Friedrich-Alexander-Universität
Technische Fakultät

Machine Learning
Data Analytics

FAU

Human Computer Interaction

Exercise: Test and Listen

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Summer Term 2024

Timeline

1.
Kick-off Meeting
- Present goals of this semester and build groups of 8 students

2. 15.05.2024
Discover
- Find allies
- Talk with experts
- Hunt for data sources
- Determine UX metric

3. 29.05.2024
Explore I
- Use evidence-based guidelines
- Design for universal access
- Give users control
- Include error messages

4. 12.06.
Explore II
- Map features to need
- Consider social implications
- Consider diverse contexts

5. 26.06.2024
Test and Listen + Abstract revision
- Track usability
- Track bugs
- Include diverse users
- Document good and bad results
- Pay attention to user’s feedback

09.07.2024
SRC submission deadline

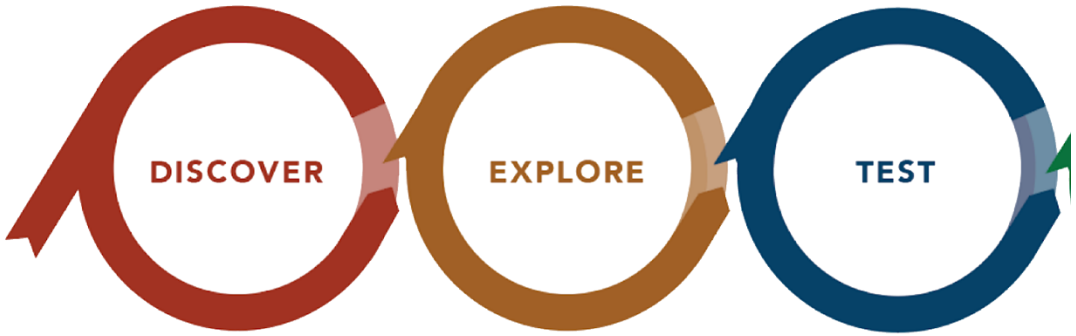
6. 10.07.2024
- Present the final product
- Paper correction and feedback

Open Discussion

Show us the current stand of your prototype!

Synthetic UX Research

Recap Gen AI in UX



GenAI can

- Perform standard usability/ accessibility assessments with standard metrics
- Automate video captioning of user actions in usability test for quicker identification of general usability issues
- Cross-reference findings with existing databases to suggest best practices.

GenAI can not

- Provide nuances critiques, as experienced human testers do, especially for innovative technologies.
- Detect the subtle emotional reactions of users toward the product that are not explicitly stated or measurable through metrics

Interactions Magazine, MAY-JUNE 2024 Volume XXXI.3

Evaluating your prototype

Usability

Core Elements of Usability Testing

Facilitator

Guides the participant through the test process

Tasks

Realistic activities that the participant might actually perform in real life

Participant

Realistic user of the product or service being studied

NNGROUP.COM NN/g

https://www.nngroup.com/articles/usability-testing-101/

Evaluating your prototype

Usability

Qualitative usability testing

- Thinking Aloud
- Interview questions
- Observation

https://www.nngroup.com/articles/qual-usability-testing-study-guide/

Quantitative usability testing

- Number of completed tasks
- Number of errors
- Task completion time
- SUS / AttrakDiff

https://www.nngroup.com/articles/usability-testing-101/

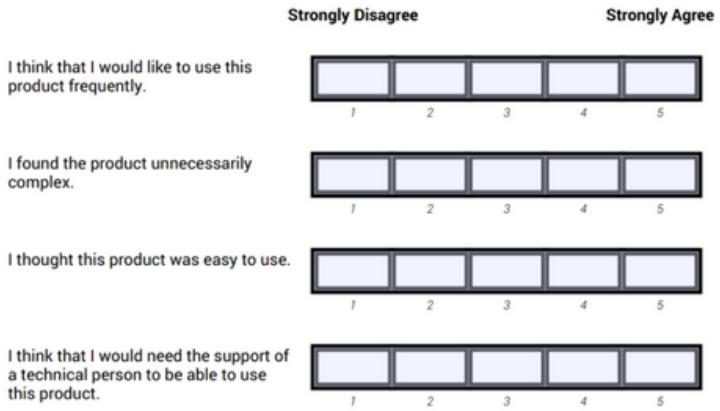
Evaluating your prototype

Usability

Recap: Two simple tools for usability testing:

