

Mobile Website User Experience (UX) Evaluation On Indonesia's Online Marketplace

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ABSTRACT

Internet economy is growing in Indonesia, and so is the smartphone usage. The popularity of online marketplace is getting bigger by the day yet the market is not utilized as best as it could. A lot of new smartphone user may not be familiar with the concept of mobile application, yet they browse for products to purchase using their mobile web browser. Therefore, a mobile website User Experience (UX) evaluation on online marketplace in Indonesia is needed. By using User Experience Questionnaire (UEQ), this research hopes to evaluate which aspect of a marketplace's mobile website is looked for by its users. An interview is conducted to 30 people to simulate shopping experience on Tokopedia and Bukalapak using a mobile web browser. The result shows that users prefers shopping without having to register, thus making online shopping quick and easy. In addition, user prefers to have all information they need regarding a product in one page rather than having to perform many action to reveal more information.

Keywords: User Experience, UX Evaluation, User Experience Questionnaire, UEQ, Marketplace

1. Introduction

The growth of Internet in Indonesia has been steadily increasing. In the first quarter of 2015, the number of Internet users in Indonesia reached 73 million, or equal to approximately 29% of the country's population (T. J. Post, 2015). That number will keep increasing and is projected to reach 123 million in 2018.

(Statista, 2015) According to a research, 95% of smartphone users search products, while only 57% of them actually purchase goods using their phone (Horwitz, J.,2014). With that many users, it is important to have a mobile website that is easy for users to use so that even those who are new to the website can easily understand. In order to achieve that, there has to be a certain user experience analysis to come up with factors that contributes to user experience (UX). UX revolves around the experience a person is having as part of human-computer interaction.

The limitation of mobile screen size makes design for mobile website challenging. The challenge lies within the interactivity, instinctive and simple design in order to create a seamless browsing experience. Marketplace website are known to be complex due to their structure and functionality, ranging from browsing available products up to purchasing it. The research is to be conducted on two most popular Indonesia-based marketplaces mobile website, namely Tokopedia and Bukalapak. According to Alexa ranking website (Alexa, 2016) as of June 2016, Tokopedia is ranked 8 while Bukalapak is ranked 11 on the most visited website in Indonesia list. Though those two websites have a dedicated mobile application, this research focuses on mobile website.

Based on the problem, this research focuses on analysing the user experience for first-time visitors on the two afore-mentioned mobile websites. First-time mobile visitors are those who have not yet visited Tokopedia's mobile website or Bukalapak's mobile website. The measurement is based on several aspects which are attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty. The end goal is to evaluate both websites in terms of user experience, and determining which website is preferred by the user. In addition, there will be recommendations made based on the survey result for the marketplace mobile websites.

From the observations made above, several research questions could be generated. The first one is how would a user perform in using the mobile website for the first time in terms of information gathering regarding the website, and whether they fulfill their intentions (e.g. browsing, shopping) of using the website. The second one is which mobile website would the user prefer after experiencing both.

The goal is to analyze and compare between two market-place mobile website based on user experience measurement. From the research questions, there are several hypotheses for this research, which are:

First-time mobile website visitor will still be able to fulfill their intentions, albeit taking quite a while to get accustomed to the process of shopping due to different website layout than full desktop website.

User would revisit if the attractiveness level, pragmatic quality, and hedonic quality meets a certain standard based on the UEQ score.

2. Literature Review

2.1. User Experience Questionnaire (UEQ)

In order to capture the essence of UX, some sort of frame-work is needed. Not only that, the purpose of this framework is also to standardize and give the UX a score so that results of both websites can be compared appropriately. There are several frameworks that was looked into, one of them is System Usability Scale (SUS) (Brooke et al., 1996). SUS ultimately produces a score that is based on 10 item questions. However, it is unsuitable for this research due to its focus on system usage, and somewhat irrelevant to be used on online marketplace. The more appropriate framework is UEQ. UEQ is a questionnaire that is meant to measure UX that include aspects of pragmatic and hedonic quality (Laugwitz et al, 2008). Originally, the UEQ is in German language but has been made available in English. The questionnaire contains 6 scales that are spread into 26 items that is in the Likert scale fashion. The scales are Attractiveness, Perspicuity, Efficiency, Dependability, Stimulation, Novelty.

