User Study: Lessons Learned

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Agenda

> Introduction
> Preparations
> The user study
> Processing of results
> Writing article
> References
Introduction

> Evaluation of AIVA
  > AIVA visualizes structure of component-based software
  > It is new and interactive information visualization tool
  > Case-study on complexity
  > User-study on user performance

> This is what we learned
Preparations

> Decide what you will test
  > We wanted to measure performance – how fast can one finish set of tasks
> Design a test scenario
  > We selected six core tasks in component visualization
> Try test scenario
  > Try it yourself, redesign
  > Let someone else try it, redesign
Preparations

> Design the user study
  > How many people – 12
  > Type of user study – comparative = compare with RSA
  > Form of user study – guided 1on1 + interview

> And finally…
  > Threads to validity
  > Eliminate advantage
  > Try it, first attempt will probably fail
The user study

> This is the easiest part, just do what you prepared
> If you tried it before it should be fine
> Just collect all the data for future

<table>
<thead>
<tr>
<th>AIVA</th>
<th>UML</th>
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<tbody>
<tr>
<td>Q1: 0:46 1:04</td>
<td>Q1: 2:40 0:12</td>
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<tr>
<td>Q2: 0:11 2:06</td>
<td>Q2: 2:56 1:40</td>
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<td>Q3: 0:20 1:22</td>
<td>Q3: 2:43 2:39</td>
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<td>Q4: 0:32 2:06</td>
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Processing the results

- Perform analysis on the data
  - Average, median, standard deviation, etc.
  - More advanced if needed
- What does the results show
  - Be precise, prevent misunderstandings
  - Any success is suspicious for others
Writing article

> Hypothesis and null hypothesis you tested
  > If you did not made one at the start of user study
> Describe how the study was designed
  > Goal of the study
  > Profile of participants
  > How did you performed the study
  > List of tasks
  > Other elements, that could biased the results
> Anyone should be able to recreate it now
Writing article

> Presenting results
  > Show all the raw data, so analysis can be verified
  > Add all your analysis
  > Do not compare results yet
> Compare results
  > Show graphic comparison
  > Add some mathematics
  > Just present these numbers, without discussion and conclusions
Writing article

> Discussion
> This is the hardest part
> Discuss all pros and cons, trade-offs, etc.
> Discuss if different tasks could make different outcome
> If you questioned participants summarize their opinions
> Create conclusions of the whole study
> You must convince all that scientists this is valid result
References


Thank you