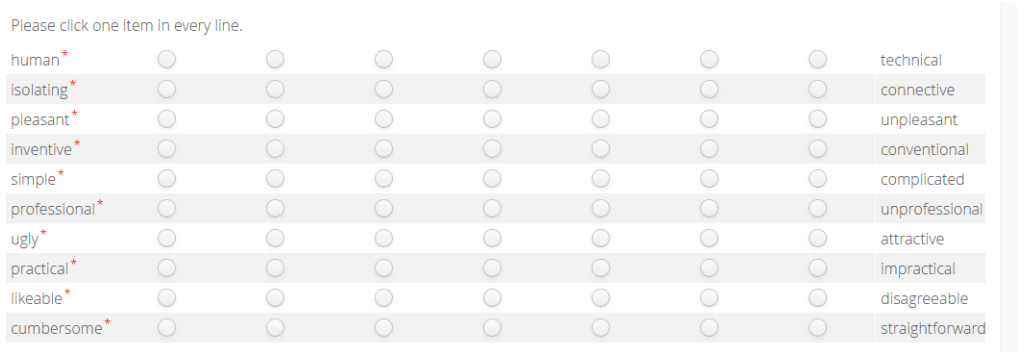
System Usability Scale

- Developed in 1986 by John Brooke
- Still often used in different settings
- 10-item questionnaire:



AttrackDiff

- Developed by Marc Hassenzahl
- Evaluation of usability and attractiveness
- Questions as pair-wise set of words:



Evaluating your prototype

Usability

JMIR Pediatr Parent. 2023 Dec 15:6:e50765. doi: 10.2196/50765.

Usability and Perception of a Wearable-Integrated Digital Maternity Record App in Germany: User Study

