Website Usability, Case Study: Shura System

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ABSTRACT: *Usability is considered a quality attribute for the software. Recently, concern about usability has been increased as a competitive advantage which helps accomplishing effeteness, efficiency and users satisfaction. The web site is usually designed for achieving technical and functional purposes, but neglecting the most important factor; the end user. Usability focuses on end users, their capabilities, requirements and satisfaction. We aimed by this work to publicize the usability and its testing to the website Arabic users. A usability evaluation for Shura website using a Remote usability test for 36 participants was performed. Results were analyzed to determine the obstacles users were facing. Many of usability non-observance in the website were found and necessary recommendations (proposals) to redesign the website were made to improve it and make the user experience more acceptable.*

Keywords: *User Centered Design, Website Usability, Software Usability, Ergonomics*

I. INTRODUCTION

Usability is a quality characteristic vital to all kind of products and services including software applications and websites. Usability was defined by the International Organization for Standardization (ISO) in ISO 9241-11 standard, as follow: "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" [1]. Kurg has defined usability as to assure that something is working well [2]. Which means that a person of average ability (even lower than average) can use that thing be it a website, fighting jet or rotating gate and accomplish the goal that is designed for without reaching desperation [2].

Benbunan confirmed that usability as a value indicates the extent of the success and ease of a user without previous training to interact with the data of a system or website [3]. Good Software and website can be achieved by maximizing two factors, usability and visual appeal [4]. Typically, usability test is to include the performance of the user during the task of testing the ease, and the efficiency of the way the task is being

performed and the subsequent user's satisfaction on the product and their performance [5]. During the test, quantitative and qualitative data related to user's success, speed of performance and satisfaction can be collected [6]. The usability test helps discovering problems encountered in user interface or design [7]. The following are the definition of some common usability tests as mentioned in HHS guidebook [6].

- **Automatic Evaluation Method**: A software is used to evaluate website and find out problems such as missing pages or links and slowly loading pages.

- **Conative Walkthrough**: This test is designed to evaluate the amount of support offered by interfaces for first time users through trial learning to perform a task on it.

- **Heuristic Evaluation**: A usability specialist tests interface to judge the extent of fitting to known usability principles.

- **Laboratory Testing**: The user and the tester are in the same location. The tester monitors the performance of the user while performing tasks and record all observations to be compiled later into a report to be handed over to development team and other concerned parties.

- **Think Aloud Testing**: The user gives comments while performing tasks in order to explain what is in his mind or why he is performing in a given way.

- **Remote Testing**: The user and the tester are in different locations. This test can be done via tracking system which enables the tester from monitoring the use of the interface by the user. This method is adapted in the present work. That is the user and the tester are separated in place and time during test performance. And this test has two aspects:

  - **Moderated Testing**: the test is performed synchronously where the user and tester are connected at the same time.

  - **Unmoderated Testing**: the test is performed asynchronously using web-based applications, the method which is implemented in the present research [8].

Some researchers considered the network as an extinction to usability laboratory. Hartson et. al. mentioned that the remote location which is distributed for users on the network prevents the chance direct monitoring during usability test, yet it is still an intrinsic choice when test cannot be performed at laboratory [9]. Remote testing has almost replaced laboratory testing due to the many disadvantages of the later which can be summarized as follow [10]:

- It is costly to have a full-equipped laboratory.

- Reliability and validity of measurements.

- Representative users may not represent the entire intended community.

- Misinterpretation of results by the observer.

On the other hand, Brush has listed some of the disadvantages of remote testing; among which is that some PCs may not allow users to down load required plug-ins or may have restricted internet access [11].

Many researchers have used remote testing to evaluate websites. Jessica Jardner has evaluated the website of UNECE Statistical Division (www.unece.org) aiming at re-designing site information. The test was performed using Online Conferencing Software. This enabled a wide geographic users' representation and also cost reduction. Users (to perform the test) were appointed among ordinary users and have been divided into groups according to the task to be performed. Tasks took 45 to 60 minutes and an invitation was sent to all participants after selection through an e-mail which contained the URL of the test. Questions were not sent before the test to avoid forecasting the tasks to be performed. It is worth mentioning that all participants joined Jessica's test had a previous experience in usability testing. Connection between the laboratory and the participant took place in the time agreed upon and then the process started. A little introduction to the test and its procedures was made at the beginning followed by preliminary questions to check the experience of the participant with the site and then the test was performed.

Finally, a set of questions were asked to investigate the participant's impression of the site in concern [12]. In another study, Tom Tullis et. al made a test to compare between laboratory testing and remote testing [13]. They found that methods revealed close results and that the behavior of users was similar. However, remote testing users gave richer opinions and comments and their number was larger comparing to laboratory testing users which were an advantages. The procedures for remote testing was; selection of participants randomly via e-mail invitation to perform the test. The e-mail contained a connection to the test. The test consisted of 17 tasks with free opinion box attached to each task [13].

