

Evaluation Techniques

is concerned with gathering data about the usability of a design or product by a specific group of users for a particular activity within a specified environment or work context , to evaluate a software's interface there are several techniques that have proven both viability and relative simplicity . Commonly used evaluation techniques are:

1. Cognitive Walkthrough :

This technique is performed by qualified experts and the main goal of this technique is to measure "how easy" it is to perform tasks using the interface inspected.

The cognitive walkthrough begins by forming task analysis where a set of steps is set to simulate the steps a potential user would do to accomplish tasks. and then experts try to perform those steps considering with each step questions and believable stories about why would the user choose to perform this step along his search for the solution path , each evaluator then files a report of the problems he found .

2. The Heuristic Analysis technique

This technique is also performed by qualified experts, and it's main goal is to find usability problems in the interface.

In this technique HCI experts try to apply a set of heuristics ("rules of thumb") on the interface , each evaluator separately evaluates the problems he finds on scales of severity and extent .

The reports of all the evaluators are grouped by severity , and the evaluators get together in a brainstorming session where the problems discovered get grouped into categories (by severity , extent and other relevant scales) and a final report is filed .

3. The wizard of Oz technique

This technique is formed by experts but performed by real potential users , this technique is well suited to generating corpora from which information about tasks and strategies can be derived .

The wizard of oz technique starts with building a wizard interface (an interface of the system , without the actual implementation) , then a group of potential users try to interact with the "system" not knowing its fake , and behind the scenes a person is supplying the feedback the system is supposed to supply to the user . during this process experts observing can acquire user models , generate representative domain tasks , evaluate dialogue strategies to implement in the real system , etc ...

4. The think aloud method

This technique is performed by experts observing potential users , and its main goal is to get feedback from the experts about problems in the interface .

in this technique the user performs a number of tasks and is asked to think aloud to explain what they are doing at each stage, and why. The evaluator records the users' actions for each of the tasks, as well as noting any problems.

5. Other less common techniques

In the field there are some experimental and less common techniques such as :

- Co-operative think aloud technique : which is similar to the think aloud technique in concept but users used to evaluate the interface are treated as stronger factors in the design process , they're not just to find problems in the interface , they also contribute with their thoughts and opinions to the design process .
- Introspection : is where the designer tries out the system or prototype. He/she tests to see if it 'works' or 'feels' right. Direct Observation
- Interviews : As is probably obvious, in this technique the designer asks the user specific questions about the system and their evaluation of it. A few pluses to this technique is that it is excellent for pursuing specific issues with the use, and it is flexible as an evaluator can probe more deeply into interesting issues that arise. It is also ideal for post-observation evaluation
- Questionnaires/Surveys : This technique involves having the user fill out a survey or questionnaire related to the system they just used. This technique is similar to interviews except the designer does not get to observe the user first hand.

What to choose ?

In the field there are cases which require using more than one evaluation method simultaneously , or sometimes changing the technique in different evaluation phases depending on the complexity of the system , each method has its advantages and disadvantages , it makes more sense to compare them using a table :

| technique | advantages | disadvantages |
|-----------------------|--|--|
| Cognitive walkthrough | <ol style="list-style-type: none">1. Experts opinion2. Can be performed on a prototype3. Refine requirements | <ol style="list-style-type: none">1. Experts are expensive2. Experts are NOT potential users3. Only discrete tasks are examined4. It takes a lot of time to examine all possible tasks5. Misses general problems |
| Heuristic Analysis | <ol style="list-style-type: none">1. Easy to set up2. Uses solid and tested rules3. Discovers many problems | <ol style="list-style-type: none">1. Experts are expensive2. Experts are NOT potential users3. Heuristics are too "fixed" (you don't get to change the rules) |
| wizard of Oz | <ol style="list-style-type: none">1. there is no need for real implementation of the system2. real users are the participants | <ol style="list-style-type: none">1. substantial implementation effort |
| Think aloud | <ol style="list-style-type: none">1. simple2. provides new perspectives3. feedback is directly taken from users4. easy to collect and process verbal data | <ol style="list-style-type: none">1. users might feel under pressure2. articulating thoughts isn't always easy and accurate3. subjective |