



Aalto University
School of Science

User Research Recap

Qualitative Research and Analysis
as a part of user research or business development

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Research Phases

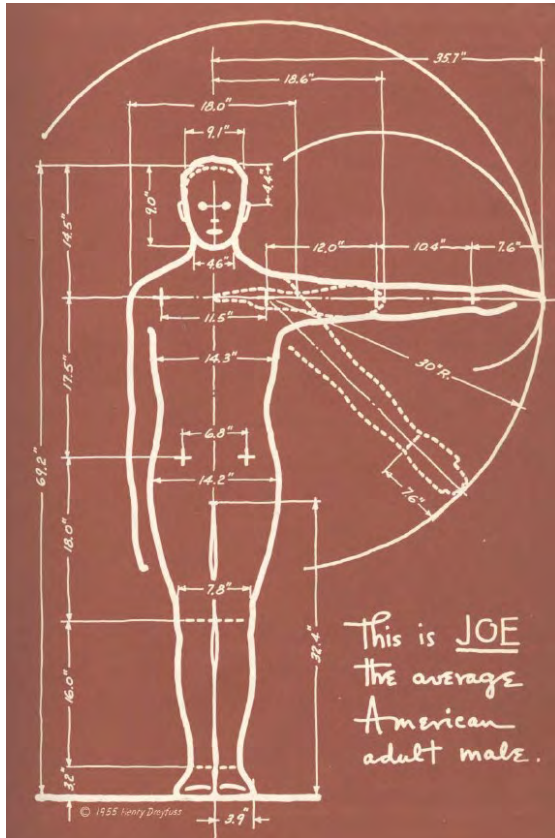
1. Planning the study
2. Data collection and processing
3. Overall analysis
4. Detailed analysis
5. Reporting the results
6. Using the new knowledge

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

1. Planning the study: scope



- User (group)
 - Who, how many, primary/secondary users
 - Client is not a user!
 - Designer is not a user!
- Context of use
 - Where the product is used?
 - Space/location, time (night-time, free-time, work-time, idle-time...)

1. Planning the study : goal

- What do you want to find out?
 - Users' work tasks, common activities, users' goals, social interactions, physical aspects
 - The focus can often be stated as *user in context* pair
 - Extreme sports enthusiasts in the Finnish winter
 - Knowledge workers' communication needs on the road

1. Planning the study : methods

- What methods help us reach our goals?
- Selection criteria
 - Available time
 - Available budget
 - Skills and experience of the researchers
 - Nature of desired data (qualitative vs. quantitative)
 - Phase in a design process
 - Special characteristics of the studied users group
 - Availability of users
 - Other restrictions

1. Planning the study : projected outcome and pilot

- Different methods produce different kinds of raw data (audio and video recordings, pictures, text, log data,...)
- Pilot test the method to make certain you get the kind of data you can use
 - The actual contents of the collected data are often surprising
 - Be aware of your own presumptions and opinions!

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

Observations

- Various subtypes:
 - Observation without participating the action (fly-on-the-wall-technique)
 - Participant observation
 - Participatory observation (action research)
 - Shadowing (secret observation)
- Get to know the users' real environments
 - Gives access to unanticipated, contextual and tacit knowledge
- Focus to a few point at a time
 - Observing the people's behavior
 - Understanding culture
 - Environmental or social impacts
- Challenges: time, money and interpretation
 - sometimes activities are not self-explanatory
 - Differentiate inscription (list of observations) from description (reflected interpretations)

Observation example



A map about how people walk about before going into the movie theatre in Lasipalatsi, when they are going alone.

(Agger, Häyrynen, Liikka, Romppanen, Peltonen, Salovaara: UCPCD course at HUT 2001)

Interviews

- Straightforward and natural method with various variations
 - Interview, group interview, focus groups, structured/semi-structure/unstructured/theme interview
 - Provide enough laddering since people are not really good in imagining or evaluating “what if... situations”
- Can utilize props i.e. artefacts to augment the interview sessions
- Always record your interviews!
- Most people can be interviewed (users vs. stakeholders)
- Interview data is suitable for several levels of interpretations
 - Language/used terms, gestures, things unsaid

Interviews

- Planning an interview:
 - Suit the overall strategy
 - Direct questions or more subtle approach
 - Warm up before critical questions, ease of towards the end
 - Don't make it too long
 - Be polite and if appropriate reimburse the users' efforts
 - Ask how, why, what is needed.., what this is called.., how is this usually.., has this changes lately.., what do you dream of..

