DH2408 HT18-1
Evaluation Methods in Human-Computer Interaction

Description

This course is an advanced level course in Human-Computer Interaction which looks at methods for evaluating usability. The course comprises of pratical exercises and lectures and guest lectures from industry.

Lecturer

The course responsible is Eva-Lotta Sallnäs Pysander (evalotta(at)kth.se). Office hours by appointment.

Elina Eriksson is lecturer.

Eric-Oluf Svee (ericsvee(at)gmail.com) is assisting at the course.

Course Goals

Upon completion of this course in Evaluation Methods in HCI students should:

- be able to discuss the theoretical background of usability evaluations within the field of Human-Computer Interaction.
- possess knowledge on how usability practices are instrumented in the industry at different stages of a product's development as well as how that product is evaluated in usability laboratories.
- be able to plan and conduct usability evaluations using a variety of methods.
- be able to choose which evaluation methods is appropriate for a particular usability study based on the problem at hand and the context in which the study is being conducted.
- have the tools and knowledge to be able to assess each methods potential and limitations.
- communicate results arising from usability evaluations in an effective and constructive manner so that they are useful for product development teams.

Additionally students should

- develop skills which help them to critically reason about usability and understand the function of usability evaluations within the context of the product development process.
- independently be able to conduct evaluations within the field of Human-Computer Interaction
- be able to critically assess usability evaluations executed by others and reflexively assess their own evaluations

Course Literature

The course literature is designed to be read in conjunction with the course. The main textbook is:

> *Rubin, Jeffrey & Chisnell, Dana (2008) Handbook of usability testing: How to plan, design, and conduct effective tests*. ISBN 978-0-470-18548-3. 2. ed.Indianapolis, IN : Wiley Pub., cop. 2008. English xxxvi, 348 s.

This text gives a very good introduction to the field of usability evaluation.

For the qualitative methods and analysis part additional texts (download from files) to read are:

> Swedish alt.: *Intervjumetodik* by Annika Lantz

> English alt.: *Qualitative Communication Research Mehtods* by Thomas R. Lindlof and Bryan C. Taylor

Optional reading

> The [Ethical Guidelines for Humanities and Social Science Research (Länkar till en externa sida.)](#) as set out by Vetenskapsrådet (The Swedish Science Foundation).

We recommend that in addition to this, all students attend all lectures.

Examination

This course consists of project work which is presented at a seminar and as a written report. Students carry out a usability evaluation of a technical system in groups of max. 3 persons. Note that students are assessed in groups for the assignments.

This course consists of the following compulsory elements, the deadlines will be shown in **Bold text** in the schedule that can be found under Files/Filer:

Compulsory elements

Project work:

Assignment 1: Description of the chosen usability evaluation artefact, 1 A4 page

Assignment 2: Usability evaluation plan, 2 A4 page

Assignment 3: Progress report, 1 A4 page. Attendance at discussion seminar about the ongoing projects.

Assignment 4: Final presentation and a project report

Assignment 1

Description of the chosen usability evaluation artefact, 1 A4 page (group assessment)

Upload an A4 page of text at Canvas addressing choice of technological system, a first idea of chosen evaluation method and a list of group members by the date shown in the schedule.

Form groups and collectively decide upon a technological system to evaluate from a usability perspective. This system can be anything from software, to hardware, to devices or interfaces. In most cases limit evaluations to one element of the system or a group of related functions.

The project should begin with a critical assessment of the technological system. Using this critical assessment of the technological system the group then comes up with a research question. Your group should have formulated a research question *before* beginning a usability evaluation. Consider also what potential problems that may occur during your evaluation. For example, is your group going to easily be able to recruit participants from the desired target group you have chosen? Is it possible to evaluation the technological system or function you have chosen? And if so, which of the following is the usability evaluation going to focus on:

- a comparison of different versions of the same system
- a comparison of different ways of interacting with the same system
- a comparison of different means of presentation within the same system
- compare different user target groups who use the same system
- compare how a system is used in different contexts/environments
- evaluate a number of different functions of the same technological system from a usability perspective and identify if they fulfil predefined usability criteria.

Decide which usability criteria (see PPT introduction lecture) your evaluation is going to focus on. What kind of variables need to be measured in order to get data on this particular usability criteria?

NOTE: This text for Assignment 1 needs to be approved before your group can begin the next phase of the project.

Assignment 2

Usability evaluation plan*, 2 A4 pages (group assessment)*

Upload your plan and design of the usability evaluation at Canvas by the deadline found in the schedule in bold text.

Plan and design your usability evaluation. Your group's written documentation of the design of the evaluation should include a short discussion on the required number of participants in order for your evaluation to succeed, how recruitment will be carried

out and what target group it will be aimed at, and what kind of evaluation tools are needed.

The written group assignment should include interview plans, consent forms etc, an account of the agreed-upon test procedure and how the group intends to log/document the data collected. You should at least have a draft version of the documents needed to conduct a usability evaluation (See Rubin & Chisnell 2008, p142) to hand in at this stage.

To help you plan and conduct your evaluation, students have access to the department's Usability Lab on Floor 6, D-house (room 4633/4632, card needed). The lab is equipped with film camera and computers with Morae tracking software installed. The lab can be booked via the course assistant Filip Kis (fkis@kth.se). Don't forget to book in advance and plan your time well. Email Eva-Lotta to get your access card updated to get into the lab. Also remember to schedule time for your pilot study.

NOTE: Your usability evaluation plan (Assignment 2) needs to be approved before your group can begin the next phase of the project.

