

LMU

LUDWIG-
MAXIMILIANS-
UNIVERSITÄT
MÜNCHEN

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Praktikum Entwicklung von Mediensystemen

Mobile Dienste für Studenten

User Studies and Evaluation
01/08/2010





- **Lightweight introduction to user studies**
- **More information from:**
 - Andy Field, Graham Hole. *How to Design and Report Experiments*. Sage
 - MMI-script
- **User studies for different stages of the development process**
 - Ideas and concepts
 - Designs
 - Prototypes, implementations
 - Products in use





- **Quantitative user studies**
 - Measure performance
 - Generate statistical data
 - Verify hypotheses
- **Qualitative user studies**
 - Get „non“-measurable feedback
 - General insight
 - Find problem areas, conceptual errors, missing functionality



- **Determine the goal(s) of the user study**
- **Design the experiment(s)**
 - Create scenarios and tasks
 - Decide about measurement of metrics
 - Prepare questionnaires
 - Recruit subjects (7 – 10)
- **Run the study**
- **Analyse measured data and questionnaires**
- **Summarize and present the results**



- **Purpose of the study**
- **Find out what you want to evaluate**
 - Testing different ideas and designs
 - Usability of application features
 - Evaluation of user acceptance
 - Analysis of application performance
- **(Definition of hypotheses)**
- **Goals greatly influence the further design of the user study**



- **Outline the setup of the study**
 - Introduction
 - Optional training
 - Order of tasks (randomized?)
 - Order of questionnaires
- **Investigator can use the outline as guideline for the study**
- **Create scenarios and tasks**
 - Background for testing items of interest
 - Fully / partially covering the features of an application
 - Write down task descriptions for the subjects



- **Decide about measurement of metrics**
 - Quantitative measurement of test-specific metrics
 - Examples: task completion time, number of errors ...
 - Means: code, video (analysis), stop watch, etc.
- **Prepare questionnaires**
 - Qualitative assessment of features usability, user acceptance ...
 - Background questionnaire about age, gender, education/job
 - Different questionnaires for different tasks and scenarios
 - Final questionnaire to compare items that were tested separately
 - Use predefined choices (e.g. Likert-scales) and open questions



- **IBM Post-Study System Usability Questionnaire (PSSUQ)**
 - Standardized questionnaire for usability evaluation
 - 19 questions, Likert-scales
 - Measurement of user satisfaction with system usability
 - Customizable web questionnaire:
<http://hcibib.org/perlman/question.html>
- **SUS – System Usability Scale**
 - Quick and dirty questionnaire for usability evaluation
- **Nasa Task Load Index (TLX)**
 - Assessment of workload score



- **Run the study according to the outline/script**
- **Assign different people to different roles**
 - Investigator, documentation, ...
- **Encourage thinking aloud**
- **Document comments, problems, etc.**
- **Support subjects in case they don't know what to do**
 - Give hints instead of solutions („Why don't you try ...?“)



- **Quantitative data, e.g. time, number of errors**
 - Calculate mean values and standard deviations, e.g. with Excel
 - Create diagrams for presentation
- **Qualitative data, e.g. from questionnaires**
 - Mean values and standard deviations from scales; diagrams
 - Summary of individual answers; report trends



- **Many conferences offer different means for publication**
 - Full / short paper
 - Work in progress, posters
 - Demos
 - ...
- **Suitable conferences for publication**
 - DIS 2010 (Designing Interactive Systems)
 - Ubicomp 2010
 - MobileHCI 2010
 - NordiCHI 2010
- **Please contact us, if you want to submit sth. and need help**



22th January 2010

- **Prototype ready for user study**
- **Concept/outline for user study (refinement at the meeting)**

19th February 2010

- **Final presentation of prototype and evaluation**
- **Slide presentation about the whole project (design, implementation, evaluation)**
- **Demo of final prototype**

**Questions?
Have fun!**