Human-Computer Interaction
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Tariq Zaman Ph.D.

CECOS University of I.T. & Emerging Sciences

F-5, Phase- VI, Hayatabad, Peshawar

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Evaluation Techniques

User experience Evaluation in the Wild

Introduction: What is Evaluation?

- Evaluation role is to access designs and test systems to ensure that they actually behave as we expect and meet user requirements.

- Ideally, evaluation should occur throughout the design life cycle, with the results of the evaluation feeding back into modifications to the design.

Introduction (continue)

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- It is not usually possible to perform extensive experimental testing continuously throughout the design, but analytic and informal techniques can and should be used.

Evaluation: Introduction

- Early evaluation:: it is much easier to change a design in the early stages of development than in the later stages.

- We can make a broad distinction between evaluation by the designer or a usability expert, without direct involvement by users, and evaluation that studies actual use of the system. We will consider evaluation techniques under two broad headings: expert analysis and user participation.

Goals of Evaluation

- Evaluation has three main goals:
    - to assess the extent and accessibility of the system's functionality,
    - to assess users' experience of the interaction,
    - to identify any specific problems with the system.

The system's functionality is important must accord with the user's requirements.

- Evaluation at this level may measuring the user's performance with the system to assess the effectiveness of the system in supporting the task.

User's experience of the interaction

- How easy the system is to learn, its usability and the user satisfaction with it.

- It may include his enjoyment and emotional response, particularly in the case of aim to entertainment.

Identify specific problem with the design

- This may aspects of the design which, when used in their intended context, cause unexpected results, or confusion amongst user.

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Evaluation through Expert Analysis

Expert Analysis: Cognitive Walkthrough

- Originally proposed by Polson and colleagues as an attempt to introduce psychological theory into the informal and subjective walkthrough technique.

- The main focus is to establish how easy a system is to learn (by hands on, not by training or user's manual)

Cognitive Walkthrough: Four Things

- A detailed specification or prototype of the system (the location and wording for a menu can make a big difference).

- A description of the task: a representative task that most users will want to do.

- A complete, written list of the actions needed to complete the task with the proposed system.

- An indication of who the users are and what kind of experience and knowledge the evaluators can assume about them.

EA: Cognitive Walkthrough

Advantages

- May be done without first hand access to users.
- Unlike some usability inspection methods, takes explicit account of the user's task.
- Provides suggestions on how to improves learnability of the system
- Can be applied during any phase of development.
- Is quick and inexpensive to apply if done in a streamlined form.

Disadvantages

- The value of the data is limited by the skills of the evaluators.
- Tends to yield a relatively superficial and narrow analysis that focuses on the words and graphics used on the screen.
- The method does not provide an estimate on the frequency or severity of identified problems.
- Following the method exactly as outlined in the research is labor intensive.

EA: Cognitive Walkthrough

The evaluators try to answer the following four questions for each step in the action sequence.

- Is the effect of the action the same as the user's goal at that point?

- Will users see that the action is available?

- Once users have found the correct action, will they know it is the one they need?

Expert Evaluation: Heuristic Walkthrough

- Heuristic is a guideline or general principle or rule of thumb that can guide a design decision or be used to critique a decision that has already been made. 3-5 evaluators is sufficient.

- Procedure

- Two-step procedure for identifying problems;
  - To evaluate a product **based on a set of tasks and questions** associated with those tasks.
  - The second step is to evaluate the product according to **a set of heuristics.**

Advantages

- uncovers both major and minor problems
- uncovers both global and local problems
- relies on use of both user tasks and usability principles
- task knowledge helps aid evaluators in focusing on major problems
- requires little or no training for evaluators
- is quick (cost-effective, no formal lab process)
- likely assists with determining task set for formal testing

Disadvantages (Limitations)

- may require skilled evaluators (product-dependent)
- the choice of tasks for the walkthrough will affect the number of problems that are uncovered. If a key task is missed, then some major problems might also be missed.
- results could be skewed based on variations in the set of heuristics used to uncover problems.

Nielsen's Ten Heuristics are:

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 an efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose and recover from errors
10. Help and documentation

Good read: https://blog.prototypr.io/10-usability-heuristics-with-examples-4a81ada920c

Q & A

Thank you
for your attention