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Usability testing on online transportation applications to measure user satisfaction in Padang City

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ABSTRACT

This study aims to determine the level of ease, efficiency, ease to remember, error, and satisfaction, as well as to find out the differences in usability testing in each online transportation application Grab, Gojek, and Maxim. The sample was determined by using a cluster sampling technique with a total of 96 users. The data were collected through distributing questionnaires and then analyzed statistically descriptive and Independent-Sample T-Test with the SPSS program. The results of data analysis show that the Grab application has a good level of ease, efficiency, and easy to remember with shallow errors resulting in reasonable user satisfaction. At the same time, the Gojek application has a good level of ease, efficiency, easy to remember with low errors, resulting in excellent user satisfaction. Meanwhile, the Maxim application has a sufficient level of convenience, efficiency and is easy to remember with a sufficient error rate to generate sufficient user satisfaction. There is no significant difference in usability testing in the Grab application with Gojek and Grab with Maxim, but there is a significant difference in usability testing in the Gojek and Maxim applications to measure the level of user satisfaction in Padang City.

Kata Kunci:
Ease; efficiency; easy to remember; error; satisfaction; usability testing; online transportation

ABSTRAK

Penelitian ini bertujuan untuk mengetahui tingkat kemudahan, efisiensi, mudah diingat, error, dan kepuasan serta untuk mengetahui perbedaan usability testing pada masing-masing aplikasi transportasi online Grab, Gojek, dan Maxim. Sampel ditentukan dengan menggunakan teknik cluster sampling dengan jumlah pengguna sebanyak 96 orang. Pengumpulan data dilakukan melalui penyebaran kuesioner kemudian dianalisis secara statistik deskriptif dan Independent-Sample T-Test dengan program SPSS. Hasil analisis data menunjukkan bahwa aplikasi Grab memiliki tingkat kemudahan, efisiensi, dan mudah diingat yang baik dengan kesalahan yang sangat rendah sehingga menghasilkan kepuasan pengguna yang baik. Sedangkan aplikasi Gojek memiliki tingkat kemudahan, efisiensi, mudah diingat yang baik dengan tingkat kesalahan yang rendah, sehingga menghasilkan kepuasan pengguna yang sangat baik. Sementara itu, aplikasi Maxim memiliki tingkat kenyamanan, efisiensi, dan mudah diingat yang cukup dengan tingkat kesalahan yang cukup untuk menghasilkan kepuasan pengguna yang memadai. Tidak terdapat perbedaan yang signifikan pada pengujian usability pada aplikasi Grab dengan Gojek dan Grab dengan Maxim, namun terdapat perbedaan yang signifikan pada pengujian usability pada aplikasi Gojek dan Maxim untuk mengukur tingkat kepuasan pengguna di Kota Padang.

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INTRODUCTION

The very high mobility of the Indonesian people, including in the city of Padang, makes online transportation companies compete to offer the same types of services so that there is competitive competition between online transportation. Grab online transportation provides services in the field of passenger pick-up services using two-wheeled or four-wheeled vehicles, ordering food, recharging electronic pulses, delivering goods within the city, bill payment services, to health, and many other services. The Grab application collaborates with an electronic money company to pay for its services online.

The second online transportation company Gojek. Gojek also offers various services that are generally the same as the services owned by Grab. Gojek is known as a role model in presenting online transportation services that use two-wheeled motorized vehicles, which in the end are also followed by its competitors (Pratama, 2016). Summarized from the Gojek application downloaded on the Play Store, Gojek has created its own electronic payment method that can increase user convenience and efficiency without having to use cash. By using electronic money made by the company itself without having to collaborate with third parties, of course, it will be of added value for Gojek application users.

In 2018 Maxim officially entered the online transportation application market in Indonesia to increase choices for the public as users. Maxim is considered a new color in the world of online transportation applications that can refresh people who have been struggling with the 2 major applications of their predecessors in the Indonesian market. In addition, cheaper service fees when compared to the price of the Grab application and the Gojek application can be a special attraction for people in choosing to use this transportation application (Abrar, 2019).

Every online transportation application company competes with each other in developing the services they offer to the public as users. Although new innovations continue to be developed for the convenience of application users, it does not mean that they can be easily accepted by the public. There are times when the service innovation does not run optimally because it is not right on target in carrying out very complex marketing with various cultures and habits of the community. One of the problems often found in the field is the inaccuracy of the GPS location with the user's location or the location to be addressed by the user. For example, the address you want to go to is not available in the application so users are required to enter the address manually or look for the closest address to the address that should be. Not to mention the applications that sometimes feel heavy on the user's smartphone or even an error occurs in the usage process. This will be a separate assessment for users (users) in determining their choice to use the application on an ongoing basis (Murti, 2020).