IMPORTANT: If you experience problems working together as a group, let Eva-Lotta Sallnäs know early on so that the problems can be solved directly and the project can be successful.

Assignment 3

Progress report, *1 A4 page (group assessment).*

Write up a progress report in your group and upload this at Canvas by the deadline found in the schedule in bold text. Discussions based on these reports will take place during the Progress seminar on the date found in bold in the schedule.

Your project reports should include a brief summary of everything you have managed to do up until this point. Students are expected to have read and summarised background literature, methods and the observations made during one pilot test and any evaluation tests that have been carried out so far. In addition to this, students can present any preliminary results or conclusions that have emerged at this stage to get feedback on that. Your group might have begun to analyse the material or have developed a plan to do so. Use these progress reports as an opportunity to discuss your project and any questions or concerns your group might have about your usability evaluations.

Each group will discuss their ongoing usability evaluations at the **compulsory progress seminar**. During the seminar each group will be able to get help and feedback on their projects which will assist in the final work with the evaluations and analysis of data. All group members should take part in the discussion.

Presentation

The project work will be presented at a joint session at the date found in bold text for the Final presentation tutorial in the schedule. Each group has 10 minutes to present their project using Power Point or similar system.

Attendance during the final presentation is compulsory. In other words, you need to be present even when your group is not presenting. Your group is expected to attend the entire session. Your presentation should be directed at a fictive product development team (not your fellow students). You should present your results as if you were at a development meeting and aim to convince the development team to make the necessary changes. All group members should present some part of the project.

Assignment 4

Final written report (group assessment)

Each group must submit a written final report that summarises all the steps in your evaluation. See suggested content further down in this text.

Upload your final version of the project report at Canvas before the deadline in bold text in the schedule.

Students should follow these guidelines:

- each group's report should be max. 10 A4 pages (Times, 12 point, 1.5 line spacing). Raw data, interview plans etc are not included in this limit and should be included in an appendix.

- **the project number and each group member's birthdate and name should be listed on the first page of every report.**

- references to course literature, books, journal articles, webpages etc must be done, and in a consistent and scientific manner (See APA manual).

  In the final report, groups should describe every step of the evaluation conducted in the project as shown below. Also take a look at the exaination criteria to get an idea of what aspects not to miss. The best strategy is to make sure to include every essential part of the project as suggested below but be particular about what are the important results and materials to include, to make your point.

  This report should also include a reflection on how your usability evaluation went. Ask yourselves questions such as; "Did your choice of methods work well for the type of test you chose?", "What unexpected things occurred during the test and what were the implications of these?", "What kind of problems presented themselves during your usability evaluations?". Your answers can cover topics beginning with recruitment, evaluation design etc and even touch upon analysis methods and the quality of data etc.

  Heading Suggestions for the Project Report

Abstract

In the abstract students should include a summary of the completed usability evaluation. Describe results so that the key points are easily understood and with the intended audience in mind (in this case, a product development team). List these main results in point form. Bring up positive findings as these are important for a product development team to be aware of once they begin fixing the usability problems and integrating the suggestions and recommendations which result from your usability evaluations.

Introduction

What is being examined?
What is the aim of your usability evaluation?
Describe the system or interface evaluated and the relevant user context and if important the target group identified. Include a literature review of your specific topic area.

Method

What usability criteria did you focus on and what was the design of the evaluation?
Describe the different phases in the study, what was the test procedure and where was the test carried out. In which different ways did you collect data?
Present the sampling process of the test participants?
Include a more detailed description of your artefact/s here.
How did you address ethical issues in how you did the procedure?

Results

Describe how the different kinds of data were analyzed.
Give an account of number of tasks solved correctly, solved incorrectly, errors made, time taken to solve tasks, results from surveys and interviews and descriptions of usability problems based on observation analysis. Present the findings with very clear diagrams and tables and don't forget to include both quantitative and qualitative results in your study.

Recommendations

Transform the results into recommendations to a development team but focus on what parts of the system that needs improvement based on the results and motivate why. Not as much effort should be put on how to design new features.

Discussion

Discuss your results and the analysis of them in terms of their significance to your research question/s. and to relevant literature.

Conclusions

Point out the most important findings and conclusions from your usability evaluation.

References

The literature should be properly referenced in a consistent and scientific manner.

Appendices

Interview questions, survey questions, etc

Grading criteria

1. How well are all steps in the usability evaluation described in the report?

- is the research question well formulated and pertinent?
- is the report well structured?
- how well-written is the report?

 2. How well have the students understood central Human-Computer Interaction concepts and how well can they discuss those?

3. Referencing

- have students made good use of relevant literature (course literature, journal articles and other sources)?
- have these sources been properly referenced in a consistent and scientific manner?

4. Relation to previous usability evaluation testing

- has this evaluation improved upon previous usability evaluation methods alternatively has the study managed to formulate a more advanced HCI research question than the traditional ones?

5. How well-designed are the individual steps within the method part of the evaluation described and has the evaluation testing been carried out in a methodical and sound way?

- is the recruitment of participants well presented and is the choice of target group motivated?
- is there a description of equipment used and how it was utilized?
- is the evaluation procedure described?
- is the methods used for analysis clearly presented?

6. Are the results presented in a clear and precise manner such that they can be reviewed properly regarding how well the analysis methods have been executed?

7. How well have students been able to formulate their recommendations based on those results gathered and are these useful for the development team?

8. To what degree have students been able to draw conclusions from their work and have they been able to independently reflect on the execution of their own usability evaluation?

9. Have students considered and complied with disciplinary ethical principles in their contact with test participants and targeted user-groups during their tests?