The effect of emotional design and online customer review on customer repeat purchase intention in online stores

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Abstract. The internet users in Indonesia has increased rapidly over the last decade. A survey conducted by Association of Internet Service Providers Indonesia shows that the internet users has reached 34.9% of total population in Indonesia. The increase of internet users has led to a shift in trading practice from conventional trade to online trade. It is predicted in the next years the number of online consumers in Indonesia will continue to increase, provide many opportunity for online business. The huge number of internet users is not necessarily followed by the high number of e-purchase. It is therefore become the interest of many researchers to investigate factors that influence the decision on online purchasing. This research proposes a model that assess the effect of emotional design and customer review to customer intention on e-repeat purchase. Online questionnaire is designed and is distributed randomly through google forms. There are 187 respondent filled the questionnaire from which only 162 respondents actually have experience in online purchase. These data are then processed by using statistical analysis. A model is developed by applying structural equation modeling (SEM) approach. This study revealed that customer reviews especially objective reviews has a significant effect toward repeat purchase. Whereas emotional design particularly visual attractiveness also shows a significant effect toward e-repeat purchase.

1. Introduction
The number of internet users in Indonesia has increased significantly. In 2005, for example, there were 16 million people used the internet which then increased to 88.1 million in 2014. A survey conducted by Association of Indonesian Internet Service Providers (also known as APJII- Asosiasi Penyelenggara Jasa Internet Indonesia) found that about 34.9% of total population in Indonesia used internet service [1]. Survey conducted by APJII shows that internet users in Indonesia is dominated by millenial generation, a generation who most of them used the internet intensively as a main support for their job. As the number of internet users in Indonesia increase rapidly, it has triggered a shifting from conventional transaction into online transaction. Online store begin to reduce the role of traditional market [2]. It is predicted that until 2020, the number of consumers who spend their money to buy a product via online store will continue to increase in Indonesia [3].

Currently, there are various online stores available in Indonesia. Some examples of these online stores which is mostly accessed in Indonesia are Tokopedia, Bukalapak, OLX, Blibli.com, FJB Kaskus, Lazada, Belanja.com, Indonesia eBay, Amazon Indonesia, MatahariMall.com, Elevania, and Zalora. While there are many options of online stores in Indonesia, a survey found that there are only 27%
people who actually shopped via online stores [1]. There are 3 highest reasons for this. First is due to 'do not know how', which represent a condition where the technology unable to fit particular user need as it not easily to be operated by the customer. Second reason is due to customer feeling of ‘not secure’, which lower the customer’s intention to continue the transaction in online store. Third, is due to the price where online store sell higher price than conventional stores [4].

There are many factors that are believed to have affect on purchase intention. One of factors is Online Customer Review (OCR). OCR can be easily found in various online stores. Some research state that OCR can increase customer trust and purchase intention [5][6]. OCR, or also known as customer reviews, testimonials, reviews, or electronic comments on an object or a subject in Internet, is a form of electronic Word of Mouth (eWOM) [5]. The presence of OCR in online store can help customer to get more description of the product or service, so that customers can set their expectation before they make purchase decision. Previous study has divided customers review into 12 dimensions where each dimension has its own indicators [7]. Another factor that can also affect the purchase intention is the design of online store site. In this context, emotional aspect of design need to be considered as it can indirectly effect customer’s cognitive aspect during the purchasing process [8]. A repeat customer who make repeat purchase in the same online store is believed can provide five times more profit than new customers [10]. Because of this, it is very important for online business owner to understand how to attract existing customer to make repeat purchase. Currently, there are not much research on e-repeat purchase in regard to customer reviews and emotional design. This study, therefore, propose a model that can be used to analyze the effect of customer reviews and emotional design toward repeat purchase intention.

There are four primary objectives of this research which include; to investigate which indicator that contribute most to OCR; to find out which indicator that contribute most to emotional design; to find out the effect of OCR to repeat purchase intention on online store; and to analyze the effect of emotional design to e-repeat purchase intention. Latent variables used in this research include; customer reviews, emotional design, perceived ease of use, perceived usefulness, customer intention, and repeat purchase intention. These variables are chosen based on the results from previous studies. In this research, Structural Equation Model (SEM) is applied since the research use many attributes [5] [6][7][9][11].