With the increasing number of online transportation applications in the city of Padang, users have the option of choosing which online transportation to use. Users as the priority object of each online transportation application company can also assess the services they have received so far. This is necessary to see how far the level of user satisfaction while using each application. In addition, it will also be useful for companies providing online transportation application services in improving the quality of applications offered in the future.

This study aims to determine the level of convenience, efficiency, ease to remember, error, and satisfaction, as well as to determine the differences in usability testing on each online transportation application Grab, Gojek, and Maximin Padang City.

LITERATURE REVIEW

Transportation is a process of moving from one place to another using tool in the form of human and machine power (Sukarto, 2006). With the development of technology, transportation has changed in the form of the application of technology known as online transportation. Online transportation is a transportation service that uses an internet connection in every stage of the transaction, starting from selecting application features, ordering services needed, determining payment methods, to evaluating

and giving bonuses if desired. A lot of research has been done regarding online transportation. Several studies that looked at the satisfaction of online transportation users include the research that has been conducted by Alfiqie (2018), which examined the Usability Evaluation in the UBER Application; the findings explain that the safety aspect is one of the important concerns of the community in choosing the mode of transportation. Abrar (2019), analyzing the entry of Maxim from Russia to Indonesia, found that cheaper service fees can be the main attraction for people in choosing to use online transportation applications. Murti (2020) analyzes Usability Testing on Online Transportation Applications to Measure User Satisfaction, finding that applications that sometimes feel heavy on the user's smartphone or an error occurs in the usage process becomes a separate assessment for users (users) in determining their choice to use the application on an ongoing basis. Based on studies that have been carried out, in general it can be said that the level of convenience, efficiency, easy to remember, error, and satisfaction factors are the determinants in the use of online transportation applications.

METHOD

This research method is measuring the level of usability testing which includes five components such as the level of convenience, efficiency, easy to remember, error, satisfaction with the use of three online transportation applications**.** Through the five components of usability testing, statements in the questionnaire were developed which include the level of ease, efficiency, easy to remember, errors, and user satisfaction.

This research determines the research location in Padang City, where users of the online transportation applications Grab, Gojek, and Maxim are located in Padang City as the unit of analysis used in the study. The population in this study are the active users of the Grab, Gojek, and Maxim online applications, in which the exact number is not known. This study determines the number of samples using the Lemeshow formula so that a total sample of 96 users is obtained in each online transportation application. The sampling technique was determined by the probability sampling method, namely the cluster sampling technique. Thus, the number of samples used was 96 in three clusters (users of the online transportation application Grab, users of the online transportation application Gojek and users of the online transportation application Maxim).

Data analysis was carried out by descriptive analysis. The next stage is the T-Test Differential Test, which is used to determine the mean significance between independent samples, namely through the Independent - Sample T-Test. This test shows whether or not there is a significant difference in the average dependent variable. Between two groups, analysis of variance helps to test for significant mean differences between more than two groups on those scaled in intervals or ratios. The discussion is based on the results of data analysis through descriptive analysis and different tests. The discussion of the results of the description analysis relates to how to describe the meaning of the average value of each indicator of the usability testing component. The higher the average value generated, the better the level of usability testing. The discussion of the results of the next analysis is based on the results of the different test analyses. In this case, it will be described about the comparison of usability testing levels of each application

RESULT AND DISCUSSION

Testing the normality of the data can be seen in Table 1 below:

Table 1. Normality test

	Sig				
App	X1	X2	X3	X4	Y
Grab	0.200	0.061	0.061	0.057	0.07 3
Gojek	0.072	0.067	0.055	0.200	0.062
Maxim	0.200	0.980	0.074	0.129	0.200

Source: Primary Data Processing Results, 2021

The results of the homogeneity test in this study can be seen in Table 2 below:

Table 2 Results of the test of homogeneity

Component	Levene Statistics	df1	df2	Sig
Convenience	2.111	2	93	0.127
Efficiency	1,241	2	93	0.294
Easy to remember	2,958	2	93	0.059
Error	0.595	2	93	0.554
Satisfaction	1.293	2	93	.279

Source: Primary Data Processing Results, 2021

Based on Table 2, the Sig value is obtained more than 0.05 means the variance of the data group is homogeneous. This shows that the data to be measured comes from a homogeneous population so that the questionnaire data from this study can be used to perform different tests through the Independent Sample t-Test.

