Working with Humans

Experiences and comments on conducting
user interaction studies and related activities

Guest contribution

4ME301 Scientific Theories and Methods

Linnæus University
Sweden

Department of Media Technology

Reflection / Experience report (1/2)

Master Thesis

Change your Perspective

Exploration of a 3D Network created with Open Data in an Immersive Virtual Reality Environment using a Head-mounted Display and Vision-based Motion Controls


LEAP
THE BOOK OF TREES
Destiny
git cheat sheet
Oculus
TEDx
LinnaeusUniversity
THE EDGE

Purpose: Investigate

Issue: how to naturally explore and interact with

Object: open data content received from the web

Viewpoint: in an immersive virtual reality environment using a head-mounted display and vision-based motion controls.

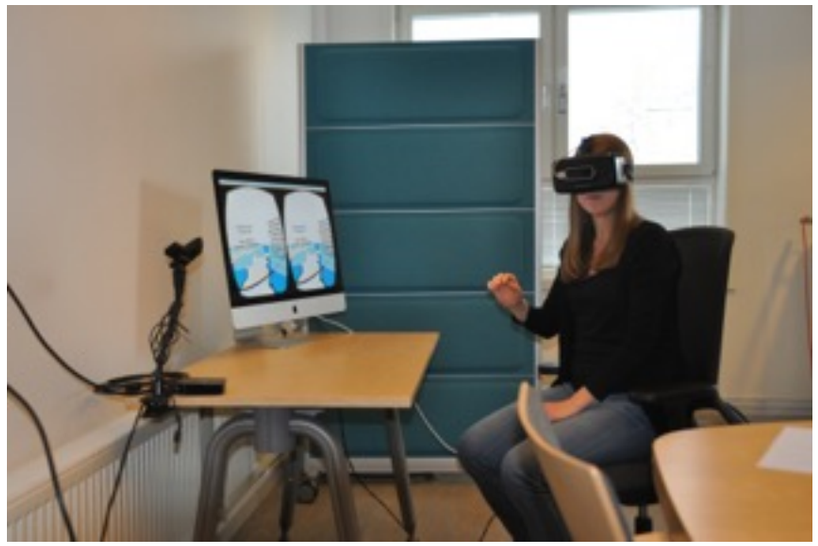
Stages of user testing

1. Technical validation of the prototype
2. User interaction study
3. Explorative expert discussion

Technical validation of the prototype

- ensure successful operation without major flaws or crashes
- last chance to apply minor (or major) changes before user interaction study


5ME10E - Master Thesis
Social Media and Web Technologies, LNU
Exploration and navigation in a 3D network
created with data from the web using a
virtual reality environment
and motion controls