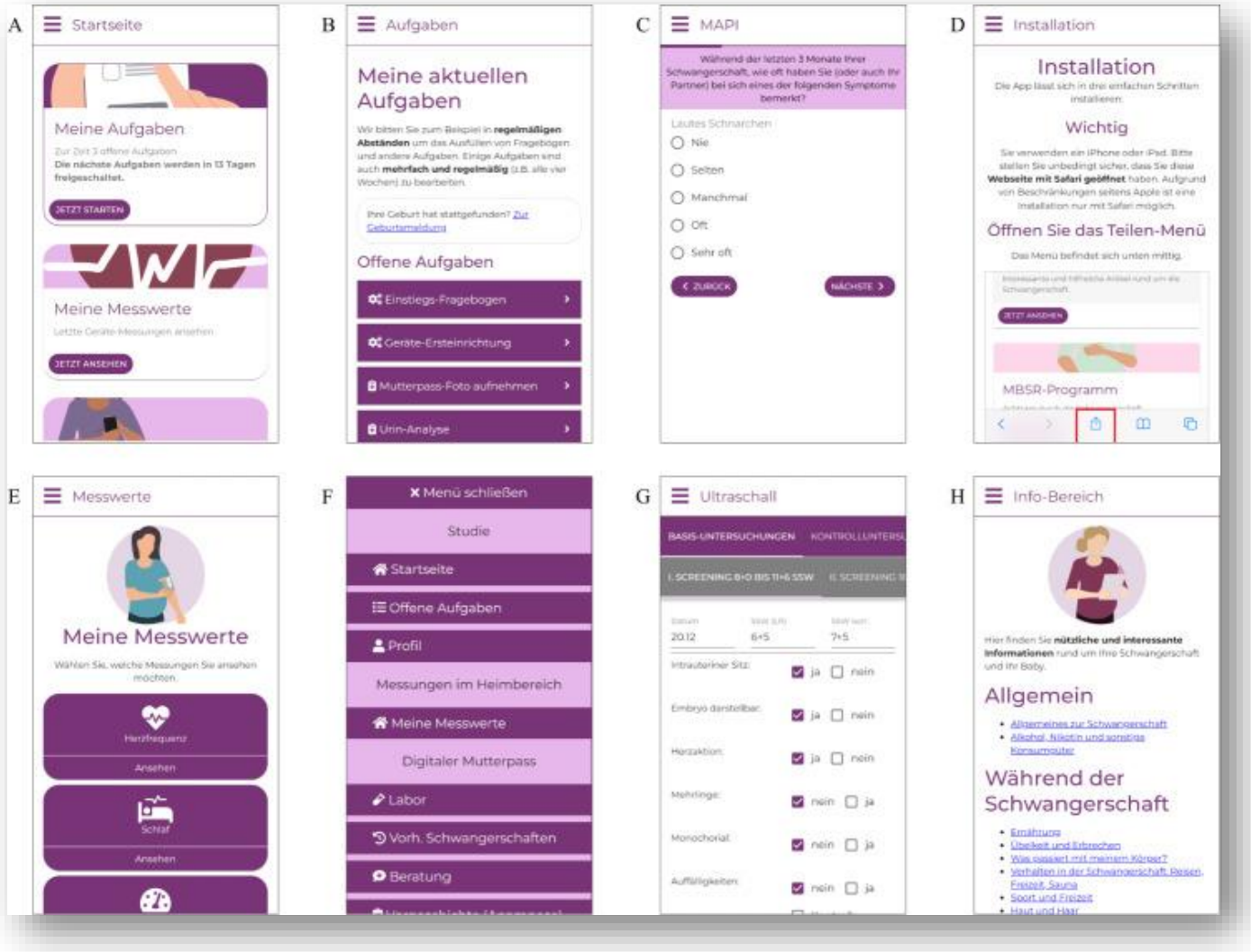
Michael Nissen [1], Carlos A Perez [1], Katharina M Jaeger [1], Hannah Bleher [2], Madeleine Flaucher [1], Hanna Huebner [3], Nina Danzberger [3], Adriana Titzmann [3], Constanza A Pontones [3], Peter A Fasching [3], Matthias W Beckmann [3], Bjoern M Eskofier [1], Heike Leutheuser [1]

Affiliations + expand

PMID: 38109377 PMCID: PMC10750977 DOI: 10.2196/50765

Evaluating your prototype

Usability



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Michael Nissen et. Al [2023 JMIR]

User Experience Questionnaire (UEQ)

What does it measure?

The scales of the questionnaire cover a comprehensive impression of user experience. Both classical usability aspects (efficiency, perspicuity, dependability) and user experience aspects (originality, stimulation) are measured.

Attractiveness

Overall impression of the product. Do users like or dislike it?

Perspicuity

Is it easy to get familiar with the product and to learn how to use it?

Efficiency

Can users solve their tasks without unnecessary effort? Does it react fast?

Dependability

Does the user feel in control of the interaction? Is it secure and predictable?

Stimulation

Is it exciting and motivating to use the product? Is it fun to use?

Novelty

Is the design of the product creative? Does it catch the interest of users?

