Cognitive Walkthrough

Image Source: https://pxhere.com/de/photo/1455415

Valentin Schwind

Learning Goals

- Understand cognitive walkthrough as analytical evaluation method
- Understand when and how cognitive walkthroughs can be used
- Learn strengths and weaknesses

Expert Review

- Use a small number of reviewers (developers, team members,…)
- Conduct an informal or guideline-based review
  - Consistency check
  - Get indications and hints
  - Identifiy minor and major problems
- Qualitative
  - Observe user interactions (video, screen recordings,…)
  - User explanations and opinions (audio)
  - Anecdotes, transcripts, problem areas, …
- Quantitative
  - Logs, user actions, speed, error rate, …

Cognitive Walkthrough

- A formative analytical evaluation and simulation process that takes a list of questions surveying experts while completing tasks
- The designer (or design team) specifies and (successfully performs) a series of tasks on which one will evaluate the design
- One or more experts go through a problem-solving and feedback evaluation processes
  - If an evaluator expects no problems at a given step, that judgment has to be defended
  - If problems are expected, they should be described

Lewis et al. 1990. Testing a walkthrough methodology for theory-based design of walk-up-and-use interfaces. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '90)

Basic Procedure

1. Defining the input
   - Who are the users of the system?
   - What are the users' the goals (and correct actions)?
   - What task(s) will be analyzed?
   - What action(s) are required for each task?
2. Conducting the walkthrough
   - Will the users try to achieve the right effect?
   - Will the user notice that the correct action is available?
   - Will the user associate the correct action with the effect to be achieved?
   - If the correct action is performed, will the user see that progress is being made toward solution of the task?

