USABILITY ANALYSIS IN PAASAAR.COM APPLICATION USING THE SYSTEM USABILITY SCALE (SUS) APPROACH

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Abstract: The development of internet use in Indonesia to do online shopping continues to show an increase. Usability and accessibility are core human concepts computer interaction (HCI). These concepts are intended to ensure effectiveness and satisfaction of the system to users. Usability is considered throughout the standard. It states that all interactive products will have a user interface, and the quality of the user interface can have significant effect on the achievement of user goals. Paasaar.com application is an e-commerce platform that can be accessed through a website which is addressed at paasaar.com. This research method is descriptive quantitative. Data collection is done by method of answering the questionnaire that has been standard used for the SUS method. Questionnaire distributed to 100 people respondents to fill directly questionnaires were selected randomly. By calculation using the SUS formula, it is obtained as shown in Table 1. Based on Table 1, the value of 83.88 is obtained. This value means that it is in the Good category. Good in this case is in terms of system usability. So that the e-commerce developed is in accordance with user expectations and is feasible to be used and accessed more widely.

Keywords: *E-commerce, Marketplace, Usability Analysis, System Usability Scale, Paasaar.com*

1. Introduction

The development of internet use in Indonesia to do online shopping continues to show an increase. Based on data from the original Merchant Machine research institute British, Indonesian occupy number one in the world. Of course this is fantastic with a growth rate of 78% in 2018 (Widowati, 2019). It shows people love to do shopping on line. Most of them spend the money on shopping for clothing and footwear products feet, then the third popular one is shopping for health and beauty products. Millennials love shopping online because they think it's very simple and practical, just order the goods come right away. Goods transaction process done through a device that called E-commerce. Electronic commerce is an online application that can used to make transactions buying and selling of any product so that currently E-commerce has become a kind of online store that contains a catalog product. Consumers can view products, read product descriptions, do direct communication with the seller, make a price quote, do orders, as well as all types of transactions which used to be only possible in the world real. Now all product transactions can already be done online. (Jiwa Permana, 2019).

Several factors that influence the online competition are whom the buyers are, the distribution channels used, level of consumer loyalty, and consumer satisfaction. The use of the internet and intranet is necessary not only to buy and sell, but e-commerce develops on how to communicate electronically by collaborating through social networks or customer service. Customer satisfaction in using e-commerce is one factor in determining whether the system's functions are usable (Sivaji & Soo, 2013). The comfort and satisfaction level of using an e-commerce website from the user's side is called usability (Abdallah & Jaleel, 2015).

Usability and accessibility are core human concepts computer interaction (HCI). These concepts are intended to ensure effectiveness and satisfaction of the system to users. The website should be designed in such a way that it is easy to use and accessible to users, including those with special needs. User have different abilities and needs because of their culture, experience and environment. Website usability defines how easy a website is for users who interact with it. E-commerce websites that have better usability can attract more customers which in turn helps the company in increasing its business. If the user is satisfied with the experience search for their products and enjoy their visit, then it can help in increasing the popularity of the business. It seems that users don't want to spend time studying how to use the website. Websites with complex users the interface is abandoned by the customer. Therefore, the use and accessibility is an important part of designing and e-commerce website. There are many ways to evaluate accessibility and usability of a website (Hamid et al., 2020). Various metrics derived by the research community to evaluate usability. In addition, many standardized questionnaires developed for user satisfaction and usability evaluation.

Usability is a key concept in human-computer interaction (HCI). The main purpose of this update is to organize, improve and unify the concepts relevant to the two main process: specification of software and system quality requirements and evaluation of software quality, supported by process of measuring the quality of systems and software. Usability is considered throughout the standard. It states that all interactive products will have a user interface, and the quality of the user interface can have significant effect on the achievement of user goals (Yildiz et al., 2014). On the other hand, Nielsen suggests that usability is consists of a set of paradigms, principles, and attributes (Nielsen, 1994). Most explanations of the meaning of usefulness agree that it is context-dependent and is shaped by interactions between tools, problems, and people (Díaz et al., 2017). The main research question in HCI is how to work with and improve use of interactive systems. Research that answers this question has produced guidelines for improving usability systems (Fisk et al., 2020), methods for predicting usability problems (Barnum, 2020), techniques for testing system usability (Wickens et al., 2021), and discussion of how to measure usability (Nielsen & Levy, 1994).

