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A Tool-based Approach for Structuring Feedback for User Interface Evaluations of Mobile Applications

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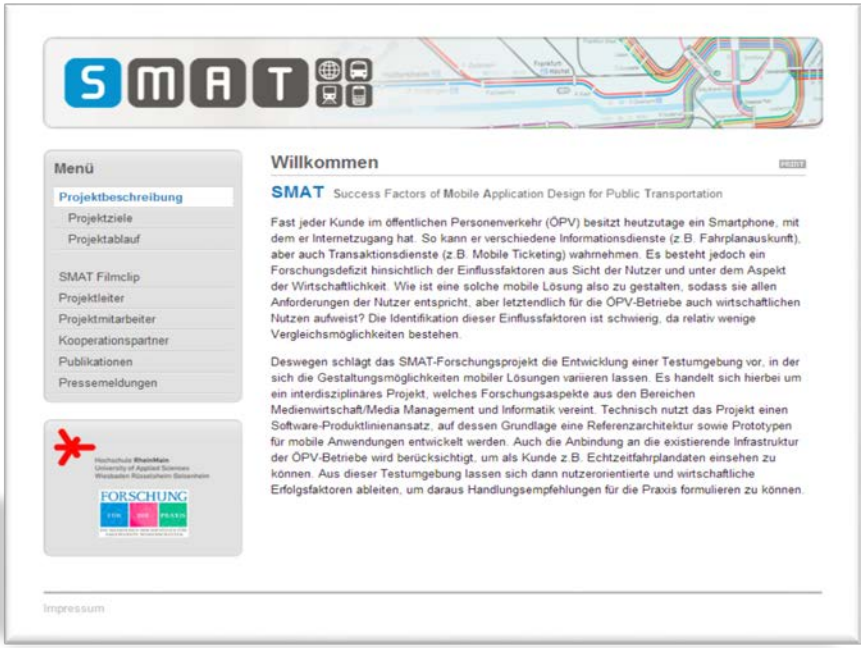
Agenda

- Introduction
- Approach
- Findings
- Further Directions

Project Description

- SMAT = Success Factors of Mobile Application Design for Public Transportation
- RheinMain University of Applied Science
- One year research project (2012-2013)
- Cooperation between the departments of Media Management (MM) and Computer Science
- Research objectives MM: Insights into user expectations and preferences (User Up-front-Research)
- Funded by the Hessen State Ministry of Higher Education, Research and the Arts
- Co-operations with industry partners and the Technical University Dresden, Germany



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CSC

EOS UPTRADE Komplexes einfach machen

ESWE VERKEHR

TECHNISCHE UNIVERSITÄT DRESDEN

Up-front User Research vs. Usability Testing

Up-front user research was required to define the feature set to be considered in the prototype that will be subject to usability testing in the design & development phase.

Up-front user research: Informs product requirements and design

"What should we design?"

