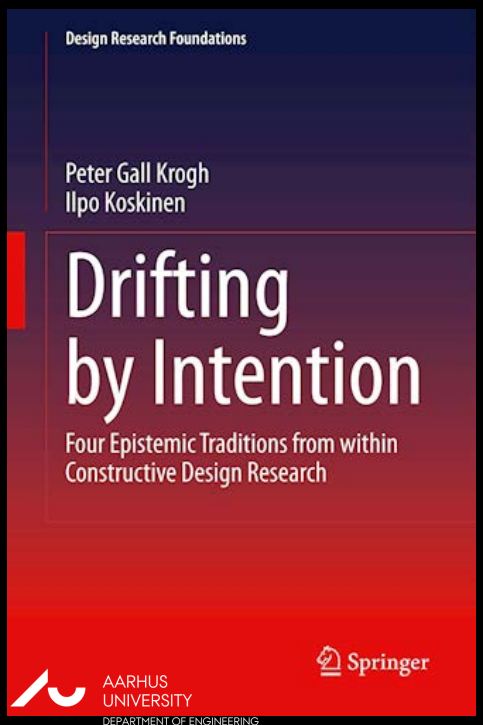
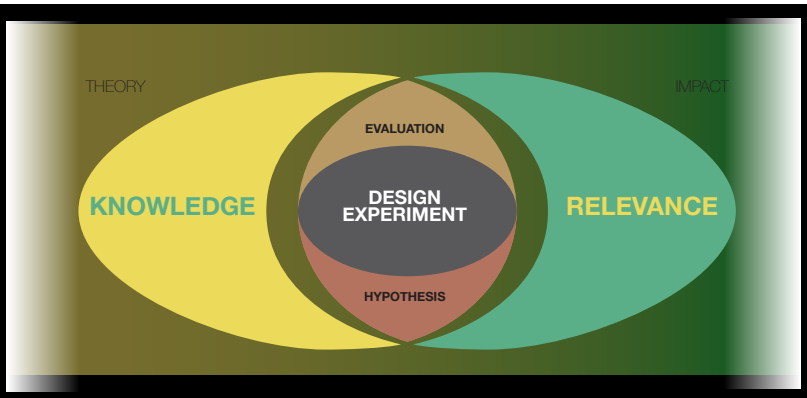


PETER GALL KROGH
Professor, Architect
Head of Socio-Technical Design
Department of Engineering, Aarhus University, DK

Ilpo Koskinen
Professor
Design Next
University of New South Wales, Sydney, AUS

Three take aways



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

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

- 9.00 - 10.20:
- **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

12.00 - 13.20

- **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)

Peter...

- Architect MAA - Arkitektskolen Aarhus
- Co-manager Center for Interactive Spaces
- Head of Innovation, Alexandra Instituttet General Technology Service provider
- 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
- Head the research group Socio-Technical Design at AU ENG

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








Ilpo...

- PhD - University of Helsinki
- Currently professor at UNSW Sydney, building up large-scale design programs
- Professor at: UIAH/Aalto Helsinki, Hong Kong PolyU, now UNSW Sydney
- Design research in 3-4 areas (plus research outside design)

Who is here?

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Peter Gall Krogh,
Professor,
Socio-Technical Design

Constructive design research

When you design with the objective of building knowledge

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Design - The subject of study?

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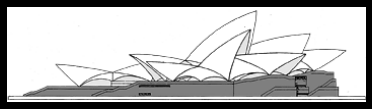
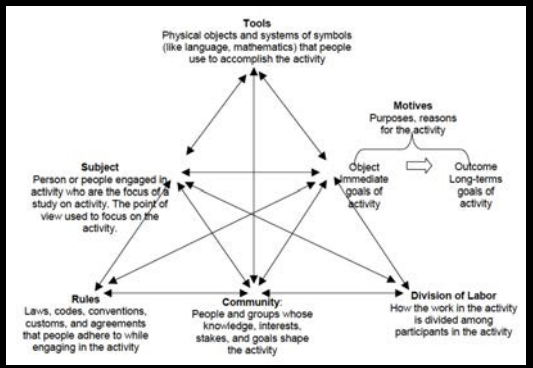
The shift to knowledge

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





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Peter Gall Krogh,
Professor,
Head of Socio-Technical Design

Ill-behaved problem solvers

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

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Professor,
Socio-Technical Design

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)

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Head of Socio-Technical Design

A nexus of theories (Carroll and Kellogg)

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Frayling - an earlier framing

- Research-into-design
- Research-for-design
- Research-through-design

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Professor,
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Frayling - an earlier framing

- Research-into-design
- Research-for-design
- **Research-through-design**

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Professor,
Head of Socio-Technical Design

Zimmerman Forlizzi 2007

- (i) a philosophical approach, where researchers wish to "investigate a previously articulated theory through a process of making" (e.g. 'ludic interaction', 'rich interaction', 'aesthetics of interaction', etc.);
- (ii) a grounded approach, where researchers focus "on real-world problems by making things that force a concrete framing of the problem"

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What is less often noted is that:

- *Our argument […], hope to show how taking HCI artifacts more seriously can reconcile theory-based design and hermeneutics by enriching the vision of the former and disciplining that of the latter.* (Carroll and Kellogg 1989)
- Is strangely/uncomfortably in line with:
- *This focus on the future [red:* what design makes imaginable*] and the focus on concretely defining a preferred state allows researchers to become more active and intentional constructors of the world they desire.* (Zimmerman et al 2010)
- Pursuing the aim of formalising Research through Design

Designer Fallacy

- Don Ihde:
  - Designers think they are like any other people…
    - well, - they are not!
- Concepts of appropriation, and culture tells another story
- There is probably also a design researchers fallacy…

The bottom of the dispute

- What is science? What is knowledge?
- 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)

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Head of Socio-Technical Design

Accountability

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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

Peter Gall Krogh,
Professor,
Head of Socio-Technical Design

Johan Redström: Making Design Theory (2017)

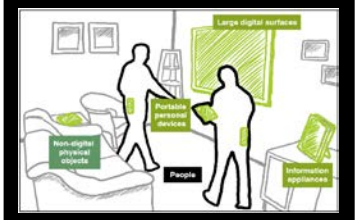
- 4 P's: Product, project, program, paradigm

Pervasive Computing

Interactive Spaces

Hybrid Library

Ifloor



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Drifting by intention

4 Epistemic traditions

Constructive design research

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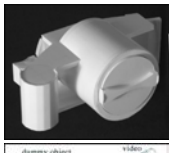

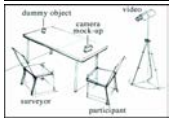

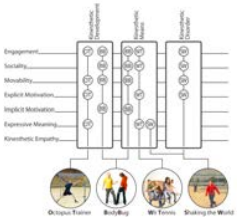

Epistemic tradition	METHODIC	PROGRAMATIC	DIALECTIC	PRACTICE
Contribution ideal	Predictability	Frameworks	Mutual learning	Imagination

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professor MAA,
Head of Socio-Technical Design

Experience-based Practice

- 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

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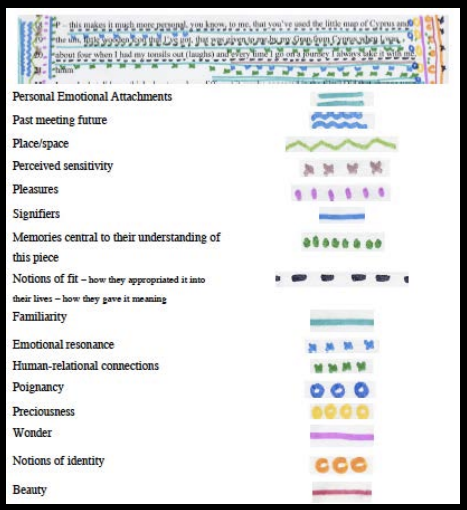
Professor,
Head of Socio-Technical Design

Jayne Wallace 2007



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

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Mo Michelsen Stochholm Krag (2017)





Transformation on Abandonment:

A New Critical Practice?