The number of samples used in this study was 96 respondents, which consisted of 25 Grab users, 50 Gojek users, 21 Maxim users. The descriptions of the research respondents are described as follows:

Table. 3 Description of research respondents

	amount	Percentage (%)
Sex		
Male	44	45.8%
Famale	52	54.2%
Total	96	100%
Age		
< 19	5	5.21%
20 – 24	52	54.17%
25 – 29	29	30.21%
30 – 34	7	7.29%
> 35	3	3.13%
Total	96	100.00 %
Profession		
Doctor	2	2.08%
Ex. College Student	2	2.08%
Home Wife	5	5.21%
Student	32	34.37%
Civil Servant	10	10.42%
Private Servant	33	33.33%
Entrepreneur	12	12.05%
Total	96	100%
Application		

Grab	25	26.04%
Gojek	50	52.08%
Maxim	21	21.88%
Total	96	100%

Source: Primary Data Processing Results, 2021

The results of a descriptive analysis of the five components of usability testing on Grab online transportation are described as follows:

Table 4 *Usability Testing for* the Grab application

Component	No	Min	Max	Mean
Convenience	1	1	5	4.52
	2	3	5	4.44
	3	2	5	4.24
	4	3	5	4.40
	5	1	5	4.08
Efficiency	1	3	5	4.36
	2	3	5	4.32
	3	2	5	4.04
Easy to remember	1	3	5	4.56
	2	3	5	4.12
	3	1	5	4.28
Error	1	1	5	2.84
	2	1	5	2.68
	3	1	5	2.68
Satisfaction	1	2	5	4.20
	2	3	5	4.24
	3	4	5	4.52
	4	3	5	4.52

Source: Primary Data Processing Results, 2021

The results of the analysis above explain that Grab users in Padang City can feel a good level of convenience while using the Grab application. This means that the appearance of the Grab application features is generally considered easy to understand. However, there is still a need for a significant improvement in the Grab application. If seen in questions 1 and 5 there are respondents who give a score of 1. This happens considering that not all users are proficient in understanding and using smartphones, especially for applications that are new or they rarely use.

The level of efficiency is considered good by users with the smallest minimum value of 2 in question 3. This means that there are still users who have little difficulty in getting what they want in the application quickly and precisely. For that, we need a little improvement in this case so that the level of application efficiency is maximized.

The memorable level gets good ratings from Grab app users. This means that the appearance of the Grab application feature is generally considered to be well embedded in the user's memory. However, there is still a need for a significant improvement in the Grab application if it is seen in the

question that question 3 gets a maximum scale score of 1. This happens because there are still users who have difficulty remembering how to use the Grab application if it is used again after a long time.

From the results above, we can also see that the error rate felt by Grab users in Padang City is very bad. This means that the majority of users find a very low error rate or error in the Grab application. However, of the 3 questions on the error component, all of them got a maximum score of 5, which means that there are still users who feel a very significant error while using the Grab application. This can happen due to errors in the application system itself and other external factors such as network quality and others.

Meanwhile, the level of satisfaction felt by Grab users in Padang City is good. This happens considering that the majority of users feel the level of ease, efficiency, and easy to remember is good and errors are very low so that it results in good satisfaction. These results are relevan with Wibowo (2015) that the level of ease, efficiency, and easy to remember is good and errors are very low, so that the level of satisfaction of the E-Academic D4 Informatics Engineering Website is stated to be good. This result is also supported by research by Nahdhatuzzahra (2016) where the level of ease, efficiency, and easy to remember is good and the error is low, resulting in a very good level of satisfaction in the Information System for the Spread of Poultry Disease.

The results of the descriptive analysis of the five components of user usability testing of the Gojek online transportation application in Padang City can be described as follows:

Table 5 *Usability Testing for* the Gojek application

Component	No	Min	Max	mean
Convenience	1	1	5	4.60
	2	2	5	4.48
	3	1	5	4.34
	4	1	5	4.48
	5	2	5	4.40
Efficiency	1	1	5	4.42
	2	2	5	4.40
	3	2	5	4.30
Easy to remember	1	1	5	4.62
	2	2	5	4.30
	3	1	5	4.42
Error	1	1	5	2.96
	2	1	5	2.70
	3	1	5	2.96
Satisfaction	1	3	5	4.50
	2	3	5	4.56
	3	3	5	4.44
	4	2	5	4.52

Source: Primary Data Processing Results, 2021

The results of the analysis above explain that Gojek users in the city of Padang can feel the level of convenience. However, there is still a need for a significant improvement in the Gojek application is seen in questions 1.3 and 4, getting a minimum score of 1. This means that there are still users who have difficulty learning the Gojek application, obtaining specific information, and understanding

informative content. For that, we need a little value enhancer that is informative in the Gojek application.