When designing a website or a software, there is always a competition between programmers and ergonomists. While programmers give more care to functionality, ergonomists concentrate on users and their requirement of usability and comfort along with the performance of the task [14].

II.   Objectives

The present research aims at defining the interaction of users with the website (www.shurasystem.com) in order to find out usability drawbacks which decreases the efficiency of task performance and user's satisfaction and form aversion to use the site again. The tested website was a private site which required invitation from the company in order to be able to login with username and password. All Participant in the present test dealt with the site for the first time. The test was performed remotely and included relatively a small number of tasks comparing to other researchers. This was due to the specific nature of the site.

The main objective was to determine the ease of use for new user, and discover the problems which prevent that, so that to make the proper modification on site design as a first step. Ordinary users who used to deal with this site were not included in the test because most of them were professionals with long experience in dealing with the interfaces of the website. On the other hand, since the participants had no experience in usability test as well, the test also focused on introducing usability to Arabic users.

III. Usability Test

The usability test of the website consisted of two parts. The first was a set of tasks the participant was requested to do within the website following the instructions which appeared in a bar at the top of the monitor. The second part included questions that had to be answered by the participant. The test was designed using LOOP11 (http://www.loop11.com). The URL of the test was shared on social networks and the participant had to click on the URL and do the test. The test was intended for users who had the base knowledge for the internet. The participant could skip the task at any moment. Figure 1 shows the procedures of the test.

The primary message explained to the participant that the target was not to evaluate the user but website to make it better. It was an important message intended to make the participant relaxed and yield more reasonable results. The number of participants was 34 after screening out non-reasonable answers.

Tested tasks: the test included 3 tasks shown in Table 1 along with the procedures for each task and the scenario. Since logging in to a website became a common and easy issue to all users, the task included logging in to "Shura Demo". The aim was to identify the reaction of the user who had no previous experience with the website while logging in.
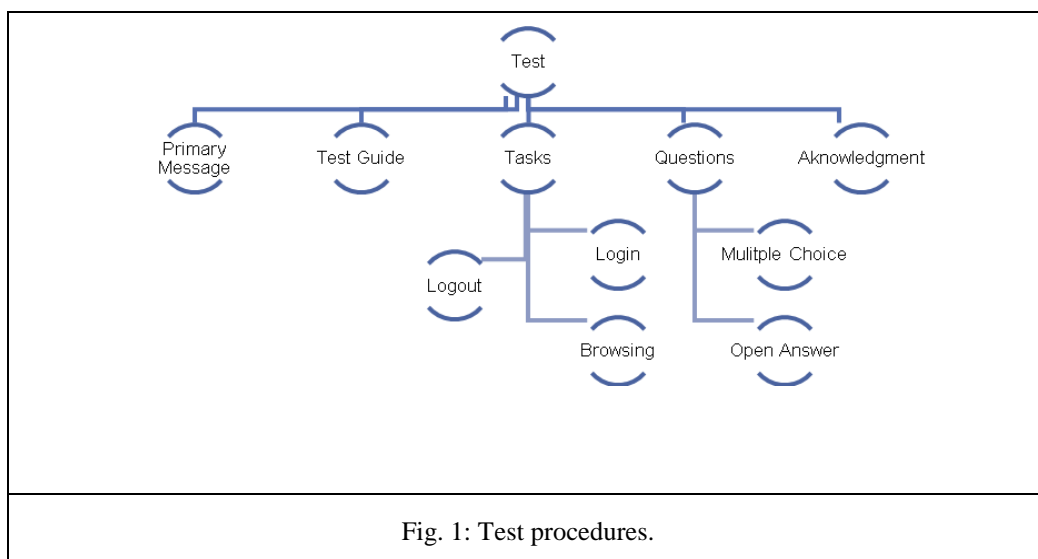

Fig. 1: Test procedures.

Table 1: Tasks included in the test with instructions		
Task	**Instructions**	**Scenario**
Log in	Please log in using the following: E-mail: shuralevel3@outlook.com Password: 5964978 Then enter to Shura Demo	The participant logs in according using the e-mail and the password given in the instructions at the top of the page. Then enter to communication group "Demo" by clicking on "Demo" icon.
Look over	The site is built on tree style to classify subjects. Please browse through starting from "Shura" icon. Then go on to "Shura Users Test" page.	The participant looks over the website and then click on "Shura Users Test" to go further.
Log out	Please log out of Shura.	The participant clicks user name icon located at top left of the page. Then choses log out.

