Usability Testing on Sulaimani Polytechnic University Website

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Abstract

Nowadays, usability is one of the most important parts in all part of daily life especially design in all area. Mainly, Computer Science and IT parts. So, this paper aims to show the importance of usability and the steps to be taken in testing usability against websites. Firstly, the usability definition, the vitality importance, why we use testing, when we use testing, how to utilize testing usability, and where to use usability testing to Evaluate websites how it will be efficient, learnable, memorable, and satisfaction. The SPU website which is the Sulaimani Polytechnic University website is taken into consideration to be tested against usability testing to test the four main components of usability testing.

Keywords: *SPU University, Usability Testing, Utilizing Usability, Effectiveness, Learnability, Memorability, Satisfaction.*

1.1 Introduction

The international standard, ISO, defined usability as "*The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use*" On the other hand, "*usability refers to the ease with which a User Interface can be used by its intended audience to achieve defined goals. Usability incorporates many factors: design, functionality, structure, information architecture, and more*". (Creech, 2011) Over all of both ideas, usability is vitally important before making a production which helps user to achieve their goals by providing facility of use of this production.

1.2 Executive Summary

1.2.1 What is usability?

Usability, simply, it makes a production to be used by users easily. Easy contact to interfaces will be provided by usability. According to International Standard ISO usability has the following features:

- Effectiveness: Is a particular task can be done by users?
- Efficiency: Can user do the task fast without getting frustrated?
- Learnability: Can user do tasks without asking for support? Or do they make a lot of errors during the test?
- Satisfaction: Is it enjoyable? Or pleasant to utilize?

However, in the (Nielsen, 2003:1) list, there are two other parts:

- Memorability: If a user does not use it for a period of time after returning to it, Can user do tasks easily? Or is it memorable?
- Errors: how many mistakes user will make? Can they avoid from errors?

1.2.2 Why usability is important? And why we use testing?

Generally, people do not like to face problems while using technologies and products if that happen they will leave. In that case usability is significant to test the products or websites before publishing products. Also, it is important to survive websites. (Nielsen, 2003)

1.2.3 When we should test usability?

As (Nielsen, 2003) recommended that when usability test should be done here are main steps:

- "Before starting the new design"
- "If you work on an intranet, read the intranet design annuals to learn from other designs"
- "Conduct a field study to see how users behave in their natural habitat"
- "Make paper prototypes of one or more new design ideas and test them"

On the other hand, (Rubin, n, d) said the test should be conducted in "*Pre-design process, Initial prototypes, finished interface*". In the shed light of both ideas usability test is very important in every stages of design.

1.2.4 How to utilize usability test?

The test should be conducted by participants and it is vitally important to let them to find solution for any problems on themselves. Otherwise if they are supported the result will be change and not accurate. (Nielsen, 2003)

1.2.5 Where to test usability?

(Nielsen, 2003) believe that the test can be done in an office, usability lab or inside a room but there should be no interrupting while testing in the process. Also, the place should be quite.

1.3 Usability test for website

http://www.spu.edu.iq/ku/4594 is an academic library website, any student can visit the website to search for books, courses and find books or other information on the website or e-learning such as moodle. Also, they can read books and borrowing books. Furthermore, they can reserve books at home by entering the website.

A usability test is used for testing the website to find out if it is easy to use and easy to find books. In addition, to discover that routine tasks can be conducted by participants.

1.4 Participants and conditions of the test

Three students at Sulaimani Polytechnic University participated to test the SPU University library website. All of them are non-native.

1.5 Purpose or aims

Generally, usability testing used to make products, apps and websites usable. There are some aims of testing the SPU University library website:

- Finding problems on library website.
- Fixing issues on the website.
- Improving the website.
- Supporting students to find resources on their modules easily.
- Saving time.

1.6 Pre-Steps of usability testing

- Participants introducing themselves.
- Getting permission to record the sound and video from participants.
- Giving brief information about the test.

1.7 Initial questions

- How do you understand the website?
- What do you think it is used for?
- Does it look nice to you?

