

Evaluation Techniques

Interaction Design Studio (DECO I 200)

Outline

Observing Users

How to gather data about user observations

Interviewing Users

How to ask users questions in an interview

Designing Questionnaires

How to design different types of questions

Expert Evaluations

How to conduct expert evaluations

Observing Users

Two common lab-based techniques:

Think-Aloud

Users are required to say out loud everything that they are thinking and trying to do, so that their thought processes are externalised.

Retrospective

Users are recorded on video performing some task and then asked to comment on what they were thinking or trying to do when shown the video after the session.

Data Collection

Note-Taking + Photography

Pros: Least technical methods to collect data/images

Cons: Can be tiring, limited by speed of note-taker

Audio-Recording + Photography

Pros: Less intrusive than video,

Cons: Transcribing audio to text

Video

Pros: Records visual and audio data in one

Cons: Intrusive, limited use in noisy/cluttered environs

Indirect Observation

Diaries

Users are asked to keep a diary of what they did, where they did it, and what they thought of their interactions with a product. Useful when users are scattered and not reachable in person, e.g. on the Internet.

Interaction Logging

User interactions with a product (usually software) are monitored through the use of a piece of software that captures information about key presses etc. Logged data is usually synchronised with audio/video recordings.

Interviewing Users

Guidelines for developing interviews:

Avoid long, rambling questions...

What was the first record that you ever owned that wasn't given to you as a present by a family member or friend?

...and try to be explicit:

What was the first record you ever bought?

Split compound questions...

How do you like this cell phone compared to other cell phones that you have owned in the past?

... into multiple simple questions:

How do you like this cell phone?

How does it compare to others you have owned?

Interviewing Users

Guidelines for developing interviews:

Avoid using jargon and other uncommon language...

Do you use AJAX-based web services?

...and try to be specific:

Do you use Google Maps or Google Mail?

Avoid leading questions:

Why do you like Kaz?

Maintain a neutral position:

How much does Audioslave suck?

Planning an Interview

Introduction

Interviewer should introduce himself/herself and explain why they are doing the interview, explains any ethical issues involved, asks permission to record the interview.

Warmup Questions

A set of easy, non-threatening questions are asked to help put the interviewee at ease while serving a useful purpose, e.g. gather demographic information.

Main Questions

Questions are presented in a logical sequence with the more difficult questions at the end of the session.

Planning an Interview (cont.)

Cooling-Off Questions

Finish the interview with some easy questions with the aim of diffusing any tensions that may have arisen.

Closing

Interviewer thanks the interviewee and signals that the interview is over.

Designing Questionnaires

Guidelines for developing questionnaires:

Make questions clear and specific.

Ask closed questions and offer a range of answers.

Think carefully about the order of the questions.

Avoid complex multi-part questions.

Try to make any scales/rankings intuitive.

Use consistent language throughout.

Avoid jargon and uncommon language.

Provide clear instructions for respondents.

Avoid creating overly long questionnaires.

Check Boxes

Sometimes the answers to a question have a limited number of alternatives.

e.g. Questions about gender have only two answers “male” and “female”.

In such cases, the possible answers can be presented as check boxes / responses.

Typically, a respondent will tick/cross a check box or circle a possible response.

Ranges

Some possible answers to questions are best presented as a set of ranges.

e.g. It is common to ask people for their age, but some people don't like to give a precise number of years. In such cases it is often better to use a set of age ranges.

When presenting ranges, ensure that it is obvious which range someone belongs to.

A common problem is caused by providing a set of ranges like 15-20, 20-25, 25-30; but which age range does someone who is 20 belong to? It is better to provide ranges that do not overlap, e.g. 15-19, 20-24, 25-29.

Likert Scales

Likert scales are typically used for measuring opinions, attitudes and beliefs.

Likert scales are often used to evaluate user satisfaction with products.

Likert scales can be presented with numbers or with words depending on the question.

1) The use of colour is excellent: (where 1 represents strongly agree and 5 represents strongly disagree)

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2) The use of colour is excellent:

strongly agree	agree	neutral	disagree	strongly disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Semantic Differential Scales

Semantic differential scales are used to get data about a range of bipolar attitudes.

Each pair of bipolar attitudes is represented in words. The participant is asked to place a mark along a scale to indicate their agreement with the attitudes.

Instructions: for each pair of adjectives, place a cross at the point between them that reflects the extent to which you believe the adjectives describe the website. You should place *only one* cross between the marks on each line.

Attractive	_ _ _ _ _ _ _	Ugly
Clear	_ _ _ _ _ _ _	Confusing
Dull	_ _ _ _ _ _ _	Colourful
Exciting	_ _ _ _ _ _ _	Boring
Annoying	_ _ _ _ _ _ _	Pleasing
Helpful	_ _ _ _ _ _ _	Unhelpful
Poor	_ _ _ _ _ _ _	Well Designed

Administering Questionnaires

Common issues when using questionnaires include in interaction design:

- Getting a representative sample of users

 - e.g. Not just the people that are easiest to ask

- Getting a significantly high response rate

 - Large surveys often have 40% or fewer responses

Online Questionnaires

Online questionnaires are effective (& cheap) for reaching a large number of people

Advantages of online questionnaires include:

Responses are received quickly

Costs can be very low or none

Data can be entered into a database easily

Data can be analysed as the results come in

Questionnaires can be redesigned easily

E-mail vs Web-based Questionnaires

E-mail questionnaires can be easily targeted at specific people but are often limited to text only.

Web-based questionnaires are much more flexible but it can be to get a representative sample of users.

Expert Evaluations

Heuristic Evaluations

An informal evaluation technique where experts, guided by a set of usability principles (called heuristics) evaluate whether a system conforms to the principles.

Walkthroughs

Walkthroughs involve an expert performing some task with the system and noting potential usability problems.

Heuristic Evaluation

General heuristics for evaluating usability:

Make the status of the system visible

Match the system with the real world

Provide users with control and freedom

Similar actions should be handled consistently

Help users recognise, diagnose and recover from errors

Prevent users from making errors wherever possible

Allow users to rely on recognition rather than recall

Provide multiple ways to achieve tasks

Remove unnecessary and irrelevant information

Provide useful help and documentation

HOMERUN

Specific heuristics for evaluating commercial web sites:

- High-quality content
- Often updated
- Minimal download time
- Ease of use
- Relevant to user's need
- Unique to the online medium
- Net-centric corporate culture

Heuristics for Web Sites

Navigation

Avoid orphan pages

i.e. pages not connected to the rest of the site

Avoid long pages

Do not force visitors to scroll unnecessarily

Provide navigation support

e.g. a site map or breadcrumbs

Avoid narrow, deep hierarchical menu structures

Studies show users prefer broad shallow menus

Provide a consistent look and feel

e.g. consistent navigation and hyperlink elements

Access

Avoid complex URLs that can't be remembered

Avoid unnecessarily long download times

Walkthroughs

Cognitive Walkthroughs

Cognitive walkthroughs involve an expert simulating a user's problem-solving process at each step and checking that the user's goals and memory of previous actions can be assumed to lead to the next correct action.

Pluralistic Walkthroughs

Pluralistic walkthroughs are a type of walkthrough where users, developers and usability experts work together to step through a task, discussing potential usability issues at each step of the process.

Summary

Observing Users

Pros and cons of note-taking, audio, and video records

Interviewing Users

Planning and conducting interviews

Designing Questionnaires

Types of questions, check boxes, ranges and scales

Expert Evaluations

Heuristic evaluations and walkthroughs