Attractiveness is a pure valence dimension (Schrepp et al., 2014), while the other scales are of pragmatic and hedonic quality aspects. Perspicuity, Efficiency, and Dependability are considered as pragmatic or goal-oriented, because it is related to the use of the product itself and not bothering the appearance of it. On the other hand, Stimulation and Novelty are of hedonic quality aspects or not goal-oriented, because it is a reflection of how the UX with the combination of both the appearance of the product as well as its pragmatic quality.

2.2. Related Work

This research is conducted in Indonesia, making most, if not, all of the respondents Indonesian. Some of the respondent may not be able to understand English very well, however it is without a doubt that they all understand Indonesian. Hence, the UEQ must be translated to Indonesian. There is a research done in Indonesia (Santoso et al., 2016) that translates the UEQ to Indonesian. The process requires several people and involves more than one person. Firstly, the UEQ must be translated to Indonesian by Indonesian native speaker. Secondly, the translated version of UEQ must be translated back to English by another person who is not familiar with the English version of UEQ. If the latter produces the same UEQ items as the original English version, then the Indonesian version is deemed accurate. There is a research conducted on e-learning environment in University of Indonesia. The study was done using UEQ as its comparative measure. Their objective is to develop and adapt version of UEQ to Indonesian as well as evaluate a learning management system with their adapted version of UEQ (Santoso et al., 2016). The study also helps in guiding on how the UEQ is implemented in an Indonesia-based research and assess whether it requires further adaptation.

3. Research Methodology

The questionnaire used in this research is taken from several studies. The data gathering process can be broken down to six steps: background question form filling, shopping

simulation on Tokopedia, UEQ for Tokopedia form filling, shopping simulation on Bukalapak, UEQ for Bukalapak form filling, and final verdict form filling (choosing which website the user prefers). The sample for this survey is gathered using representative category sampling method whereby half of the user are those who have visited Tokopedia and half who has not, and this also applies to Bukalapak's respondents.

3.1. Questionnaire

The questionnaire is broken down into several sections including the background question of the respondent, their previous experience with both Tokopedia.com and Bukalapak.com, and the user experience questionnaire where the respondent will score their experiences in browsing both mobile websites during testing process. The first part of this questionnaire consists of three main sections. The first section is meant to check their basic information and their proficiency in using the Internet. The questions include the respondent's biodata such as their gender, age, education. That is done to classify the user group. Those 3 questions are taken from another research that focuses on trust level in e-commerce (Hadi et al., 2014) on the third section specifically. The second and third section of the background question form is to check the user's past experience in using Tokopedia and Bukalapak respectively. If the user had visited that website, the form will continue to the follow-up questions that collect further detail of their experience.

3.2. Testing Scenario

After the user has finished filling in the background question form, they are directed to use a smartphone to simulate a shopping experience using one website at a time. The testing process combines the user using a mobile website, and filling in the UEQ form. In order to have a consistent testing environment, the device used is a Samsung Galaxy Note 3 Neo that has 5.5-inch screen with the resolution of 720x1280 and is always oriented vertically (portrait mode). The smartphone browser that will be used is Google Chrome, and during testing the page is set to "incognito" mode to avoid user's data or history being recorded. Due to the mobile nature of this research, the Internet speed may vary. Hence, the user must be given a notice prior to testing that the Internet speed will not be taken into account throughout the testing process.

3.3. Respondent Interview

The last part of the survey is to do a follow-up question session to summarize the whole experience with both Tokopedia and Bukalapak. Questions asked are such as why they picked the website they choose at the very last question, and also their comments or likes and dislikes for each website. This interview will also be used to interpret their answer in the UEQ as means of validation.

4. UEQ Results and Analysis

4.1. Tokopedia

Figure 1 below shows the mean value for each item on the UEQ that is answered for Tokopedia by all of the respondents. Each item is colored according to the scale it belongs

to. Orange is for Attractiveness, green is for Perspicuity, purple is for Novelty, yellow is for Stimulation, black is for Dependability, and blue is for Efficiency.

