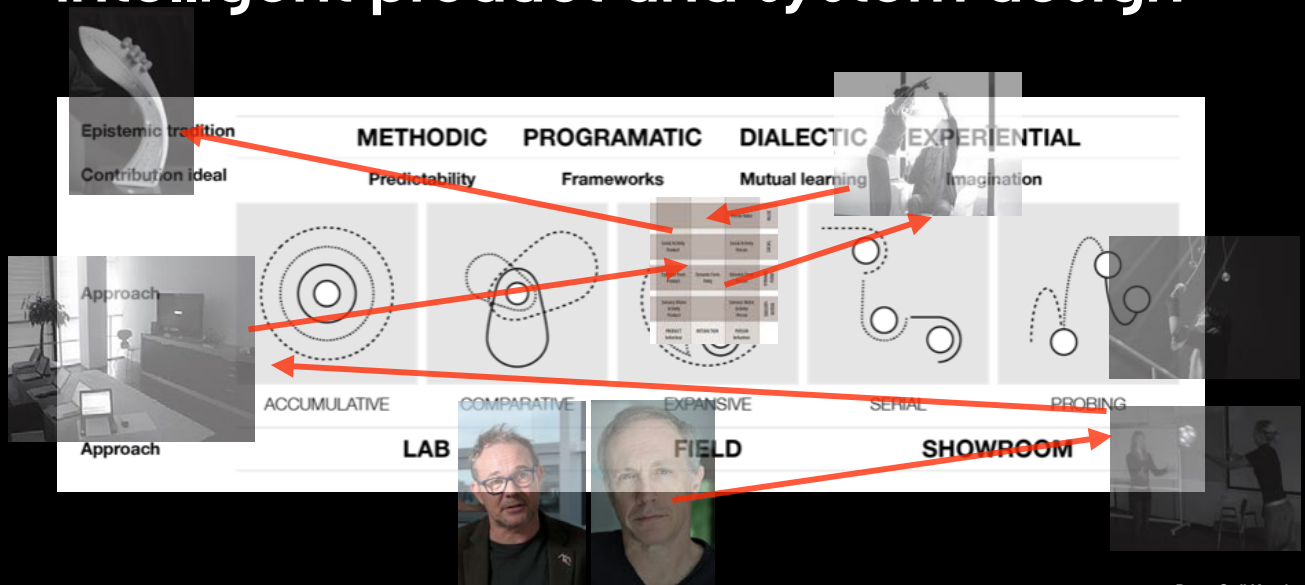
- On what grounds do we judge whether a theory for design is useful, valuable or successful?
- What is validity in constructive design research?
- What is the role of theory produced from design?



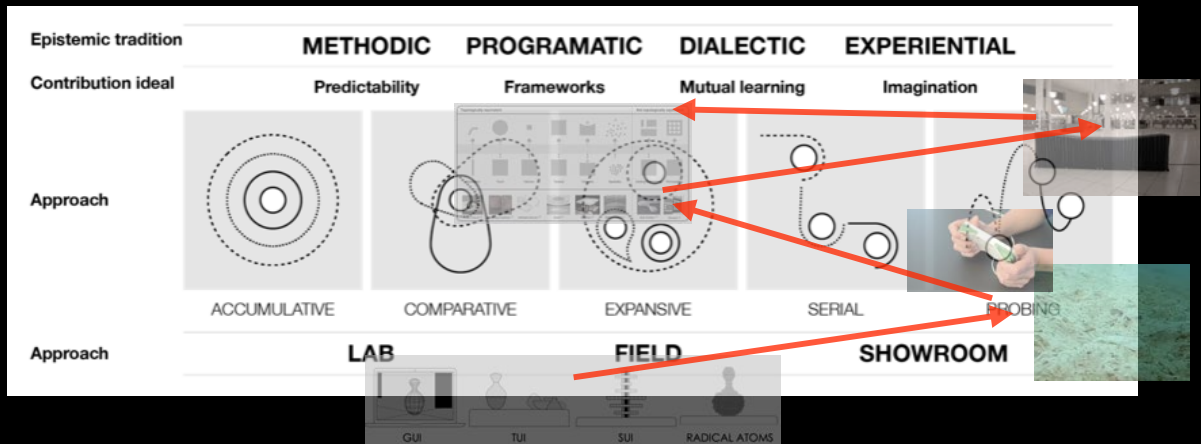
Summatavet: Folk Tradition and Artistic Inspiration



