



Aalto University  
School of Science

# CS-E4900 User-Centered Methods for Product and Service Design

Qualitative Analysis, part I

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# Challenges for User Research and QA

- Schedule: Rapid timetable vs. studying people
- Requires a very wide skill set: psychology, sociology, anthropology, engineering, design, ...
- Sharing the understanding: making a detailed description of a place is difficult, how about describing a human being
- All routes are compromises
  - Quick and easy methods vs. heavy and formal (both research and analysis)
  - Multidisciplinary teams
  - Controlled risks

# User Research Phases

1. Planning the study
2. Data collection and processing
3. Overall analysis
4. Detailed analysis
5. Reporting the results
6. Using the new knowledge

# 1. Planning the study

- Well planned is half done...

Scope of the study	User group, context, ...
Goal	What are we looking for? Day in the life of elevator repairmen
Methods	How do we reach the goal? Observe, interview, photo probes
Predicted outcome	What kind of data the methods produce? 12h of interviews, 3h video and 60 pictures taken by the users
Pilot	Test in advance that it works, adapt if necessary

# User Research Phases

1. Planning the study
2. Data collection and processing
3. Data Overview
4. Detailed analysis
5. Reporting the results

## 2. Data collection and processing

- Applying the selected methods to practice
- Use several methods
  - Different approaches support each other
- Organize the data collection iteratively
  - The study can be realigned during it (focus to some unexpected interesting phenomenon)

# Interacting with the users

- If the study feels unpleasant (or boring) to the users, the results are most likely insufficient or inaccurate
  - Threats, bribes, ...
  - Channels for recruiting users
- People like to talk about themselves and their experiences
  - Master and apprentice
- Be honest!
  - How the collected data is used and stored
  - Confidentiality, access to data
  - With minors you almost ALWAYS need legal guardians approval

## 2. Data collection and processing: user research methods

- Observations
- Interviews
- Questionnaires
- Method packages
- More “creative” methods



# Information Sources in User Research

- Users' actions and behavior
- Users' artefacts and deliverables
- Users' opinions
- Other stakeholders' opinions about the users (marketing, employer,...)
- Literature

## 2. Data collection and processing

- The raw data produced by the methods is often difficult to understand and absorb
- Before analysis the data must be prepared and unified
- Detailed analysis produces usable deliverables: User profiles, personas, scenarios, context description, task models,...
- Take care to keep direct observations and user quotes separate from own insight and interpretations