Mean values from -0.8 to 0.8 are considered neutral evaluation. Values below -0.8 are negative evaluation, and values above 0.8 are positive evaluation. In Tokopedia's UEQ mean value, almost all are neutral evaluation with the exception of item number 5 and 16 which are positive evaluation. Item number 5 and 16 has mean value of 1.1 and 0.8 respectively. Item 16's positive evaluation is logical because the items in the same scale (orange colored) are of positive values as well, although not necessarily deemed as positive evaluation (above 0.8). However, item number 5 seems suspicious because the other item from that scale does not have such high mean value. That particular item questions user's stimulation. The original English statement was "Valuable" and "Inferior". When translated to Indonesian, it becomes "Bermanfaat" and "Tidak Bermanfaat". The Indonesian words are usually used to describe something that is useful or not useful. When the respondent was prompted with this item, of course most of them would think that Tokopedia mobile website is useful because they can buy products from it. It is highly possible that this very item is misinterpreted by the respondents. However, it is important to note that prior to UEQ form filling, the respondents are explained on what each item means.

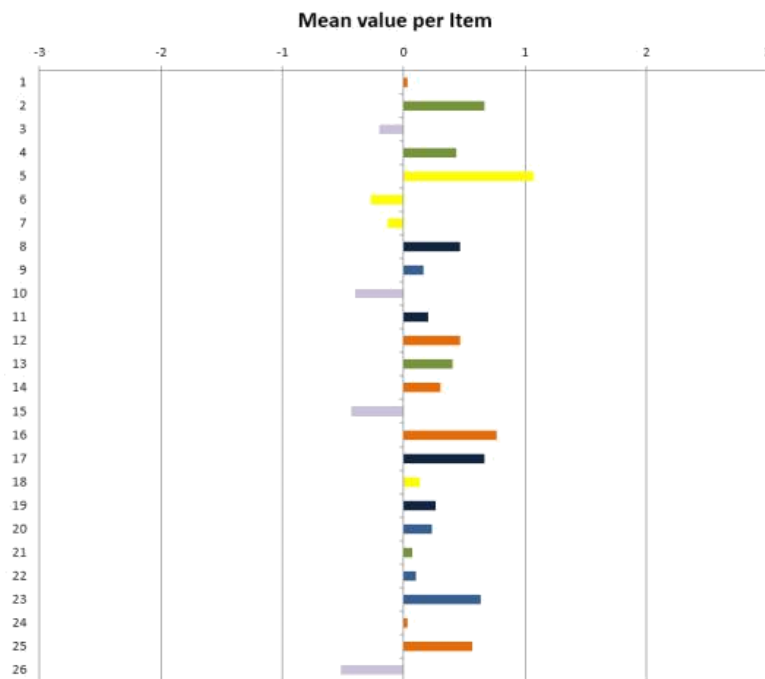


Figure 1. Tokopedia mean value per item

The data is purposely not filtered from the inconsistent data at the beginning. This is done to see a recurring pattern within the raw data. If a mistake is repeatedly made on certain item or even scale, then the problem may not lie within a certain individual, but rather the question. It is possible that the question is hard to relate to or simply a misunderstanding by the respondent. Hence, making it a systematic error. In this section, the respondent data that shows to be inconsistent in each scale will be removed altogether and be considered as inconsistent respondent data. If the respondent is found inconsistent in more than 3 scales, than their data will be removed. The mean value per scale for before and after the data removal is as seen in Table 1. There are increases on all the scales.