![Diagram Venn of Research Position](image)

**Figure 1.** Diagram Venn of Research Position.
This research is intended to fulfill the gap in this research area. Research gaps were identified through a literature review. Current research position is illustrated in figure 1 where \( P \) represent position of this current research.

2. Literature review

Internet is an abbreviation of interconnection networking which simply can be defined as ‘a global network of computer networks’. Among various benefits obtained from the usage of internet, it helps people to connect everywhere around the world as it now shifting a trend into online shopping. Internet site can be described as a collection of pages that display; information text data, picture, animation, voice, video, or a combination of these, whether they are static or dynamic.

2.1 Emotional design of online store

In designing an online store, visual appeal plays a key role in influencing customer’s response and experience when interacting with an online store site [12]. It is important to consider emotional design on design process, as it has a significant effect on customer intention to make transactions [2][9][13][14][15][16]. Study of human computer science especially related to emotional design categorized emotional design into three types. First is visceral design that adapted from surrounding cultures, just like traditional art or kid toys, which its type can be easily recognized. Second is behavioral design that strongly related to function, understandability, usability, and physical feel of the product. Third is reflective design that related to a message about cultures, the meaning of the product or its function as well, which is able to trigger particular emotions just like feeling of proud or prestige from the product [8].

Online store is a dynamic mixture between technology, applications and business processes that connect corporate, consumer, and certain communities through; electronic transactions, trade, goods, services, and information made through the internet. Like other computer technology, the success of its implementation will depend on user acceptance. Technology acceptance model (TAM) is an approach for predicting user acceptance attitude towards computer technology. Development of TAM begins by introducing four key variable which are perceived ease of use, perceived usefulness, behavioral intention to use, and actual system use [17]. This research propose a model that construted from two primary variables (perceived usefulness and perceived ease of use) which based on TAM, and additional variable that related to emotional design, namely, perceived visual appeal [9].

2.3 Online customer review

Online Customer Review (OCR) is a descriptive sentences or articles written by customer, mostly made based on users ‘s experiences from previous online purchase of product or service. OCR is a facility that allows customer to post their comments and opinions freely and easily about various products or services from online store. Some studies have proved that OCR can affect customer decision to purchase a product from online store [5][6]. OCR can be divided into several dimensions for examples; online review structure and style, positive online reviews, negative online reviews, helpfulness rating, number of online reviews, argument quality, author information, online review title, moderate online reviews, and online review shortness [7].

2.4 Repeat purchase intention

Repeat purchase intention is a purchase from the same customer more than three times [11]. Many studies are trying to understand what determine customer purchase intention in purchasing decision. There are five stage of buying process; recognition of the need, search of information, evaluation of alternatives, buying decision, and post-purchase behavior [18]. Customer’s satisfaction and trust as result of buying experience through these overall processes will affect the repeat purchase intention.
3. Research Methods

The current research is conducting through several steps. Detailed research steps can be seen in figure 2.

![Flowchart of Research](image)

Questionnaires are designed and shared via social media as a method for collecting data. There were 29 main questions in this research. Questionnaires is designed to use 6-point of likert scale; where score 1 represent ‘Strongly Disagree’ while score of 6 represent ‘Strongly Agree’. By using Google Forms, respondents can easily access questionnaire via shared link on social media such as Facebook, Instagram, Twitter, and Path. There are 187 respondents participated in this survey. However, only 162 data were used as it more relevant for the research.