One of the application testing related to this, must go through Usability Testing (US). This test is conducted to determine customer satisfaction in using the application, being able to access the application effectively, and being able to use the application efficiently. There are several methods that can be used to perform this test. One of them is by using the System Usability Scale (SUS). This method is most widely used to perform software testing because it is easy to use and the results can be used as a consideration. The reason for using this method is because it is very easy to understand and in its implementation it is very easy to use, so this method is popularly used in conducting Usability Testing (Jiwa Permana, 2019).

Questionnaires are one of the most popular usability evaluations method, namely collecting data from respondents. this method contains users' subjective judgments (Harrati et al., 2016). Among the various types of questions, System The Usability Scale (SUS) method is considered a fast method measurement method to find out how people perceive usefulness of a computer system (Brooke, 2013). The goal is to identify the uses aspects covered by each method. In this way, it is possible to determine usability problems by solving each one other.

The System Usability Scale (SUS) was developed by Brooke (1996) as a "quick and dirty" survey scale that allows practitioners to use it quickly and easily to assess the usability of a particular product or service. Although there are a number of other excellent alternatives SUS has several attributes that make it an excellent choice. good for general usability practitioners. Some of these are that the survey is technology agnostic, making it flexible enough to assess a broad range of interface technologies, from interactive voice response (IVR) systems and new hardware platforms to more traditional computer interfaces and websites Second, the survey is relatively quick and easy to use Third, the survey provides a single score on a scale that is easily understood by a wide range of people (from project managers, to computer programmers) who are typically involved in product and service development and who may have little or no have experience in human factors and usability. Lastly, these surveys are nonproprietary, making them a cost-effective tool as well (Brooke, 1996). The questionnaire asks users to rate their level of agreement with a statement covering various usability characteristics such as the complexity of the system and the support or training that participants feel is necessary to use it effectively. Brooke asserts that a simple 10-item post-test questionnaire can quickly assess product usability without the need for complex analysis. SUS has many benefits that make it a popular choice for usability evaluation. In addition to being fast, free, and easy to manage, it is also considered fair and simple for participants to answer. Turning questions between positive and negative, providing a single score that is generally understood and easily shared among project stakeholders (Bangor et al., 2008). Finally, SUS can be applied to a wide variety of technology and has been used to assess the usability of hardware, software, websites, and mobile devices (Brooke, 1996).

The standard SUS consists of the following ten items (odd numbers positive word items; even numbered items with negative words).

Figure 1. System Usability Scale (SUS) Question

Paasaar.com application is an e-commerce platform that can be accessed through a website which is addressed at paasaar.com. More specifically, Paasaar.com is a marketplace that was developed to make buying and selling as well as on other marketplace platforms. In this paasaar.com contains features that are very sophisticated and develop according to current technological developments. Paasaar.com cooperates with sellers who uphold honesty in selling their products. This application also features a friendly system for sellers of furniture commodities who previously had difficulty using other marketplace platforms.

Paasaar.com is an online marketplace platform. This application can be accessed through the website at paasaar.com which will also be coming soon in the form of a mobile application that can be downloaded from the Playstore, currently still under development. Paasaar.com cooperates with MSMEs in Jepara to promote MSME products, in line with this Abbetkampu has released the Paasaar.com marketplace platform which can be a forum for these MSMEs. Not only MSMEs, all entrepreneurs can also sell their merchandise on the platform. As with other marketplaces, the paasaar.com feature is also not complete with other marketplace platforms. With the existence of sophisticated and quite complete features, it is hoped that the Pasar.com mock-up will become one of the platforms that can accommodate

market needs in this digital era. Paasaar.com aims to provide users with an easy method and an interesting experience to buy and sell a variety of daily necessities, from fashion to electronics. By using social-based e-commerce as its core model, paasaar.com wants this application to be close to users. By carrying out the slogan of being honest, safe, reliable, abbetkampu wants this marketplace to become the trust of the public in the buying and selling process, there is no doubt within the buyer in carrying out the transaction process carried out on paasaar.com.

