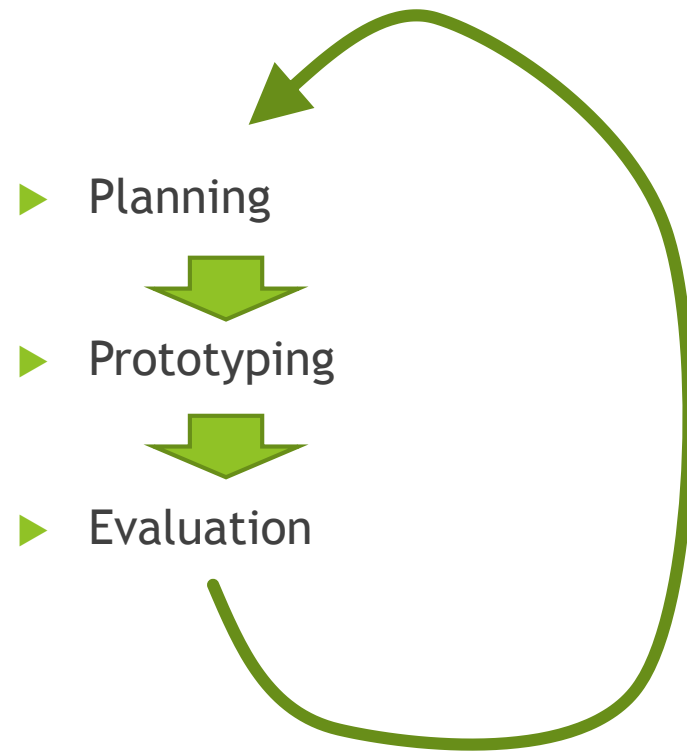


Evaluation

Human-computer interaction

Iterative design process



Goal of the evaluation

- ▶ Learn about how the users interact with the system
- ▶ Figure out the problematic parts
- ▶ Find the possible directions for changes

Usability

- ▶ Effective
 - ▶ Efficient
 - ▶ Engaging
 - ▶ Error Tolerant
 - ▶ Easy to Learn
-
- ▶ Quesenberry (2003) The Five Es

Usability

- ▶ Effective
 - ▶ full and accurate
 - ➔ to reach its goal
- ▶ Efficient
 - ▶ fast, (accurate)
- ▶ Engaging
 - ▶ style, satisfaction
- ▶ Error tolerant
 - ▶ prevention
 - ▶ correction
- ▶ Easy to learn
 - ▶ Initial state
 - ▶ deepening

10 Usability Heuristics

- ▶ <https://www.youtube.com/watch?v=hWc0Fd2AS3s>

Evaluation strategy

- ▶ Why do we want to conduct evaluation?
 - ▶ There is a new interface
 - ▶ It's been a long time since the last evaluation
 - ▶ We want to compare multiple versions
- ▶ What do I want to know, which important details to investigate?
 - ▶ Measure the usability criteria
 - ▶ How easy it is to learn...
 - ▶ Effect of a new, modified part

Evaluation strategy

- ▶ What kind of data to collect?
 - ▶ Quantitative
 - ▶ How much time does it take to fulfill a task
 - ▶ How often are there errors
 - ▶ Qualitative
 - ▶ How difficult they feel the tasks are

Evaluation strategy

- ▶ What to evaluate?
 - ▶ Paper prototype
 - ▶ Final application
 - ▶ X version
- ▶ What are the limitations?
 - ▶ Costs
 - ▶ People
 - ▶ Available versions

Evaluation plan

- ▶ Plan of a specific realization
 - ▶ With whom?
 - ▶ What?
 - ▶ When?
 - ▶ Where?

Evaluation plan

With whom?

- ▶ Determine the user group
- ▶ Recruitment
- ▶ Evaluators
- ▶ Observers
- ▶ How many evaluators to recruit?
- ▶ How to motivate them?

Evaluation plan

What?

- ▶ Which version?
- ▶ On what device?
- ▶ Create task cards / task lists

Evaluation plan

When?

- ▶ Create a schedule
- ▶ Measure the time
- ▶ Reserve some additional time
- ▶ How much time?
 - ▶ Roughly 30-90 minutes / session
- ▶ Schedule with possible delays

Evaluation plan

Where?