The efficiency of the Gojek application is generally considered good by users. There is a minimum score of 1 in question number 1. In this condition, there are still users who cannot access the desired feature quickly. This can happen because of the problem of placing Gojek's own features that have not yet so that the efficiency value has not been maximized.

Meanwhile, the easy-to-remember component is considered good as long as the Go-Jek application is slow Questions 1 and 3 received a maximum scale score of 1. As is the case with Grab users. This happens because there are still users who have difficulty remembering how to use the Grab application if it is used again after a long time. In addition, there are also users who have difficulty remembering how to use the application easily. It is necessary to improve the appearance of features that are more attractive and embedded in the minds of users to get maximum ratings from users.

From the results above, we can also see that the error rate felt by Gojek users in Padang City is bad. This means that the majority of users find a low error rate or error in the Gojek application. However, of the 3 questions on the error component, all of them got a maximum score of 5, which means that there are still users who feel a very significant error while using the Gojek application. This can occur due to errors in the application system itself and other external factors such as network quality and others.

Meanwhile, the level of satisfaction felt by Gojek users in Padang City is very good. This happens considering that the majority of users feel the level of ease, efficiency, and ease to remember is good, and the error is low, resulting in very good satisfaction. This means that although there are still people who feel the error is on a low scale and different from Grab, which has a very low error scale, the majority of Gojek application users are very satisfied with the application they use.

The results above explain that Gojek users in the city of Padang can feel a good level of convenience, efficiency, and easy of remembering as well as a low error rate so that the satisfaction felt by users is at a very good level. These results are also in line with research conducted by Nahdhatuzzahra, (2016); Wibowo (2015)

The level of ease, efficiency, and easy of remembering are good, and the error is low, resulting in a satisfaction level that is stated to be very good. Meanwhile, these results are also different from the research conducted by (Alfiqie, 2018).

The results of the descriptive analysis of the five components of user usability testing of the Maxim online transportation application in Padang City can be described as follows:

Table 6 *Usability Testing* Maxim Application

Component	No	Min	Max	mean
Convenience	1	2	5	4.04
	2	2	5	3.95
	3	2	5	3.95
	4	3	5	4.23
	5	2	5	3.71
Efficiency	1	2	5	3.95
	2	2	5	3.95
	3	2	5	3.71
Easy to remember	1	3	3	4.42
	2	3	5	3.95
	3	2	5	3.95
Error	1	1	5	3.53
	2	1	5	3.00
	3	1	5	2.86

Satisfaction	1	2	5	3.71
	2	3	5	3.90
	3	2	5	3.90
	4	2	5	3.95

Source: Primary Data Processing Results, 2021

The results of the analysis above explain that Maxim users in Padang City can feel a sufficient level of convenience. The minimum value for the Maxim convenience component is 2. In general, Maxim users do not have very low convenience ratings like Grab and Gojek. However, on average, Maxim's convenience level is still lower. This happens because Maxim has reduced the error rate in the convenience component but has not been maximized in meeting consumer desires in general.

Maxim's efficiency is also considered to be on a moderate scale. This means that users feel that the Maxim application is not efficient enough to use. It takes serious attention to the application to make it more efficient for all users. The level of easy to remember was also rated moderate by respondents while using the Maxim application. This happens because Maxim is still new in operating in the city of Padang. So, it takes something that is more embedded in the user's memory so that it can be more easily remembered by users.

From the results above, we can also see that the error rate felt by Maxim users in Padang City is moderate. This means that the majority of users find a sufficient level of error or error in the Maxim application. This needs to be a concern for Maxim so that users no longer feel a hefty error while using the Maxim application.

Meanwhile, the level of satisfaction felt by Maxim users in Padang City is moderate. This happens considering that the majority of users feel that the level of ease, efficiency, and ease to remember is moderate, and the errors are also moderate, resulting in moderate satisfaction. This happens considering that the Maxim application is still a new application in the city of Padang, so adjustments and improvements are still needed to meet the demands of users in the city of Padang.