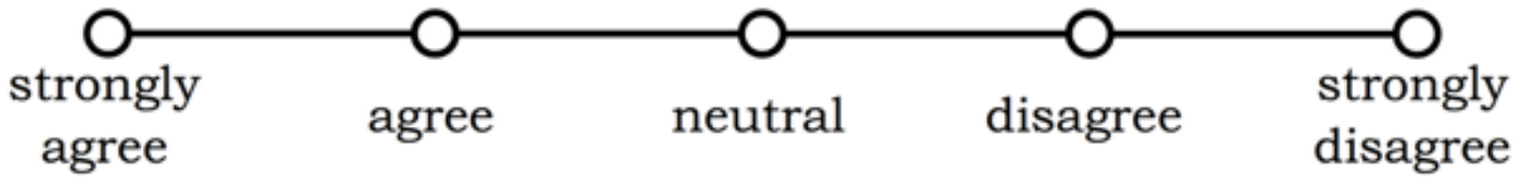


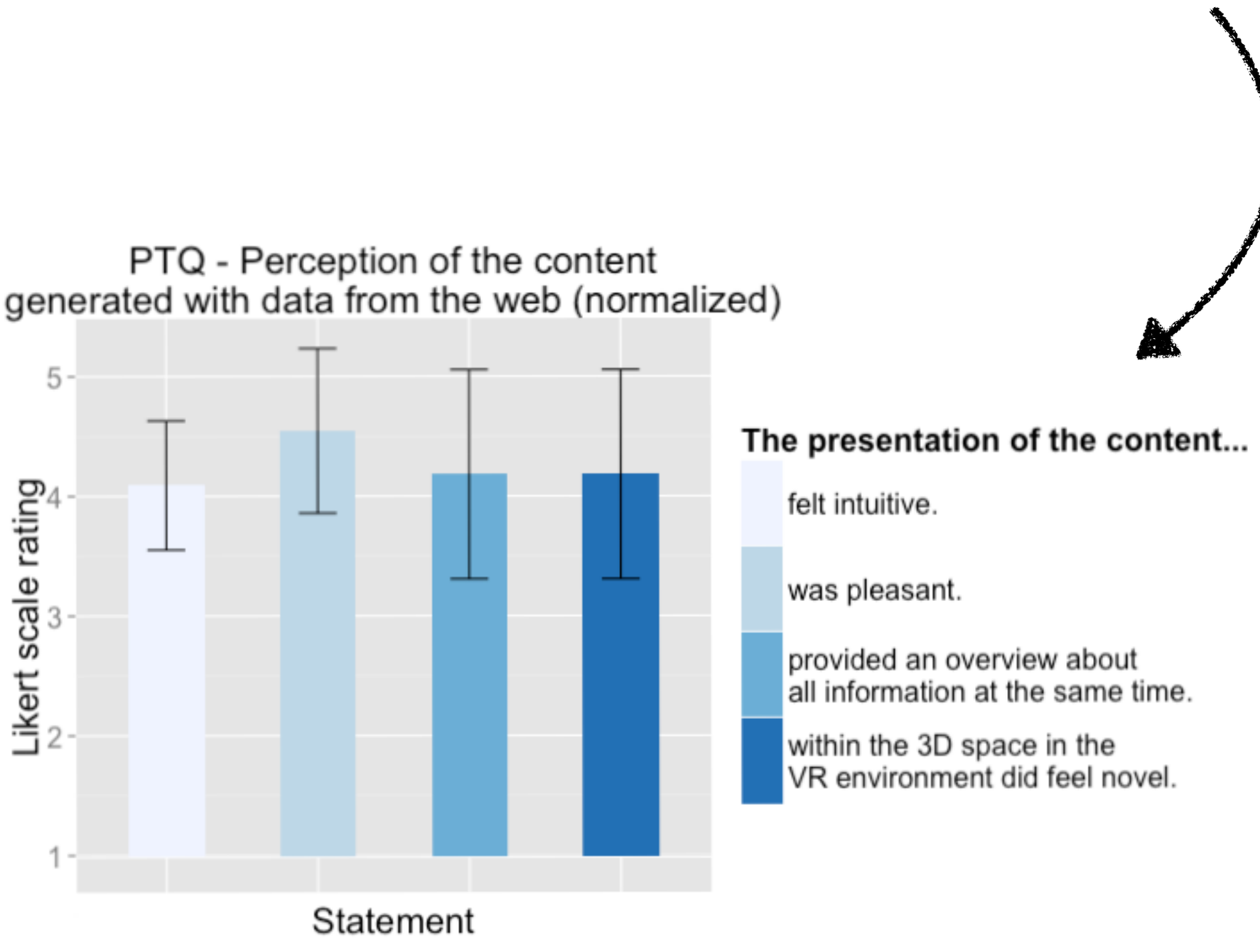
Oculus


User interaction study

Data collection:

1. Self-constructed pre- and post-session questionnaire
2. Log-files of the developed prototype
3. Think-aloud protocol
4. NASA Task Load Index (TLX) workload estimation


strongly agree
agree
neutral
disagree
strongly disagree

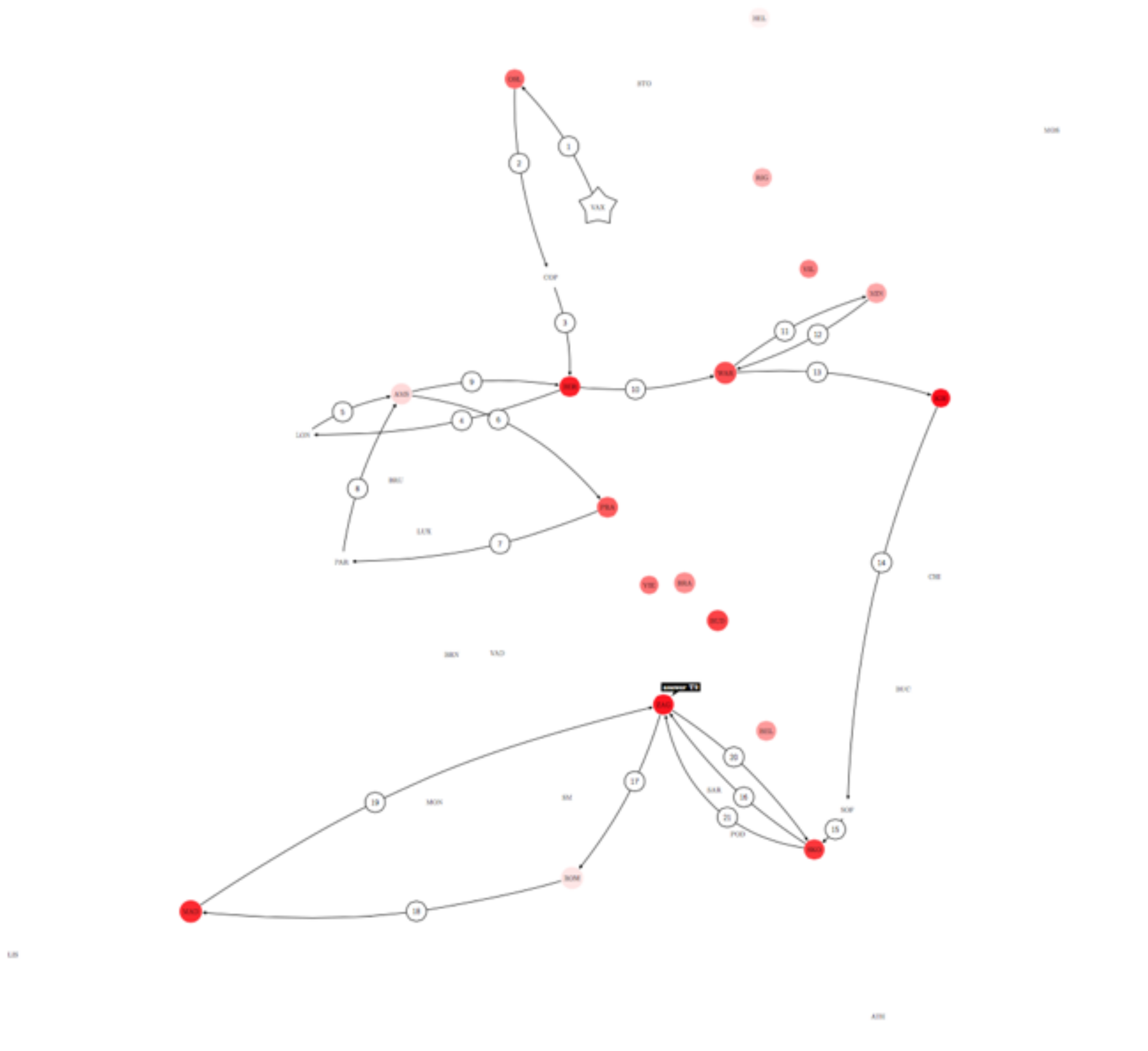

PTQ - Perception of the content generated with data from the web (normalized)
Likert scale rating
5
4
3
2
1
Statement
The presentation of the content...
felt intuitive.
was pleasant.
provided an overview about all information at the same time.
within the 3D space in the VR environment did feel novel.