- ▶ Choose location
- ▶ Can be accessible
- ▶ Evaluators should not meet each other

Evaluation plan

- ▶ Figure out the whole test process
 - ▶ What tasks will the evaluator do
 - ▶ How will we measure
 - ▶ What will the subject do before / after
 - ▶ How to restore the system to initial state
- ▶ What to do with the data after the test

Prepare the tasks

- ▶ Tasks
 - ▶ Main functions
 - ▶ Tasks that are important for the users
 - ▶ New elements
 - ▶ Critical elements
 - ▶ Parts that are important for marketing aspects
 - ▶ Scenarios used during testing
- ▶ Evaluation designer vs. evaluator

Data collection

- ▶ Logging
- ▶ Discussion
- ▶ Taking notes
- ▶ Interview after evaluation
- ▶ Questionnaires
- ▶ Video
- ▶ Audio
- ▶ Eye tracking

What if the user does not agree / consent?

Questionnaire - after the evaluation

Question types (1)

- ▶ Yes/No
 - ▶ Have you used Windows 8 before? Yes No
- ▶ Scale
 - ▶ How easy was the program to use?
(very difficult) 1 2 3 4 5 6 (very easy)
- ▶ List
 - ▶ Which weather forecast type is most important to you?
 - ▶ Current weather in 1 position
 - ▶ 36 hours forecast
 - ▶ 5 days forecast

Questionnaire - after the evaluation

Question types (2)

- ▶ Free text, Complement
 - ▶ Which serious mistakes did you find while running the program?
 - ▶ _____
 - ▶ _____
- ▶ Combined: yes/no + complete
 - ▶ Were you able to do all the above steps? If no, with which did you have problems?
 - ▶ Yes
 - ▶ No, number of steps:

Questions for 5 Es

- ▶ How easy was the program to use?
- ▶ Do you think the program is engaging compared to similar apps?
- ▶ Did you find all the above steps? [efficient]
- ▶ Were the functions clear enough? [effective]
- ▶ Which serious mistakes did you find while running the program? [error tolerant]

