The usability of mobile online shopping app – a study on Shopee and Lazada

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ABSTRACT
Online shopping applications such as Shopee and Lazada have been gaining popularity in recent years. It is well established that the popularity of online shopping is on par with physical shopping despite the trends of online shopping just started recently. Hence, this study aims to determine whether a mobile shopping application is well designed to provide a better experience for the user in terms of effectiveness, efficiency and satisfaction of it. A WAMMI questionnaire (Website Analysis and Measurement Inventory) has been composed to help with the analysis. This questionnaire will then be distributed to a total of 10 participants. The participants come from different backgrounds such as different faculty, years and gender. The analysis will be measured by mean, standard deviation and standard mean errors. The results reveal that Lazada has a better usability compared to Shopee.

Keywords
Usability; usability evaluation; online shopping; mobile application; user satisfaction; user experience

1. INTRODUCTION
Online shopping has been growing throughout the years and even more during this coronavirus (Covid-19) pandemic and this is because our way of life has changed due to the pandemic and hence, caused the community to change from the traditional way to the online way and the trend is expected to continue growing especially with the ongoing coronavirus pandemic as many were not leaving their homes [1]. There are many different reasons that people have chosen to conduct their shopping via online, one of them being their gender as studies in 2007 have shown that male consumers tend to spend more money online while females are more suspicious of online shopping and are not willing to purchase online [2] . In the year 2018, e-commerce in Malaysia had an annual income of RM92 billion with an annual growth of 13.8% with wholesale trade being the highest at RM52.7 billion followed by retail trade and motor vehicles at RM26.1 billion and RM13.2 billion respectively [1]. One of the reasons that online shopping is experiencing such a growth is that it allows users to stay at home and shop in comfort because an online shopper would not have to queue in line just to make a purchase during the holiday season and also due to the fact that Malaysia is in lockdown due to the pandemic because the retail outlets are closed during this period which causes the citizens to conduct their shopping online through applications [3][4]. The usage of smartphones has increased over the years and this has caused a majority of the human population to conduct their shopping online through the usage of their smartphones, which is why the usability of a mobile application for shopping is important as no one would use an application that is complex and difficult to navigate [3].

The huge and developing number of mobile applications in the marketplace has challenged developers to invent apps of superior quality in order to face the challenge [5]. Applications such as Lazada and Shopee are the applications that are being used for online shopping, Lazada has a 4.5 star rating and 7 million reviews with more than a 100 million downloads for the application while Shopee has 4.8 star rating and a million reviews with more than 10 million downloads for the application on the Play Store. Since applications are used to carry out online shopping, it is very important to ensure that they are able to provide the users what they want without any difficulties such as getting lost while using the application or an unresponsive interface. Hence, therefore usability of an application is very important.

Usability can be seen as the convergence of four factors which are the user, application, tasks and goals in the context of use and it is also used to define the extent that a program can be used or utilised by the users to achieve their desired goals effectively, efficiently and satisfactory in a scenario of use [6].

In this study we are going to determine the usability of an application and in order to do this, we have to conduct usability evaluation in terms of effectiveness, efficiency and satisfaction for the two applications that have been chosen, which are Shopee and Lazada. The evaluation process begins with identifying the usability issues in an application and the issues are mainly determined through interaction with the users of the application [7]. The evaluation will allow us to identify the flaws of the application and hopefully help the application designers of Shopee and Lazada improve their usability by removing flaws or improving their strengths so that users will be able to use their application with ease.

2. METHODOLOGY

The main aim of this research is to measure usability of Shopee app and Lazada app. Ten users were recruited for the study.

The research was carried out by using Google Form. This research was conducted by using the WAMMI questionnaire. The questionnaire is constructed of three parts and has standardized 20 statement questionnaires. The questionnaire was organized by inquiring participants to determine user satisfaction and compare user expectations against what they literally find on the applications. WAMMI effectiveness has been validated by research done before. It has been scientifically proven and has a reliability data rating of between 0.90 and 0.93

The first part of the research contains the demographic information of respondents including gender, year of study, faculty/school and average internet usage of online shopping per day. Second part is about the expectations of participants about the usability of the Shopee app. The last part aims to investigate the expectations of users about the usability of the Lazada app.