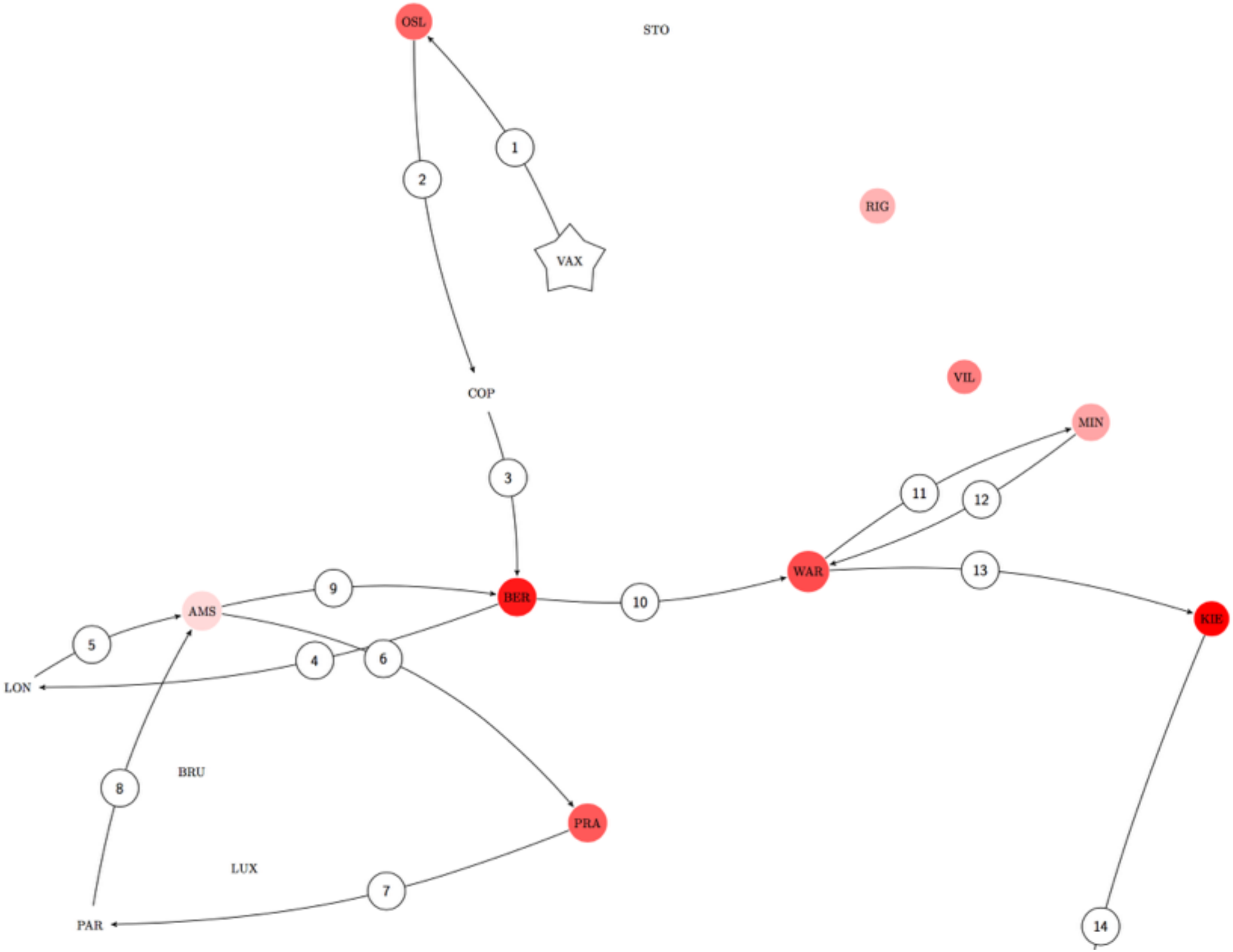
Self-constructed questionnaires

- pre- and post-session (if needed)
- mixture between
  - Likert scale statements
  - open answer questions
- use computerised data collection