UEQ Results

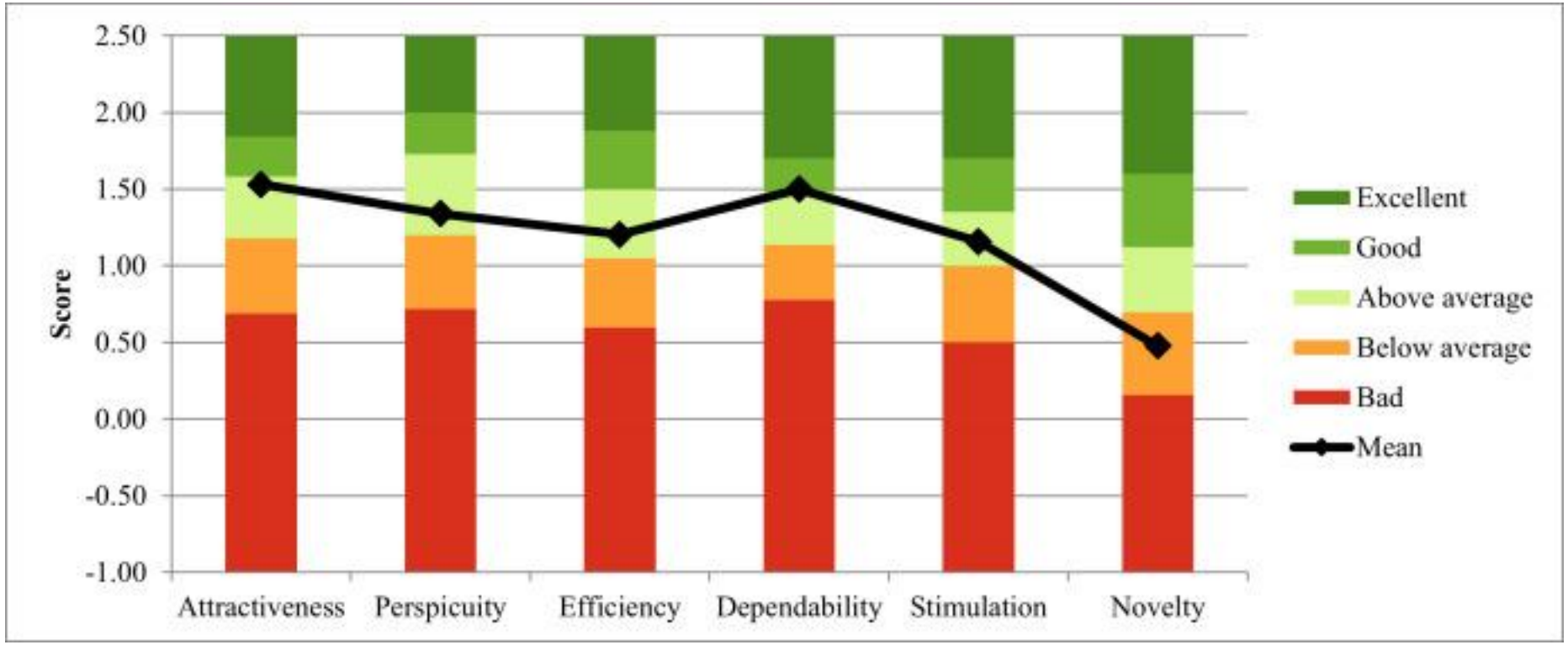

Figure 3. User Experience Questionnaire (UEQ) results. The app was rated as “above average” in most areas. The UEQ scales range from −3 to +3. The graphic was derived from the official UEQ evaluation benchmark tool, which crops ranges to improve readability.

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Task Completion Time Results