- Do you like the interface of the website?

1.8 Methodology

The screen recorder software is used for the test. Participants were testing the website and the screen was recorded to measure time on tasks, number of clicks, making mistakes by participants, etc…

1.9 Equipment

- Fast stone capturing.
- Hp laptop (Ram 4GB, HDD 500GB, Processor core i3).
- Virgin media internet line (1MG/S).
- Microphone.
- A quite room.

2.1 Tasks presented to the test subjects during testing

1. Search for books on java.
2. How many books you can borrow at a time?
3. What is the fine of a delay return?
4. What is the fine of losing books?

2.2 Testing for effectiveness

All participants accomplished task1 (find books on java) and task 3 (what is the fine of a delay return?). One out of three (33%) completed task 2 (how many books you can borrow at a time?). None of them are able to conclude task 4 (what is the fine of losing books?). Furthermore, first and second participant could finish only (task1 and task 3) but third participant could complete (task1, task 2 and task 3). The table below illustrates a ratio of completed tasks and the number of accomplished tasks:

Table 1: completion rate and number of accomplished tasks

Participant	Task 1	Task 2	Task 3	Task 4	Finished tasks
1	√	-	√	-	2
2	√	-	√	-	2
3	√	√	√	-	3
Success	3	1	3	-	
Completion Rates	100%	33%	100%	0%	

As we can see from table 1 that approximately half of the tasks are achieved. Consequently, the website is not ideally effectiveness.

2.3 Testing for efficiency by measuring time to accomplish tasks

The fast stone capture software recorded the time when participants do the tasks. Some tasks are difficult to complete than the others.

The statistics below reveals the average time on tasks:

Table 2: Average time on tasks

	P1	P2	P3	Avg time on tasks
Task 1	6.25	6.01	7.30	6.52
Task 2	4.26	4.07	5.01	4.44
Task 3	2.26	2.25	3.00	2.50
Task 4	5.02	7.14	4.59	5.58
Sum of time	18.19	19.47	20.30	Avg of sum=19.32

According to above table there are different times to achieve tasks. Firstly, it can be clearly seen that the average time to complete task 1 (find a book on java) takes more time (6.52 minutes) than the other tasks.

However, task 3 (what is the fine of a delay return?) takes less time (2.50 minutes = 170 seconds) to achieve that the other tasks. Task 2 and task 4 take nearly the same time to accomplish (4.44 minutes and 5.58 minutes).

Secondly, there is a different summation of time to complete all the four tasks by participants. Third participant spent just under (21 minutes) to do the tasks but the difference between first and second participant time to complete all the tasks is only (28 seconds). Finally, the prediction of average time to complete task 1 to task 4 will take approximately (20 minutes) by any other participants.

To sum up, the library website is not enough efficient due to it takes a long time to conduct some routine tasks.

2.4 Testing for learnability

Number of clicks to accomplish tasks and errors that participants make during the test can be used to measure learnability.

The sum of number of clicks for all of the four tasks was hit a peak by participant 2 which is just under (70) clicks. However this number is hit a low by third participant and it is nearly (40) clicks. Second participant clicked (53) times to accomplish all the tasks.

On the other hand, all participants make a mistake or errors while doing the test. Summation of error were made by participant 1 is around (4) errors whereas third participant made just (3) errors but second participant made higher mistakes which is equal to (6) mistakes.

The data below shows the number and summation of clicks and errors were done by participants.

Table 3: Number and summation of clicks and errors

Tasks	Clicks/P1	P2	P3	Error by P1	P2	P3
Task 1	19	20	11	1	2	4
Task 2	11	17	10	0	1	0
Task 3	9	8	9	0	0	0
Task 4	14	22	7	4	6	3
Sum of clicks/errors	53	67	37	5	9	7

From the table above it can be clearly seen that there were a few errors were made by participants. However, some tasks were difficult to achieve for instance (task1, task2 and task4).

Overall, we can say that the website is learnable because the number of mistakes and errors are very little. Also, there are a normal number of clicks to complete tasks.

