

Assignment 1: The Human Factor



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1 Introduction

The purpose of this study was to evaluate the fitness class booking system of [the Pleasance gym website](#) from the University of Edinburgh. The problem that we observed is that the booking of classes is made unnecessarily complicated. We wanted to find out what factors contribute to this and how to make the system more usable. We therefore focused on testing users attitudes towards the website and the booking process. We were interested in understanding how participants experience the website, the functioning of it and their desires for potential improvements (Sluis-Theischeffer et al., 2009).

2 Method

The study was conducted as a lab study. According to Rohrer, user experience methods can be aligned along three axes (Rohrer, 2016). On the attitudinal axis, interviews and camera studies are suggested for qualitative methods and surveys are recommended as a quantitative method. Therefore, to analyze the participants' attitudes towards this product, a 'think aloud' task was chosen for qualitative and the SUS survey for quantitative analysis. This allowed us to observe the potential problems both directly and indirectly to help address them more accurately (Çöltekin, 2015).

2.1 Participants

The target group consisted of students who had not yet used the booking system. Recruitment took place through friends and fellow students. A total

of 5 people with a mean age of 23 years and a standard deviation of 1.09 were tested.

2.2 Design

After getting approval from the ethics committee, participants were recruited. A researcher script was developed to ensure identical procedures for each participant (See Appendix B). After participants were informed about the study, the consent form was signed (see Appendix A). The study consisted of two phases. A qualitative (see Appendix C) and a quantitative phase (see Appendix D). During the first phase, participants were asked to 'think aloud' while doing three tasks on the Pleasance gym website.

During the second phase, participants filled out a printed version of the System Usability Scale (SUS) (Brooke et al., 1996). The SUS is a rating scale which is designed to give a system a score between 0-100, where 100 is a perfect score. The SUS was used because it is a simple standardized scale measuring the usability of websites and consists of only 10 questions. The scale is good for small sample sizes and research on usability scales has shown, that it is one of the most reliable scales when assessing the usability of websites (Tullis and Stetson, 2004).

3 Results

In this section we first present the qualitative task 1,2 and 3, followed by the quantitative results of the SUS.

3.1 Task 1

For the first task, participants had to find an overview of the classes on the [main website](#). Four participants had trouble to find the correct website when searching on Google. Instead, they found the [booking website](#) of the Pleasance gym. As the website is divided into two parts, the participants got confused where to find the class overview. When they found the main website participants were overwhelmed by the amount of information that the front page offered.

3.2 Task 2

For the second task, participants had to book a fitness class. Even though the main website had a big "book online" button most participants first looked at the sidebar which did not contain the relevant information. When participants clicked on the button, they got redirected to the booking website which they generally interpreted as unnecessary. Three main problems occurred when booking a class. First, none of the participants knew the time schedule for their chosen class. To look this up, participants had to go back to the main website. Second, four of the participants commented that it was needless to manually put in information about time and date. Third, due to the small font size, most participants did not read that classes could not be booked more than three days in advance.

3.3 Task 3

For the last task, participants had to delete their booking. Three people stayed on the booking website and searched for deleting the class correctly. Two participants went back to the main website to search for a respective button. Participants were fast in finding the deleting information when being on the booking website. They commented that it was easy to find, as there was not much information or many buttons to press and all of the relevant information was organized in a sidebar.

3.4 SUS

The participants' mean score was 38.8 with a standard deviation of 16.7; the mode was 34.4. All participants' scores were clearly below SUS score average. The maximum SUS score was 60, which is still below average. When converting it to letter grades, the website would get an F. Figure 1 and 2 show the distribution of the SUS scores.

4 Discussion

4.1 Conclusion and recommendations

The results of the SUS and 'think aloud' tasks clearly show that the interface of the website is not usable enough. Nelsen's formulated 10 user interface

design guidelines which we will orientate us on (Nielsen, 1995). First, they suggest that a website should be consistent. The two websites of the Pleasance gym use very different graphic elements. Second, users should have control and be able to navigate fast. It is inefficient to redirect users to another website for the booking and consequently redoing bookings is made unnecessary difficult. To solve these two issues, we suggest to merge the two websites. This would make the booking process simpler, more consistent and more efficient. Third, it is suggested to keep a minimalist design and visibility of the system. Our participants reported an overload of information which resulted in difficulties finding the booking system. We encourage to reduce the information on the main website. The most important elements (booking, canceling, class timetable and class description) should be listed on the sidebar or on another visible element, to make the important features accessible. Lastly, a system should be focused on recognition rather than recall. Participants had to remember the date and time of classes from the main website when booking a class. All dates and times for the selected class should be listed during the booking process, so participants would only need to recognize the time.