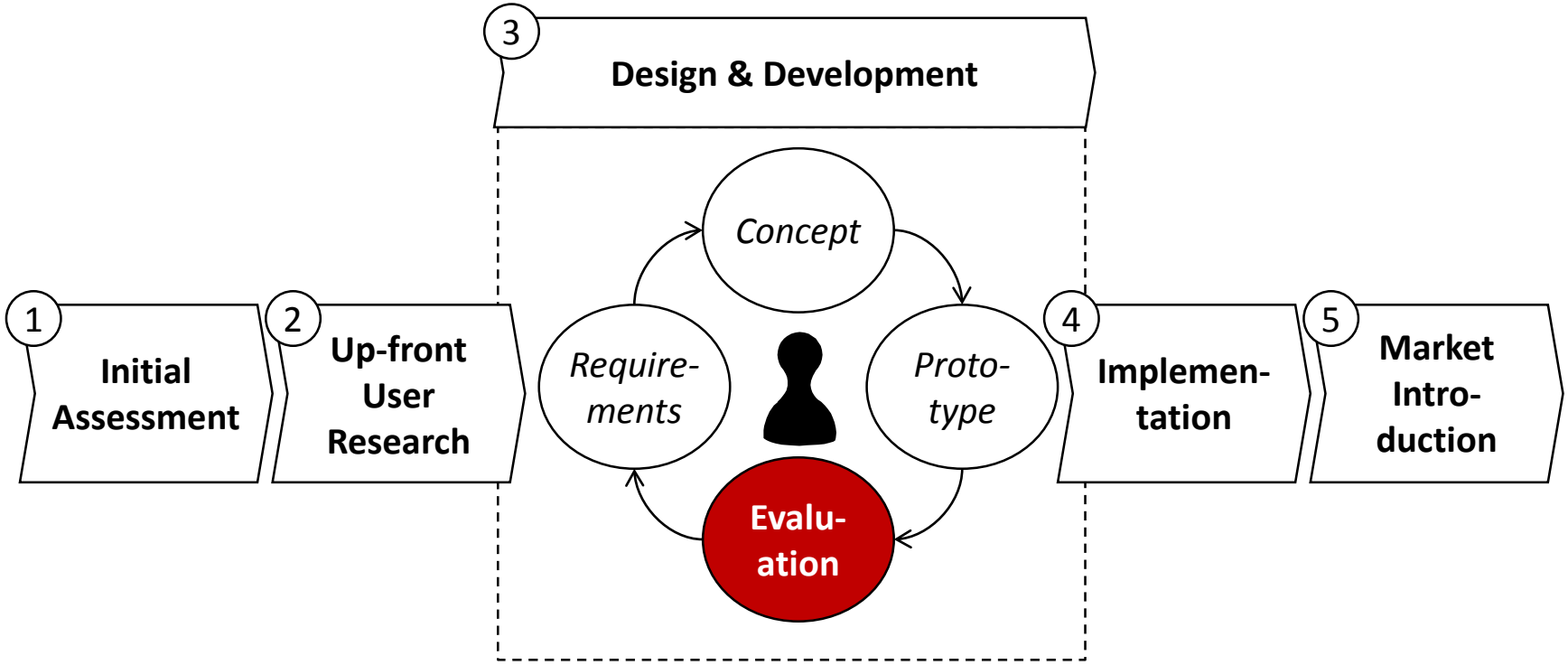
Usability testing: After requirements defined and initial design established

"Did we design it right?"

Source: Ginsburg 2010

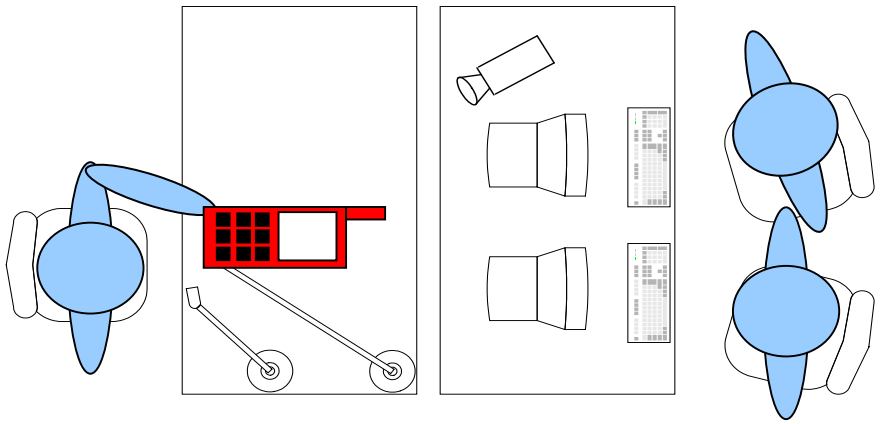
Focus of this Paper: Usability Evaluation

The focus of the paper is on the evaluation phase within the design and development cycle of an journey planner app – a participative approach was chosen to collect user feedback.