Several statistical tests was conducted to check the quality of questionnaires as a survey instrument. There are two group of statistical tests; test of assumption and test of complete model. In testing the assumption firstly, the validity test was conducted to measure the validity of questionnaires. The validity test evaluates whether all questions are relevant to the purpose of survey. The test is necessary since the the quality of data can be affected by the survey instrument [19]. Criteria on determining the validity of the questionnaires are; if \( r_{\text{count}} > r_{\text{table}} \) then the questionnaires are valid, but if \( r_{\text{count}} < r_{\text{table}} \) then the questionnaires are not valid. After validity test, next step is to conduct
reliability test. The purpose of reliability test is to check the consistency of the result when measuring the same symptoms [19]. Criteria in determining whether the questionnaires are reliable or not is; if it is positive or $r_{\text{alpha}} > r_{\text{alpha}}$ then the questionnaires are reliable, but if negative or $r_{\text{alpha}} < r_{\text{alpha}}$ then the questionnaires are not reliable. After reliability test, the normality test is conducted to check whether the data distributed as normal distribution. The tests were run by using SPSS19. Next steps are confirmatory factor analysis and goodness of fit.

After the serial assumption tests, the complete model then is tested. The model analyzed by using Structural Equation Modeling (SEM) with software AMOS22. This process was performed to elucidate the relationship between variables that used in the proposed model. SEM is a set of statistical techniques that allow the testing of a series of relationships simultaneously. The underlying reason for the use of SEM is because of its ability to estimate the relationship between multiple connected variables.

4. Results and discussion

4.1 Proposed model

Variables used in this research are based on research by [7][9][17][9][20]. These include customer review, perceived visual appeal, perceived ease of use, perceived usefulness, customer intention, and repeat purchase. There are eleven hypotheses formulated in this study:

- Hypothesis 1 (H1): Perceived usefulness affect customer intention
- Hypothesis 2 (H2): Perceived ease of use affect perceived usefulness
- Hypothesis 3 (H3): Perceived visual appeal affect perceived ease of use
- Hypothesis 4 (H4): Perceived visual appeal affect perceived usefulness
- Hypothesis 5 (H5): Customer review affect perceived usefulness
- Hypothesis 6 (H6): Customer intention affect repeat purchase
- Hypothesis 7 (H7): Perceived visual appeal affect repeat purchase
- Hypothesis 8 (H8): Customer review affect repeat purchase

Figure 3 presents the proposed model. Each connected lines related to each hypothesis.

![Proposed model](image-url)
4.2 Validity, reliability, and normality test results
As mentioned previously, the 162 data were tested for their validity, reliability, and normality. The validity test present that values of each \( r\)-count ranged from 0.360 to the highest at 0.746. Since the results shows higher value than \( r\)-table which is \( \geq 0.153 \), mean that every questions were valid. Whereas the reliability test on each variable shows that all the question were reliable since value of each \( \alpha \) 

cronbach have a higher value than \( \alpha \) 

cronbach’s \( \geq 0.8 \). Moreover, the normality test based on scatterplot and KMO – Bartlett’s Test shows each plot were scattered in a line to right upside of the graph, meaning that data were normal. The test result in KMO value 0.952 with bartlett’s value of 0.000 shows that a high sensitivity of test.

4.3 Confirmatory factor analysis and goodness of fit result
Construct was made by using shaping tools which connect each indicators to main variable. There are six variables used in this research, each constructs were made based on these variables. From the test with AMOS 22, indicators for each variable that have estimate value \( \geq 0.70 \) can be accepted, otherwise should be eliminated. The indicators that meet this requirement are: ‘objective reviews’ with estimate value at 0.765; ‘visually attractive’ with estimate value at 0.869; ‘performance improved’ with estimate value at 0.788; ‘easy to learn’ with estimate value at 0.823; ‘ordering from online store’ with estimate value at 0.881; and ‘desire to revisit’ with estimate value at 0.886.

4.4 SEM model
After Confirmatory Factor Analysis (CFA), the complete SEM model is established. The overall construct with 6 variables and their own indicators can be seen in figure 4.

![Completed SEM model](image)

Statistical tests are conducted to measure the effect between variables and their level of significance. The effect between variables can be seen from their estimate value. The greater the value of the relationship between variables means the stronger effect between variables. On the SEM model there
are requirements for parameter estimation where construct reliability should have value ≥0.70 and average variance extracted should have value of ≥0.50 [21].