Focus group vs. Interview

- Market research method, where facilitator promotes discussion on selected topics
 - New ideas and points of views are developed as a group
 - Difficult to keep the discussion democratic and equal among different participants, sometimes interpreting the results can be challenging
- Structured
 - Semi-structure
 - Unstructured
 - Theme interviews
 - People's feelings, experiences and attitudes are visible in the answers
 - Analyzing especially unstructured interviews can be very time consuming and difficult

Example: pair interview

M: So, what's the day's first task? ... when you have parked the car and walk inside...

A: Well, I usually change the call forwarding...

B: ...to myself. And it not usually, it has to be done every time right at the start

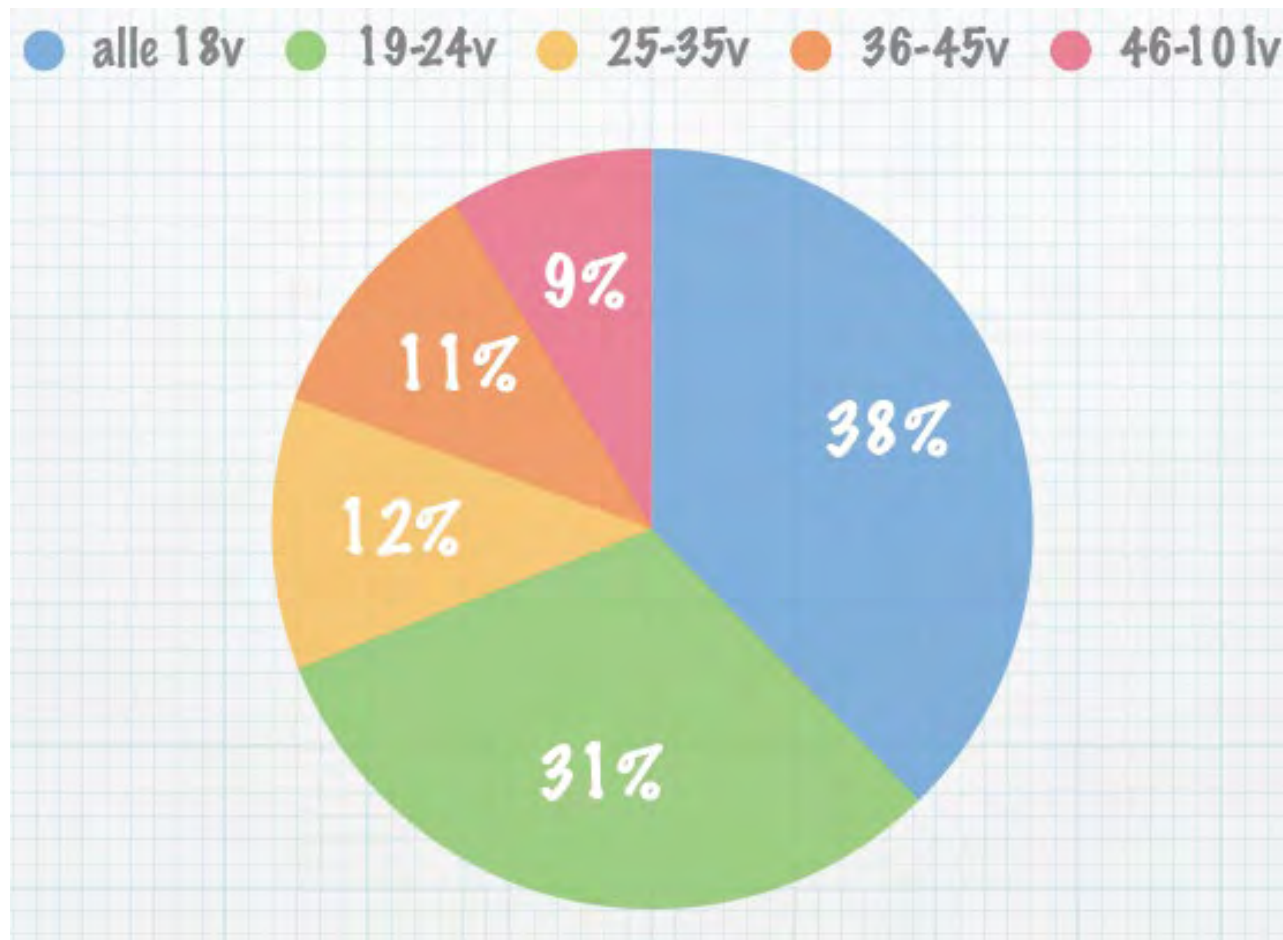
A: Yeah, you are going to get an angry callback if you forget...

