

ANALYSIS OF CUSTOMER SATISFACTION LEVEL ON E-COMMERCE WEB FASHION PRODUCT

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ABSTRACT

Nowadays E-commerce becoming essentials especially in teenage life. It has become the most popular business in the world. People around the world could shop between countries in ease. An online shopping website could be the source of success not only because it contains useful information, but also because it displays information in a way that is easily recognizable by its users. To compete with other competitor it is important to find out the effectiveness of a site is by examining users' visual preferences while using web pages. This research is done to find out what customers' preferences by using eye tracking methods and questionnaire method. The two methods are then being compared to find out whether there are any similarities or any cross section within the two. There are several things which are measured; the relation between aspect of information quality; system quality; service quality; user readiness and user satisfaction. The quantitative data are gained through questionnaire and eye tracking test by distributing the questionnaires to online shopping customers. The analysis of data indicated that both research methods using questionnaires and eye tracking are extremely different that they cannot be compared. Apart from that the results of the evaluation of both websites using the method of eye tracking shows that both sites are in accordance with the expectations of the site maker.

Keywords: *Website, E-Commerce, Eye Tracking, Research, Customer Satisfaction*

1. INTRODUCTION

1.1 Background

Business and transaction of clothing sales through website media has now started to become a common thing in Indonesia, as many Indonesian people that begins to feel the ease and benefits gained in online shopping. An online shopping website can be a success not only because it contains useful information, but also displays this information in a way that is easily recognizable by its users. One way to find out whether the site is effective or not is to examine users' visual preferences when using web pages. Based on a survey conducted in 2014 by Ketut, the 15 most popular websites in Indonesia are websites whose main sales are selling fashion products [1].

According to a journal titled "Aesthetics and preferences of web pages" many internet users are surfing the Internet without any specific search objectives. For internet users of that type, many websites compete for the attention of internet users

and they can move to other websites if one website is deemed not to provide what they want [2].

During the research, we start with research question, literature review, develop research model, define hypothesis, distribute questionnaire, eye tracking research, result analysis, conclusion and recommendation.

1.2 Research Problem

From the background of the existing problems, the issues that will be discussed in this research include:

- How is the result of comparison done from research using eye tracking method and questionnaire method?
- What is the result of a websites' satisfaction from the comparison of fashion websites'?
- Is it possible to combine both eye tracking and questionnaire method?

1.3 Scope of the Research

The scope of this study is to analyze user satisfaction in the use of common Indonesian fashion websites using eye tracking method and

also questionnaire method separately. The results are then going to be compared to see which method is actually better to be used. Apart from that in this study we are going to find out if it is possible to combine both methods to get a better result.

In this study we will analyze two common Indonesian fashion websites for each method.

1.4 Research Objectives

The purpose of this study are:

- Conduct a satisfaction result analysis of a website viewed from the results of customer surveys in Indonesia using eye tracking & questionnaire method.
- Compare satisfaction result from eye tracking with questionnaire method to find out which method is better
- Find out if it is possible to combine both methods to get a better result.

The benefits of this research are:

- Provide results of analysis and validation to what extent or similarity between the two methods (eye tracking and questionnaire) obtained which are then used as reference material and further research on the evaluation of website quality viewed from user satisfaction.
- For fashion website developers useful to improve the quality of fashion website development in Indonesia to meet user satisfaction based on user preferences by knowing which method is best to use.

2. RELATED WORK

For most companies today, electronic commerce goes beyond buying and selling products online. It now includes the entire online process for developing, marketing, selling, delivering, servicing and paying for transacted products and services in an interlinked global customer market, with the support of a network of business partners around the world. Since e-commerce involves more than just buying or selling something on the internet, we must have a broad enough definition to allow for the various activities defined by it [3].

The increase of demand in the use of online shopping give a big impact to companies. Therefore many researchers have done some research to know what the market wants. Wu, Lee, Fu, & Wang have done research using questionnaire method to analyse web attraction [4]. Roth, Tuch, Mekler, Bargas-Avila, & Opwis have done research using eye tracking method to analyse web attraction [5]. Chen, Rungruengsamrit, Rajkumar, & Yen have done research using

questionnaire method to analyse the information in the page [6]. Kim, Thomas, Sankaranarayana, Gedeon, & Yoon have done research using eye tracking method to analyse the information in the page [7]. Sharma & Lijuan have done research using eye tracking method to analyse the user based design in the page [8].

