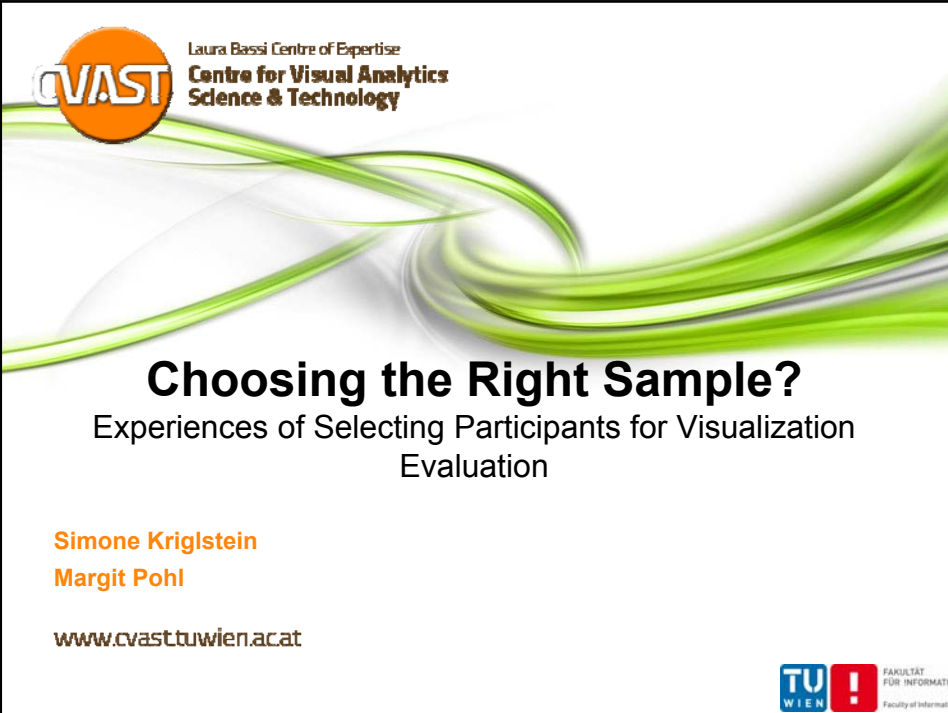


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Science & Technology**




Choosing the Right Sample?

Experiences of Selecting Participants for Visualization
Evaluation

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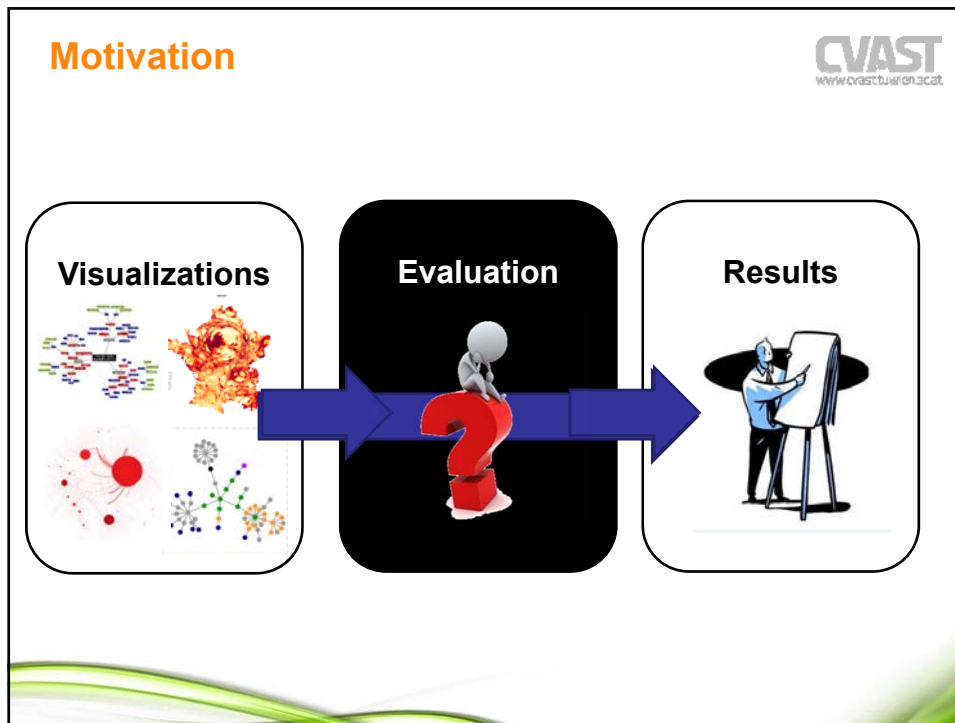
FAKULTÄT
FÜR INFORMATIK
Faculty of Informatics