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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

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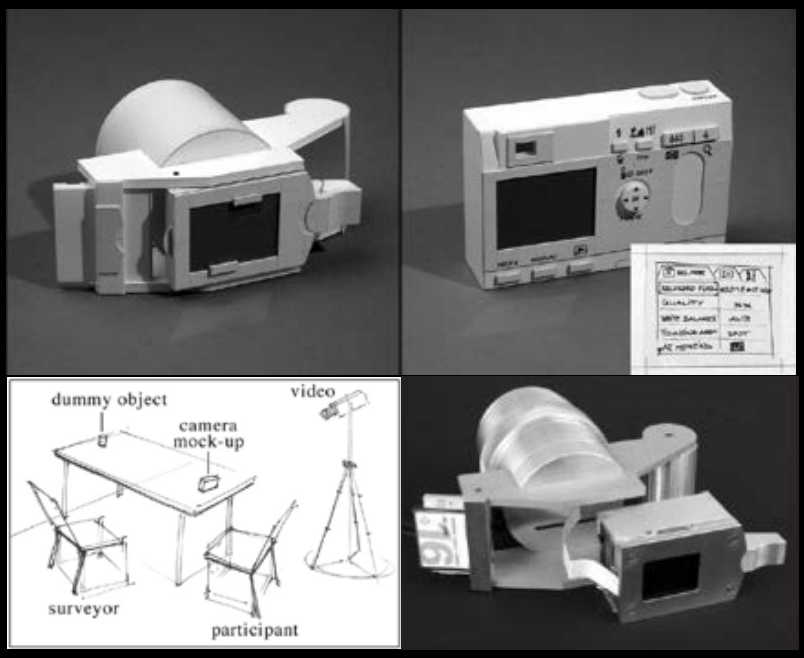
Joep Frens
(2006)



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

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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 outsets 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

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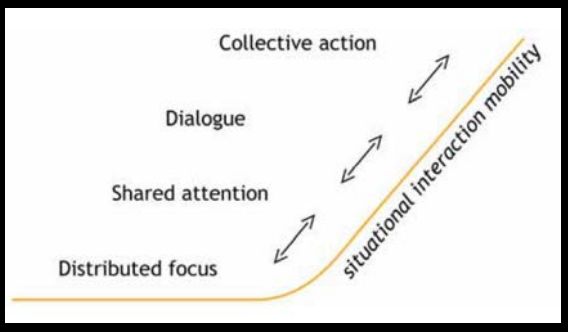
Martin Ludvigsen
(2006)



Designing for Social Interaction

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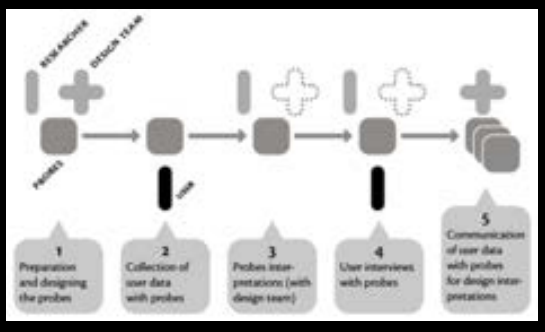
Tuuli Mattelmäki
(2006)



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

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Christian Dindler
(2010)

Fictional Space in Participatory Design of Engaging Interactive Environments.

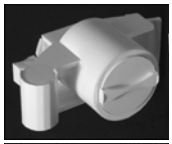
Dialectic Tradition and Hypothesising

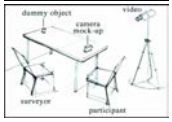
- the result of a dialogue between multiple agents
- Mutual learning - collective hypothesising
- The hypothesis has a life on its own...
- ...dialectically pointing to a potential future
- Participatory, adverserial, user-centred

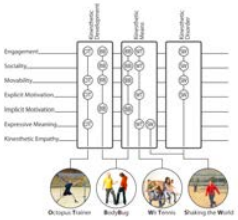
Knowledge - accountability

- Epistomology - 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	PROGRAMATIC	DIALECTIC	PRACTICE
Contribution ideal	Predictability	Frameworks	Mutual learning	Imagination

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

- 9.00 - 10.20:
- **Lecture:**
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- **Exercise in break-out groups (total of 30 min):**
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- **Lecture (45 min):**
  - Knowledge-Relevance model and ways of drifting in constructive design research

12.00 - 13.20

- **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. (20 min)
  - Prepare presentation (10 min)
- **Plenum (50 min):**
  - Group presentations of findings and discussions (40 min); Wrap up by instructors (10 min)

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Professor MAA,
Head of design research

Experimentation part 1

Constructive design research

Pursuing knowledge and relevance

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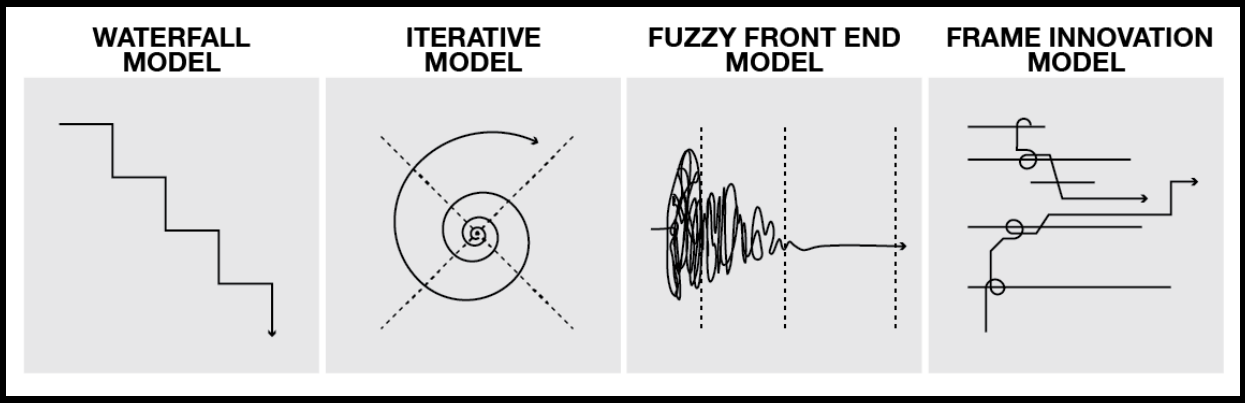
Professor,
Head of Socio-Technical Design

Models of Design progression and status of solution



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Professor,
Socio-Technical Design

A note on experiment

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

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Professor,
Head of Socio-Technical Design

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.

