

Thinking with Representations

Johan Blomkvist

Today's agenda

- Distributed/situated cognition
- Course information
- Group work project

What's in a name?

- Thinking with Representations
- Thinking with EXTERNAL Representations
- Representationer som tänkande (Representations as Thinking)

What's in a name?

- Billman (1999), five realms of representation:
 - External, representations in the world such as maps, models, writing
 - Mental, internal representations of knowledge used in cognitive processes such as reasoning, perception, language, problem solving and so on.
 - Computational, representations used by a computer to perform similar tasks as mental representations
 - Theoretical, abstract models representing a theory of something
 - Physiological, areas of the brain where things are materially represented
-

Distributed and situated perspectives

- A situated perspective:
 - Cognition is
 - Embodied – we think not only with our mind but also with our body.
 - Embedded – we think in a context. The situation influences what and how we think, not only the environment but also the social and cultural context.
 - Extended – perhaps most controversial. We think also with the environment. More or less literal interpretations exist, one common view is to think of people and environments as cognitive systems or dynamic systems.

Distributed and situated perspectives

- Is leaving a note by the door the same as "storing" a memory in the brain?
- Is using a calculator or a pen and paper to solve a math problem the same as doing it in the head?
- What on earth does this have to do with design?

Distributed cognition and design

- (Service designers do not have a "material")
- They traverse between the actual physical world and ~ (visual) descriptions of service
- Visualisations
- Prototypes

FIGURE 5: THE CUSTOMER JOURNEY FOR A PASSENGER BEFORE A FLIGHT: BOOKING A FLIGHT – CHECK-IN – SECURITY CHECK – BOARDING – ON BOARD ETC.



- From a distributed cognition perspective – the design output is necessarily tied to the external representations used since:
 - They are part of the cognitive processes that lead to them!

Distributed cognition

- If our thinking extends beyond the mind:
 - What does that mean? (for design?)
 - Does it mean that we can do things we cannot do without the external world? Can we think things we could not think without the external representations?
 - Does it mean we can only do the same things but better?

Course content

- Focus on learning
- This requires effort from the student

Course content

- The students of this course develop their and knowledge about what **the roles of representations are in design**, including the **ability and knowledge to use different tools to plan and use representations**, by conducting a series of assignments and using literature from design and **cognitive science** to reflect on their process.
- Emphasis is put on reflecting in- and on action to further the understanding of mechanisms for learning with the help of representations and the connection between the built representation and the knowledge it makes available. The more general implications for design of placing representation at the center of the design process is also considered in the course.

Course content

- The students of this course develop their and knowledge about what the roles of representations are in design, including the ability and knowledge to use different tools to plan and use representations, by conducting a series of assignments and using literature from design and cognitive science to reflect on their process.
- Emphasis is put on **reflecting in- and on action** to further the understanding of mechanisms for learning with the help of representations and **the connection between the built representation and the knowledge it makes available.** The more general implications for design of placing representation at the center of the design process is also considered in the course.

Course info

- 6 credits
- Quarter speed
- Teaching tutoring each Monday morning
- Scheduled work
 - 30 hours teaching/tutoring (excl. individual proj.)
 - 36 hours individual project work
 - 50 hours group work
- 30 hours estimated for reading

Tot 146/160hrs

Course content

- Teacher, examiner, tutor
 - Johan Blomkvist
- Learning opportunities
 - Lectures
 - Tutoring
 - Seminars
 - Group work
 - Presentations
 - Individual work