Table 1. Tokopedia Data Filtration Changes in Mean Value

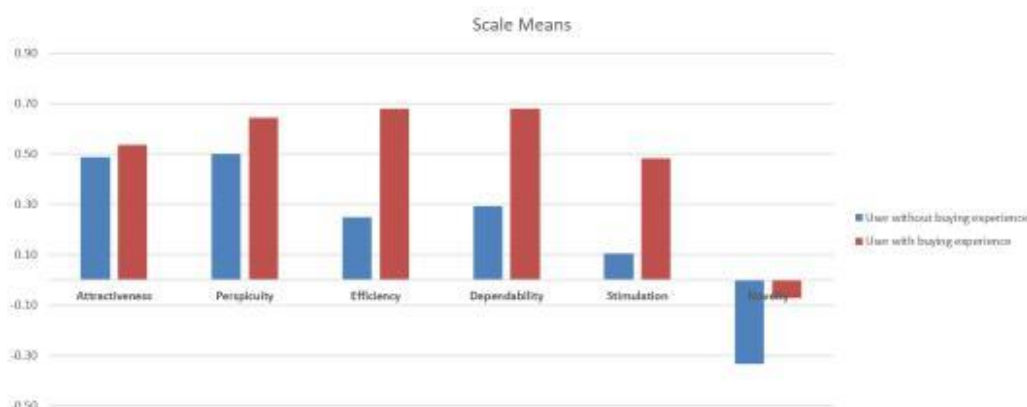
UEQ Scales	Mean Value	
	Before Filtration	After Filtration
Attractiveness	0.361	0.513
Perspicuity	0.392	0.577
Efficiency	0.283	0.481
Dependability	0.400	0.500
Stimulation	0.200	0.308
Novelty	-0.383	-0.192

In the background question, the user are grouped to those who has previous experience in shopping with Tokopedia and those who has not. To answer the research question, it is important to separate the UEQ score between the two aforementioned user group. The total of the respondents to be segregated is 26 out of 30 in total of Tokopedia respondents. The 4 data has been excluded due to their inconsistencies.

Table 2. Tokopedia segregated user distribution table

	No. of Respondents	Percentage
Have shopped in Tokopedia	14	54%
Have not shopped in Tokopedia	12	46%
Total	26	100%

The result of this segregation can be seen in Figure 2, where each scale mean value is compared side by side. The blue colored bar are derived from the user who has no experience in shopping with Tokopedia, while the red colored bar are derived from those who has. The visual difference is obvious and quite significant in some scales. "Efficiency", "Dependability", "Stimulation", and "Novelty" difference in mean value is quite big. One of the main reason can be explained from the interview result. Apparently, Tokopedia requires every user to register if they want to purchase a product. The registration process could take some time because the user has to fill a form, and thought having to verify their newly created account (it is not required but after registration, the page redirects to verification page).

**Figure 2.** Tokopedia Mean value comparison between user group

4.2. Bukalapak

As seen in Figure 3, the chart has much cleaner look due to all but one item has positive mean value. Item number 10 that has the lowest mean value is the item that has inventive / conventional question in it. Some user might misinterpret the question even after explanation by the interviewer. Overall, the data seems uniform which means that the majority of the respondents agree with each other on most item. Visually, it is obvious that all of the items has positive mean value. It can be assumed that all of the user are satisfied with Bukalapak's mobile website.

The items are then compiled into scales that they belong to. It is clear that almost all scale mean value is larger than 0.8, which is positive evaluation. The scale "Novelty", however, is considered as neutral evaluation because it is less than 0.8 and more than -0.8. As mentioned in the interview result, most quality ("Perspicuity", "Efficiency", and "Dependability"), the other quality that are hedonic ("Stimulation" and "Novelty") and "Attractiveness" also plays a big role in attracting new users.