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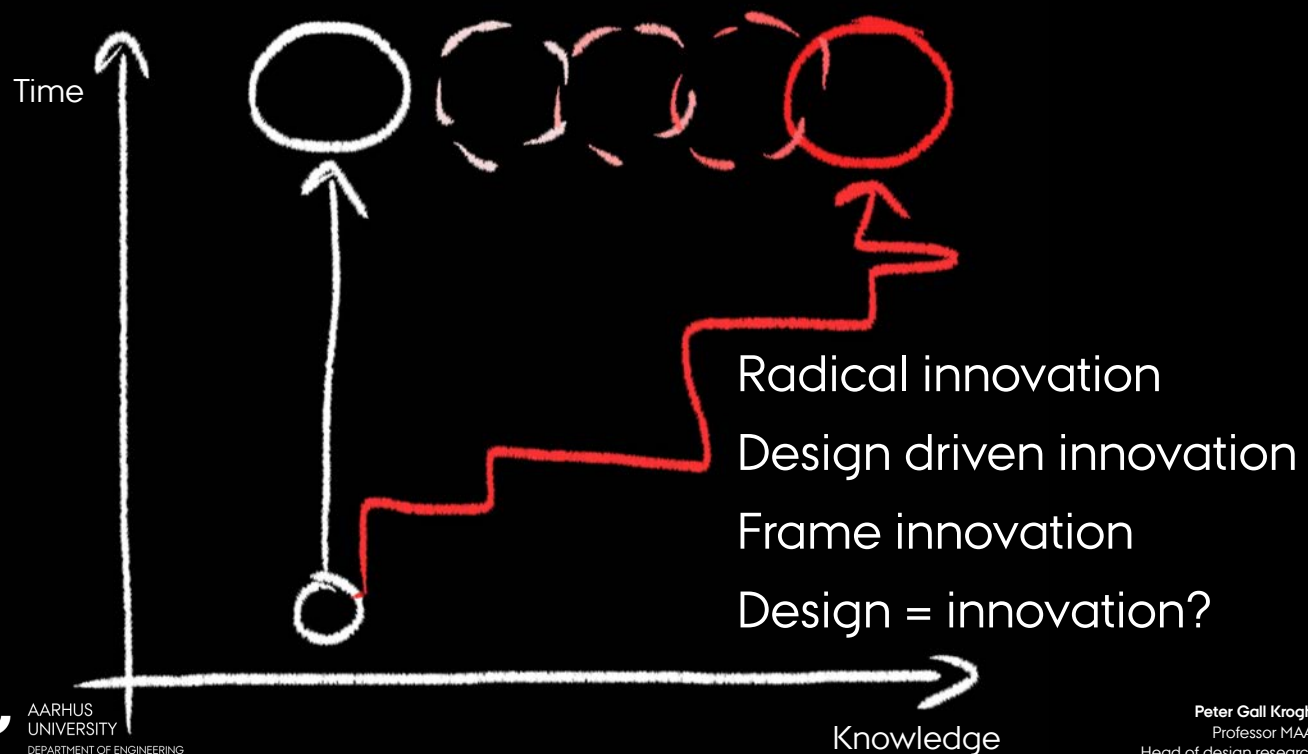

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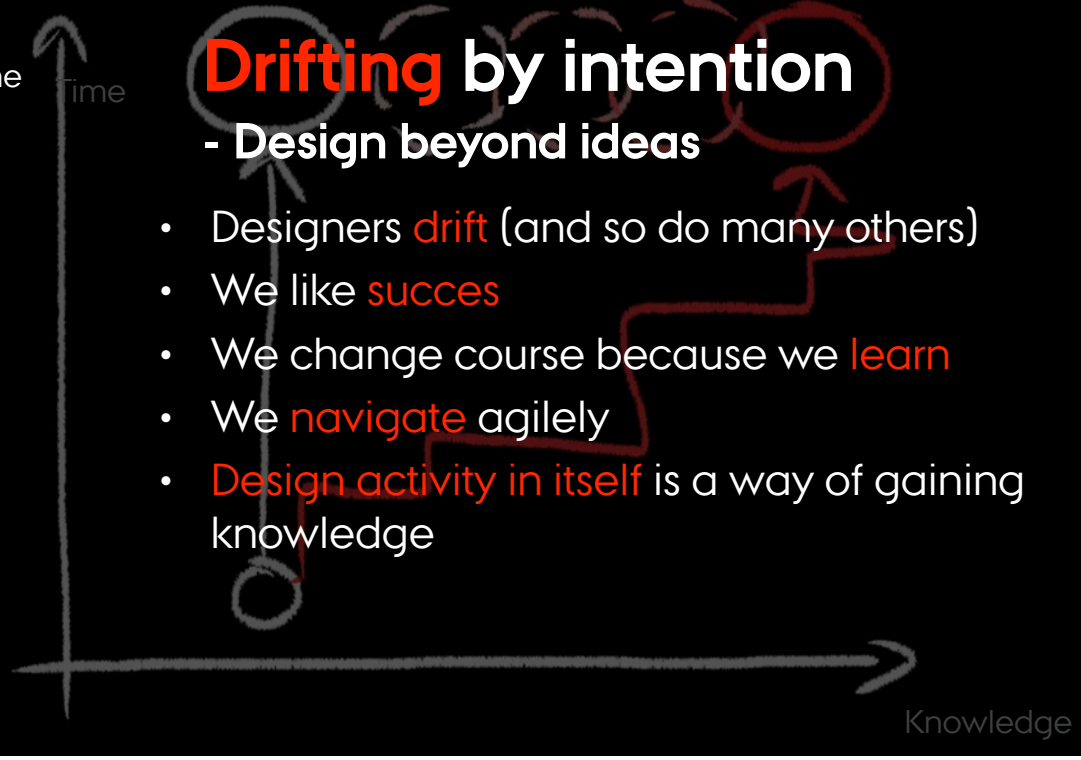
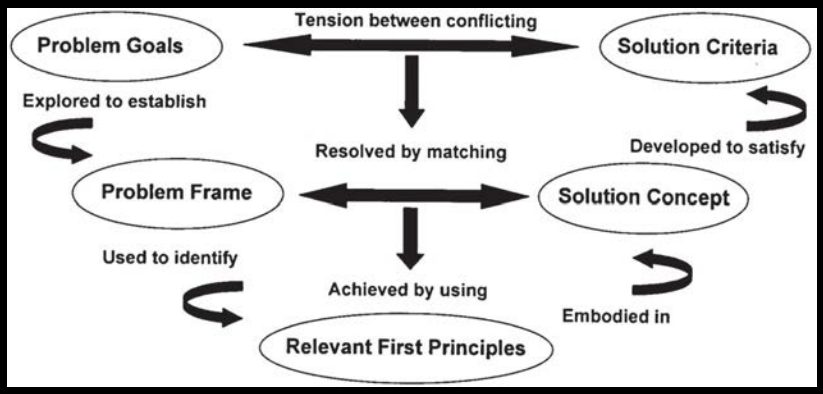


Drifting by intention

- Design beyond ideas

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

Knowledge and the design process

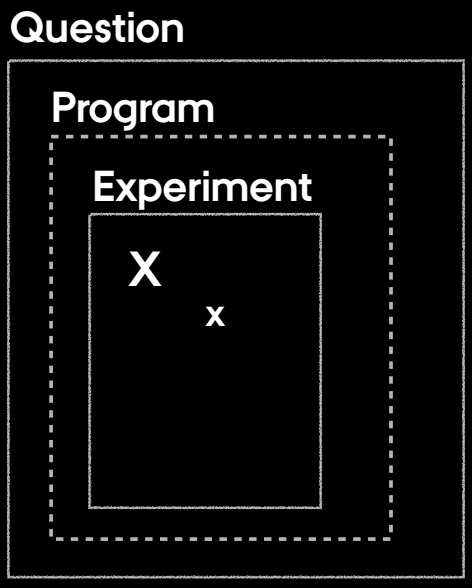


Nigel Cross 2002

Jan Pieter van Stappers 2006

Program

- "Provisional Knowledge Regime"
- Indicated, experientially and academically substantiated



Binder and Redström 2006

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Professor,
Head of Socio-Technical Design

