Usability Testing

of software / interfaces,
but it applies more generally too...

Shneiderman, Chapter 4

Usability Testing

What is usability testing?

Why bother with the usability of software / interfaces?

How to test?
  - What gets tested?
  - Who does the testing?
  - Where does the testing happen?

Downside to usability testing, and alternative ways to get user feedback

Commercial aspects of user testing - how to persuade companies that user testing is worthwhile
What is usability testing?

Simply carrying out experiments to find out specific information about a design.

Historically the testing lies in the realm of experimental psychology.

However the heavy-duty statistical analysis usually performed in psychology experiments isn’t so important.

Getting users to give feedback on a design doesn’t have to be analysed before it can be acted upon.

Why bother with usability testing?

What happens if we don’t test?
- It is a lot more expensive to fix a design fault after a software release than to fix it before release.
- On a web site the expense is low, but it is a greater effort to win back lost customers.

Just how many errors are there anyway?
- Can be very large.
- Remember the average of 11 usability catastrophes, 20 serious problems, 29 cosmetic problems on each web site tested?
- Check any bug report site to see many examples in software.
Designers need usability testing

Just because something has been carefully designed doesn’t mean that it has been designed well.

Designers have a very designer-centric view of their creations
- it’s very difficult to put yourself in the position of others, especially when they are new to it and you know it like the back of your hand
- You ≠ Me

It is not always pleasant to hear user’s views of your precious design, but if you don’t listen to them, you are doomed!
- for software, bad recommendations to others
- for a web site, poor return rate of customers

How to do usability testing

Very simply: get some users, and see how they work with your product.

Phases of testing

1. Determine what it is you’re trying to find out, e.g.
   - Is the product good enough?
   - Does it meet company standards?
   - How well does it work in the real world?
   - Which is best, our product or our competitors?

Then use the purpose to create some objectives, e.g.
- Can customers successfully use the help facility?
- Is the downloading time of the front web page too long?
How to do usability testing

2. Design the test
   - Identify the people you are going to need - do you need men, women, novices, experts?
   - Determine the experimental design - the arrangements of when folks do what
   - Develop the tasks that your users will perform
   - Specify what equipment and personnel you’ll need

3. Get some users
   - Fellow employees, friends and family of employees
   - For specialist user populations you might use a recruitment agency
   - But don’t use biased people (e.g. inside knowledge)

Users - You only need 5

Nielsen and Landauer’s study showed...
**Users - You only need 5**

Note other insights:
- With zero users, you detect zero usability problems
- You do find more problems with more users, but with 5 users you can find 80% of the problems
- If you have the money for 15, better to run 3 small tests of 5 users each, at different stages of the development
- 15 tests with 1 user is not a better plan because people vary widely so 1 individual gives you skewed data results

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**How to do usability testing**

4. Set up the test
   - prepare the equipment
   - provide a script for your test supervisors

5. Run the test
   - prepare your users (put them at ease, explain test conditions to them, get them to sign consent forms)
   - run your users through their tasks and collect their data

6. Don’t forget to thank your users afterwards!
   - you might want to use them again in future

7. Analyse your data
Additional testing techniques

Heuristic evaluation
- Usability guidelines are many, so it can be useful to focus on one small set of guidelines, such as Shneiderman’s

Thinking aloud protocol
- User talks through their thought/action process

Usability labs

Surveys

Online testing

Usability labs

Labs range from the very simple to the very sophisticated

Features may include:
- desks, chairs, computer...
- audio/visual recording equipment
- two-way mirrors
- computer logging
- intercom
- soundproofing
- good lighting
- wheelchair-accessible
- nice décor for comfort and a non-intimidating setting
Online testing

Certainly possible to do, but generally more effort to set up than it’s worth

There are a few cases where it is appropriate:
- International usability
- Specialized testers are needed, e.g.
  - people suffering from a rare disease
  - teachers of an obscure topic
- Scarcity of local testers, e.g.
  - the average Silicon Valley resident is more aware of technology

Online Surveys

Pluses:
- Surveys can collect information from real users when they are actually using your software/interface
- Good at conveying
  - why people want to use the product
  - if they like/dislike the product, in particular its visual appearance

Minuses:
- Surveys collect opinions and not facts
- Users have selective memories
- Users can’t always tell you why or where they have difficulties, only that they do have difficulties
Usability testing isn’t perfect

Testing won’t catch certain sorts of errors:
- Obscure errors
- Errors only found after a long time of use
- Complex feature interaction

Additional forms of feedback can be very valuable. These include:
- User groups, mailing lists, surveys
- Technical support (online or telephone) - log those calls!
- Test comparison of products with others on the market

Commercial Usability Testing

Common reasons (myths) why some companies don’t carry out usability testing:
- Testing is expensive - “we can’t afford a usability lab”
  - Studies can be tailored to be anything from cheap to expensive; even a handful of testers can be very valuable. Nielsen has carried out studies that show that 50 testers don’t reveal that much more information than 5.
- Testing is time-consuming
  - Again, even a short test with an hour per tester can provide valuable information. Even on a larger scale, Gram and Molich performed a study with students conducting full usability tests on selected web sites. The average test, including preparation, took 39 hours.
Commercial Usability Testing

Lack of usability expertise

- The students in the previously-mentioned study were beginners at usability, and they took a week to plan and administer the test (experts would have taken 2 days).
- Even just getting the designers to sit down and watch someone use what they have designed doesn’t require any expertise and gives the designer a whole new insight into how users use the design.

Nielsen has developed a “discount usability engineering” to tempt companies into getting into usability in a small way.

Nielsen’s Discount Usability Engineering

Based on

- Scenarios
- Simplified thinking aloud
- Heuristic evaluation

This helps companies to get into usability in a small way, and then having seen the benefits, it is then more cost-justifiable for the managers to provide better usability testing for their designers.