Many research had been done regarding the analysis of user satisfaction in the use of questionnaire and eye tracking method, but no research have been done in analysing Indonesian common online shopping with both questionnaire and eye tracking method. In this study we would like to find out if the two methods are able to be combined and if the methods are comparable in order to get a better result.

2.1 Website

Sections Website is a combination of print publications and website development, between marketing and calculation, between internal communication and customer relationships, and between art and technology [9]. There has been a lot of research done, to get a good website quality, although this is not an easy job, but website managers should always do so that users are always satisfied on the websites visited [10].

According to a journal entitled "Web Engineering - Old wine in new bottles?" The World Wide Web has a big and permanent influence on our lives. economy, industry, education, health, public administration, entertainment. There is almost no part in our daily lives that has not been covered by the World Wide Web. The reason for this popularity is related to the nature of the web, which is shaped by global and permanent availability and convenient and uniform access to widespread information that can be produced by anyone in the form of web pages [11].

2.2 E-Commerce

E-commerce is an important part of the sales process in today's era. Already many companies in the world that develops its business to the e-commerce area. Since e-commerce involves more than just buying or selling something on the internet, we must have a broad enough definition to allow for the various activities defined by it. Many companies today participate or sponsor four basic categories of e-commerce applications: business to consumer, business to business, consumer to consumer and business to government e-commerce [3]. According to a journal entitled "A Comparison of Usability Testing Methods for an E-commerce Website" explains that the appearance of a computer application site affects how a person

interacts with the site and their perception of the site [12].

2.3 User Satisfaction

Customer satisfaction according to the journal entitled 'Customer Satisfaction in Web 2.0 and Information Technology Development' can be interpreted as a key factor of a business success [13]. The concept of a core market is a need, a desire, and a demand; market supply (product, service, and experience), value and satisfaction; exchanges and relationships; and markets. Companies address needs by proposing value propositions, a set of benefits they promise consumers to meet their needs. Value propositions are met through market supply, which provides value and customer satisfaction, resulting in long-term exchange relationships with customers [14].

According to Kotler and Armstrong briefly is the extent to which perceived performance of the product in accordance with buyer expectations. Customer satisfaction depends on the perceived performance of the product relative to the buyer's expectations. If the product performance does not match expectations, customers are not satisfied. If performance is as expected, customers are satisfied. If performance exceeds expectations, customers are very satisfied or happy [14].

3. RESEARCH METHODOLOGY

This research using two methods, namely eye tracking and questionnaire method. This method of eye tracking and questionnaire is used to obtain the necessary data to be evaluated. In addition to these two methods, the data is also taken by conducting direct interviews to website users if necessary additional data required.

The research is conducted by taking references from various journals first. From the journals are collected to be the foundation in answer the formulation of existing problems. For the calculation results, the questionnaire method uses the calculation method based on the book "Partial Least Squares: Regression and Structural Equation Models" [15]. The calculation application used is to use SmartPLS application with comparison of validity and reliability test calculations using SmartPLS and SPSS applications. In the eye tracking method with reference to the theory of area of interest of the book "Eye Tracking Methodology Theory and Practice" using tools from the site instanteyetracking.com by using my studies system of the site [16]. After the results are calculated and

evaluated then the conclusions and suggestions are obtained for further research.

The research variables for questionnaire method in this research use two types of variables, namely:

- 1 Dependent variable
Dependent variable is the level of user satisfaction (User Satisfaction) in the use of the website.
- 2 Independent variable
Independent variable is the variables that affect the dependent variable (level of user satisfaction) where the variables include:
 - A. Web Appearance
This variable consists of several factors, among others:
 - Attractiveness
 - Layout and Structures
 - Proper Use of Fonts
 - Proper Use of Colors
 - Proper Use of Multimedia
 - B. User Based Design
This variable consists of several factors, among others:
 - Ease of Use
 - Navigation

These independent variables will result in the level of website user satisfaction (dependent variable) which will result the level of user satisfaction will be evaluated to user preferences for the websites that are analyzed its use.