Motivation: Lack of Structure/Missing Tool Support (1/2)

Evaluation of User Feedback



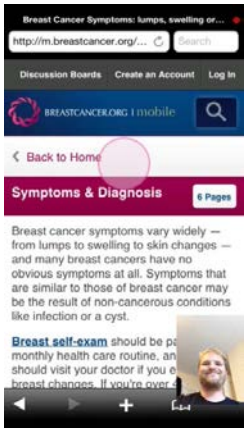
- Thinking aloud
- Handwritten notes
- Audio recording
- Video recording
- Screen capturing
- …

Problems of Feedback Evaluation

- Massive amount of information
- Missing structure
- Missing level of severity
- Laborious multi-user/ group consolidation
- …

Motivation: Lack of Structure/Missing Tool Support (2/2)

Existing App Evaluation Tools (Examples)



Delight.io

AppTaster

UX Recorder

...

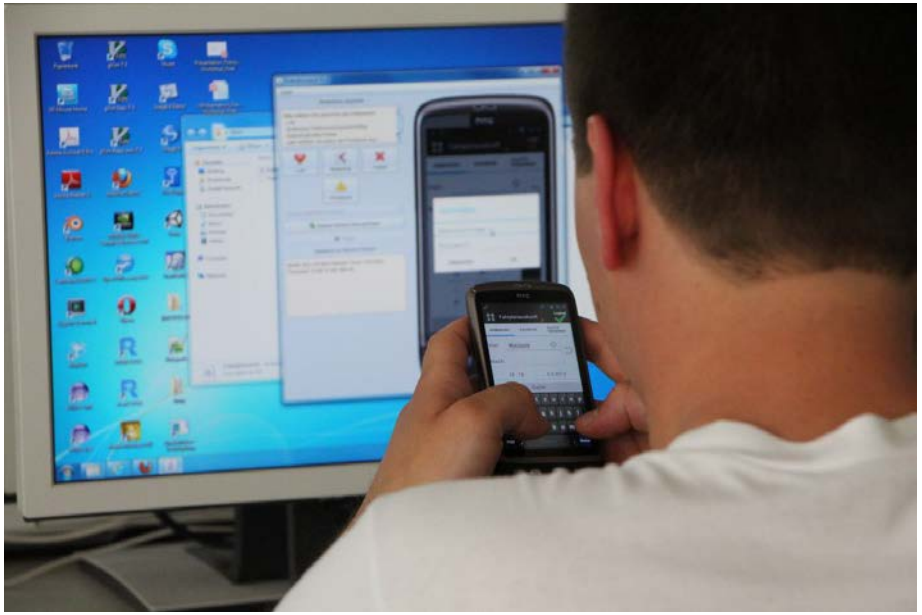
Most of the existing tools support data collection/screen recording only!

http://www.delight.io/features, https://itunes.apple.com/us/app/ux-recorder-user-testing-for/id514450465?ls=1&mt=8, http://www.appcooker.com/apptaster-play-mockups-wireframes/

Approach: Tool-based Approach for Structuring Feedback (1/2)

- Based on active user participation (no screen recording etc.)
- Task-based walk through
- Feedback is entered as screen comments
- Severity is assigned by the user him/herself
- Group consolidation intended on categorization and affected screen area („Heatmap“, „Keyhole”)

Approach: Tool-based Approach for Structuring Feedback (2/2)



Feedback Tool Characteristics

- Tool is a „Proof of Concept“ only
- Desktop-based version („low budget“)
- Java-based implementation
- Non-integrated configuration, participant and moderator sections (stand-alone, no server)
- Issue locations are not linked to screen elements automatically

Core Functionalities of the Tool (“Proof of Concept”)

1. Locate issue on screen
2. Select type of issue
3. Categorize the issue (two levels, e.g. design/color)
4. Ad an issue description
5. Suggest modifications/ give positive feedback