M: How does the forwarding really work? If you don't change the forwarding does the call go to yesterday's on-duty person?

Questionnaires

- Used to be on paper, now mostly on web.
- Possible to collect large amounts of quantitative data about user and their opinions
 - For instance search potential users and user groups from larger population
- Earlier statistical information may be found elsewhere (feedback questionnaires, market studies, ...)
- Challenges: making the questionnaire, recruiting users, low participation, analyzing incomplete answers

Example: demographic data (age groups)



Example: statistical / correlations

Q# \ Test#	1	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	
Context-driven ideas	1	1	1	1	1	1	2	1	5	4	4	5	1	2	1	2	5	5	5	3	1	2	
Follow-up ideas for context-driven										3	2		Claim										Mean (sig.)
Follow-up ideas for open ideas										4	5		UCD Holodeck gave me useful information about the users										4,24 (p=.001)
Open ideas										3	2		UCD Holodeck enabled me to understand the users' needs										3,19 (p=.037)
Total										5	5		UCD Holodeck enabled me to think like the users										4,24 (p=.009)
40 (24%)	26 (15%)	30 (18%)	74(44%)	170(100%)						4	4		UCD Holodeck made me experience/feel like the users										4,05 (p=.088)
Video	Pictures	Web	Ambient sound	Total						4	3		UCD Holodeck was able to create memorable experiences										4,62 (p=.037)
44 (67%)	9 (14%)	10 (15%)	3 (5%)	66 (100%)						4	4		4	3	2	2	5	4	4	5	3	4	5
15	3	5	2	2	3	1	2	3	5	3		6	3	6	5	3	5	5	6	5	4	4	
1	4	6	4	5	2	4	4	5	5	5		6	3	6	5	3	5	5	6	5	4	4	
2	4	4	4	1	3	3	3	4	4	5		6	3	6	5	3	5	5	6	5	4	4	
3	5	5	4	3	2	5	5	4	4	6		6	3	6	5	3	5	5	6	5	4	4	
4	4	6	3	4	2	6	5	4	4	6		6	3	6	5	3	5	5	6	5	4	4	
5	3	6	4	5	4	6	4	3	5	5		6	3	6	5	3	5	5	6	5	4	4	

Method Packages

- Pre-defined collections of methods tailored for a particular context
- Task analysis
 - Goal: to understand users' tasks and goals
 - Activities are divided into parts (sequences)
 - Enables educated redesign of tasks based on selected criteria
- Contextual Inquiry
 - Part of the Contextual Design package
 - Characteristics: real context of use, master-apprentice approach during observations, validating interpretations with the users
- Self-reporting methods

More “Creative” Methods

- Seek to understand users’ emotions, ideas and thinking... and use it as inspiration for product design
- Based on reflective (psychology) and projective (ethnography) methods
 - Reflection: way people interpret (reflect on) their experiences
 - Projection: way people explain their own interpretations
- Cultural probes
- Photograph probes
- Semantic maps
- Roleplaying

Example: Cultural Probe



Camara, Page, Snyder, Nasir: Barbie in China <http://www.thalith.com/projects/culturalprobe.shtml>

Example: Photograph Probe



Example: Role playing co-design LEGO® SERIOUS PLAY®



Photo <http://www.rasmussenconsulting.dk/lego-serious-play/>

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
- User profiles, personas, scenarios, context description, task models,...
- Take care to keep direct observations and user quotes separate from own insight and interpretations