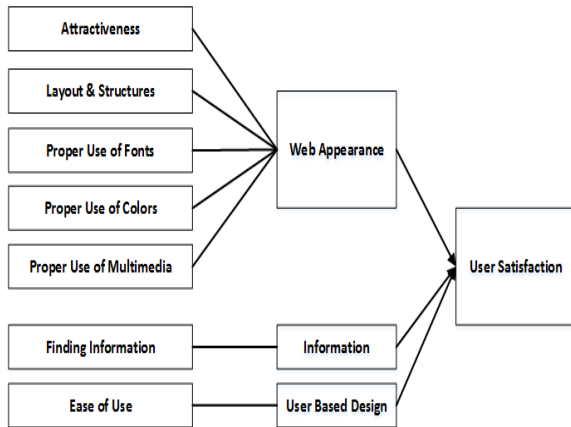


Figure 1: Research Framework

The indicators used in this research are:

- 1 Attractiveness
Measure whether the appearance of a website is interesting or not.
- 2 Layout and Structures

- Measure whether the layout of a website is in accordance with the wishes of the user or not.
- 3 Proper Use of Fonts
Measure whether the use of font size of a website is in accordance with the wishes of the user or not.
- 4 Proper Use of Colors
Measure whether the use of colors from a website is in accordance with the wishes of the user or not.
- 5 Proper Use of Multimedia
Measure whether the use of media such as images of a website is in accordance with the wishes of the user or not.
- 6 Finding Information
Measure whether the search information about the product of a website is in accordance with the wishes of the user or not.
- 7 Ease of Use
Measure whether it is comfortable in the use of a website.

According to Sugiyono in 2012, the validity test is done with respect to the precision of the measuring instrument to the measured concept so that it really measures what should be measured.

$$H_0 : \beta_1 = 0; H_1 : \beta_1 \neq 0 \quad (2)$$

Validity is a measure that indicates the degree of a measuring instrument in research [17]. According to Umar Husein in 2005, the validity is a statement to what extent that is accommodated on the questionnaire can measure what you want measured [18].

$$H_0 : \beta_2 = 0; H_1 : \beta_2 \neq 0 \quad (3)$$

When a measurement instrument has been declared valid, the next step is to measure the reliability of the data. Reliability is the term used to indicate the extent to which a measurement result is relatively consistent when the tool is used repeatedly [18].

$$H_0 : \beta_3 = 0; H_1 : \beta_3 \neq 0 \quad (4)$$

Basic decision-making in the reliability test, as follows [19]:

- If $\alpha > 0.90$ then reliability is perfect
- If the α is between 0.70 - 0.90 then the reliability is high
- If the α is between 0.50 - 0.70 then the reliability is moderate
- If $\alpha < 0.50$ then reliability is low

3.1 Questionnaire Hypothesis

The instrument of data collection is by using questionnaire with question made using likert scale.

Scale weights are shown by the following criteria [20]:

Table 1: Likert Scale

Score	Description
1	Totally Bad
2	Not Good
3	Enough
4	Good
5	Excellent

This method is using the following regression:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon \quad (1)$$

Where:

Y = User Satisfaction

β_0 = Coefficient

β_1 = Coefficient Variable x_1 (Web Appearances)

β_2 = Coefficient Variable x_2 (User Based Design)

β_3 = Coefficient Variable x_3 (Information)

ε = Standard Error Estimation

Hypothesis testing is a procedure that will produce a decision, which is accept or reject the hypothesis. The hypothesis to be tested in this research are:

1 Hypothesis 1

H_0 = Web Appearances Criteria does not affect website user satisfaction.

H_1 = Web Appearances Criteria affect the satisfaction of website users.

2 Hypothesis 2

H_0 = User Based Design Criteria does not affect website user satisfaction.

H_1 = User Based Design Criteria affects the satisfaction of website users.

3 Hypothesis 3

H_0 = Criteria Information does not affect the satisfaction of website users.

H_1 = Criteria Information affects the satisfaction of website users.

