HUMAN - COMPUTER INTERACTION

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Chapter 7:

Chapter 7: Evaluation

Evaluation

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Content

Content

- Why, What, Where and When to Evaluate

- Types of Evaluation

Why, What, Where and When to Evaluate

Why, What, Where and When to

Evaluate

- **Why**: to check users' requirements and that users can use the product and they like it
- **What**: a conceptual model, early prototypes of a new system and later, more complete prototypes
- **Where**: in natural and laboratory settings
- **When**: throughout design; finished products can be evaluated to collect information to inform new products

(Preece, Sharp and Rogers, 2015)

Types of Evaluation

Types of Evaluation

- Expert-based evaluation methods
- Participant-based evaluation methods

(Benyon, 2014)

Expert

Expert-based evaluation

-

methods

based evaluation methods

Heuristic evaluation

- Cognitive walkthrough

(Benyon, 2014)

Heuristic evaluation

Heuristic evaluation

- **Heuristic evaluation** refers to a number of methods in which a person trained in HCI and interaction design examines a proposed design to see how it measures up against a list of principles, guidelines or ‘heuristics’for good design.

(Benyon, 2014)

Heuristic evaluation

Heuristic evaluation

Design Principles

1. Visibility
2. Consistency
3. Familiarity
4. Affordance
5. Navigation
6. Control
7. Feedback
8. Recovery

9. Constraints

10. Flexibility

11. Style

12. Conviviality

(Benyon, 2014)

Heuristic evaluation

Nielsen's 10 Usability Heuristics

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose, and recover from errors
10. Help and documentation

(Nielsen, 2014)

Heuristic evaluation

Shneiderman's Eight Golden Rules

1. Strive for consistency

2. Enable frequent users to use shortcuts 3. Offer informative feedback

4. Design dialog to yield closure

5. Offer simple error handling 6. Permit easy reversal of actions

7. Support internal locus of control 8. Reduce short-term memory load

Source: https://capian.co/shneiderman-eight-golden-rules-interface-design

Cognitive walkthrough

- **Acognitive walkthrough** is a structured approach to evaluating usability of a product.
- It is a task-specific approach to usability (in contrast to heuristic evaluation which is a more holistic usability inspection).

- It involves the tester, who is not a user, asking four simple questions about the way a specific user journey is conducted.
- They will record the outcomes of these questions, in their opinion, and use these observationsto improve the product further.

Source: https://www.interaction-design.org/

Cognitive walkthrough

- The **Four Questions**to be asked during a **Cognitive**

Walkthrough:

- Will the user try and achieve the right outcome?
- Will the user notice that the correct action is available to them?
- Will the user associate the correct action with the outcome they expect to achieve?
- If the correct action is performed; will the user see that progress is being made towardstheir intended outcome?

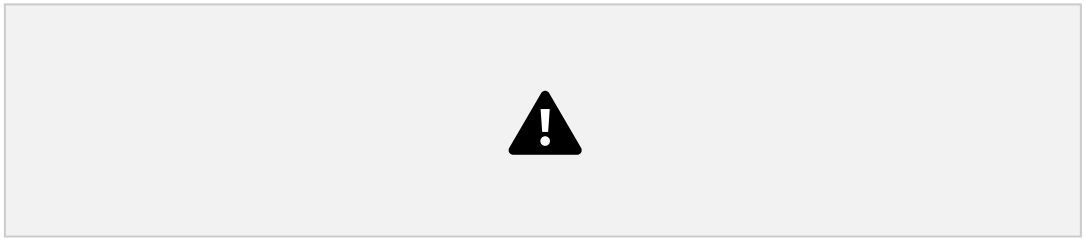
Source: https://www.interaction-design.org/

Participant-based

evaluation methods

- Cooperative evaluation
- Co-discovery
- Living labs
- Controlled experiments

(Benyon, 2014)