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

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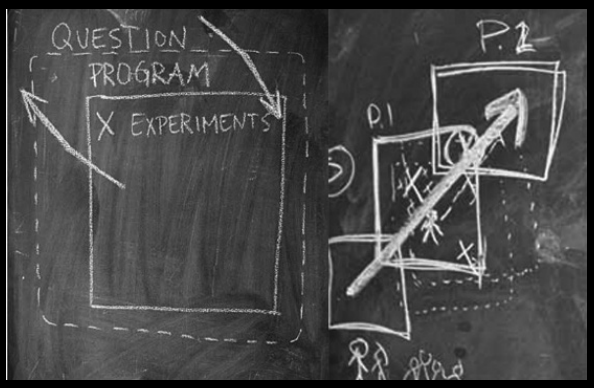
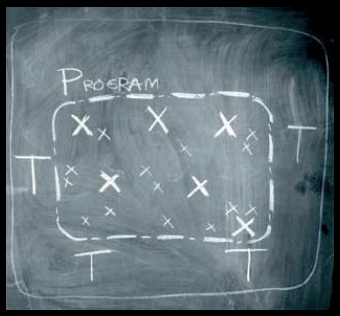
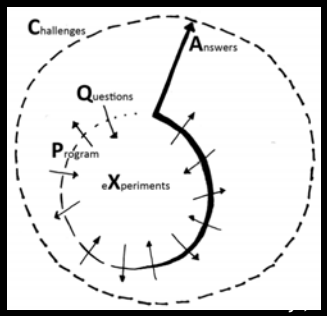


- (x) Experiments
- (X) exemplars





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Head of design research

Knowledge and relevance

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

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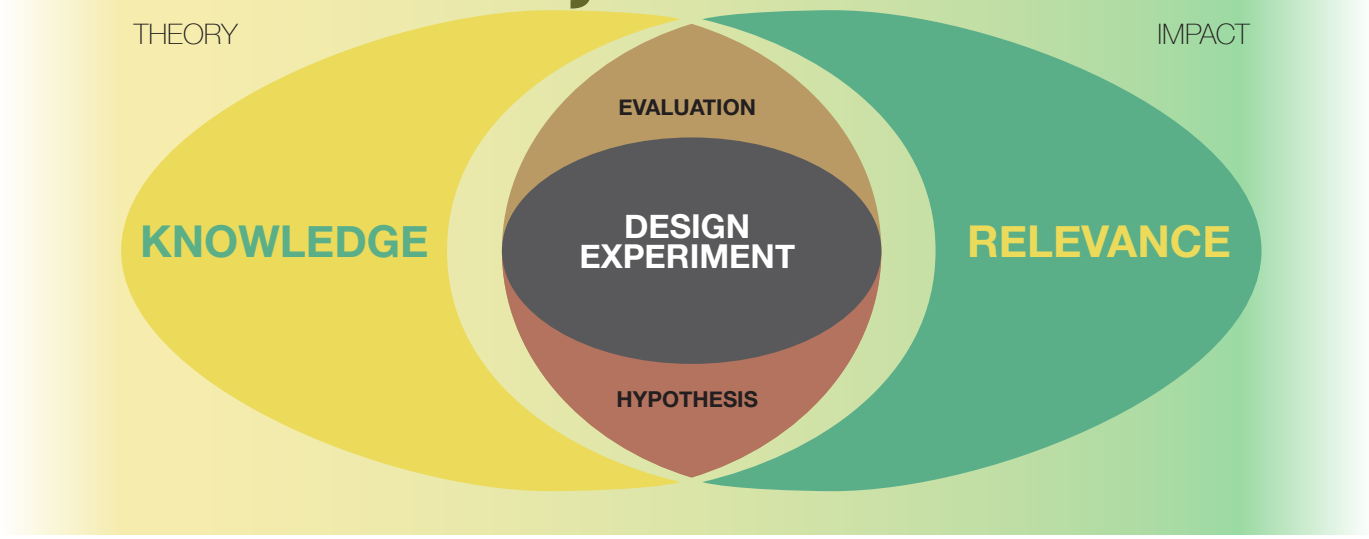
Head of Socio-Technical Design

The Knowledge/Relevance model



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professor MAA,
Head of Socio-Technical 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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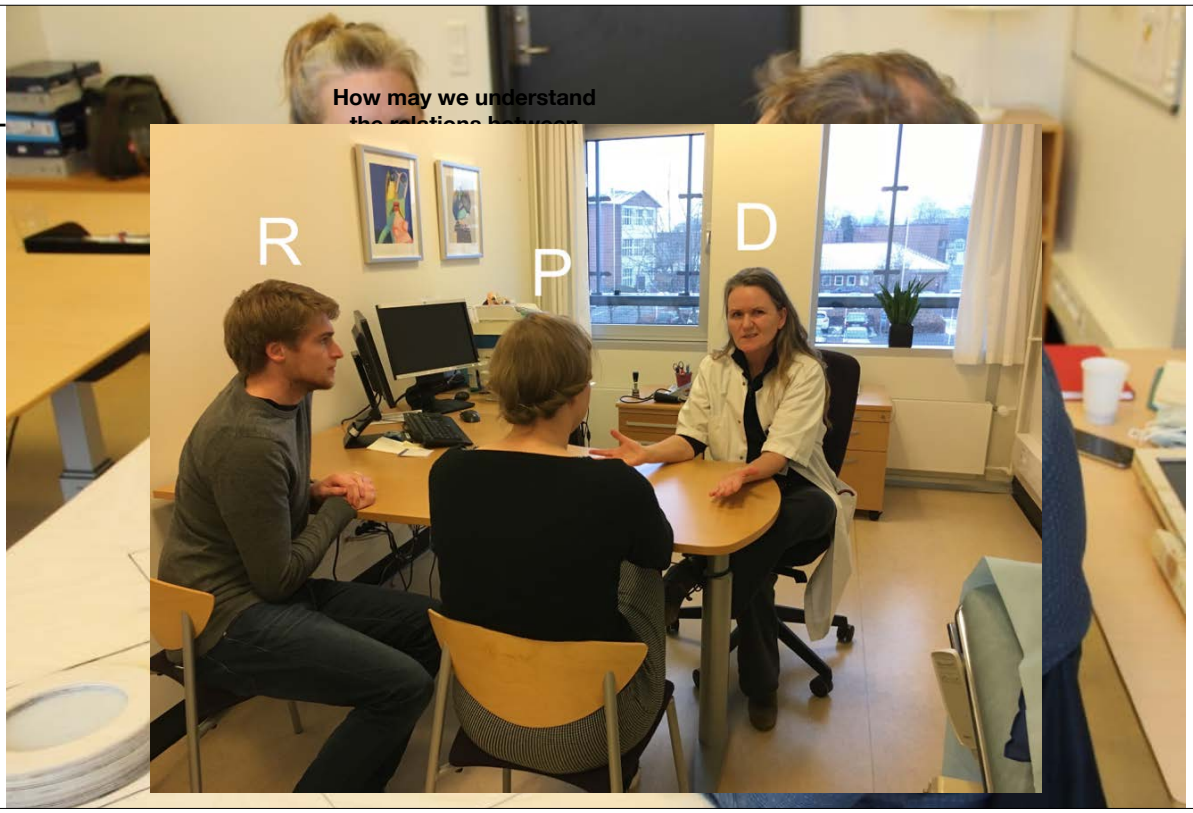
Socio-Technical Design

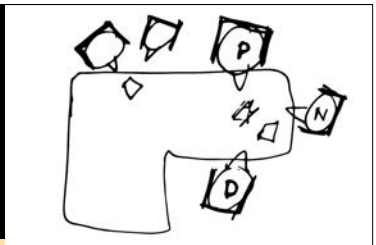
PROMETHEUS
empowering patients
Interreg Deutschland - Danmark
EUROPEAN UNION

Post-

How may we understand



A balanced user-centred and PD process



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

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Professor,
Socio-Technical Design

Proxemics
Post-strutural notions
of power

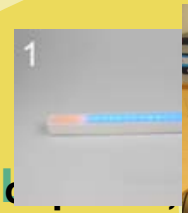
THEORY

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

How may we enable
the patient better options
for participation?