2.5 Testing for Satisfaction

Simply, all participants vote by rate to determine the level of satisfaction. Generally, satisfaction means that to what extent it is enjoyable or pleasant. The ratio below illustrates the participants vote on each task:

Table 4: Satisfaction rate

Participants	Task1	Task2	Task3	Task4
P1	60%	30%	90%	10%
P2	65%	25%	95%	10%
P3	50%	25%	90%	15%
Avg rate	58.3 %	26.6%	91.6%	11.6%

- Avg bar = Summation of avg / 4 = 47%

According to the vote rate and the above statistical equation, the average of the rate on tasks is about (50%), which means that the website is neither enjoyable nor pleasant.

2.6 Participants vote for the website

All of the participants voted the website in the point of view (how easy to complete the tasks). Generally, the average of rating gives us that they are uncomfortable with completing the tasks and finding information. They believe that it is difficult to accomplish all the tasks. The statistics below illustrates the ratio of their vote.

Table 5: Rate of ease finding information

Tasks	Ease of Finding Info		
	P1	P2	P3
1 – Find books on java	50%	45%	51%
2 – How many books students can reserve at a time?	10%	30%	15%
3 – What is the fine of a delay return?	90%	85%	95%
4 – What is the fine of losing books?	12%	5%	10%
Rate average	40.5%	41.25%	42.75%

Moreover, participants vote of these points (links location in the website, and how much they like it).

Although it is difficult to achieve the tasks, they like the design and surface of the website. In addition, they have recommendation to improve the website later on after summarizing data and specifying issues, their recommendation will be given.

The table below shows the vote rate of (location in site and likes the website).

Table 6: Rates of location in site and their likes

Participants	Location in site	Their like
P1	60%	75%
P2	75%	70%
P3	65%	70%

2.7 Summary of data

We tested for each of (effectiveness, efficiency, learnability and satisfaction) previously. In addition, the test was conducted for each of them separately. Moreover, an explanation of the data was given. Furthermore, participants vote rates were shown on (ease of finding information, location in site and like website). The statistics below reveals a summary of the test data.

Table 7: Summary data

Task	Task Completion	Errors	Avg Time on Task	rate Satisfaction*
1	3	7	**6.52**	58.3%
2	1	1	4.44	**26.6%**
3	3	0	2.50	91.6%
4	**0**	**13**	5.58	**11.6%**

2.8 Usability Issues on the website

According to table7 it can be noticed that there are some usability issues on the library website. The table below gives severity of the problems:

Table 8: Usability problems and severity

Problems	Severity
1-Participants could not complete task4 and only one of them achieved task2 (effectiveness issue)	high
2-It takes a long time to accomplish tasks (efficiency problem)	high
3-Searh engine on the website. (search engine does not give participants exact information and does not work properly. Also, it gives them information which is not related to their questions).	high
4-Links and the words that used in the website are vague or not clear to participants	medium
5-the website neither enjoyable nor pleasant to all participants.	medium
6-Some links are not in the right position.	low

2.9 Recommendations to improve the library website

This part is going to explain some recommendation from participants to develop the library website.

Firstly, put a link under the name of (search or find books) to the list of links under library from the left side of the website. Secondly, design a good search engine for the website due to it is not accurate. To sum up participants recommendation and my recommendation are given in the table below:

Table 9: Recommendations and changes

Recommendations	Changes
1	Change some words in the website. For example, locate and put the word (find or search) instead.
2	Put link search or find books to the list of links under library at the left side of the website.
3	Making a good search engine to find information accurately.
4	Using simple words and to be certain that all users understand the content.
5	Put a short video to show how to use library website.
6	Changing the logo of the website to a library with books picture.

Conclusion

Overall, participants found that the Coventry University library website is neither easy nor difficult to use. However, they faced some issues during the test to accomplish the tasks, they almost like the website. They found that it is well organized to find information about charging of a delay books. On the other hand, they could not find information about the charge of losing books. Participants discovered that the website is learnable whereas, there are some words that unclear to participants and some links are not in the right position.

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