Questions were of two types;

- Scale question: to evaluate participant's experience. Scale ranged from "Too Easy" to "Complicated".

- Paragraph text question: to know the opinion of the participant regarding design and colors. Also to add freely any suggestions participant may have.

IV.   Results

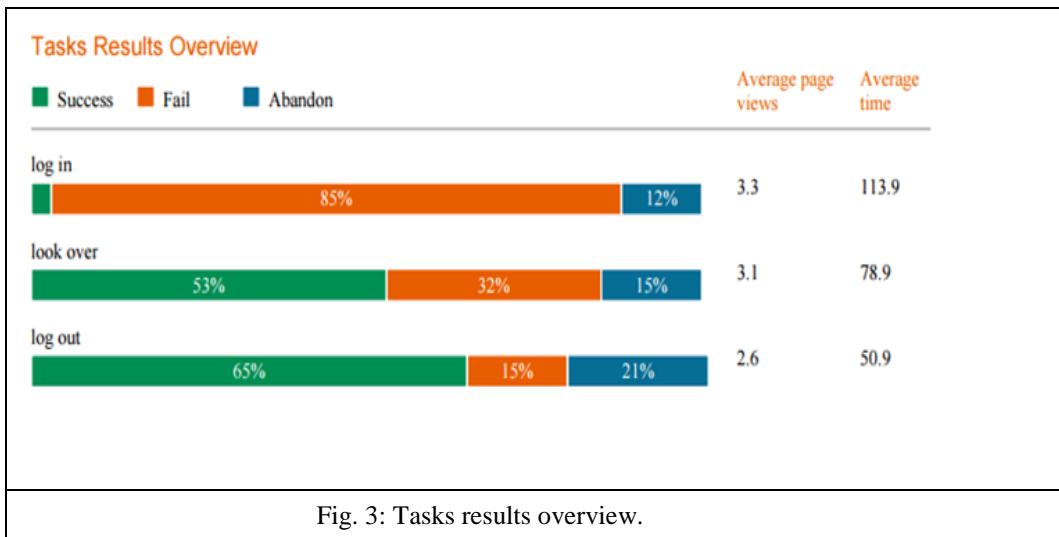Fig. 2 shows the average task completion rate and Fig. 3 shows the tasks results overview.

Fig. 2: Average task completion rate.
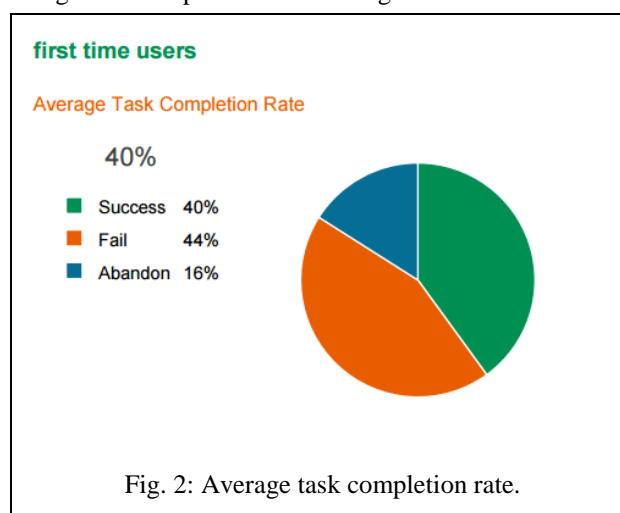
Fig. 3: Tasks results overview.

Detailed results for task 1 "Log in" task are shown in tables 2 through 5, for task 2 "Look over" are shown in tables 6 through 9, and for task 3 "Logout" are shown in tables 10 through 13.

Table 2: Task 1 "Log in" Completion Rate	
Success	3.0%
Fail	85.0%
Abandon	12.0%

Table 3: Time to Complete Task 1 "Log in" (Seconds)	
Average	113.9
Minimum	19
Maximum	470

Table 4: Most Common Abandon Page for task 1 "Log in"		
URL	**Response %**	**Response count**
http://www.shurasystem.com/	75.0%	3
http://www.shurasystem.com/index.php	25.0%	1

Table 5: Most Common Fail Page for task 1 "Log in"		
URL	**Response %**	**Response count**
http://www.shurasystem.com/images/paper-pack.png	58.6%	17
http://www.shurasystem.com/SHURA/47/index.php/site/GetTree2/	34.5%	10
http://www.shurasystem.com/	6.9%	2

Table 6: Task 2 "Look over" Completion Rate	
Success	53.0%
Fail	32.0%
Abandon	15.0%

Table 7: Time to Complete Task 2 "Look over" (Seconds)	
Average	78.9
Minimum	3
Maximum	196