Shared structuring
Review conversation

IMPACT



Notions

Interactive technologies and the
spatial enactment of social relations

VANCE

Patient consent
Increase outcome of consultations

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

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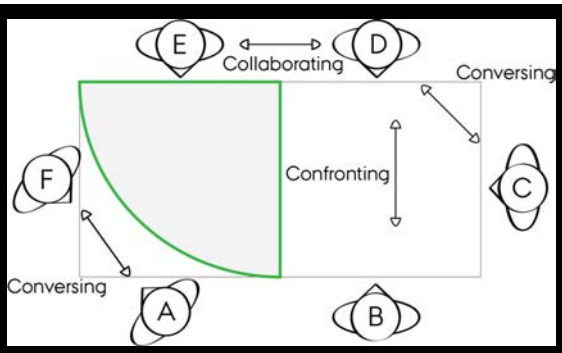
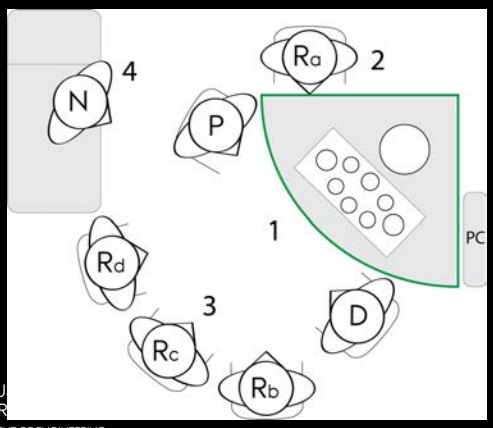
In conversation



B. Lawson:
Language of
Space

Patient,
Doctor,
Nurse and
relatives
Concerted



Activating the
microphone,
Agenda
setting
tokens,
bookmarking
audio file

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Ways of Drifting

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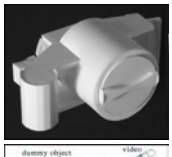
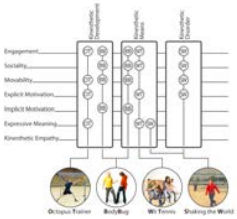
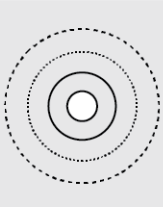
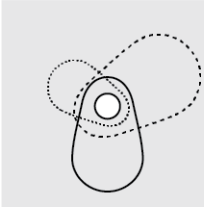
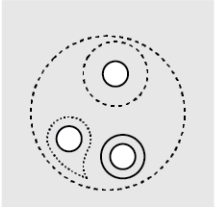
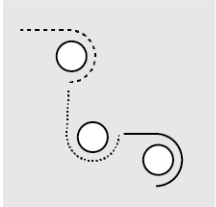
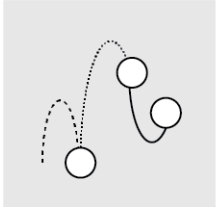
Head of design research





	METHODIC	PROGRAMATIC	DIALECTIC	PRACTICE
Epistemic tradition				
Contribution ideal	**Predictability**	**Frameworks**	**Mutual learning**	**Imagination**
Approach					
	ACCUMULATIVE	COMPARATIVE	EXPANSIVE	SERIAL	PROBING

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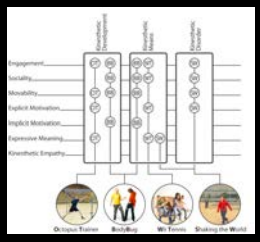
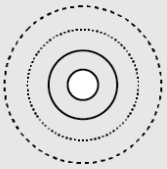
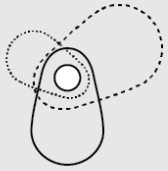
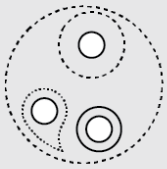
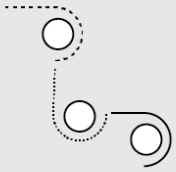
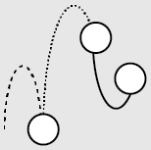
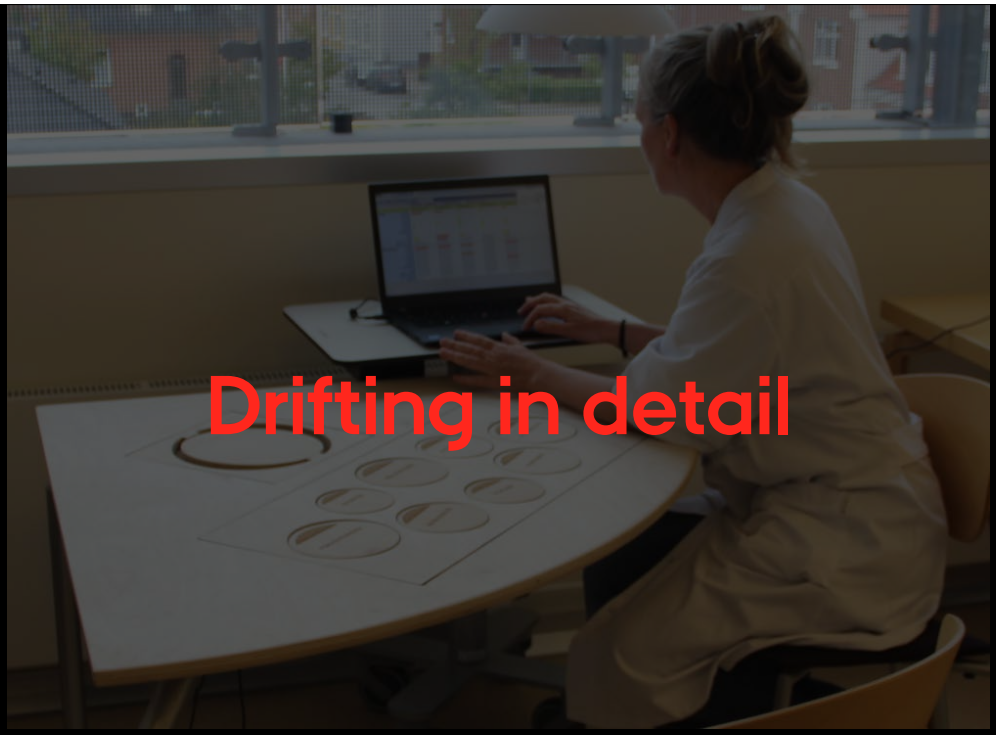


ACCUMULATIVE	COMPARATIVE	EXPANSIVE	SERIAL	PROBING
				
Keyword **Depth, stacking**	Keyword **Acknowledging complexity**	Keyword **Broadening, extending**	Keyword **Systematising local knowledge**	Keyword **Illogical, artistic, impact oriented**
Author **Frens**	Author **Ross, Fogtmann, Wu**	Author **Dindler, Trotto**	Author **Lynggaard, Bang**	Author **Busch, Worbin**