2. Research Method

This research method is descriptive quantitative. Descriptive research method is the process of describing existing phenomena, both phenomena natural and man-made phenomena man. The phenomenon in question is, activities, characteristics, changes, relationships, similarities and differences between one phenomenon and another (Ependi et al., 2017). Quantitative research is research by obtaining data in the form of numbers or qualitative data that are numbered . Quantitative research methods are a method used to answer research problems related to data in the form of numbers and statistical programs. In the data collection process, can using research instruments. About the instrument research, there are three possibilities that used by researchers, there are (1) researchers using research instruments that has been standard that has been tested / complied validity and reliability test requirements. (2) Researchers modify research instruments pre-existing, (3) researchers develop their own instruments will be used to collect data research (Jiwa Permana, 2019).

The data collection process is carried out for 3 months from September -November 2021 after the development of marketplace paasaar.com finished developing. The next process after passing the development stage is testing. The questionnaire used is a questionnaire that already valid, specifically for doing SUS testing. This questionnaire can be downloaded directly on the official website online. The process of distributing the questionnaire was assisted by some by the team. In this testing process, a questionnaire given to respondents from various groups, especially users of the marketplace platform, students, and adults in general. Data collection is done by method of answering the questionnaire that has been standard used for the SUS method. Questionnaire distributed to 100 people respondents to fill directly questionnaires were selected randomly.
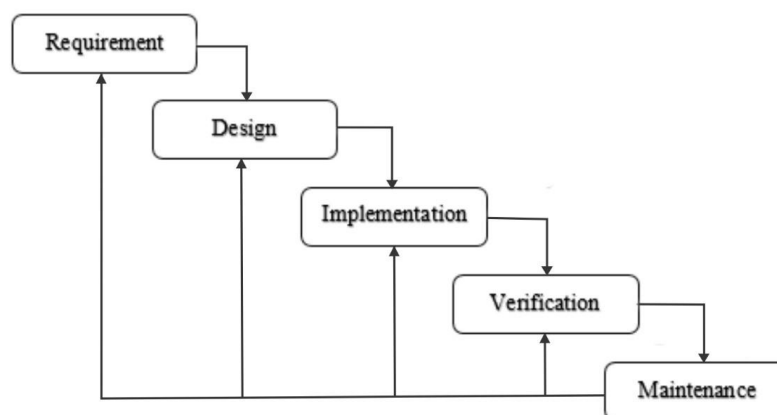

Figure 2. Waterfall Method

The model used is the waterfall method which is a method with a classical approach, a sequential approach with a clear sequence (Pressman, 2010). There are several stages carried out in the application development process, these stages include: Requirement Analysis,this stage is a communication system developer that aims to understand the software expected by market users. System design, the requirements specification from the previous stage will be studied in this stage and the system design will be made. System Design helps in determining hardware and system requirements and also helps in defining the market system as a whole. Application, the system is first developed in small programs called units, which are integrated in the later stages of market applications. Every unit that is developed and tested for functionality is referred to as unit testing. All units that are developed in the implementation phase into the system after testing is carried out by each unit. After integration the whole system is tested to check each error by error.

The process of measuring usability includes three words related to effectiveness, efficiency, and satisfaction (Peppa et al., 2012). So that every attempt to use a product must be carried out at least according to the third parameter. One method that can be used for usability testing is SUS. this method can be used to perform independent technology testing on hardware, software, websites, and even mobile devices (Ependi et al., 2017). In carrying out the test, SUS has ten question instruments. Each question has a score of 1-5. If you strongly disagree, you can vote (1) and strongly agree by selecting (5). There are rules for 10 questions, namely each question with an odd number, then the answer from the respondent (respondent's answer score - 1). Each question with an even number, then the respondent's answer (5) The score of the respondent's answer). Then add up the scores per respondent (Total Score of Respondents x 2.5). After all the respondents' scores were multiplied by 2.5, then they were added up and divided by the total number of respondents.

3. Results and Discussion

The number of respondents who filled out the questionnaire was 100 people. By calculation using the SUS formula, it is obtained as shown in Table 1. Based on Table 1, the value of 83.88 is obtained. This value means that it is in the Good category. Good in this case is in terms of system usability. So that the e-commerce developed is in accordance with user expectations and is feasible to be used and accessed more widely. The next development is to add data and promote it to the general public through social media to access services so that it can help sellers to sell and sell.