Table 8: Most Common Abandon Page for task 2 "Look over"		
URL	**Response %**	**Response count**
http://www.shurasystem.com/index.php/#index.php/site/dashBoard/	40.0%	2
http://www.shurasystem.com/SHURA/47/index.php?sign=yes#index.php/page/view/93	40.0%	2
http://www.shurasystem.com/index.php/	20.0%	1

Table 9: Most Common Fail Page for task 2 "Look over"		
URL	**Response %**	**Response count**
http://www.shurasystem.com/SHURA/47/index.php/site/GetTree2/	63.6%	7
http://www.shurasystem.com/index.php/#index.php/site/dashBoard/	18.2%	2
http://www.shurasystem.com/SHURA/47/index.php?sign=yes#index.php/site/dashBoard/	9.1%	1
http://www.shurasystem.com/SHURA/47/index.php?sign=yes#index.php/page/view/94	9.1%	1

Table 10: Task 3 "Log out" Completion Rate	
Success	65.0%
Fail	15.0%
Abandon	21.0%

Table 11: Time to Complete Task 3 "Log out" (Seconds)	
Average	50.9
Minimum	6
Maximum	302

Table 12: Most Common Abandon Page for Task 3 "Log out"		
URL	**Response %**	**Response count**
http://www.shurasystem.com/index.php/#index.php/site/dashBoard/	42.9%	3
http://www.shurasystem.com/SHURA/47/index.php?sign=yes	14.3%	1
http://www.shurasystem.com/index.php/	14.3%	1
http://www.shurasystem.com/SHURA/47/index.php/site/GetTree2/	14.3%	1
http://www.shurasystem.com/SHURA/47/images/page.png	14.3%	1

Table 13: Most Common Fail Page for Task 3 "Log out"		
URL	**Response %**	**Response count**
http://www.shurasystem.com/SHURA/47/index.php/site/GetTree2/	40.0%	2
http://www.shurasystem.com/index.php/#index.php/site/dashBoard/	20.0%	1
http://www.shurasystem.com/SHURA/47/index.php?sign=yes	20.0%	1
http://www.shurasystem.com/SHURA/47/images/page.png	20.0%	1

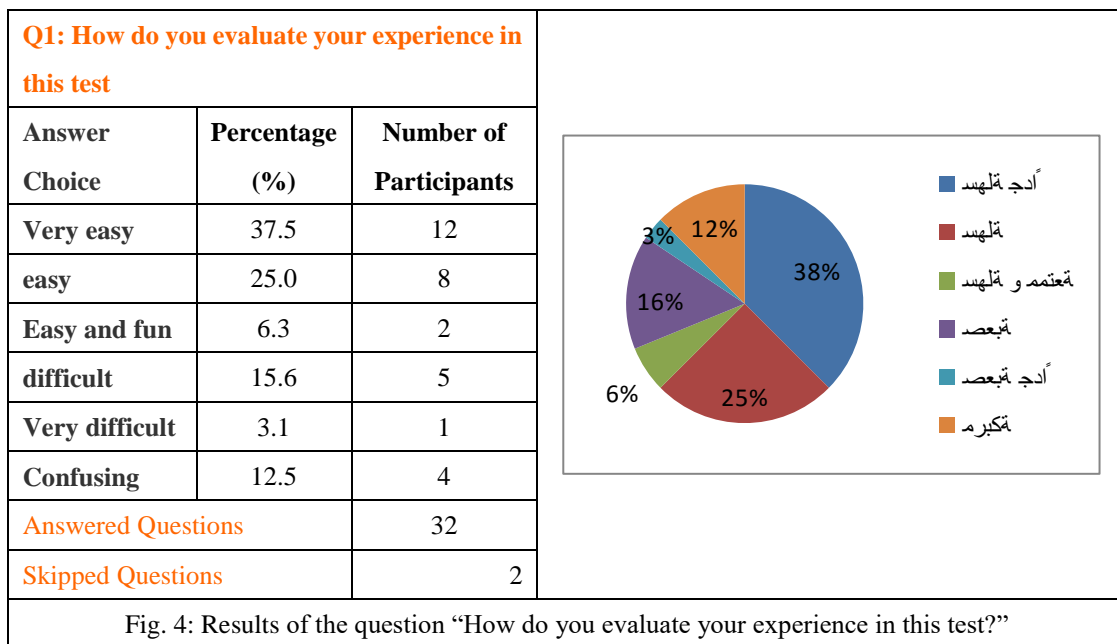Figure 4 shows the results related to question one on "How do you evaluate your experience in the test?".