Finally, after conducting the survey, Microsoft Excel software was used by the researchers for data analysis. The data was indicated in form of frequency and percentage analysis, mean, standard deviation, and standard error of the mean.

Table 1 Demographic questions

Factor	Category	Percentage
Gender	Male	50
	Female	50
Year	Foundation	10
	1st year	20
	2nd year	50
	3rd year	10
	4th year	10
Faculty/School	Azman Hashim International Business School	10
	Faculty of Engineering	50
	Faculty of Built Environment and Surveying	10
	Faculty of Science	20
	School of Professional and Continuing Education(Space)	10
Average internet usage duration for online shopping per day	Less than 30 minutes	90
	30 minutes to 2 hours	10

Table 2 Five WAMMI factors

Question no.	Factors and questions
	Attractiveness
1	This application has much that is of interest to me
6	The pages on this application are very attractive
11	I don't like using this application
18	Using this application is a waste of time
	Controllability
2	It is difficult to move around this application
3	I can quickly find what I want on this application
7	I feel in control when I'm using this application
12	I can easily contact the people I want to on this application
	Helpfulness
4	This application seems logical to me
5	This application needs more introductory explanations
9	This application helps me find what I am looking for
16	This application has some annoying features
	Efficiency
8	This application is too slow
13	I feel efficient when I'm using this application
14	It is difficult to tell if this application has what I want
19	I get what I expect when I click on things on this application
	Learnability
10	Learning to find my way around this application is a problem
15	Using this application for the first time is easy
17	Remembering where I am on this website is difficult
20	Everything on this application is easy to understand

3. RESULTS AND DISCUSSION

The responses of participants to demographic questions are shown in Table 1. According to the values in Table 1, 50% of the 10 participants were male, 50% were female. 50% were second year students, 20% were first year students, and foundation, third year and fourth year students each had 10% respectively. 50% of the respondents were students of Faculty of Engineering, 20% of the students were Faculty of Science, and remaining 30% were Faculty of Built Environment and Surveying (10%), Azman Hashim International Business School (10%) and School of Professional and Continuing Education(Space) (10%) students respectively. For the average internet usage for online shopping apps per day, 90% of the respondents used the internet for less than 30 minutes, 10% used 30 minutes to 2 hours. According to the scale given, a score of 1 would mean the participant strongly agrees with the statement and the response obtained can be used to determine the many factors of the application. The questions are divided into a few factors namely, attractiveness, controllability, helpfulness, efficiency and learnability.

3.1 ATTRACTIVENESS

Attractiveness is the ability to appeal to the user or consumers in terms of visual and content [8]. Questions 1,6,11 and 18 fall under the category of attractiveness and these questions allow us to determine the attractiveness of the application by calculating their mean, standard deviation and standard error mean. From Table 2, it can be seen that for the Shopee application, question 1 asked the user whether the application has much that is of interest to the user and question 6 asks the user whether the pages of the application are attractive. The two questions both have a mean of 2.8, standard deviation of 1.033 and standard error mean of 0.327 which means that most of the participants are neutral about the statements. Question 11 which asks whether the user likes to use the application has a mean of 3.6, standard deviation of 1.174 and standard error mean of 0.371 which shows that most participants either remain neutral or disagree. Question 18 asks the user whether using the application is a waste of time and it has a mean of 3.9, standard deviation of 1.197 and standard error mean of 0.379, this shows that the participants do not find the application as a waste of time. The Shopee application can only appeal to some users since most of the users are neutral and the pages of

For the Lazada application, question 1 has a mean of 2.6, standard deviation of 0.966 and standard error mean of 0.306 which means that most of the participants agree that the application is attractive for them. Question 6 has a mean of 2.7, standard deviation of 1.337 and standard error mean of 0.423 and it can be said that most participants agree. Question 11 has a mean of 3.4, standard deviation of 1.265 and standard error mean of 0.400 which shows that most participants either remain neutral or disagree. Question 18 has a mean of 3.5, standard deviation of 1.080 and standard error mean of 0.342, this shows that the participants mostly disagree with this question. Therefore, it can be concluded that Lazada and Shopee have a similar amount of attractiveness as the respondents for both applications have similar results.