Comparison to GOMS reference time

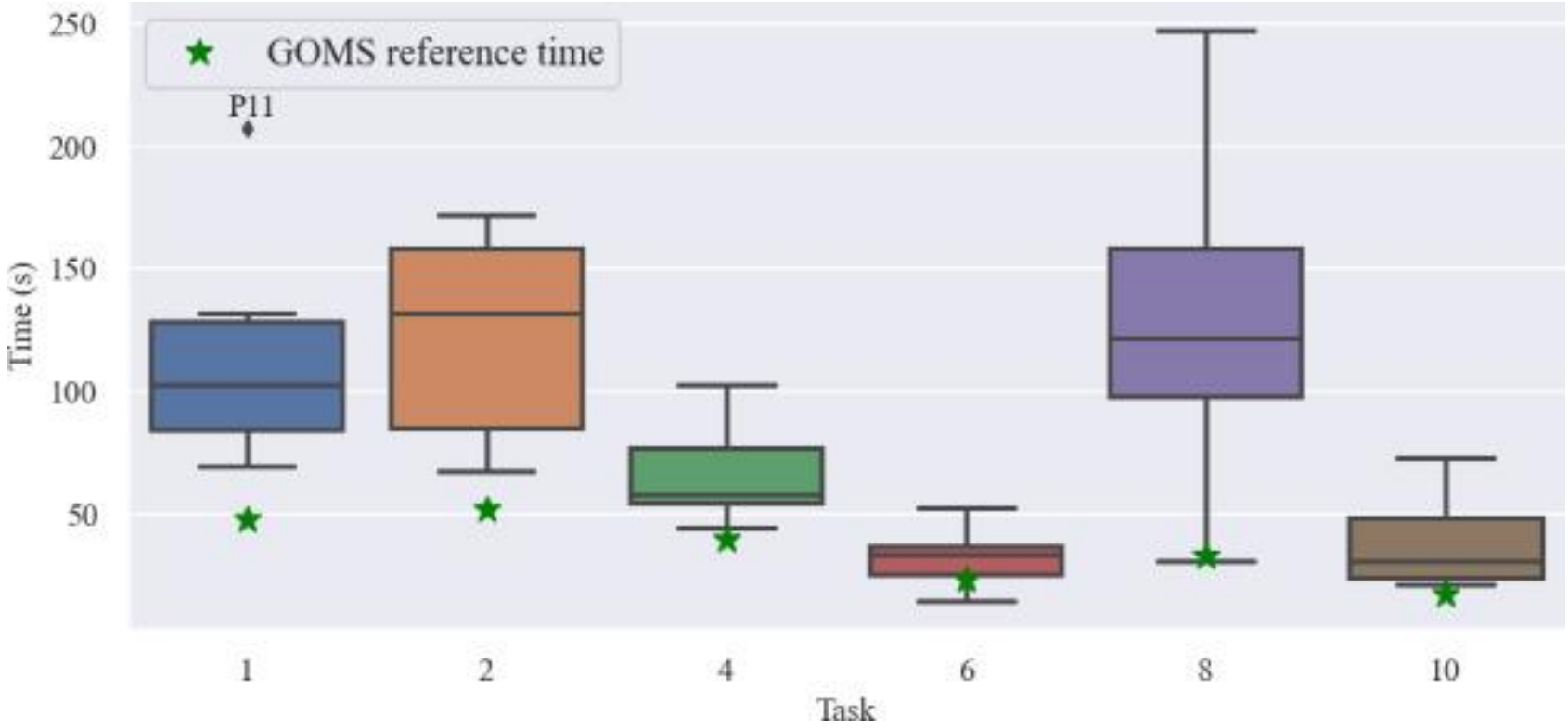

Figure 2. Task completion times for each task. See Table 1 for details on the individual tasks. GOMS (goal, operators, methods, and selection rules) modeling using Cogulator was performed to estimate reference times. No times were measured for explorative tasks (tasks 3, 5, 7, 9).

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Evaluating your prototype

Usability

Step 1

Define tasks within your prototype and decide how you want to evaluate the UI (qualitatively + quantitative)

Step 2

Find Participants (~5)
You can use the StudOn Forum for recruiting

Step 3

Study conduction: Observe the task conduction, note down feedback, hand out questionnaires

Step 4

Evaluate the feedback and questionnaires, write a summary of your findings ➔ to be included in SRC submission

Tasks

Please prepare the following for the next session

- Conduct a small user study with ~5 participants as describes in the previous slide to evaluate your prototype
- Write a summary of your findings including the results of the SUS/ AttrakDiff (1 page max)
- Peer review your colleague’s abstracts + correct your abstract and don’t miss the submission deadline! ☺

Guest talks

Markus Wirth
Co-founder of Cryptolight
“User Experience in Web3”
17.06.2024

In person

Dr. Isabel Schwaninger
Postdoctoral Researcher at University of Luxembourg
“HCI and Healthcare”
08.07.2024

On Zoom

Pauline Nöldemann & Yannick Wiesner
“Presenting BesserEsser”
15.07.2024

In person