

# Analysis of User Interface and User Experience Usability on Arsitag.com Mobile Version Using Heuristic Evaluation Method

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## ABSTRACT

Arsitag.com has a vision to connect homeowners with the best property services professionals for them; architect, interior designer, design and build, contractor to supplier. However, Arsitag does not yet know whether the appearance and interactions developed make it easier for users. Therefore, this study will determine the suitability of the design and user experience of arsitag.com with the needs of its users, the difficulties experienced by users and the design and user experience that suits the needs of arsitag.com users. This study will analyze the ease of operation of the mobile version of the Arsitag.com website using the heuristic evaluation method and the System Usability Scale (SUS) and Single Ease Question (SEQ) testing packages. Research begins with the identification of problems and is done using Sketch software to design, as well as Marvel applications to create user experiences from the designs created.

Keywords: *User Interface, User Experience, Heuristics Evaluation, System Usability Scale (SUS), Single Ease Question (SEQ).*

## 1. INTRODUCTION

Arsitag.com is a website that brings homeowners with experienced professionals. Arsitag.com's vision is to connect homeowners with the best property services professionals for them; architect, interior designer, design and build, contractor to supplier. Their mission is to provide transparency in the property industry thereby increasing the level of homeowner's trust in professionals and also improving the quality of service from professionals [1].

In August 2018 - October 2018, arsitag had 912,626 website visitors. These users were divided into desktop users by 31.43% and mobile web by 68.57%. This spurred the architecture to develop a system, appearance and user interaction to be gradually improved. The development continues to be done by improvising the appearance and increasing the interaction of website users, but the development has not been entirely based on user needs but rather based on assumptions, so the changes have not been maximized.

Arsitag.com develops user interface and user experience on desktop and mobile platforms (Android or iOS). Arsitag.com planned to redesign their user interface, but they need to conduct user research so they can cover user needs. This research will conduct usability testing to find out whether the appearance of the Arsitag.com website on the smartphone is able to facilitate the user, as well as to find out the obstacles when navigating the website. This research is using heuristic evaluation and SUS (System Usability Scale) testing to measure usability and SEQ (Single Ease Question) for task-based testing. The results will be used to accommodate design decision that will be shown to participants who have involve in the testing phase.

## 2. METHODS

### 2.1 System Usability Scale (SUS)

System Usability Scale (SUS) is one of the surveys that can be used to measure the usefulness of various products or services, which also works for websites. SUS only consists of 10 questions, making it relatively quick for participants to complete and the score is easy to calculate [2]. Each question has five point scale ranging from Strongly Disagree to Strongly Agree. The survey results are a single score, ranging from 0 to 100.

### 2.2 Single Ease Question (SEQ)

Single Ease Question (SEQ) is a post task measurement which used to evaluate how difficult a user completing given scenarios or tasks [3]. SEQ testing is done after the user complete a task by asking them to complete a number of questions. Each question consists of 7-point ranking scale to assess how difficult they completing a task [4].



### 2.3 Heuristic Evaluation

Heuristic evaluation is a usability technique method to find usability problems in user interface design so that they avoid a repetitive design process. There are 10 rules for heuristic evaluation, they are [5]:

1. Visibility of system status: The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.
2. Match between system and the real world: The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.
3. User control and freedom: Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.
4. Consistency and standards: Users should not have to wonder whether different words, situations, or actions mean the same thing.
5. Error prevention: Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.
6. Recognition rather than recall: Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
7. Flexibility and efficiency of use: Accelerators — unseen by the novice user — may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.
8. Aesthetic and minimalist design: Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.
9. Help users recognize, diagnose, and recover from errors: Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Help and documentation: Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

## 3. DISCUSSIONS

### 3.1 Persona

There are persona list who participates usability testing:

Table 1: Persona List

No	Name	Gender	Age
1	Muhammad Valdie Arsanur	Male	24
2	Firdha Safridi	Male	24
3	Vicka Cahyawati	Female	28
4	Konita Luptiana	Female	25
5	Ina Rachmah	Female	26

### 3.2 Usability Testing Arsitag.com Website Result

This result consists of 3 part, they are evaluation heuristic evaluation, SUS evaluation, and SEQ evaluation. Each part have questionnaire with specific score and scale.