Table 3 Attractiveness

Shopee				
Question No.	N	Mean	Standard Deviation	Standard error mean
1	10	2.8	1.033	0.327
6	10	2.8	1.033	0.327
11	10	3.6	1.174	0.371
18	10	3.9	1.197	0.379
Lazada				
Question No.	N	Mean	Standard Deviation	Standard error mean
1	10	2.6	0.966	0.306
6	10	2.7	1.337	0.423
11	10	3.4	1.265	0.4
18	10	3.5	1.08	0.342

3.2 CONTROLLABILITY

The term controllability is referring to the navigationality of the application which is the ability of users to navigate easily around the application and carry out their desired actions [7][8]. The questions 2,3,7 and 12 are under controllability and these questions allow us to determine whether the application has good controllability. From Table 3, it can be seen that for the Shopee application, question 2 which asks the user whether it is difficult to move around this application, has a mean of 3.3, standard deviation of 1.160 and standard error mean of 0.367 which shows that most of the participants remain neutral when answering the questions. Question 3 asks whether the user can quickly find what he or she wants in the application, this question has a mean of 2.1, standard deviation of 1.101 and standard error mean of 0.348, it shows that most of the participants agree that they can quickly find what they want. Question 7 which asks whether the user feels in control when using the application, has a mean of 2.9, standard deviation of 0.994 and standard error mean of 0.314, the results show that most of the participants are neutral. Question 12 asks the user whether they can contact the people they want easily, has a mean of 3.1, standard deviation of 1.101 and standard error mean of 0.348, most of the participants are neutral towards this question as shown in the table.

For the Lazada application, question 2 has a mean of 3.3, standard deviation of 0.823 and a standard error mean of 0.260 and this shows that most of the participants are neutral in answering the question. Question 3 has a mean of 2.8, standard deviation of 1.229 and standard error mean of 0.389, which shows that most participants either agree or remain neutral. Question 7 has a mean of 3.0, standard deviation of 0.943 and standard error mean of 0.298 can be interpreted as most participants remain neutral. Question 12 has a mean of 3.5, standard deviation of 0.972 and standard error mean of 0.307, it can be said that most of the participants disagree with the question. Hence, Shopee can be said to be the application with a better controllability according to the results obtained above.

Table 4 Controllability

Shopee				
Question No.	N	Mean	Standard Deviation	Standard error mean
2	10	3.3	1.16	0.367
3	10	2.1	1.101	0.348
7	10	2.9	0.994	0.314
12	10	3.2	1.101	0.348

Lazada				
Question No.	N	Mean	Standard Deviation	Standard error mean
2	10	3.3	0.823	0.26
3	10	2.8	1.229	0.389
7	10	3	0.943	0.298
12	10	3.5	0.972	0.307

3.3 HELPFULNESS

Moving on, the attributes that are being tested are helpfulness. Helpfulness refers to the ability of the website to meet the users' expectations and provide a logical and relevant experience [8]. From table 3, question 4,5,9 and 16 are the questions that help us determine the level of helpfulness.

According to the table, question 4 asked about whether the application is logical to the user. The average mean for the Shopee was only 2.4 with a standard error mean of 0.371 while Lazada had a mean of 2.7 with a standard error mean of 0.335. Based on this statistic, the standard errors of both applications are almost the same, thus, we can conclude that Lazada performs better than Shopee in terms of the logic of the application.

Question 5 stated that "applications need more introductory explanations". Shopee got a score of 2.9 while Lazada got a score of 2.6 with standard error of 0.348 and 0.267 respectively. The output seems logical as we found out previously that Shopee performs poorer compared to Lazada in terms of logical application. Hence, its explainable why the user rate a higher score on Shopee to have more introductory explanation.

The next question is "This application helps me find what I'm looking for". Most of the participants rated Shopee with a score of 2.3 with standard error of 0.473 and standard deviation of 1.494 while participants rate Lazada with a score of 2.6 followed by 0.843 standard deviation and 0.267 of standard mean error. In this case, As the standard deviation of Shopee is far higher than Lazada, it indicates that users that use Shopee have different opinions of whether the application helps them to find what they are looking for. However, the score of 2.3 proved that most of the users agreed Shopee may need to improve as they are unable to find items that they wanted compared to Lazada. On the other hand, Lazada has a score of 2.6 which is higher than Shopee. A standard deviation of 0.843 indicated that most of the users felt the same way. Although the result is slightly higher compared to Shopee, the results aren't good enough as the score of 2.6 is still below half of the full score. Lazada still has a lot of improvement in order to make their application more user friendly.