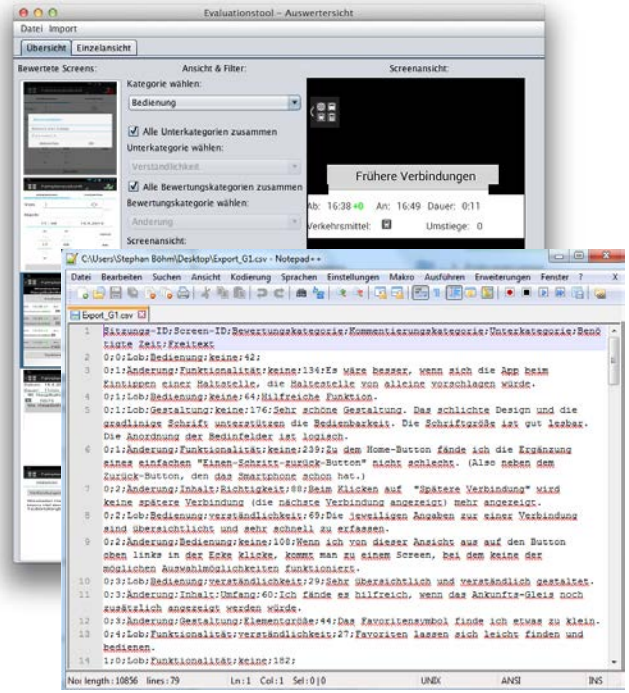
Evaluation Workshops with Feedback Tool

Workshop (Evaluation of SMAT-Prototype)

- 3 groups / 18 participants (7/5/6)
- Students, age 19-30
- Android OS / HTC Desire
- 5 prototyping screens
- 3 workshops / 2 hours each
  (on improved prototypes)

Results of the Workshop

Issue Viewer (Tool)



Issue Report (CSV)

Identification of Issues (Manually Consolidated)