# User Research Phases

1. Planning the study
2. Data collection and processing
3. Data Overview
4. Detailed analysis
5. Reporting the results

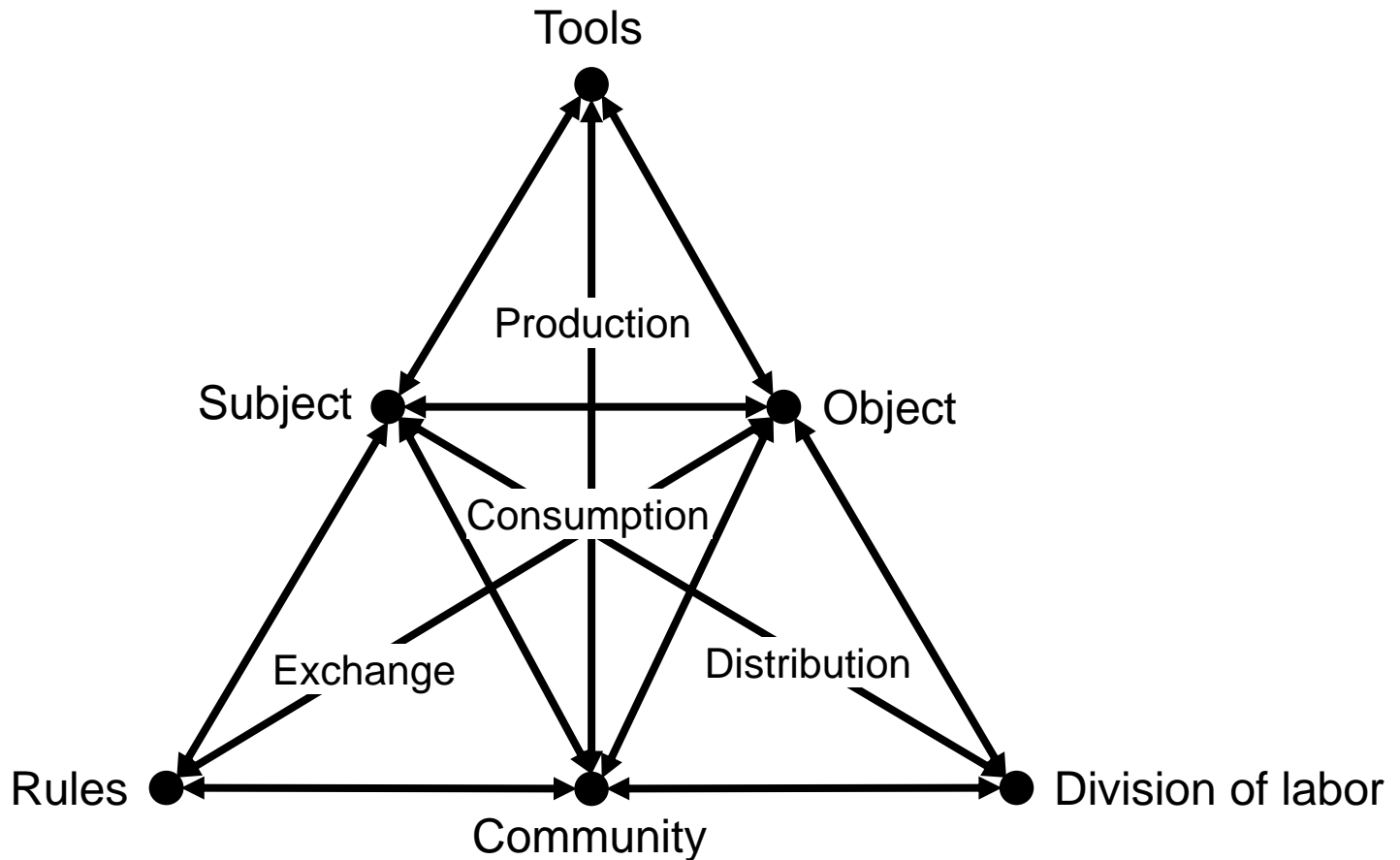
# 3. Data Overview

- Design team must acquire an overview of all the collected data
  - Ideal: Everyone goes through all materials individually and then as a group
  - Practical: collectors present their materials while others ask questions or comment
- Data coding (use appropriate tools)
- See the big picture (affinity diagrams, mind maps, ...)

# Data Coding

- Read the text carefully (yes, every line counts)
- Labeling the interesting bits
  - Actions, activities, concepts, quotes, opinions, tasks, ...
  - Phenomenon can be important because:
    - You say so,
    - Users says so, or
    - Don Norman says so
- Either use a pre-existing analysis framework or theory or construct and conceptualize what you find in the data