Drifting in detail

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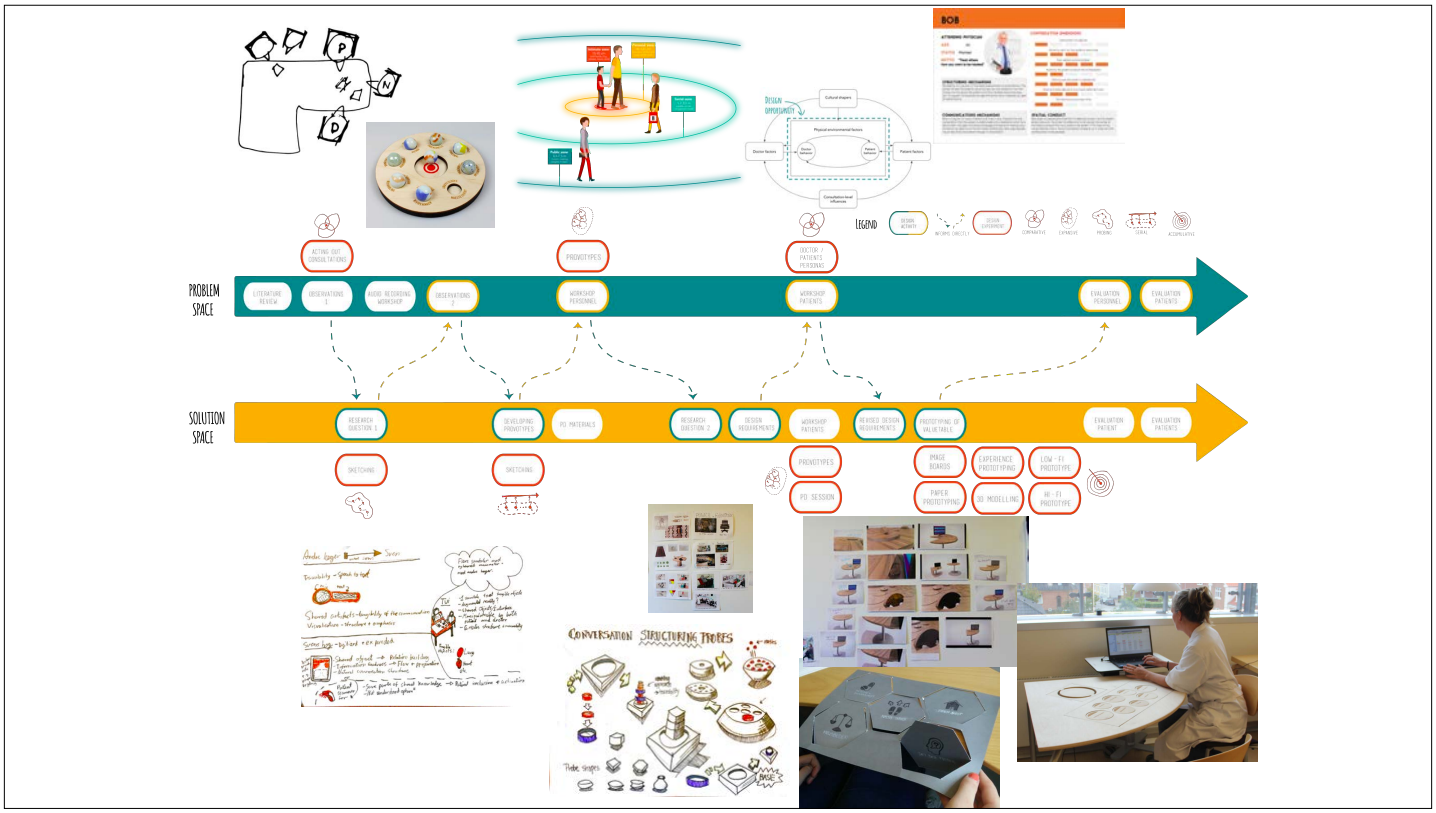
Professor,
Head of design research
Peter Gall Krogh,
Professor,
Head of Socio-Technical Design



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?

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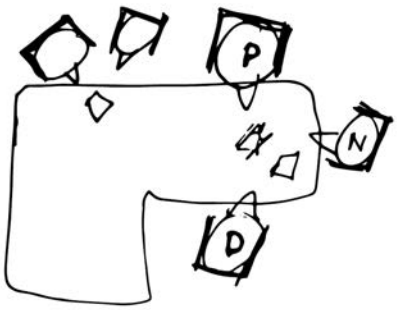
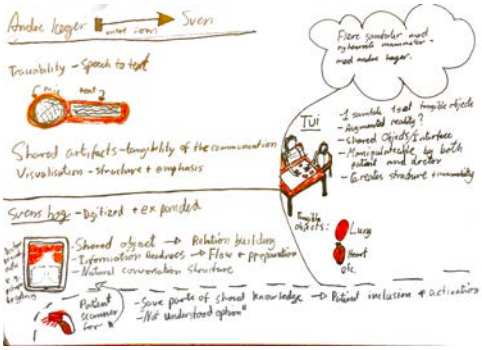
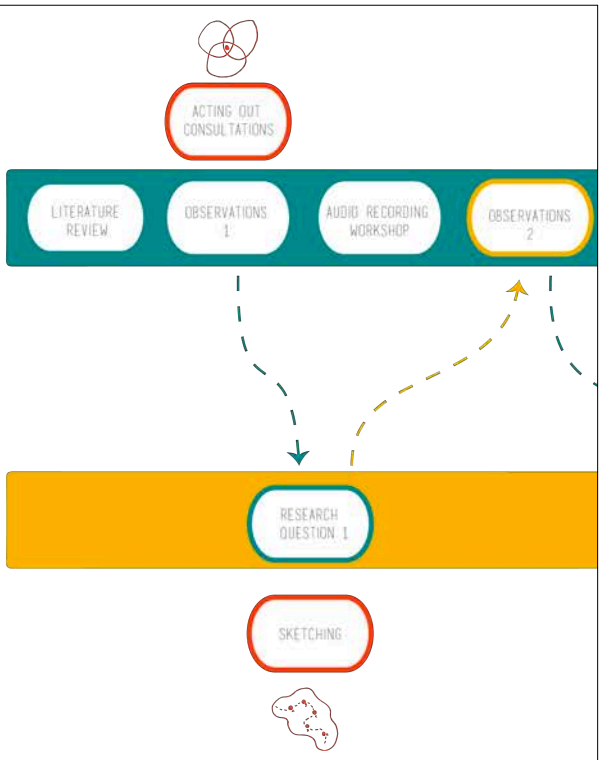
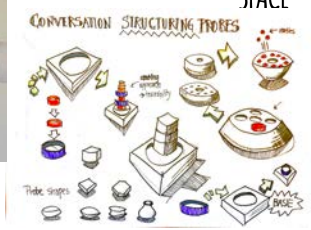