Q1: How do you evaluate your experience in this test		
Answer Choice	**Percentage (%)**	**Number of Participants**
Very easy	37.5	12
easy	25.0	8
Easy and fun	6.3	2
difficult	15.6	5
Very difficult	3.1	1
Confusing	12.5	4
Answered Questions		32
Skipped Questions		2

Fig. 4: Results of the question "How do you evaluate your experience in this test?"

Table 14 shows a sample of participants' comments.

Table 14: Sample of participants' comments	
Participant	**Response**
Participant 6	Colors were beautiful and suitable. The design was good but can be improved. Opening the tree was very slow. I did not like the word "Loading" in red color. The circles around it were very boring.
Participant 7	Colors were beautiful and comfortable. Font size was acceptable and design was simple without complexity.
Participant 8	Colors were suitable. Green and white were very fitting and comfortable for eye. About the font, I am not sure which font is most suitable for Arabic readers. As for the design, I expect that drop-down lists should come from right to fit Arabic. On the other hand, since the targeted audiences are Arabic speaking people, then icons and drop-down lists and their names should be understandable to the

	audiences and should consider their psychological and technical needs and not be a direct translation from the English origin The idea of consulting the targeted audiences in the early stage of the design was great.
Participant 56	Acceptable design. I cannot say that it was distinguished but at least it was not so classic. Colors are comfortable and suitable. The site was slow to open. Tree style is an old fashion style> There is no more attractive and modern styles for classification.
Participant 65	normal
Participant 66	Design was weak. I could not understand the branching way or the main stream of the site. Colors were acceptable. Need to put more efforts on the design.
Participant 71	I did not give much care to colors or design.
Participant 76	Login interface design was distinguished. However, later on inside user account colors has to be attractive by using more colors other than only white and green. In general, the site was monotonous.
Participant 88	The design was simple, normal and convenient for eyes.

V.   Discussion and Conclusion

Shurasystem.com is a website dedicated for project management that belongs to SMA Group Company. In this website, working groups are constructed and each of them includes those are related or interested in a project. People can interact within each group throughout all stages of the project. Each group is called "Shura". A new user, often, faces difficulties using the website and it takes time to adopt with the website and its structure.

1- Tasks

1-1 Task No. 1: Log in

The first task consisted of 2 parts. The first was to input the login information written in the task guide and the second was to enter to the work group called "Shura Demo".
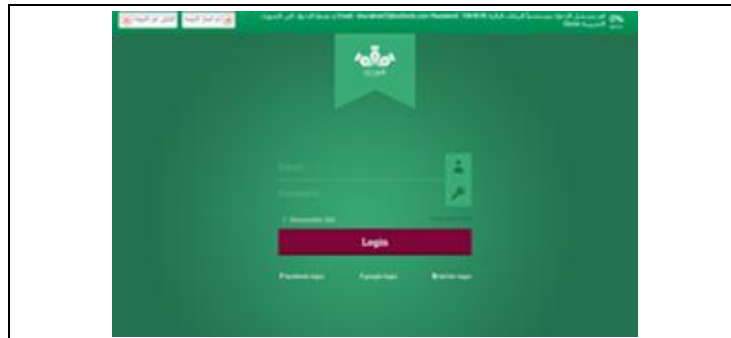
Fig 5: Login interface. Task guide appears on the bar at the top.

As a result, most participants failed in this task and 12% abandoned the task. By tracing the navigation path it was found that 58.6% of those who failed in the task, their failure was in the second part of the task which was about to enter to "Demo" working group. The wrong URL (mistakenly clicked) data showed that most participants clicked the icon instead of clicking the word "Demo" and that 34.5% of participants clicked on "End task" after the following page appeared after logging in without realizing anything about the interface that appeared and its content, Fig. 6. The rest 6.9% of participants clicked on "log out" icon after logging in and then clicked on "End task" icon.
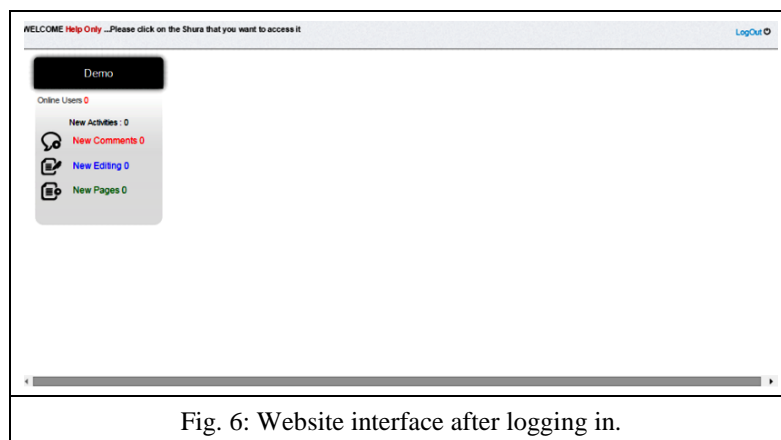

Fig. 6: Website interface after logging in.