#### 3.2.1 Heuristic Evaluation Questionnaire

Heuristic evaluation questionnaire contains 10 questions based on the principle of heuristic evaluation conducted by 5 users. The user is given a code P1 to P5 while the question is given a code Q1 to Q10. The values in the table are given based on the provisions that the indicator is very poorly given 1, bad with value 2, average with value 3, good with value 4 and very good with value 5.

Table 2: Heuristic Evaluation Result

U S E R	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
P1	4	4	4	4	4	4	4	4	3	4
P2	4	5	4	5	4	4	4	5	5	4
P3	4	4	4	5	4	4	4	4	4	3
P4	4	4	4	4	4	4	4	5	4	4
P5	4	4	4	4	4	4	4	4	5	5

### 3.2.2 SUS Questionnaire

The usability testing value and the SUS score from the questionnaire conducted to 5 selected individuals after the creation of a new User Interface. Persona is shown in the participant line with codes P1 through P5. While the answers to the questionnaire are shown in columns Q1 to Q10. At the end of the column, there is a calculation of the SUS value with a range of values from 0 (zero) to 100. To get the SUS value, each question value needs to be calculated in the following formula:

$$SUS_{Score} = \frac{SUS_{P1} + SUS_{P2} + SUS_{P3} + SUS_{P4} + SUS_{P5} + SUS_{P6}}{N} \quad (1)$$

Based on that formula, the result of the questionnaire is :

$$SUS_{Score} = \frac{85 + 95 + 87.5 + 87.5 + 87.55}{5}$$

$$SUS_{Score} = \frac{442.5}{5}$$

$$SUS_{Score} = 88.5 \quad (2)$$

### 3.2.3 SEQ Questionnaire

Based on the questionnaire given after the user did the specified task, the results of the questionnaire can be seen in the table 3. Next there is the assignment column, which is the type of assignment assigned - indicated in sub-columns F1 through F6; The last column is the amount, i.e. the total value of the whole assignment on the questionnaire.

Table 3: SEQ Result

Function	Function						
	1	2	3	F4	F5	F6	F7
F01	0	0	0	0	2	2	1
F02	0	0	0	2	1	1	1
F03	0	0	0	1	1	1	2
F04	0	0	1	1	2	1	0
F05	0	0	1	1	1	2	0
F06	0	0	1	1	2	0	1
Total	0	0	3	6	8	8	4

## 4. CONCLUSIONS

Based on tests conducted using the heuristic evaluation method and the Scale Usability System (SUS) and Single Ease Question (SEQ) packages in the initial stages, the appearance and interaction of the mobile version of the Professional Search menu design on the arsitag.com website was carried out on 5 users getting the severity

evenly distributed, namely the severity level 4 is 2, the severity level 3 is 2, the severity level 2 is 1 and the severity level is 0 as much as 1. This is reinforced by the SUS of 61 and the SEQ results state that the mobile version of Professional Search displays on the Professional Search menu that dominating is a little difficult value. This proves that the arsitag.com Professional Search page does not fully meet the needs of the user, and there is little difficulty in accessing the page. To get more optimal results, a gradual improvement is needed regarding the mobile version of arsitag.com interaction design. After the display has been changed based on suggestions, comments, and values in the initial testing, several interface views are made for final testing. In the final stage, the result of heuristic evaluation results is only 3, which is the principle of helping users recognize, diagnose, and recover from errors due to lack of notification of errors in filling data and help and documentation because it is difficult to find the FAQ button if it is entered into the page. In the SUS questionnaire with an updated design, the score was 88.5, which meant the display was very good. In the SEQ questionnaire, there is a highest value of 8, which is easy, but there is still a value of 3, which is a little difficult. When viewed from the results of the final stage, it was concluded that the professional menu display was in accordance with the needs of arsitag.com users. The results of the author's testing can be suggestions or enter to the developer arsitag.com to improve the appearance and interaction with users of the mobile version of the website.

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