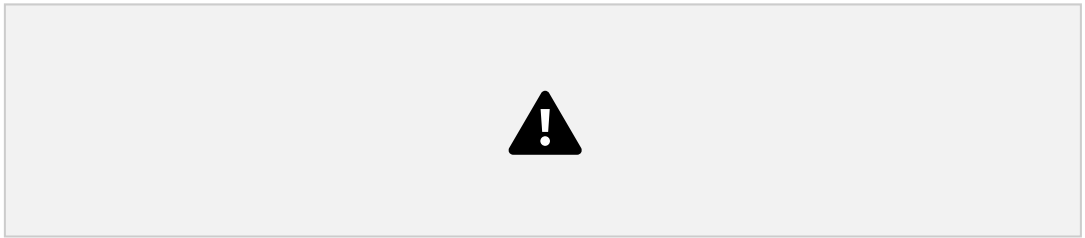
Cooperative evaluation

- Andrew Monk and colleagues (Monk et al., 1993) developed **cooperative evaluation** as a means of maximizing the data gathered

from a simple testing session.

- The technique is ‘cooperative’ because participants are not passive subjects but work as co-evaluators.

(Benyon, 2014)



Cooperative evaluation

- **Sample questions during the evaluation:**
  - What do you want to do?
  - What were you expecting to happen?
  - What isthe system telling you?
  - Why hasthe system done that?
  - What are you doing now?

(Benyon, 2014)

Cooperative evaluation

- **Sample questions after the session:**
  - What wasthe best/worst thing about the prototype?
  - What most needs changing?
  - How easy were the tasks?
  - How realistic were the tasks?

- Did giving a commentary distract you?

(Benyon, 2014)

Co-discovery

- **Co-discovery** is a naturalistic, informal technique that is particularly good for capturing first impressions.
- The standard approach of watching individual people interacting with the technology, and possibly ‘thinking aloud’ as they do so, can be

varied by having participants explore new technology in pairs.

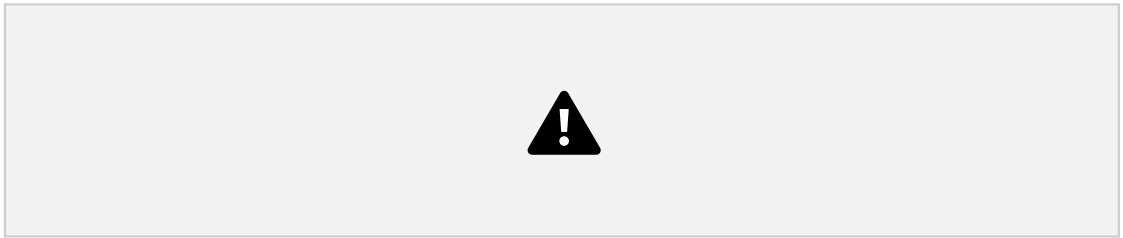
(Benyon, 2014)

Living labs

- **Living Labs** is a European approach to evaluation that aims to engage as many people as possible in exploring new technologies.
- The key idea behind Living Labs is that people are both willing and able

to contribute to designing new technologies and new services and it makes sense for companiesto work with them.

(Benyon, 2014)



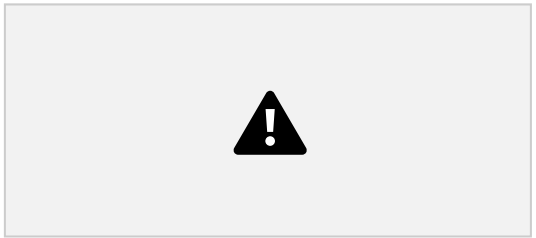
Controlled experiments

- **Controlled experiments** are appropriate where the designer is

interested in particular features of a design, perhaps comparing one design to another to see which is better.

- In order to do this with any certainty the experiment needs to be carefully designed and run.

(Benyon, 2014)



Summary

- Conducting evaluations involves understanding not only why

evaluation is important but also what aspects to evaluate, where evaluation should take place, and when to evaluate.

- We discussed about 2 types of evaluation, including **Expert-based evaluation methods** and **Participant-based evaluation methods**
  - In **Expert-based evaluation methods,** we discussed about heuristic evaluation and cognitive walkthrough methods.
  - In **Participant-based evaluation methods,** we discussed about cooperative evaluation, co-discovery, living labs, controlled experiments methods

Additionalresources

- Designing Interactive Systems: A comprehensive guide to HCI, UX and interaction design, 3rd Edition (David Benyon, 2014)
- Interaction Design: Beyond Human-Computer Interaction, 4th Edition (Jennifer Preece, Helen Sharp, Yvonne Rogers, 2015)