4.2 Limitations and reflections

This study was conducted with only five participants, therefore results and conclusions that could be extracted from it are limited. However, the SUS shows that the entire distribution of the participants was in the low score area for usability. We would expect to see similar distributions in larger sample sizes. With more participants, an interesting exploration would be to test two groups. One that does have experience with the system and another who does not. In this way, the learnability of the system could be tested and it would be interesting to compare SUS scores. Furthermore, the participants we chose are all similar regarding the variables socio-economical status and age. Even though the website is mainly for students, future studies could compare the usability of participants from other backgrounds and age groups. Lastly, more data about the participants could be gathered to find potential correlations between variables and use this knowledge for further improvements.

References

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Appendices

A Consent Form

I am a student from the School of Informatics at the University of Edinburgh. For my assignment in the class 'The Human Factor: Working with Users', I am trying to evaluate how well the booking system for exercise classes at the Pleasance gym works. I am investigating whether the system needs improvements, to ensure that it is usable and intuitive for the user. I am not investigating the abilities of the user.

To realize this, I am asking you to find a fitness class and book it online. You are asked to talk-aloud while you are doing this and at the end you will receive a questionnaire. I will be recording your voice during the task. The use and release of the information and recording is for research purposes only and your name and information will not be used for any other purpose. I may include your comments in the report, but the data used in this report will be anonymous. The participation in this usability study is voluntary and you can withdraw from the study at any time. If you have questions at any given time, please do not hesitate to ask them.

This project has undergone ethical screening from the University of Edinburgh.

If you agree to participate in the study conducted by  then please sign below to indicate that you have read and understand the information on this form and that any questions you might have about the session have been answered.

Date:

Please print your name:

Please sign your name:

Thank you!

B Researcher script

Hello my name is: [REDACTED]

Today we will be using the Pleasance gym website of the University of Edinburgh to find an exercise class that interests you and then book this class.

The purpose of this exercise is identifying issues with the Pleasance gym booking system website. Please remember we are testing the website, we are not testing you. Could you please read and sign this Consent Form if you are happy to proceed?

1.1 Think aloud training

In this observation, we are interested in what you think about as you perform the tasks, we are asking you to do. In order to do this, I am going to ask you to talk aloud as you work on the task. What I mean by “talk aloud” is that I want you to tell me everything you are thinking from the first time you see the statement of the task till you finish the task. I would like you to talk aloud constantly from the time I give you the task till you have completed it. I do not want you to try and plan out what you say or try to explain to me what you are saying. Just act as if you were alone, speaking to yourself. It is most important that you keep talking. If you are silent for a long period of time, I will ask you to talk. Do you understand what I want you to do?

Good. Now we will begin with some practice problems. First, I will demonstrate by thinking aloud while I solve a simple problem: “How many windows are there in my mother’s house?”

[Demonstrate thinking aloud.]

Now it is your turn. Please think aloud as you multiply $120 * 8$. [Let them finish] Good. Now, those problems were solved all in our heads. However, when you are working on the computer you will also be looking for things and seeing things that catch your attention. These things that you are searching for and things that you see are as important for our observation as thoughts you are thinking from memory. So please verbalize these too.

As you are doing the tasks, I won’t be able to answer any questions. But if

you do have questions, go ahead and ask them anyway so I can learn more about what kinds of questions the pleasance gym website brings up. I will answer any questions after the session. Also, if you forget to think aloud, I'll say, "please keep talking."

Do you have any questions about the think aloud?

Now I have some tasks printed out for you. I am going to go over them with you and see if you have any questions before we start.

[Hand them the tasks.]

Here is the task you will be working on. Please read it aloud so you can get comfortable with speaking your thoughts.

Do you have any questions about the tasks? You may begin.

Task 1

Find the Pleasance gym website and find an overview over the classes that they offer. Find a class that interests you.

Task 2

You are already registered into the booking system (you are logged in with my account). Find the fitness class that you are interested in and try to book it. If you cannot book it, then find another class that interests you. Book the class at the gym that is closest to you.

Task 2

Now something has come up and you cannot participate in the fitness class anymore. Find your booking and delete it.

C Sample Data

In the following section a sample of comments from the three "talk aloud" tasks is presented. The names of the participants are not mentioned in order to anonymous it.

Task 1

"I am on the main Pleasance gym website". "I am scrolling through the side menu". "I cannot find anything about the classes". "I am going to the book online logo", "there is nothing about the classes under the booking system". "Okay, then I go back". Participant is strolling through the website. "Oh at the bottom of the website is something about the classes". "That is hard to find". "This page is really messy".