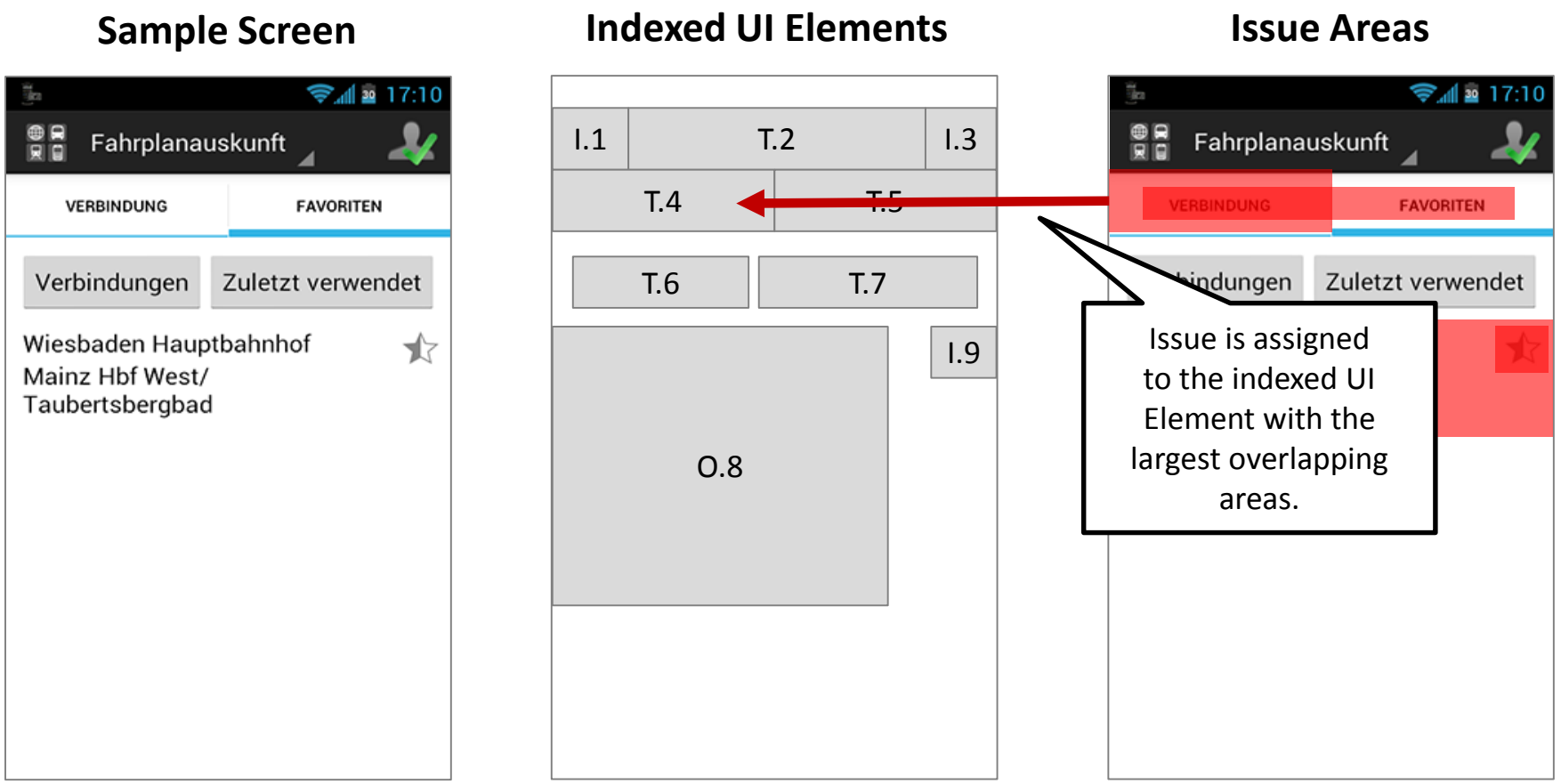
Issue Type	1. WS	2. WS	3. WS
Positive FB	41	25	26
Suggestions	28	16	9
Cosmetic UP	32	30	18
Minor UP	35	15	7
Major UP	15	9	3
Error	0	3	0

FB = Feedback, UP = Usability Problem

Findings

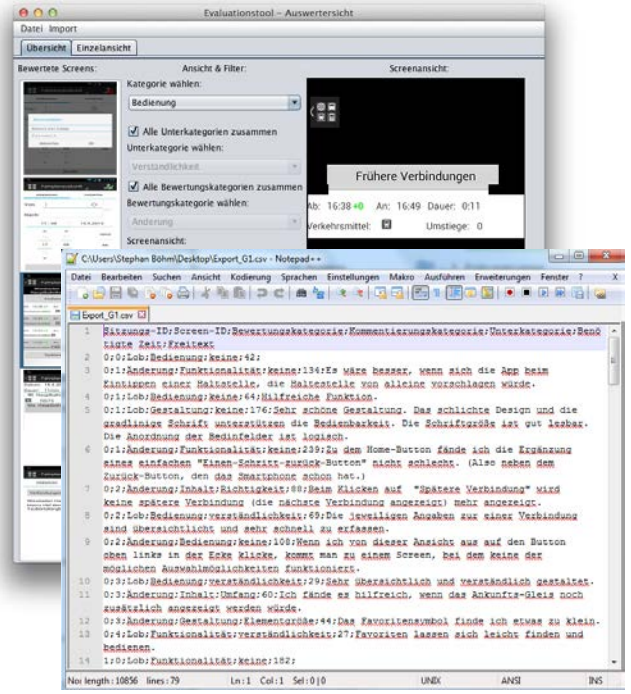
- Feedback tool was **successfully applied** to collect user feedback
- **Semantic problems** on user-based assignment of severity
  → precise briefing required / improved in 2nd and 3rd workshop
- **Consolidation/issue tracking** based on issue categories was not sufficient
  → issues need to be linked to screen elements by issue location
- **Comments** more useful than categorization of issues
  → focus on location and comments / category assigned by developers
- **Reporting** needs to be improved
  → no static reporting / dashboards or interactive reports required