# One Possible Analysis Framework

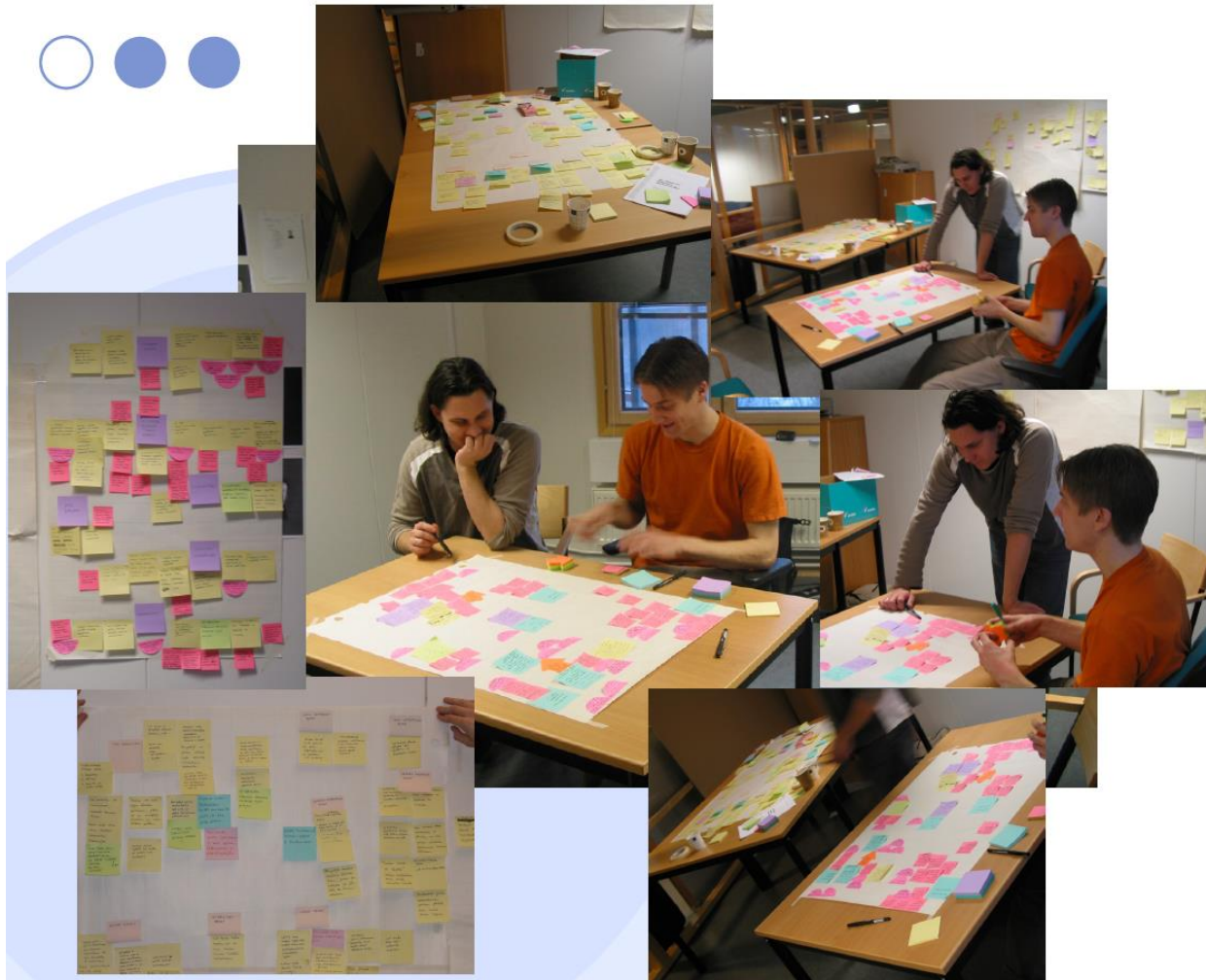


Kuutti, K., 1995. Activity theory as a potential framework for human-computer interaction research, in: Nardi, B. (Ed.), Context and Consciousness: Activity Theory and Human-Computer Interaction. MIT Press, pp. 17–44.