3.2 Eye Tracking Hypothesis

The research model for eye tracking method in this research use scanpath technique where this method can measure the hypothesis. The method of eye tracking with quantitative metrics the amount and duration of fixation can be applied to one of the evaluation stages to evaluate the software in terms of general usability criteria, such as

attractiveness, operability, learning ability, and comprehension [21].

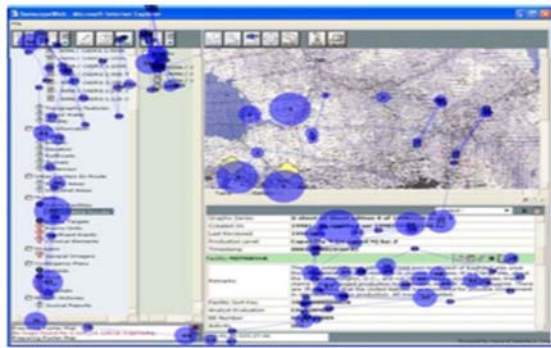


Figure 2: Sample Use of Scanpath Eye Recording from Users Viewing UI [21]

This method of eye tracking will use the site <https://instanteyetracking.com> as a medium in the UI analysis of the website using scanpath technique that is heatmap and lightmap.

4. RESULT & ANALYSIS

In getting the results of customer satisfaction for the site themed fashion products, then used two popular sites in Indonesia, namely Z and B. From both sites, there are two main pages of each site used for research, namely the home page and the product page. Due to the site pages between women's fashion products and men's fashion products are different, in this study for the use of the home page and the product page are differentiated according to the gender of the respondents. Thus there are a total of eight pages used for the study. These pages include:

1. Z Home Page for Women
2. B Home Page for Women
3. Z Product Page for Women
4. B Product Page for Women
5. Z Home Page for Men
6. B Home Page for Men
7. Z Product Page for Men
8. B Product Page for Men

4.1 Respondent Profile

One of the demographic characteristics that distinguishes for research using eye tracking method is gender. From 146 respondents, 97 respondents were female and 49 were male. Of the total 146 respondents, the majority of respondents are aged between 21-25 years with details obtained for the age range, among others: 15-20 years of 14 people, 21-25 years of 94 people, 26-30 years amounted to 24 people, 31-35 year number of 10 people, and 36-40 years amounted to 4 people. for

the demographics used are the work of the respondents. Of the total 146 respondents, employment data were collected, among others: 87 private employees, 49 students, 5 entrepreneurs, and 5 professionals and housewives.

Hypothesis analysis of the questionnaire research was conducted to get the conclusion from this research.

4.2 Questionnaire Result and Analysis

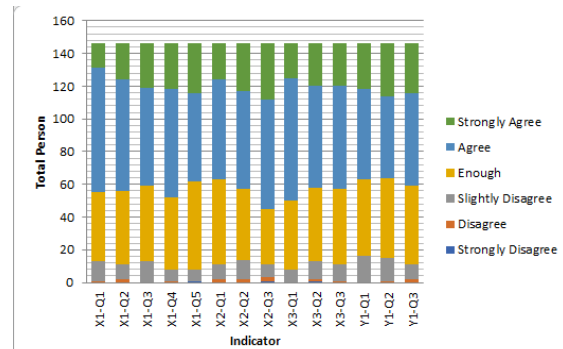


Figure 3: Questionnaire Results

The questionnaire results as shown in Figure 3, from 146 respondents we could see how's people answers. These data is then going to be processed further to get the analysis of user satisfaction.

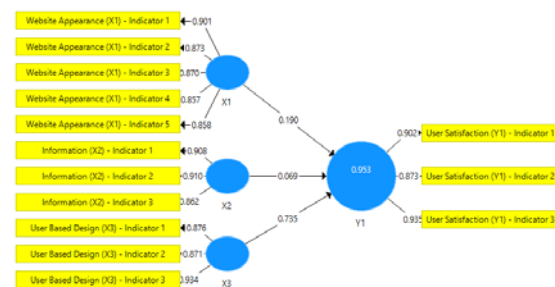


Figure 4: Questionnaire Research Result

Figure 4 taken from questionnaire about Z site, it can be concluded that the influence between variables X1, X2, and X3 are as follows:

Variable X1 (website appearance) to Y1 (user satisfaction) has a coefficient of 0.098 indicates that the variable appearance website has a positive effect on user satisfaction in the Z website. Variable X2 (information) to Y1 (user Satisfaction) has coefficient value of 0.114 indicates that variable of information have positive effect to user satisfaction and if compared with variable X1, have better influence compared with variable of

appearance website. Finally, the variable X3 (user based design) to Y1 (user satisfaction) has a high coefficient value of 0.784 which shows there is a large positive effect between variables X3 with Y1.