PROBLEM SPACE

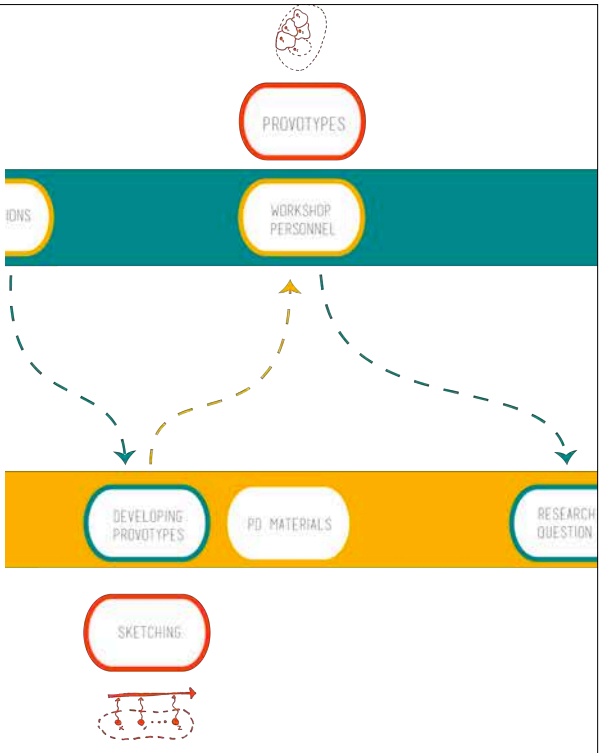
SOLUTION SPACE

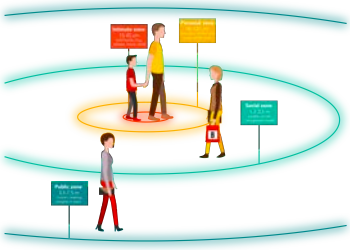




PROBLEM SPACE

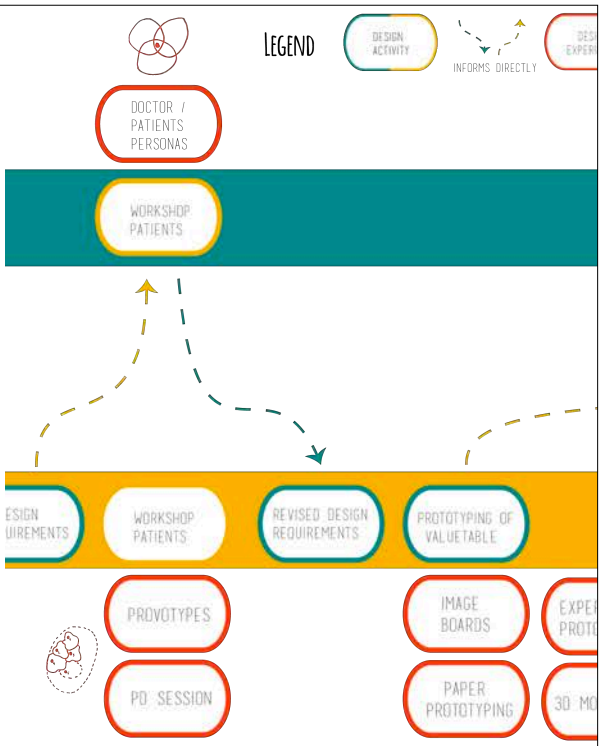
SOLUTION SPACE

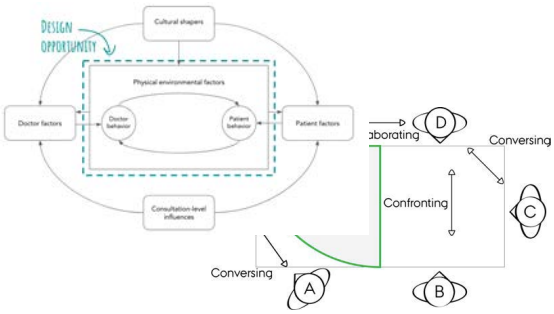


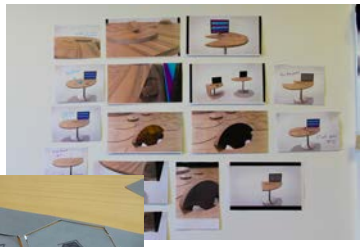


PROBLEM SPACE

SOLUTION SPACE

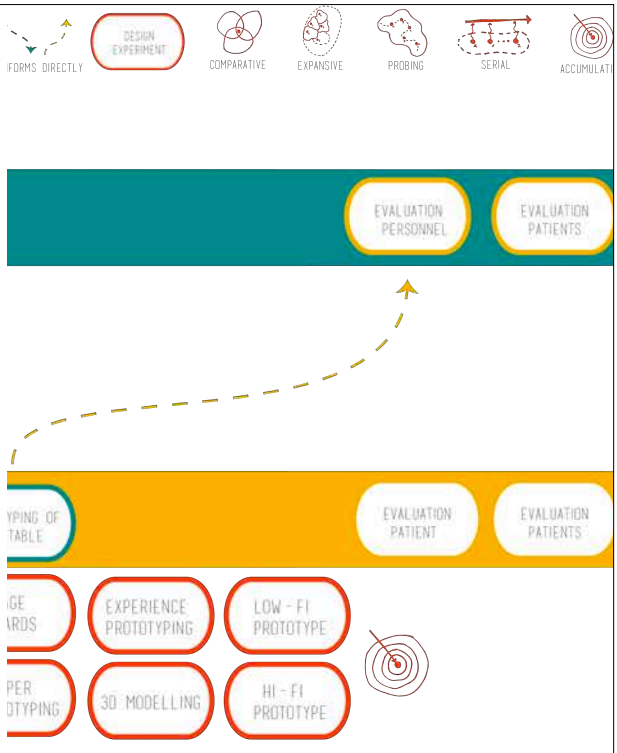


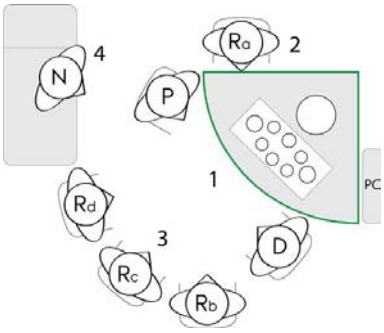




PROBLEM SPACE

SOLUTION SPACE





PROBLEM SPACE

SOLUTION SPACE

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

- 9.00 - 10.20:
- **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

12.00 - 13.20

- **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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Head of design research

Drifting and Evaluation ...

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Head of Socio-Technical Design

An example

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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?

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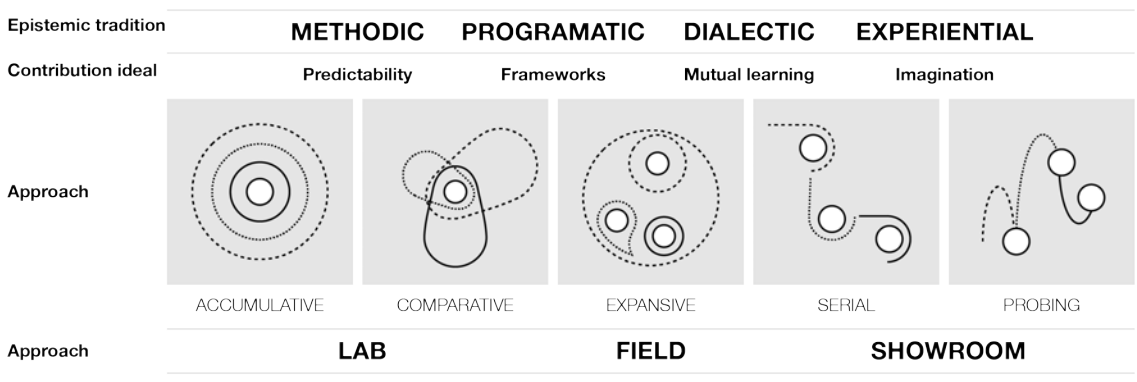
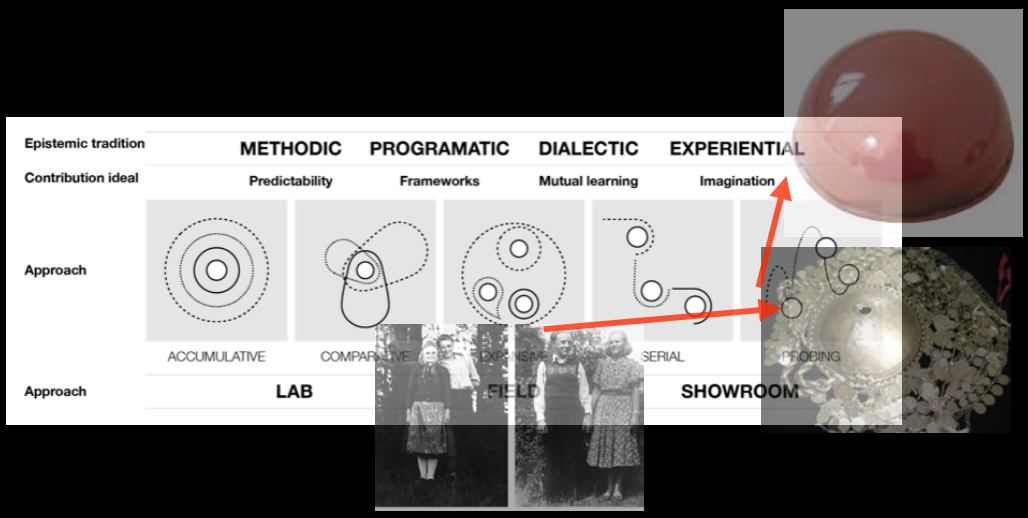