The test result shows the value of each indicator and variables met the requirements, as every construct reliability are ≥0.70 and average variance extracted are ≥0.50 as demonstrated in table 1 [22].

Table 1. Construct reliability and average variance extracted of each variables.

| Variable                  | CR   | AVE   | Variable                  | CR   | AVE   |
|---------------------------|------|-------|---------------------------|------|-------|
| Customer Review           | 0.831| 0.625 | Perceived Ease of Use     | 0.852| 0.590 |
| Perceived Visual Appeal   | 0.902| 0.754 | Customer Intention        | 0.791| 0.560 |
| Perceived Usefulness      | 0.854| 0.661 | Repeat Purchase           | 0.875| 0.636 |

As the complete model met the reliability and validity requirements, the goodness of fit test now can be executed. The result is depicted on table 2.

Table 2. Goodness of fit from complete model

| Goodness of fit index | Cut of Value | Value | Decision       | Reference          |
|-----------------------|--------------|-------|----------------|--------------------|
| CMIN/DF               | ≤ 3.0        | 2.300 | Acceptable Fit | Ferdinand, 2000    |
| RMSEA                 | 0.05 – 0.10  | 0.090 | Moderate       | Byrne, 2001        |
| CFI                   | ≥ 0.80       | 0.881 | Permissible    | Byrne, 2001        |
| GFI                   | 0 - 1        | 0.819 | Model Fit      | Ferdinand, 2000    |

Based on the result of the goodness of fit, the conclusions are:

a. CMIN / DF (the minimum sample discrepancy function / degree of freedom) value of the proposed model is 2.300. It means acceptable fit [22].

b. RMSEA (root mean square error of approximation) is 0.090. It means moderate criteria, where the value range from 0.05 to 0.10 [23].

c. CFI (comparative fit index) is 0.881. It means permissible, with the category of ≥ 0.80 [23]

d. GFI (goodness of fit index) is 0.819. Although the recommended value is greater than 0.90 [22], but if the values close to 1. It can considered as fit. In this model the value of GFI were close to 1 so it is fit.

From AMOS22, the value of t-value and P-value is obtained. This becomes the based of decision whether the result are strongly significant or not. Table 2 depicts hypothesis decision for the proposed model. It shows only H4 was rejected as its t-value ≤ 1.96. P values with *** (three stars symbol) represent a condition where the P values almost reach 1.000 which mean that the hypothesis is strongly significant, while for H4 its P value is only 0.096.

Table 3. Result of proposed hypothesis analysis.

| Hypothesis                                      | t-value | P      | Decision         |
|-------------------------------------------------|---------|--------|------------------|
| H1 Perceived Usefulness can affect Customer Intention | 2.936   | ***    | Strongly Significant |
| H2 Perceived Ease of Use can affect Perceived Usefulness | 4.732   | ***    | Strongly Significant |
| H3 Perceived Visual Appeal can affect Perceived Ease of Use | 3.020   | ***    | Strongly Significant |
| H4 Perceived Visual Appeal can affect Perceived Usefulness | 1.530   | 0.096  | Not Significant  |
| H5 Customer Review can affect Perceived Usefulness | 9.257   | ***    | Strongly Significant |
H6 Customer Intention can affect Repeat Purchase Intention 8.281 *** Strongly Significant
H7 Visual Appeal can affect Repeat Purchase Intention 1.961 *** Strongly Significant
H8 Customer Review can affect Repeat Purchase Intention 3.809 *** Strongly Significant

5. Conclusion
Conclusions has been made in relation to the four main objectives. First, this research found that the strongest indicator that affect customer review (CR) is objective review (CR3). Second, research also indicate that the indicator that affect most perceived visual appeal (PV) is visual attractiveness (PV1). Third conclusion is, the high quality of objective review can greatly affect e-repeat purchase. Finally, it is important to considering the emotional design aspect on designing online store since visual attractiveness can significantly affect customer to make a repeat purchase.

6. Future research
For further research, it is suggested to explore other variables that might affect e-repeat purchase. Current construct could be improved by considering variables, such as, satisfaction and trust.

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