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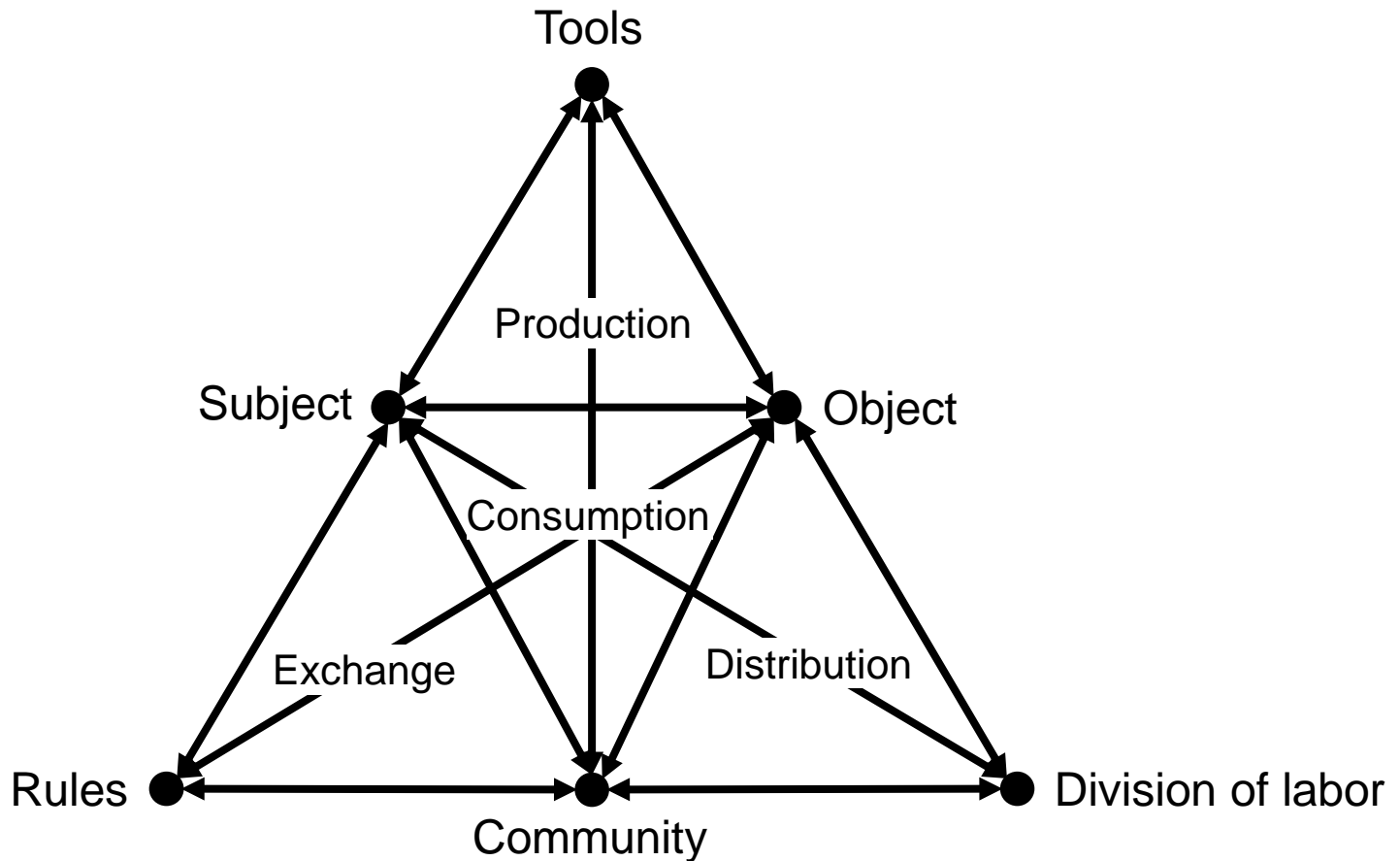
3. Data Overview

- 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, ...
 - It can be important because:
 - You say so,
 - Users says so, or
 - ~~Don Norman says so~~ Håkan Mitts 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