3.1. Result

Paasaar is a marketplace that provides a process for consumers to buy and sell various products electronically from company to company using computers as intermediaries in business transactions. According to (Pressman, 2010) E-commerce is divided into several types based on their characteristics, namely:
- Business to Business (B2B)
- Business to Customer (B2C)
- Customer to Customer (C2C)
- Customer to Business (C2B)

As expected, the paasaar marketplace application can be accessed at http://paasaar.com. This application was developed to help sellers join and cooperate with the market for a wider

market. Not only in a small scope, sellers need to market their products more broadly to compete with national and international products. With broad product marketing, the impact the seller will feel on the market. The website development process is carried out in several stages, namely requirements, design, implementation, verification, and maintenance. Application design includes the layout of the web view itself. As for some parts of the website.

Furthermore, for products, the website contains several products offered which can be seen directly as shown in Figure 3.

The products sold are the results of the sellers who have been protected by the market. In addition, Paasaar also has superior products that are owned by this marketplace. The purchase transaction process is carried out by adding the purchased items to the shopping cart as shown in Figure 4. Users must first create an account to facilitate the transaction process related to payments. When the transaction process takes place, the user fills in the data, addresses the goods received, sees the order details. Users are provided with a guide to be able to use the system properly and correctly by reading the instructions first.
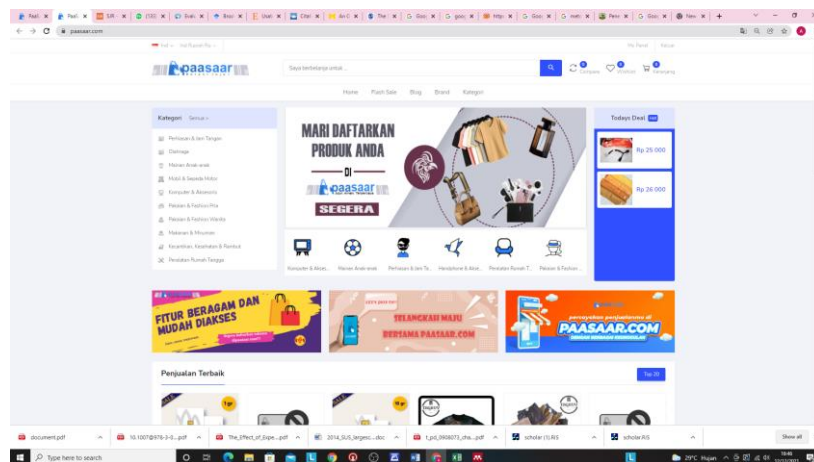

Figure 3. Paasaar Application Dashboard

3.2. Discussion

4. Responden	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Jumlah	SUS Score
Responden 1	4	4	4	4	4	3	4	4	3	4	38	95
Responden 2	4	2	4	2	4	2	4	2	2	2	28	70
Responden 3	3	3	3	3	2	3	2	3	3	3	28	70
Responden 4	4	2	4	2	4	3	4	2	4	2	31	78
Responden 5	3	3	3	3	3	3	3	3	3	3	30	75
Responden 6	3	3	3	3	4	4	4	3	4	3	34	85
Responden 7	3	3	3	3	3	3	3	3	2	3	29	72,5
Responden 8	4	3	4	3	4	2	4	3	2	3	32	80
Responden 9	3	3	3	3	4	2	4	3	3	3	31	77,5
Responden 10	2	2	2	2	2	3	2	2	2	2	21	53
Responden 11	3	3	3	3	3	2	3	3	3	3	29	72,5

|												
Responden 12	3	3	3	3	3	2	3	3	3	3	29	73
Responden 13	4	4	4	4	4	4	4	4	3	4	39	97,5
Responden 14	3	3	3	3	4	3	4	3	3	3	32	80
Responden 15	3	3	3	3	3	3	3	3	3	3	30	75
Responden 16	4	4	4	4	3	4	3	4	3	4	37	93
Responden 17	3	3	3	3	4	3	4	3	3	3	32	80
Responden 18	4	3	4	3	4	4	4	3	3	3	35	88
Responden 19	2	2	2	2	3	3	3	2	3	2	24	60
Responden 20	4	3	4	3	3	3	3	3	3	3	32	80
Responden 21	4	2	4	2	4	2	4	2	2	2	28	52,5
Responden 22	3	3	3	3	2	3	2	3	3	3	28	73
Responden 23	4	2	4	2	4	3	4	2	4	2	31	72,5
Responden 24	4	2	4	2	4	2	4	2	2	2	28	98
Responden 25	3	3	3	3	2	3	2	3	3	3	28	52,5
Responden 26	4	2	4	2	4	3	4	2	4	2	31	73
Responden 27	4	2	4	2	4	2	4	2	2	2	28	80
Dst	…	…	…	…	…	…	…	…	…	…	…	…
Responden 100	3	3	3	3	2	3	2	3	3	3	28	87,5
Average Score												83,88