Task 2

Participant is on the main website. "I think it is weird that there is a separate website". Participant is scrolling up and down and searching for the booking. Participant is slowly getting annoyed. After getting to the separate booking website participant says "The booking website is very outdated". When finding a date for the class. "it is stupid that I can select days weeks ahead, if I only can book three days in advance". The participants further adds: "They should have made the booking available on the page where the information about the classes".

Task 3

This is an example of the participant who went back to the main website. "Okay, so I want to delete my class". "Is there anywhere I can see what I booked". "Hmm okay, then I go back to the main page". Participant looks at the sidebar again. "There is so much information I don't care about and nothing about deleting bookings". "I can only find the book online logo, I don't know where to look". Participant keeps strolling up and down on the website and gets impatient. Eventually he goes back to the booking page. "I am just going through all buttons on this page". Participant finds after a view clicks. "this is all made very difficult".

D System Usability Scale

Question	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
1	1	4	1	3	4
2	0	2	1	2	0
3	1	2	1	3	1
4	2	4	2	3	3
5	0	1	0	2	1
6	0	2	0	2	0
7	1	3	1	3	2
8	1	1	1	1	2
9	1	1	1	3	1
10	3	1	1	2	4
Age	24	24	23	26	23
Edu.	U	HS	U	U	U
SUS	25	52.5	22.5	60	34

U: Undergraduate. HS: High School. Edu: Education. SUS: Total SUS score for each participant. The questions for the SUS Scale are listed below. The scale for each question has scores between 0-4, where 4 is the most positive. The total SUS score ranges between 0-100. For odd responses, one is subtracted from the score. For even responses the user response is subtracted from five.

Questions of the SUS:

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.

\bar{x}_{SUS}	σ_{SUS}	\tilde{x}_{SUS}	Min	$Q1$	$Q3$	Max	\bar{x}_{Age}	σ_{Age}
38.8	16.7	34.0	22.5	25	52.5	60.0	24.0	1.09

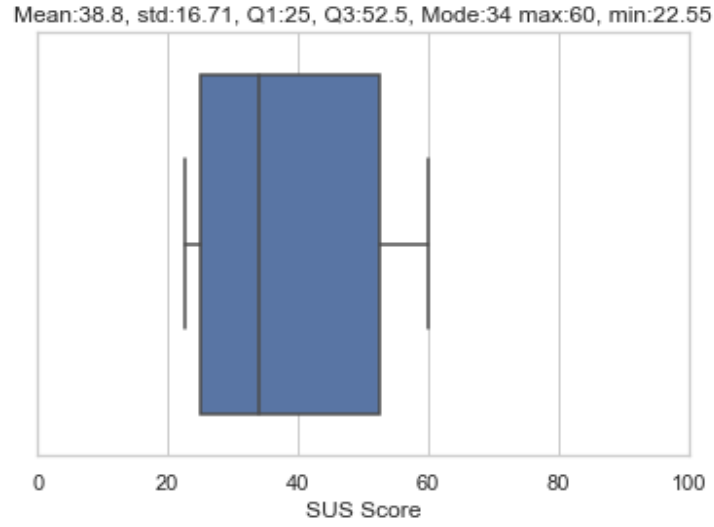


Figure 1: Distribution of the total SUS score of participants

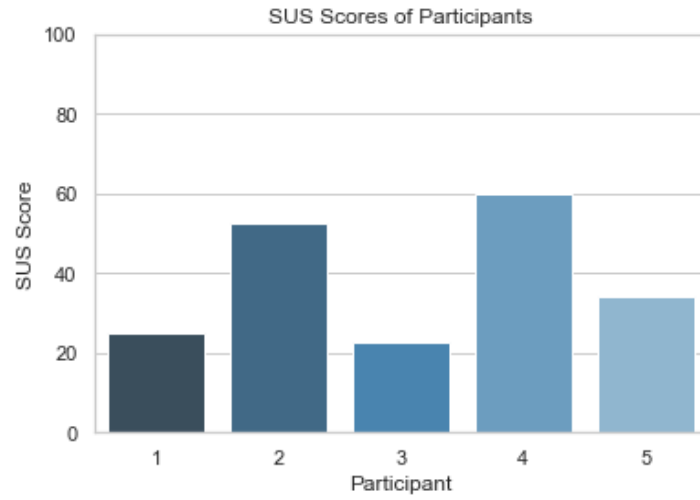


Figure 2: SUS Score for each participant