Lastly, question 16 asked "This application has some annoying feature". From the table, we can see that Shopee has a mean score of 2.9 while Lazada has a score of 2.8. Both scores are close, and the standard deviation is 1.197 for Shopee and 0.919. The standard deviation is low, and it indicates that the data is reliable. Based on users, they have neutral opinions regarding the feature of the application. They neither feel annoyed nor comfortable with the current system.

In summary of the helpfulness of both applications, Lazada's overall performance is better than Shopee. The downside of Shopee compared to Lazada is its ability to help users in finding what they are looking for. However, Lazada did not perform much better as its scores did not differ much

with the Shopee. Both applications still need a lot of improvement in order to fully satisfy the users.

Table 5 Helpfulness

Shopee				
Question No.	N	Mean	Standard Deviation	Standard error mean
4	10	2.4	1.174	0.371
5	10	2.9	1.101	0.348
9	10	2.3	1.494	0.473
16	10	2.9	1.197	0.379
Lazada				
Question No.	N	Mean	Standard Deviation	Standard error mean
4	10	2.7	1.059	0.335
5	10	2.6	0.843	0.267
9	10	2.6	0.843	0.267
16	10	2.8	0.919	0.291

3.4 EFFICIENCY

Table 5 illustrates the statistics of the efficiency of both applications. The questions that used to determine the efficiency of applications consist of 4 questions which are question 8,13,14 and 19. By definition, efficiency is the users' perception of being able to use the website in an economical manner, at a reasonable speed, and without wasteful effort [8]. There are a total of 10 participants in answering the questions.

Firstly, the first question that asked about efficiency is question 8 "This application is too slow". The average mean that the participants gave to Shopee is 3.6 while Lazada is only 3.0. The standard errors are 0.371 and 0.258 respectively. Based on the statistic, it is very clear that Shopee is slower than Lazada in terms of speed. Most of the participants feel neutral about the speed of Lazada which is the mean of 3 while the mean of 3.6 indicates the users' dissatisfaction toward the speed of Shopee.

Secondly, Question 13 asked about whether the user feels efficient when using the application. The Lazada can score a mean of 2.7 while Shopee only be able to score a mean of 2.3 with the standard mean errors of 0.335 and 0.260 respectively. The standard deviation of Lazada is 1.059 while Shopee has a standard deviation of 0.823. The results show that the overall satisfaction of users toward both applications are very low. Both did not reach half of the rating. The lower standard deviation of Shopee indicates that most of the users feel the same way toward the efficiency of the application. On the other hand, the higher standard deviation of Lazada shows that some of the users might feel differently toward the efficiency and the highest score of efficiency Lazada can get is 3.14 while Shopee only be able to get 2.46.

Next, "It is difficult to tell if this application has what I want" is the question for question 14. In the table, Shopee scored a mean of 3.6, standard deviation of 0.966 and standard mean errors of 0.306. On the other hand, Lazada scored a mean of 3.4, standard deviation of 0.843and standard mean error of 0.207. With the statistics given, we can conclude that Shopee is harder to tell whether the application has what the user wants. Shopee has a mean error of 0.306. Thus, the highest and lowest rating would be 3.9 and 3.3 respectively. On the other hand, Lazada can easily monitor the users' needs compared to

Shopee. Standard mean error of Lazada which is 0.207 did not affect the rating much with the highest being 3.6 and lowest being 3.2. The highest rating of Lazada is the same as Shopee. Hence, we can prove that Lazada has a better feature to tell what the users need.

Lastly, the question about efficiency is question 19. It asked "I get what I expect when I click on things on this application". Shopee have a mean of 2.5 and Lazada have a mean of 2.4. The standard deviation and standard mean errors are almost the same for both applications too. Lazada score standard deviation of 0.843 and 0.267 of standard mean errors while Shopee score standard deviation of 0.850 and 0.269 of standard mean errors. All the statistics are almost the same for both applications. The participants feel neutral with what they expect and get when clicked on the application.