Table 1. Primary Data
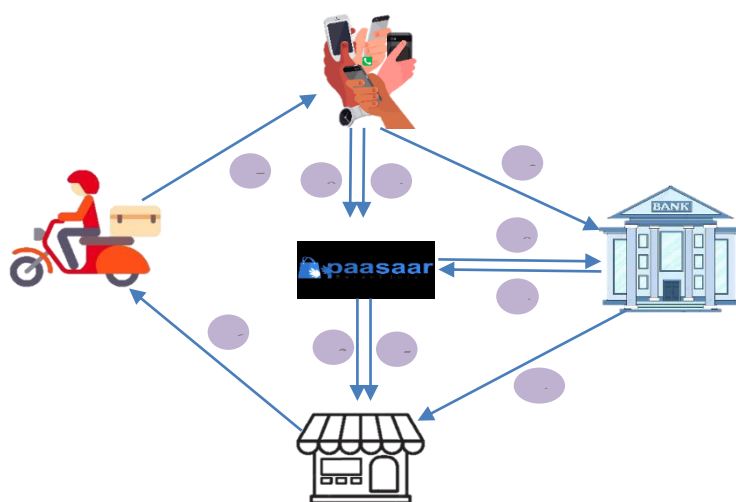
Figure 4. E Commerce Transaction

The E-commerce transaction process is increasingly secure and is equipped with a guarantee of the safety of goods arriving at the place as shown in the illustration of Figure xx. Some of the processes in purchasing goods through E-commerce, namely:
1. Consumers order products through Paasaar according to the needs they want to buy. Consumers can also review the products offered and make comparisons between

products in terms of price and quality. Next, the consumer places an order and a payment ID is issued by the marketer.
2. Confirm that there is an order plan from the consumer through the shopping cart, this helps the preparation of the agreed transaction so that the order can be sent directly by the seller.
3. Consumers make transfers, this process can be done when there is a deal between the buyer and the seller. Payments are made through banks or other payment media by filling in the payment ID that has been issued by the market to the buyer.
4. Payment confirmation from the Bank, at this stage after the transfer to the Paasaar bank account, a confirmation will be given to the Paasaar that the buyer has paid for the product.
5. Paasaar ensures to the seller that the product ordered by the buyer has been entered into the paasaar account so that the seller can immediately send the goods ordered by the buyer.
6. The shipping process by the seller, the next process is to send the product to the customer through the correct and safe packing process. If using the expedition, please choose the one that has been proven safe and responsible. The process of sending goods by expedition, this third party specifically sends ordered goods to customers and ensures the goods arrive in a safe condition.
7. Delivery of goods, the goods will be delivered to the buyer as well as provide a systematic confirmation that the product has arrived.
8. Confirmation of the product has been received by the consumer, after the product is received by the consumer, the goods will then be checked and the rating or feedback of the product received is appropriate or not (usually in the form of an asterisk). If the buyer clicks on the received order then the amount of money called to the marketer's account will be confirmed to open the seller's account.
9. Disbursement of funds by the bank, the marketer asks the bank to disburse funds to the seller through the paasaar account. If the consumer rating is bad, the funds may not be disbursed
10. Fundraising access to sellers, this process is the last process of the transaction. usually takes three days from the initial order process. The seller will transfer the money to his account by the marketer according to the selling price and shipping costs.

4.1. Conclusion

Based on the problems being faced in conducting Usability Testing on the marketplace application, paasaar.com resulted in a positive assessment. The rating obtained is 83.88 which is included in the Good category. In general, this means that this application is suitable to be used to buy and sell products belonging to sellers who join and work together in the market.

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