  (this will help you a lot with the data analysis!!!)
  - e.g. Google Forms

Analysis			Task 1		Task 2	
			AVERAGE	STDEVA	AVERAGE	STDEVA
Average time spent in traveled City (in sec)			32.94	12.94	31.82	10.93
Amount of unique visited cities (max. 45)			11	4	11	4
Amount of visited cities			14	5	13	5
Amount of interactions			42	15	48	19
	Movement/Travels	**SUM**	15	8	15	8
		Successful	13	5	12	5
		Unsuccessful	2	3	1	2
		Forbidden	1	3	2	2
	Content Exploration	**SUM**	14	5	13	5
		Trigger	12	4	12	5
		Dismiss	11	4	12	5
		Rotation	2	3	0	1
	Filter Menu	**SUM**	13	8	20	11
		Trigger	4	2	5	2
		Dismiss	4	2	5	2
		Connection	8	6	13	10
		Area	0	1	8	6
		Population	6	4	1	2
		Reset	2	2	4	3
		Size	1	0	2	1
		Area	0	0	1	1
		Population	1	0	0	0
		Normal	0	0	1	1
Amount of time for completion (in sec)			421.84	160.61	391.74	142.33
in minutes			7.03	2.68	6.53	2.37




OSL
STO
1
2
VAX
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3
11