In short, Lazada performs better in terms of efficiency. Out of 4 questions, Lazada has 3 questions that have a higher rating than Shopee. However, the overall performance of Lazada still can be improved as some of the questions have higher standard deviation which means some participants do not agree with the average mean.

Table 6 Efficiency

Shopee				
Question No.	N	Mean	Standard Deviation	Standard error mean
8	10	3.6	1.174	0.371
13	10	2.3	0.823	0.26
14	10	3.6	0.966	0.306
19	10	2.5	0.85	0.269
Lazada				
Question No.	N	Mean	Standard Deviation	Standard error mean
8	10	3	0.816	0.258
13	10	2.7	1.059	0.335
14	10	3.4	0.843	0.267
19	10	2.4	0.843	0.267

3.5 LEARNABILITY

Table 6 illustrates the descriptive statistics of user learnability of mobile shopping apps. The mean, standard deviation, and standard error of the mean for each question are shown in the table.

The learnability aspect attained a mean of 4.0 and 2.9, a standard deviation 1.054 and 0.876 in question 10 for Shopee and Lazada respectively. The result indicates that most of the participants disagree that learning to find the way around Shopee is a problem but for the Lazada app is neutral to this statement. For question 15, has a mean 2.3 and 2.4, a standard deviation of 1.252 and 1.075 for Shopee and Lazada respectively in this category. The results show that most of the participants agreed that using these both online shopping apps for the first time is easy. Question 17 has a mean of 3.8 for both mobile online shopping app and standard deviation of 0.632 and 0.789 respectively. The results illustrate that most of the participants think that remembering where they are on these two applications is easy. Question 20 has a mean of 2.4 and 2.1, standard deviation of 1.075 and 1.101 for Shopee and Lazada respectively. The results indicate that most of the participants agreed everything on this application is easy to understand.

In this study as we tested user learnability, the answers from questionnaire and result compilation show that the user learnability of most of the users are neutral, even though most of the users were from faculty of engineering. Learnability is defined as the level of ease through which a user gains proficiency with an app [5]. The results also indicate that developers of mobile shopping apps still have room for improvement to enhance the user interface. Poor learnability leaves users dissatisfied, and this may lastly lead to the unfaithfulness of the application.

Table 7 Learnability

Shopee				
Question No.	N	Mean	Standard Deviation	Standard error mean
10	10	4	1.054	0.333
15	10	2.3	1.252	0.396
17	10	3.8	0.632	0.2
20	10	2.4	1.075	0.34
Lazada				
Question No.	N	Mean	Standard Deviation	Standard error mean
10	10	2.9	0.876	0.277
15	10	2.4	1.075	0.34
17	10	3.8	0.789	0.249
20	10	2.1	1.101	0.348

4. CONCLUSION

In conclusion, the aim of this research is to determine the usability of online shopping applications which we primarily use Shopee and Lazada for our research. The key factors that determine the usability of each application are attractiveness, controllability, helpfulness, efficiency and learnability. A total of 10 participants with different backgrounds such as faculty and gender are invited to participate in the research by completing a questionnaire sent by us through google forms. The questionnaire consists of 20 questions with WAMMI styled questions.

To perform our analysis, we used standard mean, standard deviation and standard mean errors in helping us to determine the usability for each category. From our analysis, both applications have their own advantages. In the category of attractiveness, both Shopee and Lazada have a similar result. Both have the attractiveness of their own to attract users. Moving on, Shopee is said to perform better in Controllability compared to Lazada. The result of our research shows that most of the participants are more satisfied with the control of Shopee rather than Lazada. However, Lazada has better user satisfaction in the category of helpfulness and efficiency. Lastly, the users are feeling neutral about the learnability of both applications. They feel the learnability is somewhat similar and able to handle both applications.

From the result, we learned that Lazada can provide users with more user-friendly interfaces rather than Shopee. Out of 5 categories, Lazada have 2 categories that outperform Shopee and it have 2 categories that rated similarly to Shopee and only 1 category that is outperformed by Shopee. Although the usability of Lazada is better than Shopee, it still has a room of improvement as the average rating of Lazada is only on average satisfaction.

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