Overview



- **Motivation**
- **Previous Research**
- **Discussion & Conclusions**





Motivation

CVAST
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- ✓ Hypotheses investigated
- ✓ Methods of investigation
- ✓ **Description of the sample**
- ✓ Details of the procedure of the study
- ✓ Tasks used in the investigation
- ✓ Methods of analysis

Evaluation

Motivation



Previous literature analysis:

- 15% from 68 publications **didn't report** the sample size
- The recruitment of experts was often a big challenge and therefore the sample size **did not often exceed 10** experts



Motivation



Investigations in HCI and Information Visualization often use **students** as participants:

- Difficult to convince experts to take part in comprehensive evaluation studies

Experts should be asked to evaluate workflow, requirements, and specific questions.

➔ It is an open question **whether to use experts or students** for evaluations in information visualization



Previous Research



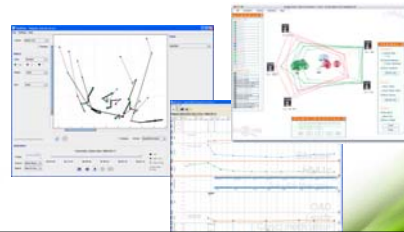
Several studies were conducted with **different information visualization systems** which were developed for the **medical domain**.

The major goals were:

- to identify **usability/utility problems**
- to verify if the **interaction techniques** were **useful**

Participants were

- Students
- Experts



Previous Research



Comparison of experts and students, students

- **took more time** to interact with the system
- ➔ identified **more usability problems** than the experts
- were **slightly more favorable** concerning **novel visualizations** and **interaction techniques**

By using students we were able to have a **larger number of participants**



Previous Research



Several studies were conducted during the development process of the ontology visualization tool **Knoocks**

The major goals were:

- to find out more about Knoocks' **usability** and to **identify possible weak points for further improvements**.
- to **compare** Knoocks with **other visualizations tools** and to compare **different design approaches**

Participants were

- Experts (Domain/Ontology)



Previous Research



Domain experts:

- the visualization was critically analyzed **if it was helpful** for their purpose
 - the ontology was verified if it was **correctly visualized**
 - They carefully investigated the tool in regard to **usability problems** and **design**
- ➔ They were **very motivated to improve the tool** since the visualization will **support them in their tasks** in the future

Previous Research



Ontology experts:

- **Information and features** were of interest which are relevant to **support them** in the **development** tasks of ontologies
- **In-depth questions** could be answered that had also a positive impact on the design of the ontology



Discussion & Conclusions



- User studies have become **more and more prevalent** in the information visualization and visual analytics community
- Information about the **participants** and **their characteristics are essential for reporting** of evaluation studies

Are students as participants problematic?

➔ No

- **Purpose and goal** of the evaluation studies are very **important for selecting participants**



Discussion & Conclusions



Experts are important to verify if the visualization ...

- is **useful for the domain**
- presents all **relevant content**
- fits their **workflow**



Students are very good candidates ...

- to identify **usability issues**
- for evaluating **general cognitive processes**, since **mechanisms of human cognition** (e.g., visual search, color vision, process of seeing, perception) are **similar for all humans**



THANK YOU

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