1-2 Task No. 2: Look over

The requirement in this task was to surf available topics in the site and then to enter one of the pages. The site was built on tree style for data classification. After entering Demo page, the inter face looked like the one in Fig. 7.
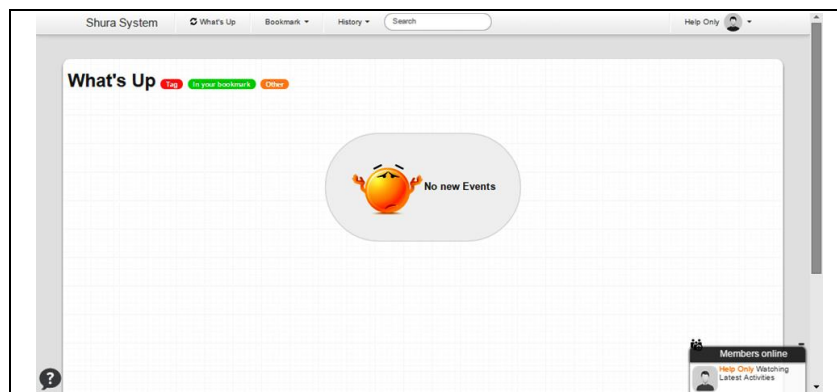
Fig. 7: Site interface after entering Demo.

It is the correct page for Task 1 and the beginning for Task 2.

Participant had to click on "ShuraSystem" icon to get the drop-down list that shows site content, then click the page that is required to enter, Fig. 8-9.
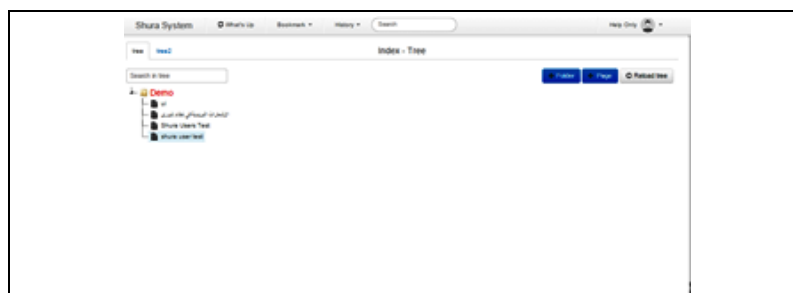

Fig. 8: Tree structure of the site, after clicking on ShuraSystems icon.

Fig. 9: The page required to enter by the end of Task 2.

From the results, it was clear that about half of participants had succeeded in the task. About 15% of participants had decided to abandon the task. On the other hand, participants navigation path have revealed that 40% of those who abandoned the task had clicked "tree 2" icon which showed the site as in Fig. 10, and they were not able to enter the required page because it did not appear at the first place.
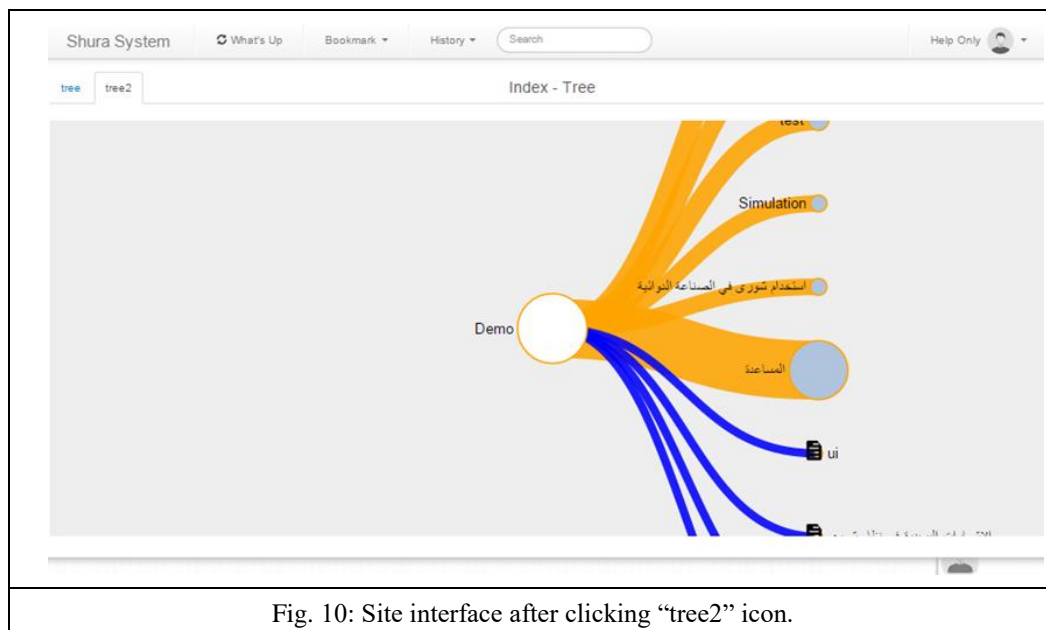
Fig. 10: Site interface after clicking "tree2" icon.