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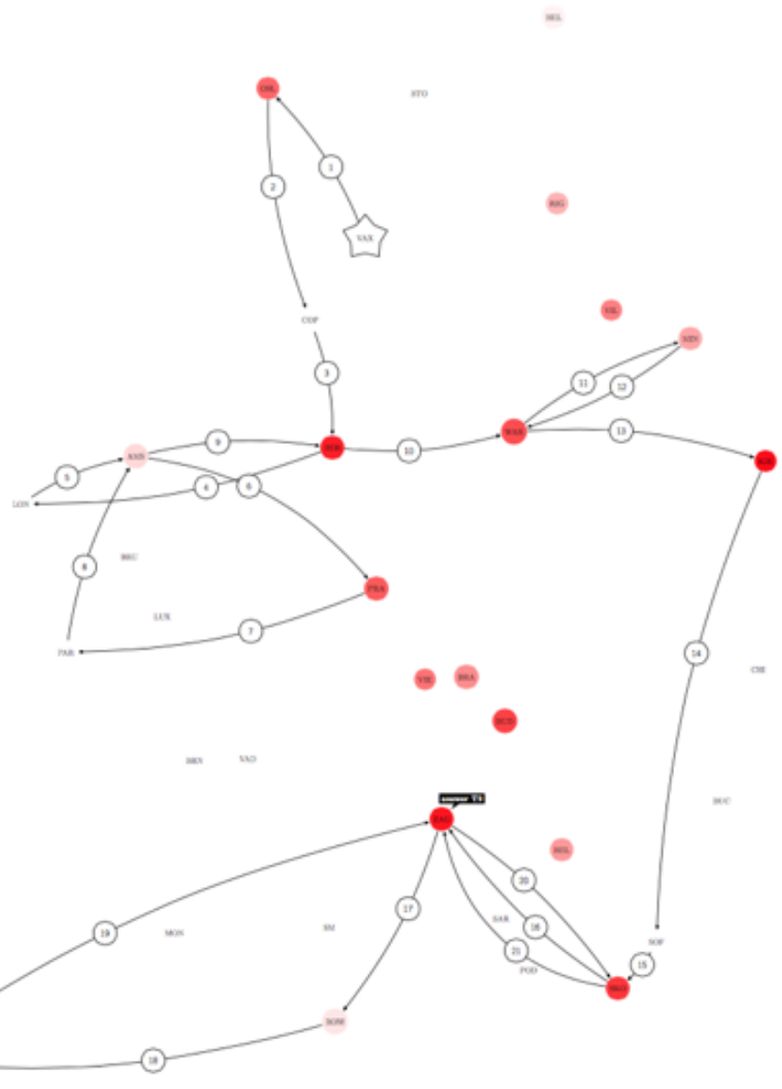
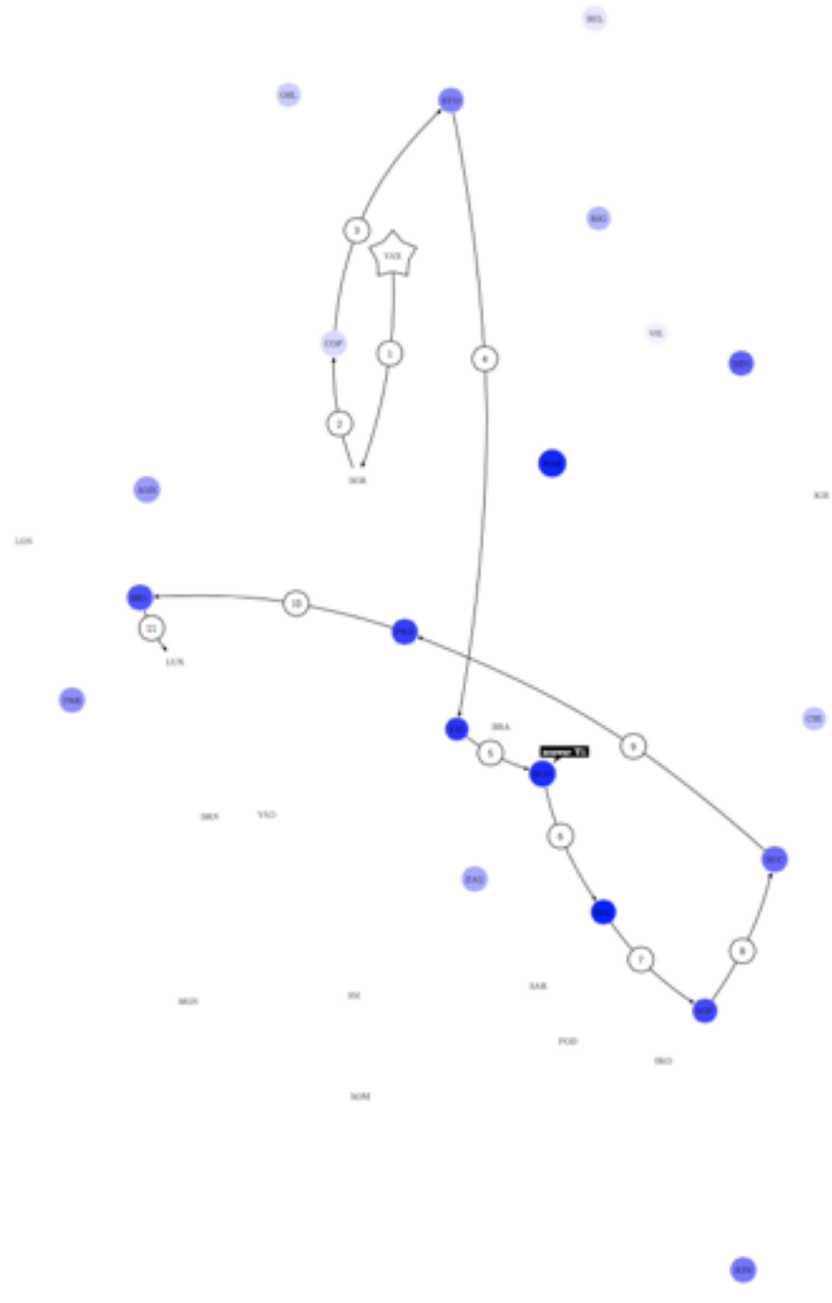
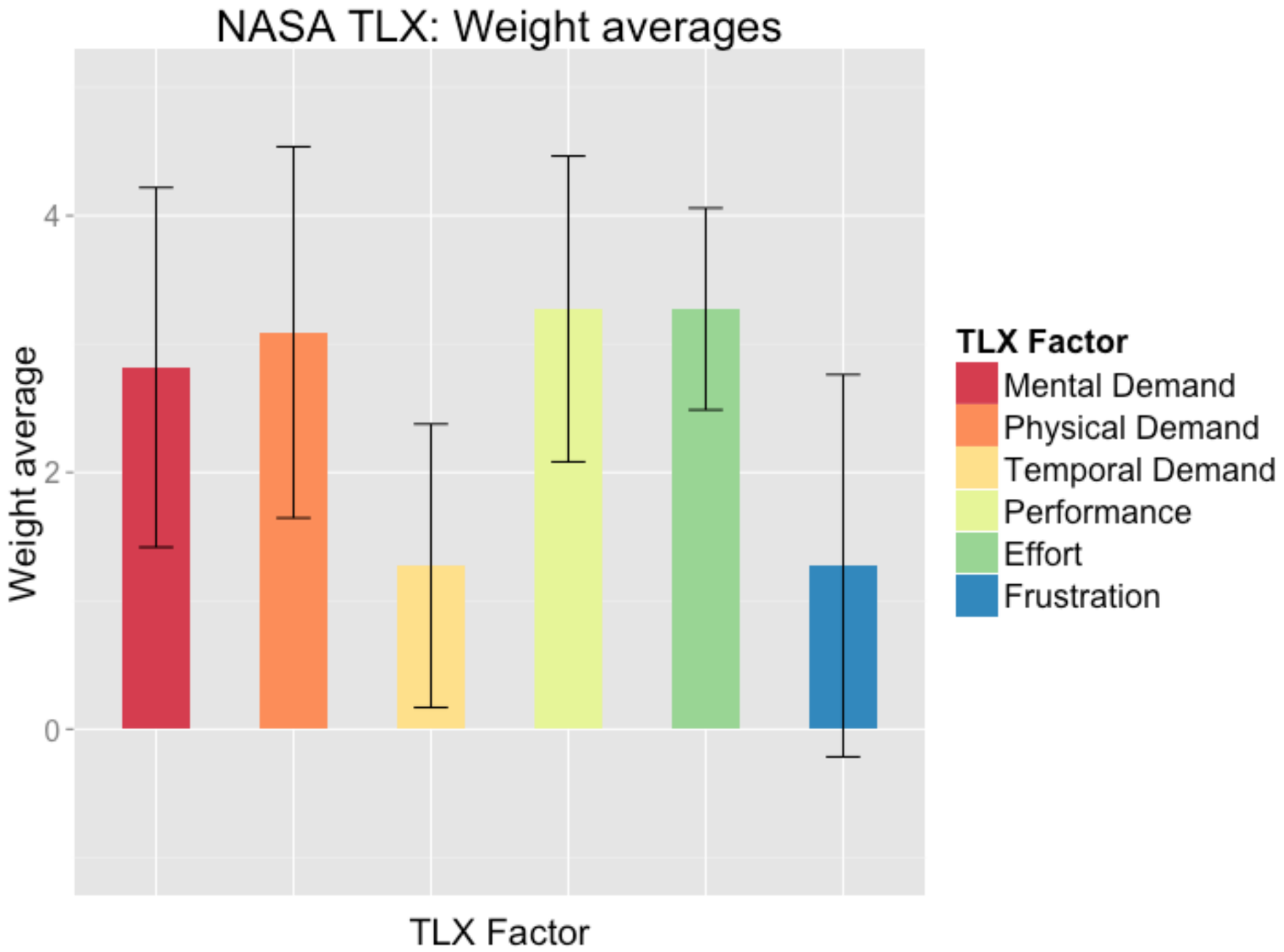
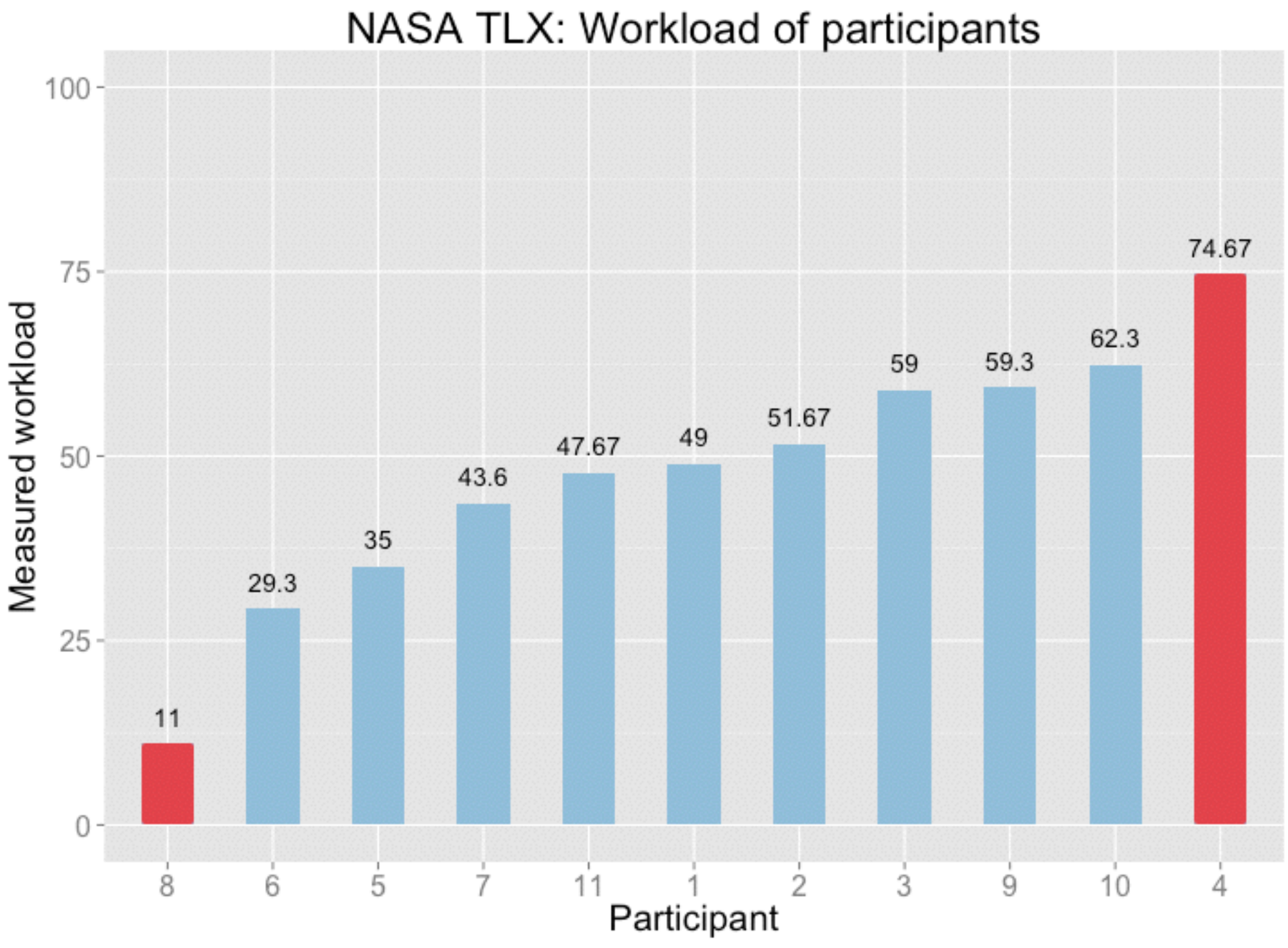


Revisiting



Straight


NASA TLX: Weight averages
Weight average
4
2
0
TLX Factor
TLX Factor
Mental Demand
Physical Demand
Temporal Demand
Performance
Effort
Frustration


NASA TLX: Workload of participants
Measured workload
100
75
50
25
0
11
29.3
35
43.6
47.67
49
51.67
59
59.3
62.3
74.67
8
6
5
7
11
1
2
3
9
10
4
Participant

Explorative Expert Discussion

- receive feedback from “experts”
- present
  - concept, idea and motivation
  - your developed prototype / conducted work

Reflection / Experience report (2/2)

UBISS 2014 - Workshop

Learning from People to Design Future
“Enjoying Machines”

Maximilian Mueller (Doctoral student)

Diary study: Interaction with Public Displays

Contact

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