Usability Testing

ISYE 348 Fall 2024 Lab 7

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This lab assignment is due by 23:59 on 2024-10-29. If you have any questions or need clarification, please reach out to me via email or during office hours. The report will be graded on **20 points** based on the following criteria:

Criteria	Points
Results	6+6
Discussion	6
Conclusion	2

Submission: Please submit your report as a PDF file on Canvas (generated from powerpoint slides). Make sure to include your name and your partner's name on slide 1. Include any code, plots, or tables as needed to support your answers. Make sure to answer all questions thoroughly and provide detailed explanations where necessary. Cite any external sources used. Submit one single pdf file with all the answers.

Collaboration with your classmates is encouraged, and you will work in teams (n=3) for this lab to complete the report. Please list your partner's name at the beginning of the report. Only one submission per group is required. Must include data from both partners in the report.

Late submissions will be penalized by one point deduction every hour past the deadline.

$$\text{score} = \max(20 - \text{hours\_late}, 0)$$

Please read the course policy on academic integrity and collaboration on the course syllabus. If you have any questions about what is permissible, please ask before submitting your work.

1. Introduction

This lab focuses on conducting formal usability testing procedures and effectively reporting findings to stakeholders. Students will evaluate the University of Wisconsin-Madison Engineering website's navigation and user experience through structured testing protocols.

2. Objectives

By the end of this lab, students should be able to:

1. Execute formal usability testing procedures
2. Apply think-aloud protocols in user testing
3. Record and analyze user behavior and performance
4. Summarize and report findings effectively
5. Provide evidence-based recommendations for interface improvements

3. Materials

- Computer with internet access
- Stopwatch
- Note-taking tools
- System Usability Scale (SUS) Questionnaire (https://stuart-cunningham.github.io/sus/)
- Testing interface: UW-Madison Engineering Website (https://engineering.wisc.edu/)

4. Methods

4.1 Team Roles

Teams will consist of three members with distinct responsibilities:

1. **Director and Behavioral Observer**
   - Coordinate and provide instructions word-by-word
   - Remind participant to perform think-aloud if he/she stops doing so
   - Follow testing script (provided below)
   - Document exact steps the participant took
     - e.g., the participant hovered mouse over all the tabs on the top of the website to check what's under the dropdown menus.
   - Note behaviors or think-aloud feedback indicating challenges and or issues (e.g., could not find the hyperlink, verbally wanted to click a tab but could not find the tab, indicated name of tab was not clear, etc.)
   - Note usability challenges and issues
2. **Performance Recorder**
   - Track task completion ratings:
     - [1] Successfully completed (no issues)
     - [0.5] Completed with some difficulty (some issues)
     - [0] Could not complete task
   - Measure task completion time

3. **Participant**
    - Perform tasks as instructed
    - Provide think-aloud feedback throughout the task
    - Complete the SUS questionnaire after each task

4.2 Usability Testing Setup

Task 1: UW HFES Student Chapter Information Verbal Script:

> You have heard about the Human Factors and Ergonomics Society (HFES) from this course, and you are eager to learn more about it. You are now on the UW-Madison Engineering website; How would you go about finding information on the UW-Madison HFES Student Chapter so that you can become a member? Please use the think-aloud method throughout the task.

Task 2: Dr. Mehta's Lab Information Verbal Script:

> You are on the UW-Madison Engineering website. From this course, you have also learned Dr. Mehta's lab is conducting a lot of cool research projects and you want to learn more. How would you go about finding out if there are open positions in Mehta's lab's to get involved in research. Again, please use the think-aloud method throughout the task.

4.3 Data Collection

Bring in participants

- Instruct them to perform above tasks while using think-aloud protocol
    - Prompt participant for think-aloud if they fail to do so consistently
- Have participants conduct SUS after each task
    - Perform think-aloud when doing SUS as well
- Observe and record behaviors (also note the step): refer to the "group member roles" section

5. Results

Include the following:

- Heat map identifying user and task issues
- Bar graph of average SUS scores across users for each task
- Annotated screenshots highlighting:
    - Issues (red boxes)
    - Good design features (green boxes)
    - Think-aloud feedback notes
- Recommendations for website design improvements

6. Discussion

Address the following points:

1. Common navigation challenges encountered
2. Effectiveness of current website structure
3. Impact of think-aloud protocol on testing
4. Patterns in user behavior and task completion
5. Comparison of performance between tasks

Provide specific, actionable recommendations for:

1. Website navigation improvements
2. Information architecture changes
3. User interface enhancements
4. Content organization modifications

Appendix: Expected Paths

Expected Path for Task 1: UW HFES Student Chapter Information

1. Click “Departments”
2. Click “Student Life”
3. Click “Student Organizations”
4. Click on “Discipline-based Organizations”
5. Locate HFES section and click on it
6. Click “Join US”

Expected Path for Task 2: Dr. Mehta’s Lab Information

1. Click on “Departments”
2. Click on “Industrial and Systems Engineering”
3. Click on “People”
4. Click on “Industrial and Systems Engineering Faculty Directory”
5. Locate Dr. Mehta’s headshot and click on it
6. Click on “LAB WEBSITE”
7. Click on “Vacancies”