EVALUATOR _____ DATE _____

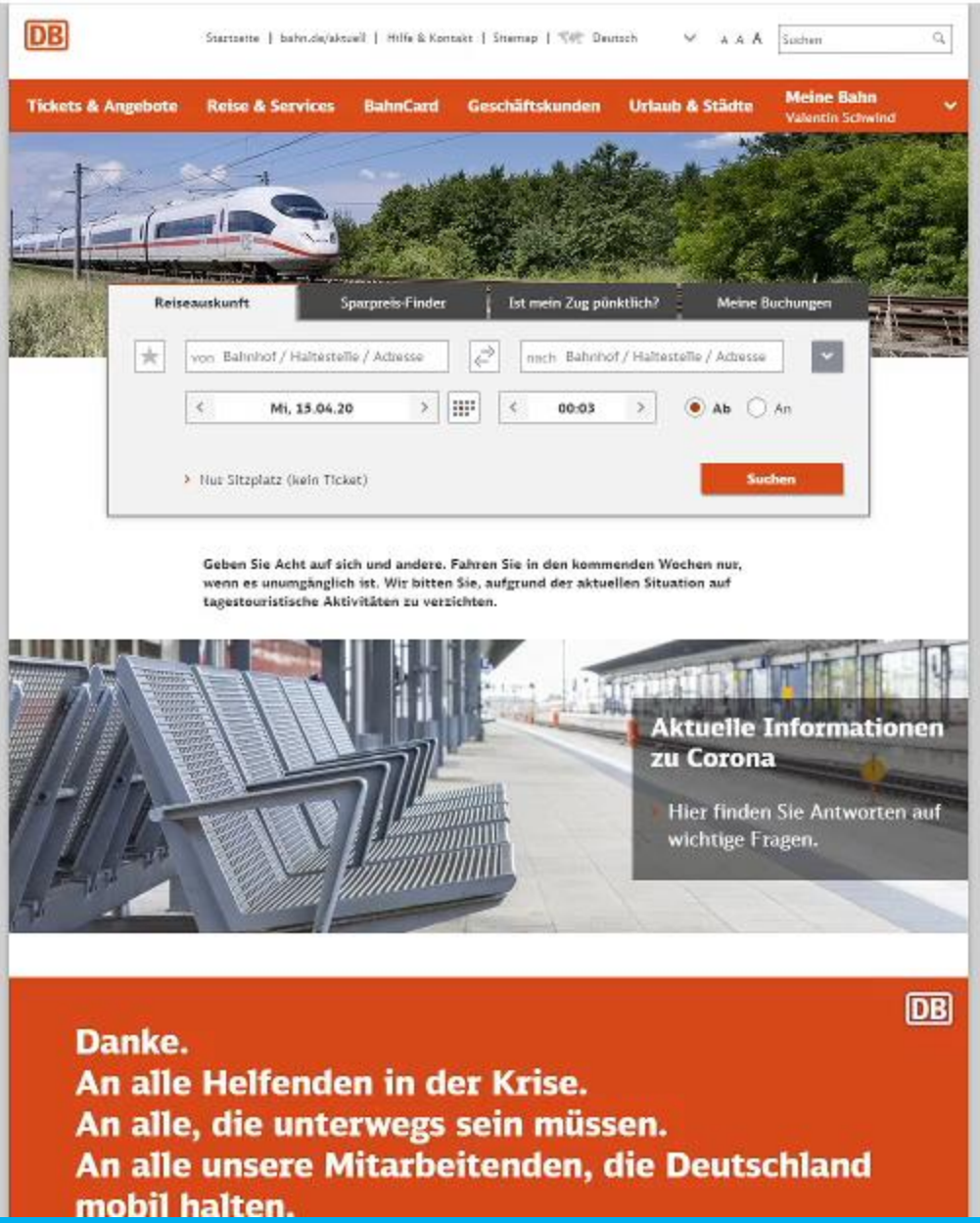
INTERFACE _____ TASK _____ STEP #_____

1. Description of user's immediate goal: _____
2. (First/next) atomic action user should take: _____
   2a. Obvious that action is available? Why/why not?
   2b. Obvious that action is appropriate to goal? Why/Why not?
3. How will user access description of action?
   3a. Problem accessing? Why/Why not?
4. How will user associate description with action?
   4a. Problem associating? Why/why not?
5. All other available actions less appropriate? For each, why/why not?
6. How will user execute the action?
   6a. Problems? Why/why not?
7. If timeouts, time for user to decide before timeout? Why/why not?
8. Execute the action. Describe system response: _____
   8a. Obvious progress has been made toward goal? Why/why not?
   8b. User can access needed info. in system response? Why/why not?
9. Describe appropriate modified goal, if any: _____
   9a. Obvious that goal should change? Why/why not?
   9b. If task completed, is it obvious? Why/why not?

Example

- Task: „Upload a video on the website“
  - Action 1: „Click the upload button“ ← visible?
  - Action 2: „Enter a file title“ ← clear why?
  - Action 3: „Enter a description“ ← required?
  - Action 4: „Find the file on your system“ ← what about links?
  - Action 5: „Start upload“ ← button visible/disable/enabled?
  - Action 6: „Waiting for upload“← clear visual feedback?
  - Action 7: „Confirming upload“← video playback?
  - ….

Example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Reiseauskunft
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Ist mein Zug pünktlich?
Meine Buchungen
von Bahnhof / Haltestelle / Adresse
nach Bahnhof / Haltestelle / Adresse
Mi, 15.04.20
00:03
Ab
An
Nur Sitzplatz (kein Ticket)
Suchen
Geben Sie Acht auf sich und andere. Fahren Sie in den kommenden Wochen nur, wenn es unumgänglich ist. Wir bitten Sie, aufgrund der aktuellen Situation auf tagestouristische Aktivitäten zu verzichten.
Aktuelle Informationen zu Corona
Hier finden Sie Antworten auf wichtige Fragen.
DB
Danke.
An alle Helfenden in der Krise.
An alle, die unterwegs sein müssen.
An alle unsere Mitarbeitenden, die Deutschland mobil halten.

Advantages

- Flexible, quick, and easy to do
- Can be used in early development stages (e.g. low-fidelity, paper prototypes)
- Errors recognizable in the approach
- Makes explicit the decisions that have been made in the process of designing an interface

Disadvantages

- Artificial setting and tasks
- Realistic scenarios not guaranteed
- Evaluator cannot objectively assess the user
- Inflexible in advanced development stages
- Not all problems can be revealed (e.g. 15 of 18)
- No user experience sampling (emotions, satisfaction,…)
- Not suitable for complex systems

References

- Clayton Lewis, Peter G. Polson, Cathleen Wharton, and John Rieman. 1990. Testing a walkthrough methodology for theory-based design of walk-up-and-use interfaces. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '90). Association for Computing Machinery, New York, NY, USA, 235–242. DOI: https://doi.org/10.1145/97243.97279
- Clayton Lewis, Cathleen Wharton: *Cognitive walkthroughs.* In: Martin G. Helander, Thomas K. Landauer, Prasad V. Prabhu (Hrsg.): *Handbook of Human-Computer Interactions.* 2., completely revised edition. Elsevier Press, Amsterdam 1997, ISBN 0-444-81862-6, S. 717–732.
- Cathleen Wharton, John Rieman, Clayton Lewis, Peter Polson: *The cognitive walkthrough method. A practioner's guide.* In: Jakob Nielsen, Robert L. Mack (Hrsg.): *Usability Inspection Methods.* John Wiley & Sons, New York NY u. a. 1994, ISBN 0-471-01877-5, S. 105–140.