# Categorization

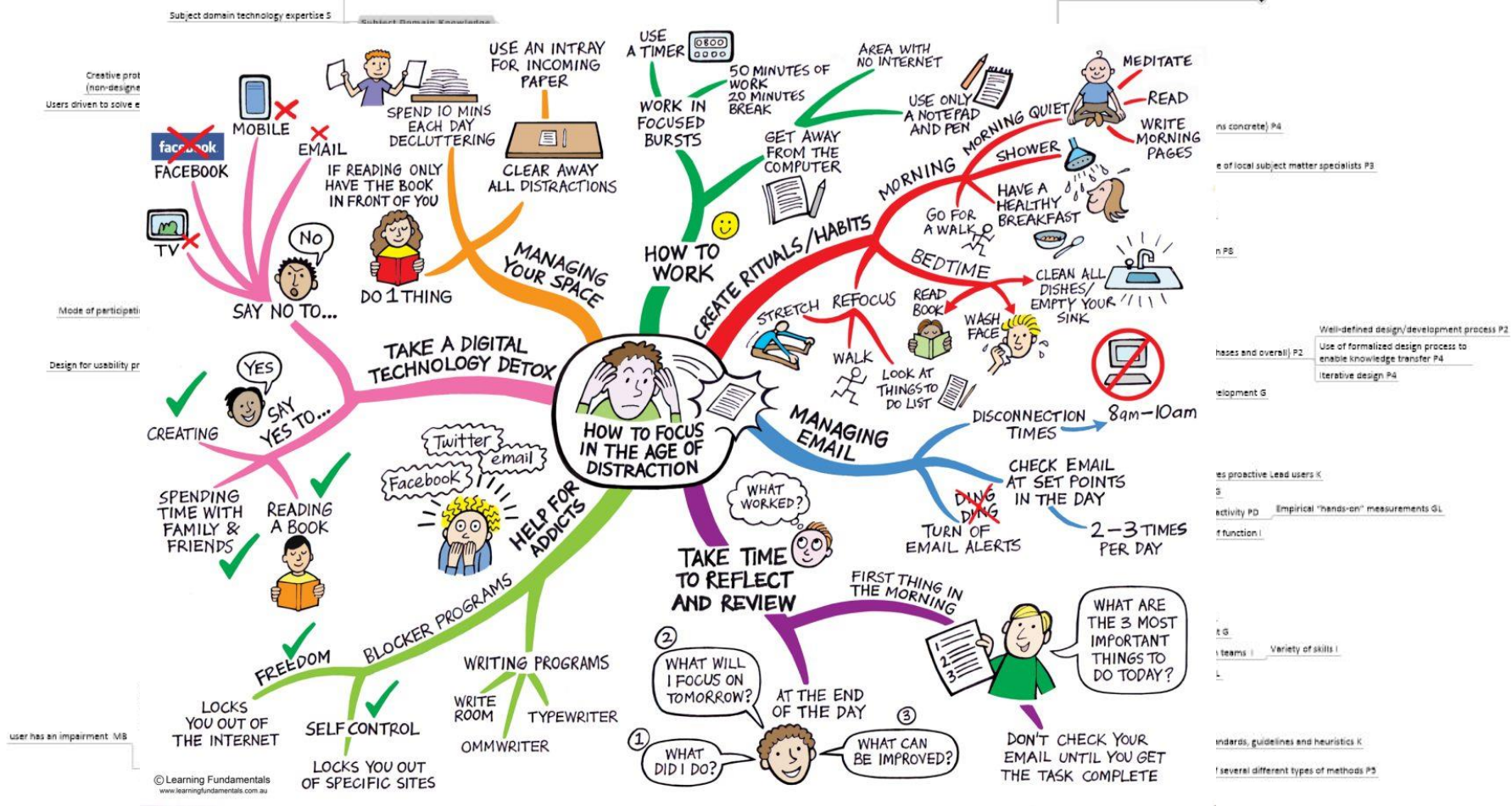
- First Combine, unify or aggregate codes
- Create categories or themes with available tools
  - Affinity diagrams, co-occurrence tables, mind maps

# Example: Affinity diagram

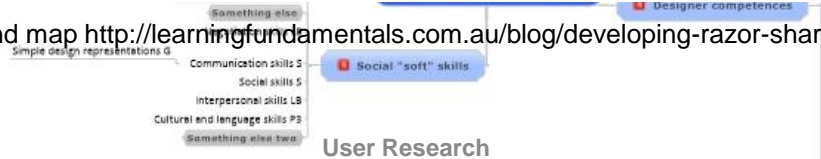




# Mind Map



Source: Art based mind map <http://learningfundamentals.com.au/blog/developing-razor-sharp-focus-with-zen-habits-blogger-leo-babauta/>



# 4. Detailed Analysis

- Goal: transform data to user needs, requirements and limitations
- Phenomenon (pl. phenomena) = reoccurring event or activity, other interesting observation
- Need = enabler derived from phenomena
  - What user need to do better, be happier, work faster, ...
- Requirement = demand for a product feature based on users, their actions or context of use
- Limitation = most often restriction to use or users imposed by environment or context

# 4. Detailed Analysis

- You as a user researcher are the **lens!**
  - Use your body and mind
  - Be aware of your own assumptions
  - You do not have to agree, but to understand and emphasize
- Condense, condense and condense
- Seek alternative viewpoints