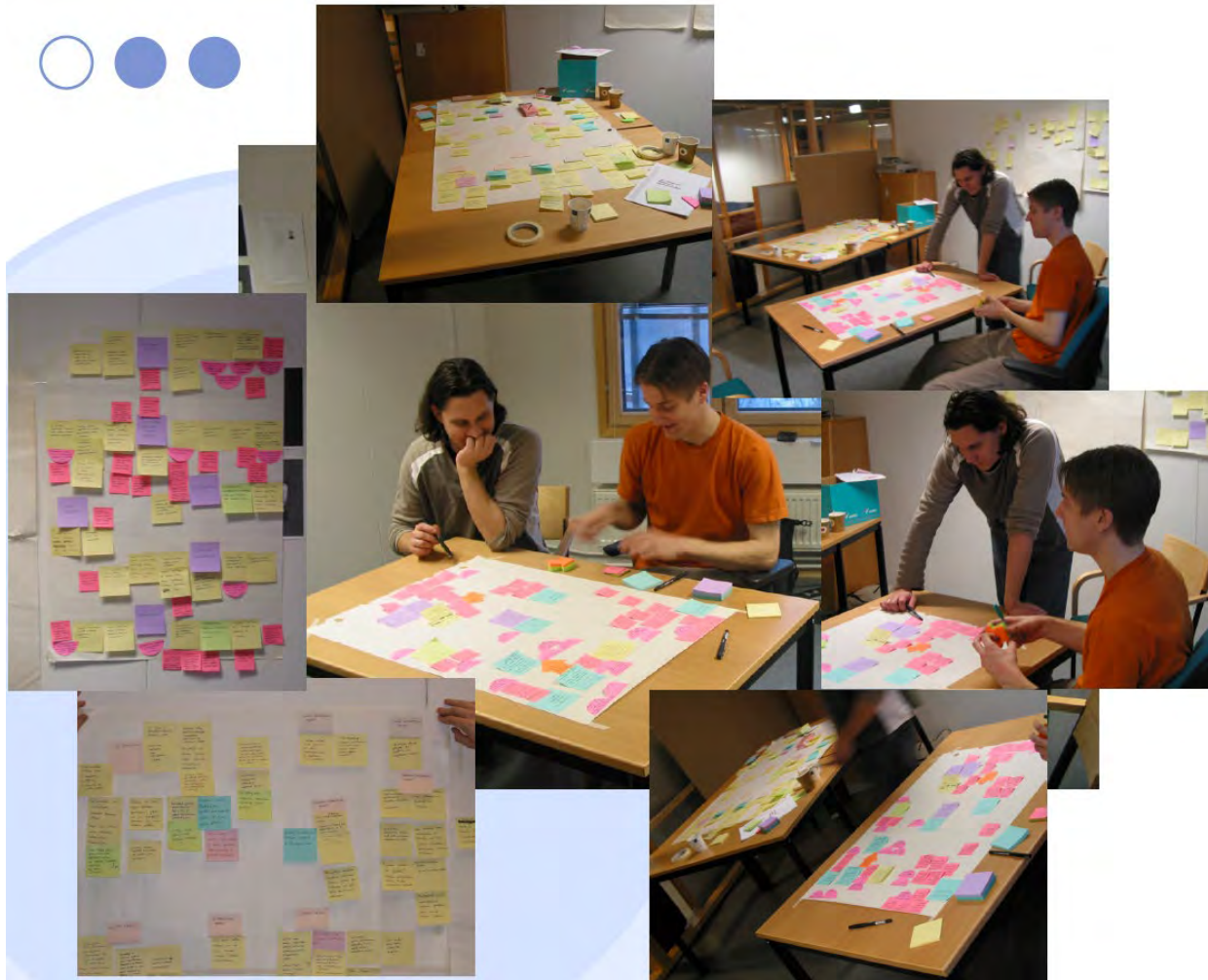


Kuutti, K., 1995. Activity theory as a potential framework for human-computer interaction research, in: Nardi, B. (Ed.), Context and Consciousness: Activity Theory and Human-Computer Interaction. MIT Press, pp. 17–44.