Seminars

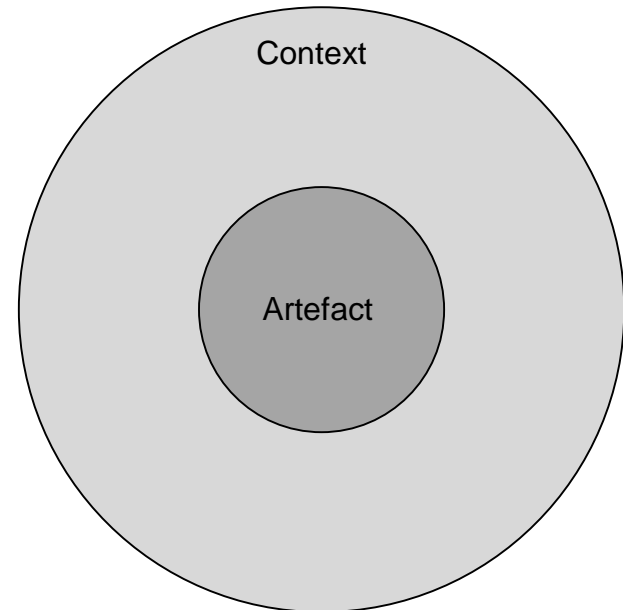
- Write a short reflection (of no more than 1 A4), in relation to specific instructions for each seminar
- Conduct the seminars in the groups
- Write a summary and main points of learning for you.
- Submit the reflection and the summary as one PDF and upload to Lisam.
- (part of the individual assignment)

Seminars

- Based on research articles
- Three themes (and three seminars):
 - Representations and thinking
 - Representations and learning
 - Representations and transformation

Group work

- Three stages:
 1. Prototype an artefact
 2. Prototype a context with artefact(s)
 3. Prototype a service



Group work

- Presentations
 - Informal presentations of work in progress
- Teaching sessions
 - Exercises, feedback etcetera.

Groups

Group 1:

- Lindblad, Patricia
- Eklund, Malin
- Asteberg, Henrik
- Kowalski, Leo

Group 2:

- Lindholm Undén, Beate
- Melbi, Alexander
- Röhr, Malin
- Wiktorson, Erika

Individual assignment

- Reflections on the seminars
- Making a representation TBD

After the course, the student shall be able to:

- Understand, describe and apply foundational concepts from distributed cognition <- lectures + seminars + individual assignment
- Apply knowledge about how to represent alternatives in a design space and reflect on the value of those representations <- group work + teaching sessions
- Use and develop tools and methods for representations, and reflect on what the tools enable and confine <- group work + lectures
- Systematically reflect on and show knowledge about how to represent complex situations on a detailed as well as holistic level <- individual assignment

Course info

UPG1	Individual assignment	U,3,4,5	3 credits
UPG2	Group assignment	U,G	3 credits

Group assignment 1

Artefact representation

Group work

- Assignment
 - One way to decrease environmental pressure from food consumption is to decrease travel
 - A current trend is to allow customers to order groceries and have them delivered to their homes
 - This leads to many changes in the way grocery stores work
 - The first assignment is to design an artefact that helps the staff to pack groceries in the store

- Something that helps with Picking and packing food
- Requirements:
 - An "artefact"
 - Not a screen, not a trolley
 - To be used by unskilled workers (without specific training)
 - Must be possible to implement and use today
 - Must save time for the store
- Delimitations: no screen, not a shopping trolley.

- Deadline: 17 feb
- Time budget (~20 hrs/participant)
- Try different ideas, but also try different physical manifestations.













Fryst
kött

Kyckling
Kalkon

Kyckling

HONS

24⁹⁰

HOGGETS

24⁹⁰

ANDERST

139⁹⁰

ANKA

59⁹⁰

T-BONESTEAK

259⁹⁰

LAMMINHETILE

249⁹⁰

LAMMFÄRS

39⁹⁰

NORDBY
Supermarket

FÄRIKAL

79⁹⁰

NORDBY
Supermarket

LAMMKOTLETTER

99⁹⁰

KOTBULLAR

1 KG

49⁹⁰



TUNTUVASTI
HALVEMPI
HINTA

ekologisk ekologinen

Delikatessen

1.05 3.99 1.99

TUNTUVASTI
HALVEMPI
HINTA