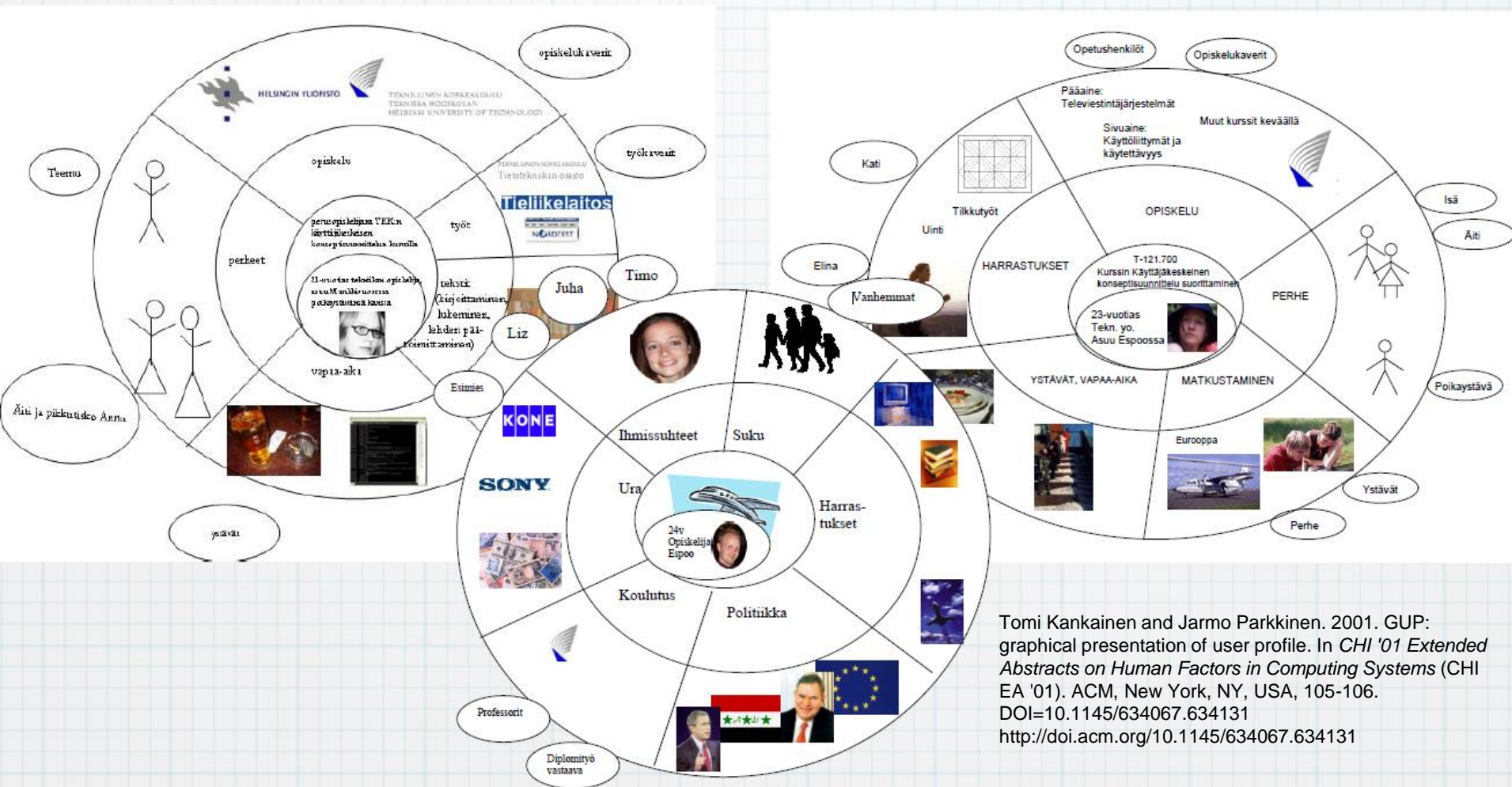
# 5. Reporting the results

- Goal: Describe the target in sufficient detail to inspire and justify your future design decisions
  - Outline in equal measure requirements (must-haves), limitations (cannot-haves) and opportunities (could-haves)
  - Maintain good traceability to backtrack a decision if necessary

# 5. Reporting the results

- User profiles, personas
  - Context and environment descriptions
  - Task and sequence models
  - Stories, quotes, narratives and scenarios
  - Depictions of most interesting phenomena
- 
- Both content and presentation of results always depend on the subject and used methodology

# Graphical User Profile



Tomi Kankainen and Jarmo Parkkinen. 2001. GUP: graphical presentation of user profile. In *CHI '01 Extended Abstracts on Human Factors in Computing Systems* (CHI EA '01). ACM, New York, NY, USA, 105-106. DOI=10.1145/634067.634131 <http://doi.acm.org/10.1145/634067.634131>

# References

- ISO 9241-210 (ISO 13407)
- Beyer, H. and Holtzblatt, K. Contextual Design
- Hackos, J., T. ja Redish, J., C. User and Task Analysis for Interface Design
- Kuniavsky, M. Observing the user experience
- Hyysalo, S. Käyttäjätieto (in Finnish)
- Mattelmäki, T. Design Probes
- Benyon, D. Designing Interactive Systems

# What Do You Do

- **Organize your data**
- **Create meaningful classifications or codings**
- **Make an affinity diagram and/or mind map**