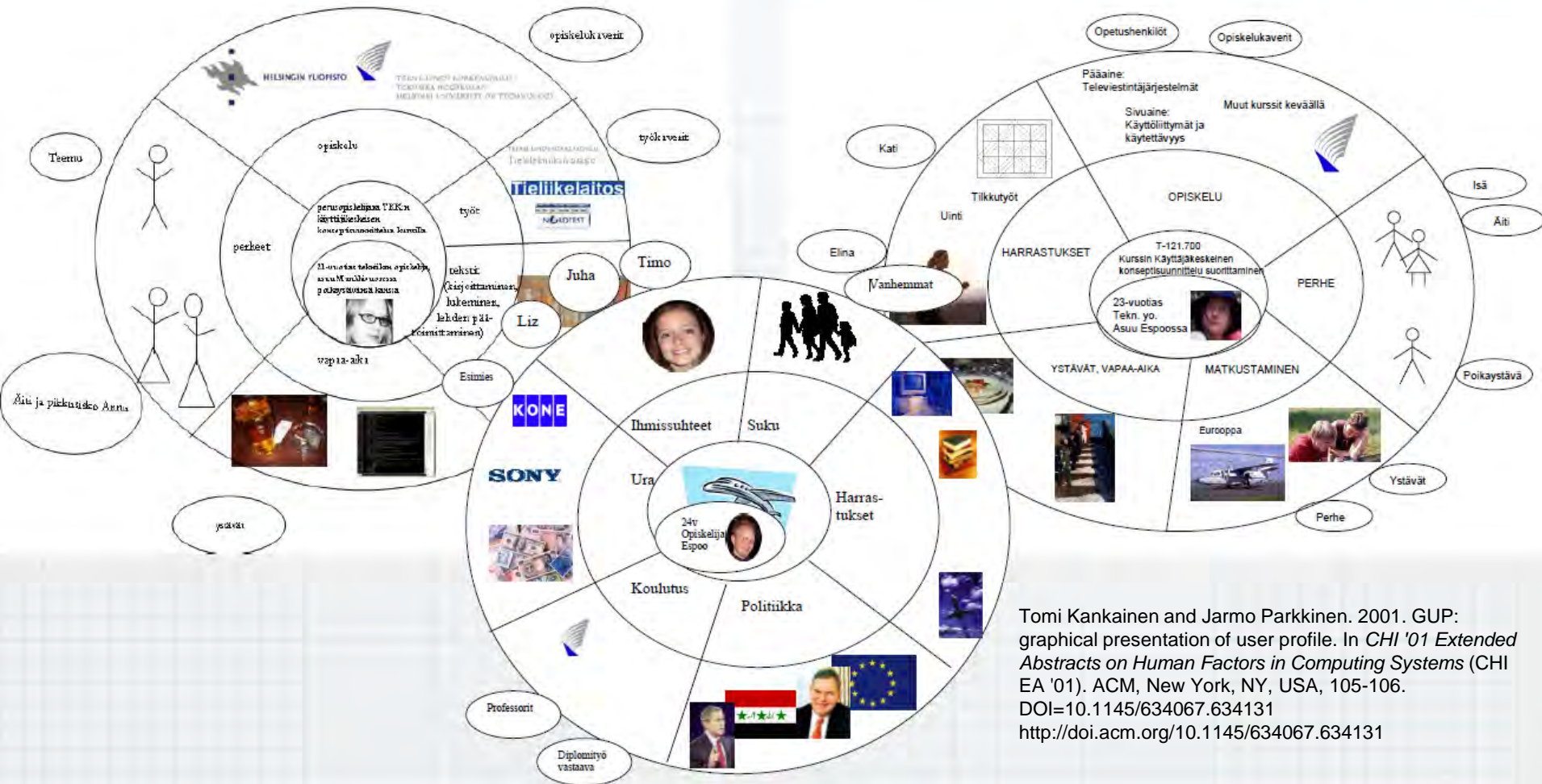
Categorization

- Combine, unify or aggregate codes
- Create categories or themes
 - Affinity diagrams, co-occurrence tables

Example: Affinity diagram



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>

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

Challenges for Research

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

References

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