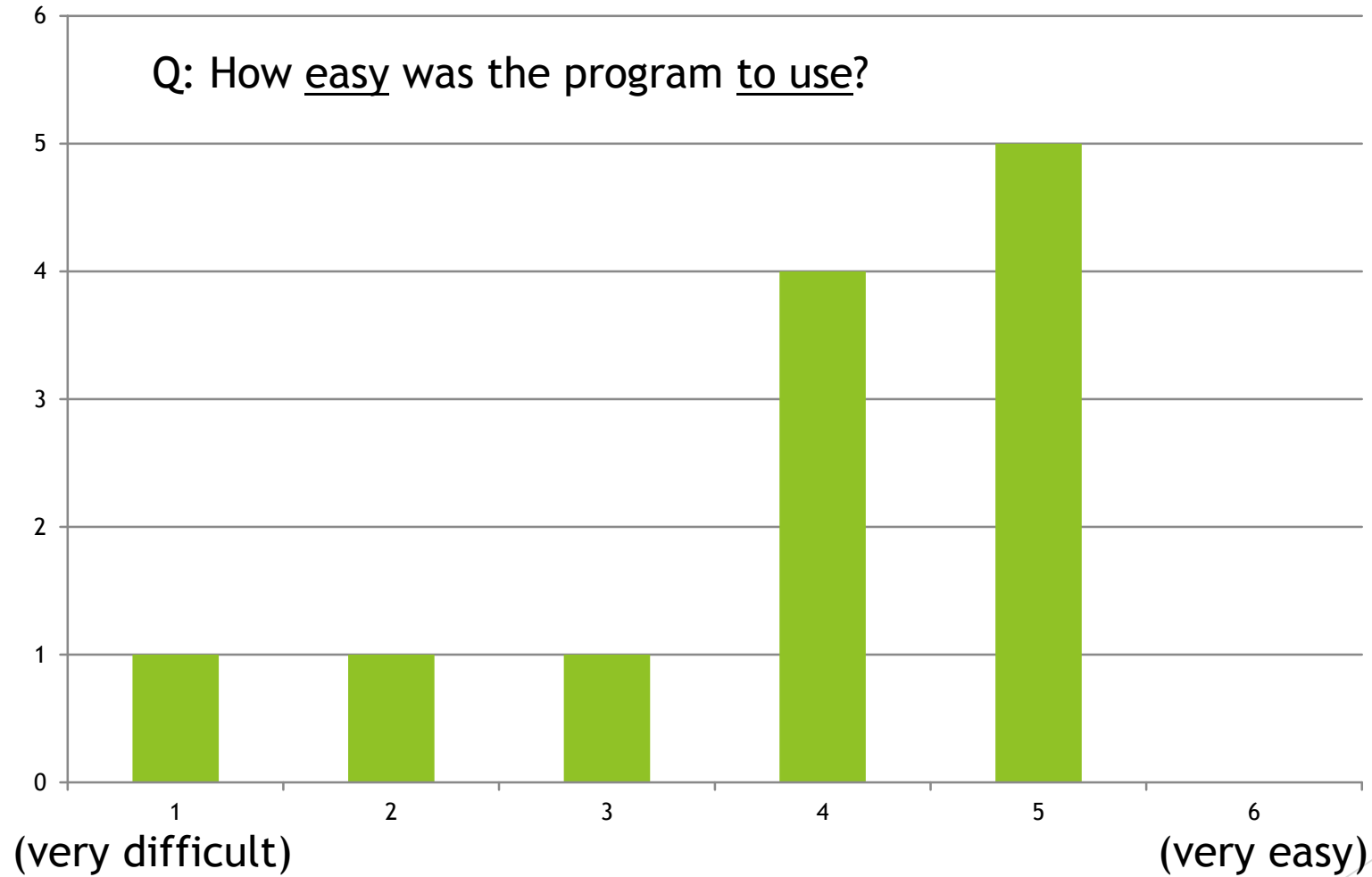
Documentation

- ▶ Not too long
- ▶ But should be written
- ▶ Inform other members of the group

Data analysis

- ▶ Collect data
- ▶ Summary, statistical analysis
- ▶ Identify usability problems
- ▶ Evaluation with taking into account the properties of the users
- ▶ Suggested changes → evaluation report

Questionnaire analysis (1)



Questionnaire analysis (2)

Q: Which serious mistakes did you find while running the program? [error tolerant]

- ▶ „The connection to Metnet server died, this caused a freeze”
- ▶ „After Search, the ‚No internet’ error message showed up and froze”
- ▶ „Very slow to refresh data”
- ▶ „Timeout during Search, but after clicking OK, the results came back”

Specific task: book flight

- ▶ Usability
 - ▶ Strategy
 - ▶ Plan
 - ▶ Evaluation
- ▶ Air India mobile app
 - ▶ E.g. reach Ahmedabad from Delhi, on Nov 18
 - ▶ Sri Lankan airlines mobile app
 - ▶ E.g. reach Bangalore from Vienna, on Nov 18

Usability - priorities

- ▶ Effective
- ▶ Efficient
- ▶ Engaging
- ▶ Error Tolerant
- ▶ Easy to Learn

Evaluation strategy

- ▶ **Why** do we want to conduct evaluation?
- ▶ What do I **want to know**, which important details to investigate?
- ▶ What kind of **data** to collect?
- ▶ **What** to evaluate?
- ▶ What are the **limitations**?

Evaluation plan

- ▶ With whom?
- ▶ What?
- ▶ When?
- ▶ Where?

Evaluation

- ▶ Specific task...
 - ▶ Air India mobile app
 - ▶ E.g. reach Ahmedabad from Delhi, on Nov 18
 - ▶ Sri Lankan airlines mobile app
 - ▶ E.g. reach Bangalore from Vienna, on Nov 18

What to upload

- ▶ Evaluation strategy, 1 page pdf
- ▶ Evaluation plan, 2 pages pdf
- ▶ Evaluation report, 1 page pdf
- ▶ Assessment, 1 page pdf
 - ▶ How you chose subjects
 - ▶ Expectations
 - ▶ Experiences
 - ▶ Circumstances
- ▶ Deadline: November 25.