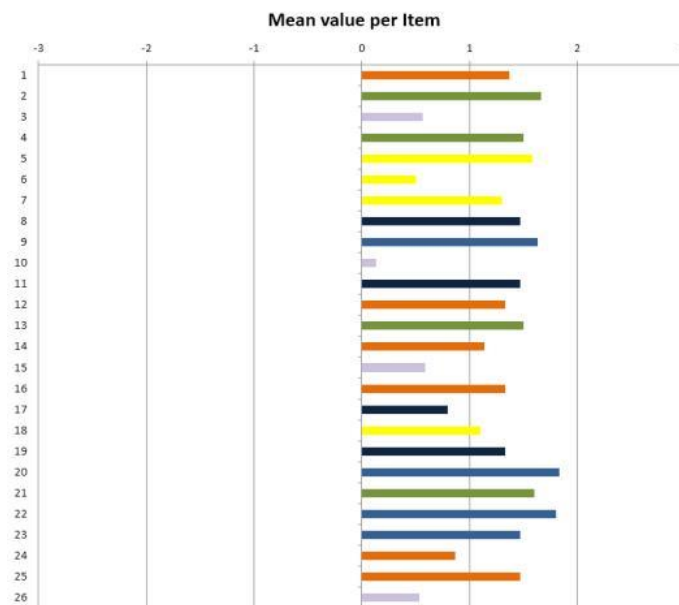


Figure 3. Bukalapak mean value per item

Table 3. Tokopedia user's choice

	No. of Respondents	Percentage
Tokopedia	8	53.3%
Bukalapak	7	46.7%
Total	15	100%

4.3. Comparative Analysis

Both UEQ results from Tokopedia's and Bukalapak's mobile website has been thoroughly analyzed. To understand better, each mean value per scale will be compared side-by-side. In Figure 4, Tokopedia UEQ mean value is colored green while Bukalapak mean value is colored purple. The data used for Tokopedia's graph is the one that has been filtered (removed in-consistencies). It is very clear that Bukalapak has much higher mean value per

scale. The confidence interval is also smaller in Bukalapak's bar. It can have smaller confidence interval due to more uniform answer. Achieving small confidence interval can also be done by gathering more data.

Presumably, Bukalapak's UEQ result is affected with the fact that the shopping simulation with it comes after Toko-pedia. In Tokopedia, as mentioned previously, the respondent must register in order to checkout if they do not already have an account. Some of the respondents felt hesitant to register because they deemed it unnecessary or cumbersome. However, after they tried to shop at Bukalapak, they are pleasantly surprised with the "checkout as guest" feature which does not require user to register prior to shopping. This process may have bias their opinion slightly towards Bukalapak and score it higher than Tokopedia. Nonetheless, without any outside influence whatsoever, Tokopedia still received mixed review from the respondents.

At the end of each interview, the respondent is asked which website would they prefer to shop at. As a result, 67% of them would prefer to shop at Bukalapak. It would be logical to assume that those who picked Tokopedia as their preferred mobile website are those who already has an account at Tokopedia. However, in Table III, almost half of the people who has shopping experience with Tokopedia actually chooses Bukalapak. This proves that apart from Bukalapak's pragmatic of the user are pleased with Bukalapak's feature of checkout without registration. This clearly one of the reason why scale "Efficiency" mean value is the highest of the scales.

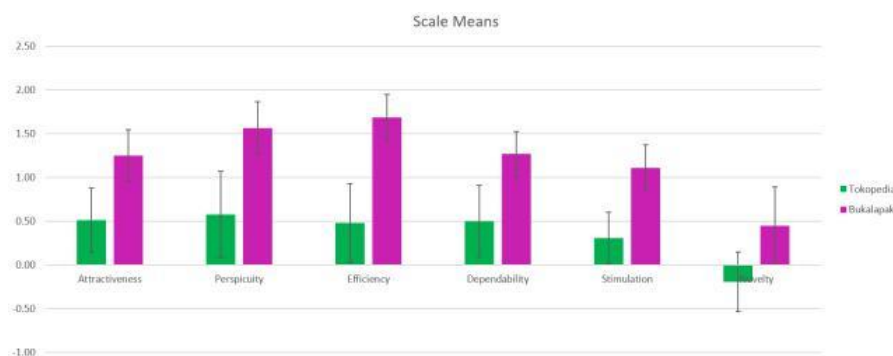


Figure 4. Compared mean value per scale

5. Conclusion

This research focuses on evaluating Indonesia's online marketplace mobile website UX using UEQ. It begs the question about how would a user perform for the first time in visiting the marketplace's mobile website, and whether they are able to fulfill their intention. It is without a doubt that they have managed to do so. However, there are several obstacles along the way that they require assistance with it. The UEQ result also reflects on how the UX is throughout the shopping simulation. What the respondents commented is reflected within the UEQ score. Users do not like to do a lengthy process just to get a shopping done. Tokopedia offered a solution that is to register one time, and make future purchases much easier by storing user's address and preferences. Nonetheless, for one-time purchase, user much prefers Bukalapak's guest checkout feature.

Tokopedia's intention for registering their user is clear, that is to keep a user base and to trigger future visit. However, it became apparent that Bukalapak has certain quality that Tokopedia is yet to able to compete with. The fact that even users who has shopping experience with Tokopedia still prefers to shop at Bukalapak is deemed unusual. Based on those reasons, Tokopedia should ensure that their mobile website keeps a balance between attractiveness, its pragmatic and hedonic quality. Not only to retain their user, but to attract new ones.

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