Hypothesis testing also refers to the criteria are:

- 1 Significant value (p-value) <0.05 = reject H0
- 2 Significant value (p-value) > 0.05 = receive H0

T Statistics between X1 with Y1, X2 with Y1, and X3 with Y1 > 1.64 for measurement using two-tailed and P Values <0.05 methods apply to all variables (X1, X2, and X3) so that it can be concluded that all variables influence positive to the dependent variable Y1 (user satisfaction) and has a significant influence with the highest significant influence is the variable X3 with the value 0.000.

Variable X1 (website appearance) to Y1 (user satisfaction) has a coefficient of 0.190 indicates that the variable appearance website has a positive effect on user satisfaction in B site. Variable X2 (information) to Y1 (user Satisfaction) has coefficient value of 0.069 indicates that variable of information have positive effect to user satisfaction and if compared with variable X1, have less influence compared with variable appearance website. Finally, the variable X3 (user based design) to Y1 (user satisfaction) has a high coefficient value of 0.735 where it shows there is a large positive effect between variables X3 with Y1.

Hypothesis testing also refers to the criteria are:

- 1 Significant value (p-value) <0.05 = reject H0
- 2 Significant value (p-value) > 0.05 = receive H0

T Statistics between X1 with Y1 and X3 with Y1 has value > 1.64 for measurement using two-tailed method and P Values <0.05 applies to variables X1 and X3 so it can be concluded that all the variables positively affect the dependent variable Y1 (user satisfaction) and have the significant effect with the highest significant influence is the variables X1 and X3 with the value 0.000. For variable X2 with Y1 has value <1.64 in T Statistics and P Values > 0.05 so that for variable information not significant in dependent variable

Path Coefficients

	Mean, STDEV, T-Values, P-Values	Confidence Intervals	Confidence Intervals Bias Corrected	Samples		
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O /STDEV)	P Values	
X1 -> Y1	0.098	0.105	0.041	2.419	0.016	
X2 -> Y1	0.114	0.116	0.054	2.105	0.036	
X3 -> Y1	0.784	0.777	0.067	11.650	0.000	

Figure 5: Path Coefficient of the Questionnaire

that is Y1 (user satisfaction).

4.3 Eye Tracking Result and Analysis

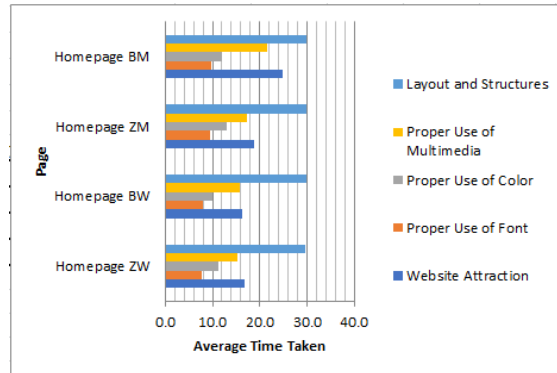


Figure 6: Eye Tracking Research Result

From 146 respondents who are willing to fill out the research in the form of eye tracking, then obtained the results of research that can illustrate how the satisfaction of the site users in using the z and B site. The results of this study is the area of interest of respondents who fill out the eye tracking research from the site displayed. From a total of 8 pages of sites (4 pages for Z site and 4 pages for B site), there are two information to be had. The first information is the area of interest of the site page, and the second information is how the respondent can find the required information. Respondents were given 30 seconds in viewing the pages of the site. For the first and second page, respondents are given instructions to see which parts of the site are considered attractive to them for 30 seconds. For the third and fourth pages, respondents are given instructions to search for information of the products they need.