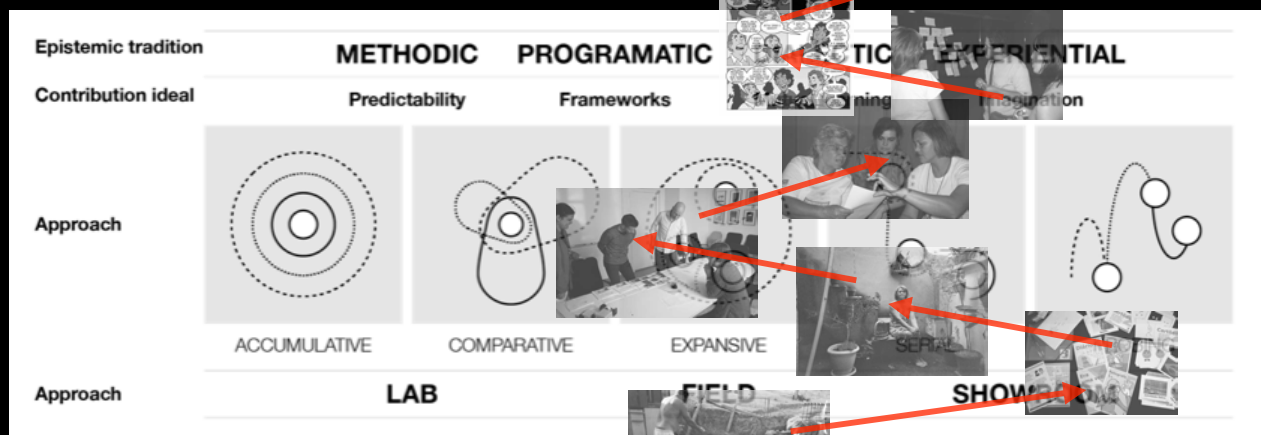
Philip Ross: Ethics and aesthetics in intelligent product and system design



Majken Kirkegaard Rasmussen: Shape Changing Interfaces



Andrea and Marcelo Judice: You are important - Designing for Health agents in Vila Rosario



Program of the day (CEST 8 - 14) 4 modules

• **8.00 - 9.20:**

• **Lecture:**

- Drifting and Accountability – four epistemic traditions

• **10.30 - 11.50:**

• **Exercise in break-out groups (total of 30 min):**

- Based upon participant's position papers and discussions two/three groups are formed in line with the dominant epistemic tradition (10 min).
- Positioning and discuss each participants research in relation to the epistemic tradition of the group (20 min).

• **Lecture (45 min):**

- Knowledge-Relevance model and ways of drifting in constructive design research

11.00 - 12.20

• **exercise:**

- Individually (30 min): Map a current/ recent constructive design research experiment using the presented tools and models

• **Lecture: Drifting and evaluation (20 min)**

• **exercise:**

- Individually (10 min): point to a potential drift from conception to evaluation
- In groups (30 min): participants present the mapping exercise.

13.40 - 15.00

• **Exercise (30 min):**

- Short Individual presentations, Group discuss and note similarities and differences revealed through mapping exercise.

• **Plenum (50 min):**

- Group presentations of findings and discussions (40 min); Wrap up by instructors (10 min)

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The strength and weaknesses of cacophony on evaluation

- Constructive design research is not and can not be linear and stay within only one regime of knowing
- Several well argued stances is a sign of **maturity** - there is something to disagree about
- **From validity to accountability**
 - Measures and purposes are flip sides of a coin
 - Different measures serve **different communities** and value systems
- Participate in the **language game** of other research fields and establish identity

Eurocentrism

- The trouble of global brands and products - assuming that will meet the needs -
- They are only signs of young, successful and rich - regional relevance will win in the long run...
- Relational aesthetics, "hacktivism", collective action are eurocentric concepts
- Research should be aware of this...



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