Summatavet:
Folk Tradition and Artistic Inspiration



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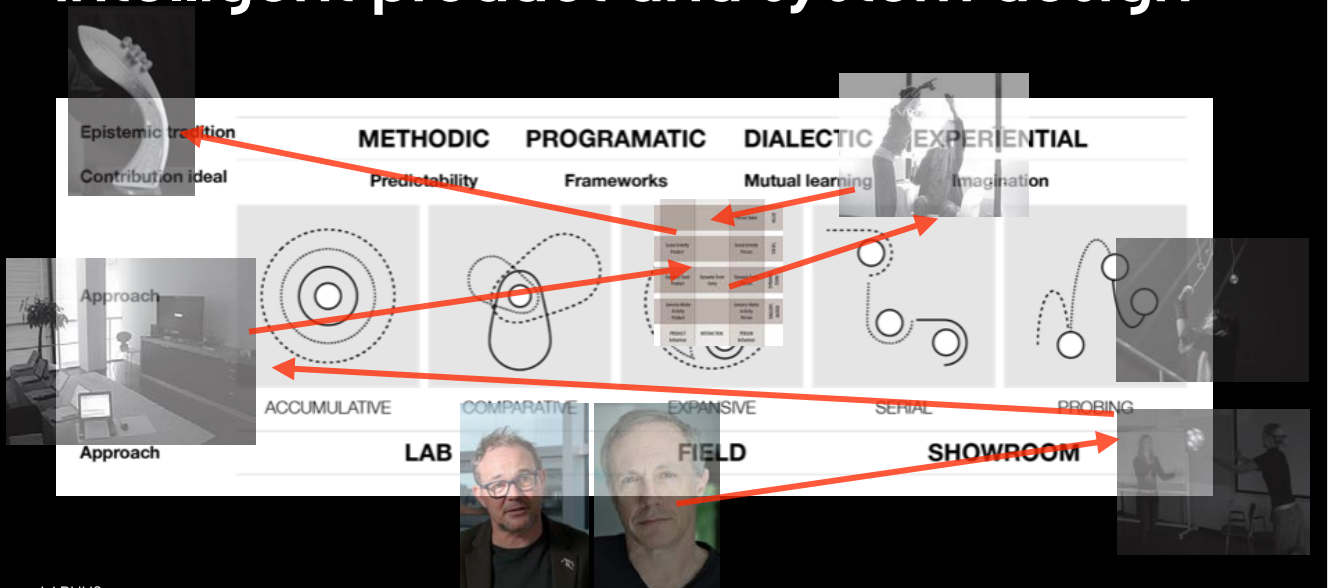
Philip Ross: Ethics and aesthetics in intelligent product and system design



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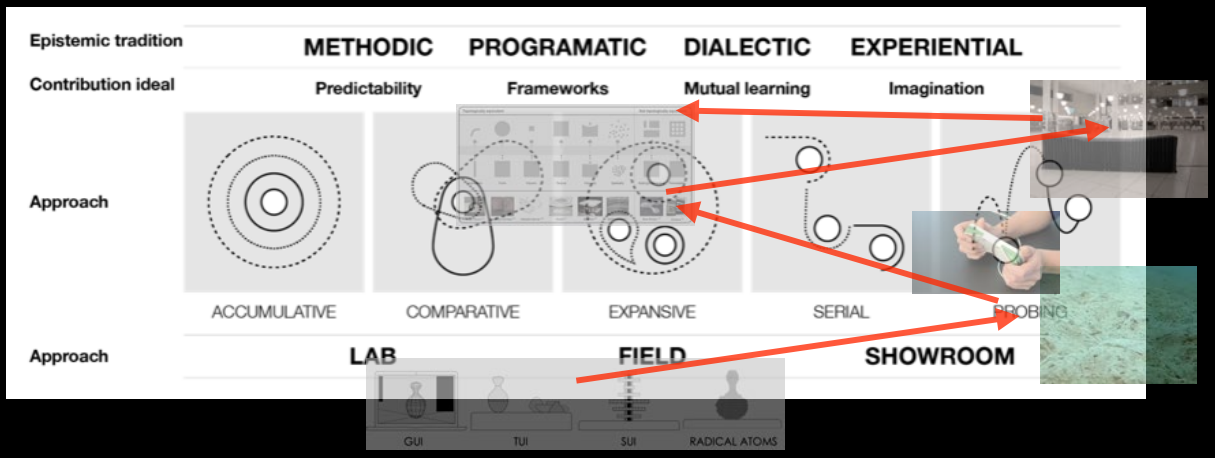
Majken Kirkegaard Rasmussen: Shape Changing Interfaces



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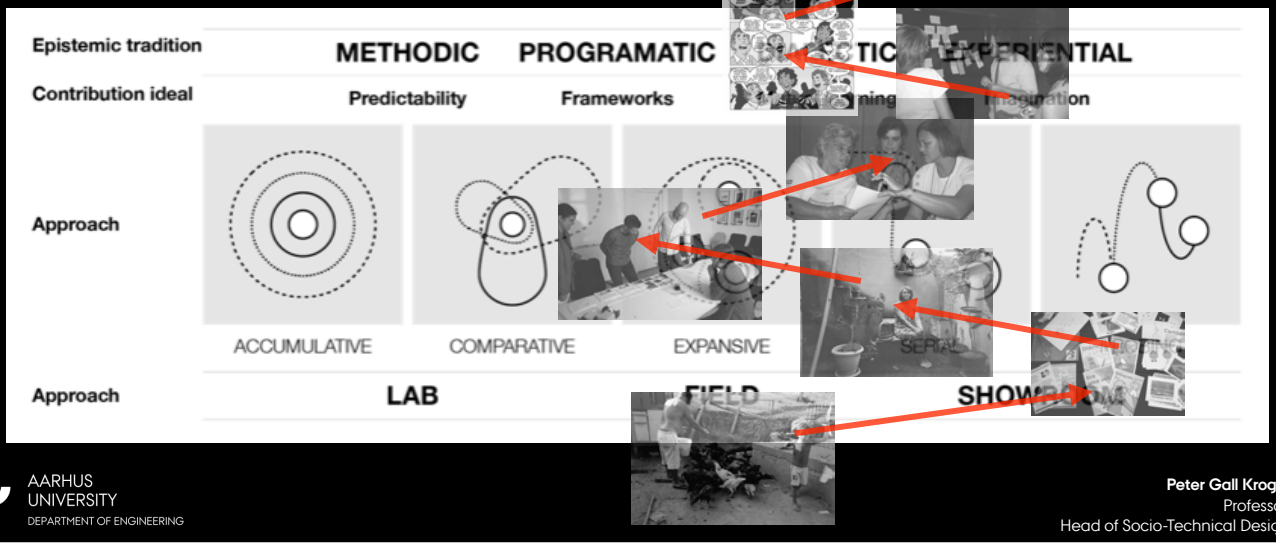
Andrea and Marcelo Judice: You are important - Designing for Health agents in Vila Rosario



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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.

12.40 - 14.00

- **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

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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...

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

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