

Human-Computer Interaction

Week 6 Lecture 6A

User Evaluation in HCI

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User evaluation in HCI

- Evaluating an interactive computer system by asking a group of people to use that system
- Observing both the outcomes of using the system and what those people (the “users”) actually do
- Giving the users specific tasks to perform
- Interviewing the users to get their personal responses about the system (during and after)
- Analysing the data that is gathered (observations, measurements, interviews)
- Drawing conclusions from the analysis of the data

User evaluation in HCI

User evaluations in HCI are experiments

- Aim (what are we trying to find out)
- Materials (software and hardware, input data, lab facilities, measurement tools, observation tools)
- Method (choice of participants, tasks, instructions for the participants, how to gather experimental data, interview questions)
- Results (observations and measurements)
- Analysis and Discussion (what do the results tell us?)
- Conclusions (what will we do with these results?)

Why user evaluation in HCI is important

An individual participant's actions when they use interactive software are not predictable:

- Each participant is different and will have different levels of understanding, anxiety, knowledge, physical agility, confidence.
- The participants may have different expertise (novice-expert), mental models of the task, knowledge about the task, experience of interface conventions ...

We can only find out how well people can use an interactive system by doing user evaluations with a number of users.

Experiment's hypothesis

Each HCI evaluation experiment will have an hypothesis. The experiment tests this hypothesis, which can be in an informal manner, with some level of formality or using a strict scientific approach using a Null Hypothesis and statistical inference.

The “aim” of the experiment is to test the hypothesis. You might run several different experiments to test the one hypothesis.

The aim of a user evaluation in HCI

Deciding what the aim (or aims) of a user evaluation in HCI is perhaps the most important part of designing the evaluation.

- What do we want to find out about our interactive system?
- How important are these questions?
- What will we do with the answers?

Hypothetical example

Suppose you have designed a touch-screen user interface for a new e-Reader that is intended for primary school students (10-11 years old). You have built your first working prototype (hardware and software)

Possible hypotheses?

Discuss what aims you would have for a user evaluation of this interface and hardware

Why are these aims important?

What would you do with the results of the user evaluation?

Hypothetical example (continued)

Methods and Materials

Discuss what equipment and facilities you would need for this evaluation.

Who would be your participants?

Describe what the participants would do. How long would this take? Where and when would you run the evaluation?

Describe what data you would collect. How would you collect this data?

Planning a user evaluation

- Scope of the evaluation (what is in, what is out)
- Logistics (set up the location, arranging permissions, recruiting participants, managing participants, gathering data)
- Technical support, contingency plans (what if a piece of equipment breaks?)
- Storing and managing the data
- Size of evaluation team; who will do what?