While pretending searching for drop-down list that shows the content of site, 32% of those participants who failed to do the task, clicked any word that was available on the starting interface.

1-3 Task No. 3: Log out

The percentage of successful participants in this task was about 65% which was higher than other tasks. 15% failed and 21% abandoned the task. The navigation path of participants for either failure or abandoning the task revealed that, participants either returned to a previous pages or searched in the same page for icons at the top of the page. The higher successful percentage in "Log out" task may be attributed to the fact that site followed Google style in logging out. Anyway, still many participants were not able to log out.

2- Questions

2-1 Question 1:

The question was about evaluation participant's experience in the test. The question included multiple choices and the results varied for one participant to another. It was "easy" for about 37.5%, "very difficult" for about 15.6% and "confusing" for about 12.5% of participants. The answers varied widely. But it was observable that some participants who answered "very easy", actually failed in performing tasks and vice versa. Table 14 shows that contradiction.

Table 14: The answers of some participants related to their performance in tasks			
Participant No.	**Answer**	**Failed Tasks**	**Successful Tasks**
Participant 5	Confusing	1	2,3
Participant 6	Easy	1	2,3
Participant 7	Very Easy	1	2,3
Participant 8	Easy	1	2,3
Participant 16	Very Difficult	abandon all	
Participant 25	Very Easy	1,2,3	
Participant 36	Difficult	1,2, abandon 3	
Participant 39	Easy	2,3	1
Participant 42	Very Easy	1	2,3
Participant 43	Confusing	1	2,3
Participant 49	Very Easy	1	2,3
Participant 51	Abandon the question	abandon all	
Participant 56	Easy and Funny	1,2	3
Participant 60	Easy	1	2,3
Participant 62	Very Easy	1,2	3
Participant 65	Difficult	1	2,3
Participant 66	Confusing	1,3,abandon 3	
Participant 71	Easy	1	2,3
Participant 76	Very Easy	1,2	3
Participant 88	Very Easy	Abandon all	
Participant 90	Very Easy	1,2,3	
Participant 94	Very Easy	1	2,3
Participant 95	Very Easy	1	2,3
Participant 96	Very Easy	1	2,3
Participant 98	Easy	1,2	3
Participant 99	Difficult	1, abandon 3	2
Participant 102	Very Easy	1	2,3
Participant 106	Easy and Funny	1	2,3
Participant 111	Easy	1,3	2
Participant 114	Abandon the question	Abandon all	
Participant 115	Confusing	1,2	3
Participant 117	Easy	1,2	3

Participant 121	Difficult	1,2	3
Participant 127	Difficult	1,2,3	

Participant 16 abandon all tasks and his answer "difficult" was reasonable. On the other hand, participants 25 and 90 answered with "very easy" although they failed in performing the task.

2-2 Question 2:

This question was about participants' opinion concerning the site. The opinions varied between those who liked the design (participant 98) who answered "easy" for first question, to others who did not like the site (participant 66). Most participants mentioned the necessity to improve the site. Table 15 summarizes participants' comments and classify them into passive, positive, and neutral.

Table 15: Summery of participants' comments			
	Positive statements	**Neutral Statements**	**Passive Statements**
Used Statements	- Colors were comfortable* - Colors were suitable* - Good - Acceptable* - Cool - Colors were bright	- Normal - I do not care - I found nothing bad	- Slow* - Ambiguity - Overly classic* - Monotonous - The design was bad - Branching was not clear - Need better design - Not familiar - Need better colors - Not distinguished - Tree branching was an old fashion
Suggestions	- Improve the design and colors - Font - Drop-down lists from right to left to fit the Arabic style - Blue color is better		
Statements with (*) were used more than one time by different participant.			

Finally, it worth mentioning that some participants made both positive and passive comments and 8 participants did not make any comment.