In the research using eye tracking for website appearance variables, respondents were asked to see the part that is considered interesting from the site. From the results of the study, it can be concluded that if viewed from the number of respondents, almost all respondents have seen the look of the site well. Only in the indicator of the

use of letters alone there are three respondents who do not consider it attractive to the respondents. When viewed from the duration of vision, from a maximum value of 30 seconds per person for research time, then obtained results as much as 98.6% of respondents have seen the site as a whole with a duration see 29.6 seconds. For the use of letters to be the least viewed criterion of an average of 7.7 seconds compared with the use of images viewed at an average of 15.4 seconds.

In the study using eye tracking for variable information, respondents were asked to look for information from the product within the pages of the site and focus the eye view of the information. From the research results duration of 30 seconds, then obtained the following results:

For the product page of Z, based on a total of 146 respondents, all have been able to find the main information of the product displayed. But of the 97 female respondents, only 73 people found and focused their views on second product information. While from 49 male respondents, 33 people were able to find and focus their views on the second product information.

When viewed from the viewing duration, from a maximum value of 30 seconds per person for research time, then the result is > 64% of the total duration is in the first product information with a duration of > 19 seconds. This illustrates that of 146 respondents, all have been able to find the information they need to get information from the product on Z site. But for the second information, only an average of 4.2 seconds from female respondents and 4.5 seconds only from male respondents who were able to find the second product information. These results indicate that to search for detailed product information, it takes more than 30 seconds to view the product page of the Z website.

For a product page from B site, based on a total of 146 respondents, all have been able to find the main information of the product displayed with eye value value of 100% for searching the product information.

When viewed from the viewing duration, from a maximum value of 30 seconds per person for the time of study, then the result is > 47% of total duration is in product information with a duration of 30 seconds. This illustrates that of 146 respondents, all have been able to find the information they need to get information from the product on B site. But this value is still lower than the Z page with the tentative conclusion that some

respondents shifted their eyes to the image because of the considerable use of images from the B product page within the pages of the site.

The results of the this study of user satisfaction research on the website of Z and B can be summarized as follows:

- 1 The results of the evaluation of both websites using the questionnaire method shows the level of user satisfaction is positively correlated to the level of user satisfaction.
- 2 On the results of research from both websites by using questionnaire method, the most positive and significant variable of user satisfaction is the ease of use (X3) variable when compared with the other two variables: Appearance website (X1) and information (X2).
- 3 On evaluation B site, special in variable X2 (information) does not significantly affect user satisfaction. This can be seen from the results of the answers to the questionnaire.
- 4 The results of the evaluation of both websites using the method of eye tracking shows that both sites are in accordance with the expectations of the site maker. This is evident from the results of eye viewing duration to a site that has been effective in viewing the entire site page for the area of interest of the site within 30 seconds.
- 5 The results of both research methods using questionnaires and eye tracking are resulting in different perspective. This make the two method are not comparable. The variable available for each methods are different.
- 6 The two methods are able to be combined to get a better result. Different variables used from each method will complete and make a more accurate result.

5. CONCLUSION

The increase in demand in the use of online shopping have increase the need of companies to increase their sales in order to compete with another companies. Therefore further research in analyzing user satisfaction is needed to get a better result. From this study we have come to a conclusion that The results of the evaluation of both websites using the questionnaire method shows the level of user satisfaction is positively correlated to the level of user satisfaction. The results of both research methods using questionnaires and eye tracking are resulting in different perspective. This make the two method

are not comparable. The variable available for each methods are different. The two methods are able to be combined to get a better result. Different variables used from each method will complete and make a more accurate result.

Suggestions for site makers selling fashion products such as Z and B to be able to increase customer satisfaction are as follows:

- 1 The layout and ease of use of a good site affect user satisfaction, so it needs to be considered in the making of a product sales site especially fashion.
- 2 Product information must be displayed on the site clearly and easily found by the user.
- 3 The use of colors, letters, and multimedia should be considered in the making of the site, especially on site pages for men and women. For men page should be made minimalist. This can be seen from the results of eye tracking which for male respondents more slowly in viewing the site as a whole rather than female respondents.
- 4 In a study using a similar method like this that is with two methods (questionnaires and eye tracking) should be complementary to each other to get better test results

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