Backup: Linking UI Elements with Screen Areas



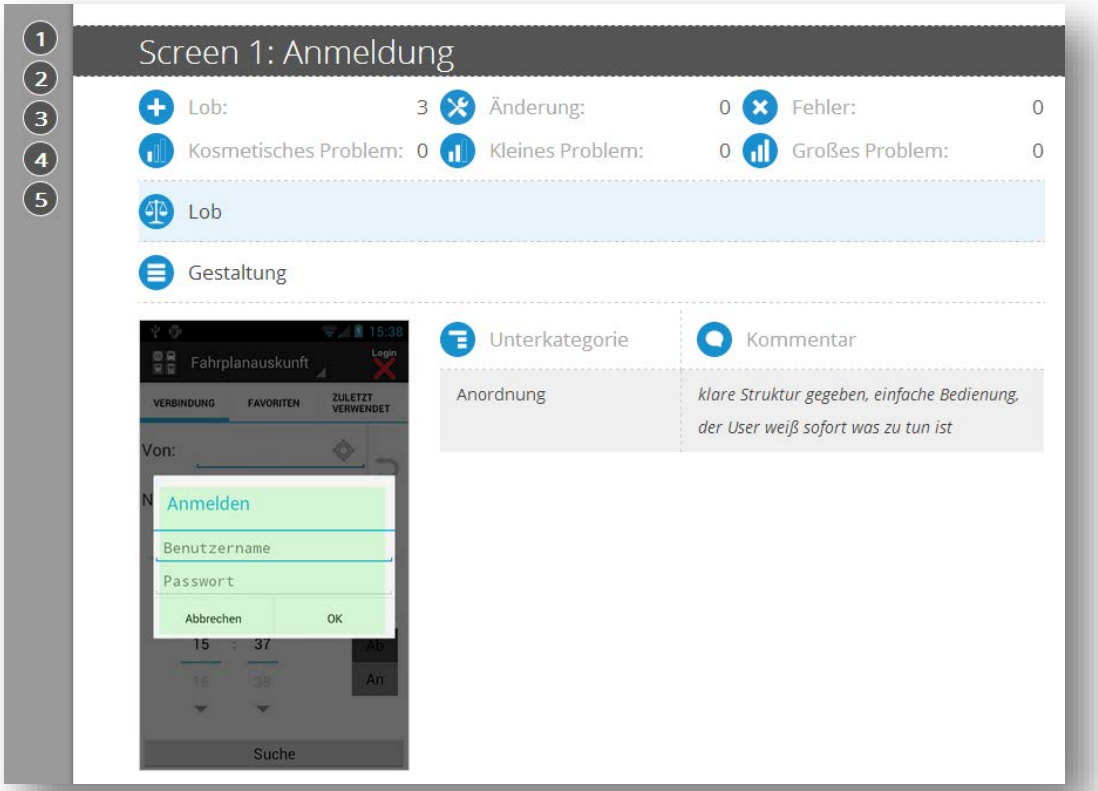
Backup: Dashboard/Interactive Report

Issue Viewer (Tool)



Issue Report (CSV)

Advanced Report (Draft)



Future Directions

… if required funding can be retrieved

Phase I
Server-based Solution

- Migrate isolated software sections into a integrated client-server architecture (web based)
- Provision of convenient user interfaces to set-up testing and access user evaluation

Phase II
Direct Feedback on Mobile Devices

- Feedback collection is extended to mobile apps
- Participants can provide their feedback directly without leaving the app (code injection)

Phase III
Non-Intrusive User Tracking

- Use sensors and interfaces of mobile devices to collect data on usage and usage context
- Eyetracking via front camera or sensor-based tracking of user input/motion (GPS, acceleration), …

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