VI. CONCLUSIONS

It is obvious that shurasystms.com is weak from usability point of view. The test included only the most common tasks that any user has to do when logging in into any website. The weak usability can be related to the following reasons:

Clickability: Shurasystems.com lacks clickable feature largely. It was observed that most participants could not recognize the clickable places although the site applied changing the arrow pointer into a hand pointer for clickable items. It was clear that changing the pointer shape was not enough for users to realize the clickable items within the interface. The site designer supposed that changing the shape of the pointer has to be enough and no need to make further distinction by changing the style of the clickable items themselves. Figure 11 shows and example for that.
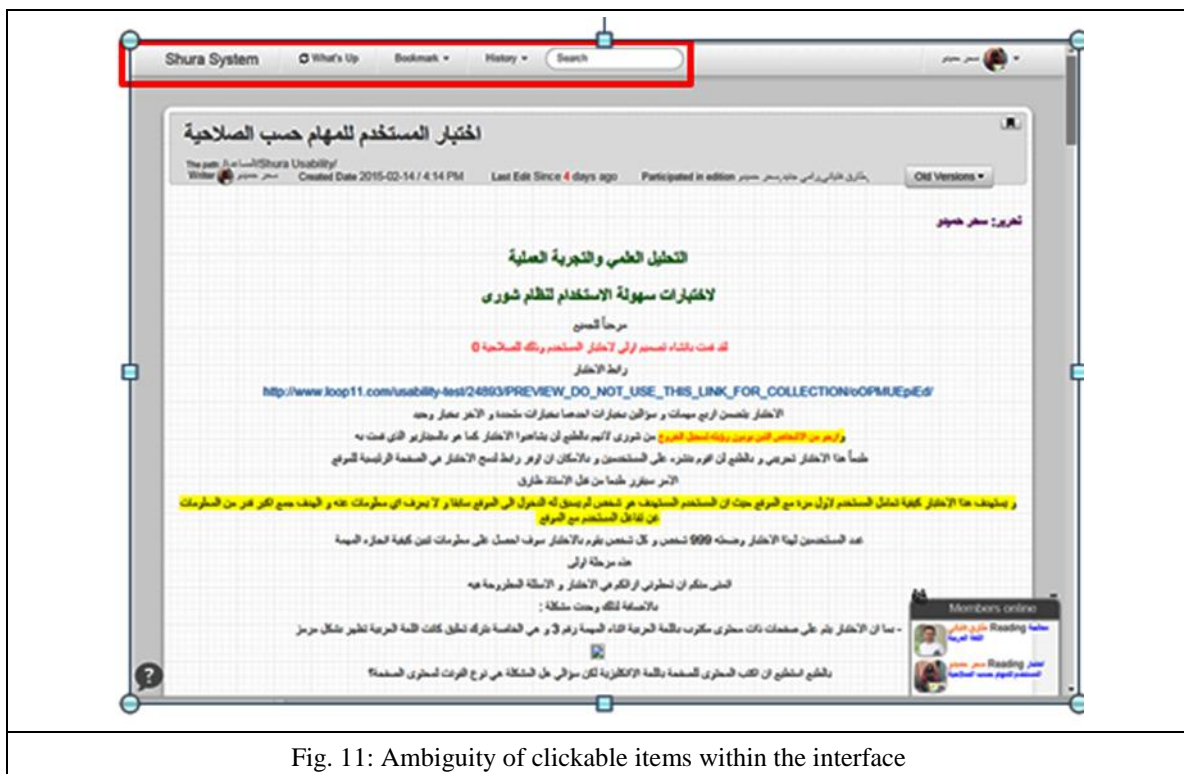

Fig. 11: Ambiguity of clickable items within the interface

What made the issue of clickbility more important the behavior of most participants where they clicked on images rather than to click on icons in all three tasks and it was more intensive in the first task when trying to enter into different parts of the site. It is suggested that the clickable icons be more clear by adding a frame or highlighted so that users do not have to guess.

Ambiguity: On the other hand, the site included many ambiguous labels which caused many confusion cases and misunderstanding for users. For example, in the logging in page, there were other choices to log in via

other social media sites. This actually unusable since this site does not allow any user who has an account for any social media sites to log in, and it is very common for users to log in using this option. Therefore, the presence of this option confused the users. Usually, changing a habitual behavior is not welcomed.

Fig. 12: Log in interface and the presence of fake options.

Other problem was the naming of the contents of the site by Tree1, Tree2 and so on. Although it was intended for the classification of site topics, there was no necessity to do this in two different styles. This is clearly design defects. One classification would have been enough. Figure 13 shows how two styles were used for classification of topics.

Fig. 13: Calssification of topics within the site using two styles caused confusion for users.

Finally, many participants confused when logging out to the limit that 21% of participants abandoned the task without recognizing the icon of "account options" at far right side, which contained "log out" command. It is recommendable to make the icon clearer either by enlarging its size or by changing the color into a distinguished one, in addition to "clickable" issues that was discussed earlier.

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