The results of the five different usability testing components of the Grab and Gojek online transportation applications with independent sample tests can be described as follows:

Table 7 Different Test Results for Grab and Gojek

Component	Application	t statistics	Sig	Information
Convenience	Grab / Gojek	-0.749	0.456	There's not Difference
Efficiency	Grab / Gojek	-0.858	0.389	There's not Difference
Easy to remember	Grab / Gojek	1,850 *	0.068 *	There's Difference
Error	Grab / Gojek	-0.608	0.545	There's not Difference
Satisfaction	Grab / Gojek	-1,188	0.239	There's not Difference

Source: Primary Data Processing Results, 2021

Based on the different test results of the Grab and Gojek transportation applications, each component has a Significant value above 0.05 (Sig > 0.05). With these results, it can be concluded that there is no significant difference in Usability Testing for Grab and Gojek users to measure user satisfaction in the city of Padang. This happens considering that Grab and Gojek are applications that appear at almost the same time. In addition, both of them have been playing in the Indonesian market for a long time, so they are more familiar with the needs of the Indonesian market. The two are often thought to be moving in the same direction but on their respective platforms, thus making no significant difference

between the two applications. However, the easy-to-remember component gets a value below 0.10, so there will be a difference if the Sig value is set at 10%, so that there will be one component that has a difference at this Sig level. These results are consistent with the research of Murti (2020), which analyzes Usability Testing on Online Transportation Applications. The results of the five different usability testing components of the Grab and Maxim online transportation applications with an independent sample test can be described as follows:

Table 8 Different Test Results for Grab and Maxim

Component	Application	t statistics	Sig	Information
Convenience	Grab / Maxim	1,688 *	0.098 *	There's Difference
Efficiency	Grab / Maxim	1,962 *	0.056 *	There's Difference
Easy to remember	Grab / Maxim	2,372 **	0.022 **	There's difference
Error	Grab / Maxim	-1,436	0.158	There's not Difference
Satisfaction	Grab / Maxim	2,990 ***	0.005 ***	There's difference

Source: Primary Data Processing Results, 2021

Based on the different test results of the Grab and Maxim transportation applications, three components have a Significant value above 0.05 (Sig > 0.05), and the other two components have an average value below 0.05 (Sig < 0.05), so that three There is no difference between the components in Usability Testing and the two components have differences in Usability Testing. With these results, it can be concluded that there is no significant difference in Usability Testing for Grab and Maxim users to measure user satisfaction in the city of Padang. This happens considering that Grab and Maxim basically do have some differences. The difference is like the beginning of Grab, which has been operating in Indonesia for a long time, even though both are products from abroad. In addition, Grab is considered to better understand the conditions and needs of users in Indonesia because Grab already has high experience compared to Maxim, who is still a new player in the world of Indonesian online transportation applications, especially in the city of Padang. However, the difference did not reach a very significant limit, so that in the different tests, it was considered that there was no difference. However, the ease, efficiency, and error components get values below 0.10, so there will be a difference if the Sig value is set at 10% so that there will be 4 different components when Sig. At this level. While the satisfaction component gets a value below 0.01 so there will still be a difference if the Sig value is set at 1% so that only one component has a difference if the Sig is at this level. These results are slightly different from the results of the study Murti (2020)

The results of the five different usability testing components of the Gojek and Maxim online transportation applications with independent sample tests can be described as follows:

Table 9 Different Test Results for Gojek and Maxim

Component	Application	t statistics	Sig	Information
Convenience	Gojek / Maxim	2,673***	0.009***	There's difference
Efficiency	Gojek / Maxim	2,923***	0.005***	There's difference
Easy to remember	Gojek / Maxim	0.114	0.909	There's not Difference
Error	Gojek	-0.949	0.346	There's not

	Maxim			Difference
Satisfaction	Gojek Maxim	4,235***	0.000***	There's difference

Source: Primary Data Processing Results, 2021

Based on the results of the different test results for the Gojek and Maxim transportation applications, three components have a significant value below 0.05 (Sig < 0.05) and the other two components have an average value above 0.05 (Sig > 0.05) so that three there are differences in the Usability Testing component and the two components there are no differences in Usability Testing. With these results it can be concluded that there are significant differences in Usability Testing for Gojek and Maxim users to measure user satisfaction in the city of Padang. This happens because Gojek is a company that was born and raised in Indonesia, while Maxim was born and raised in Russia. Gojek is also the first class of applications operating in Indonesia and has been able to understand the needs and desires of users in Indonesia, including in the city of Padang. Gojek makes Indonesia the central and main market compared to Maxim, who is more focused outside Indonesia and is just starting to develop business in Indonesia. With the many differences between the two applications, Gojek and Maxim are considered to have significant differences. This also applies to the determination of the Sig value below 1%.

CONCLUSIONS

Based on the research results of hypothesis testing and data analysis regarding usability testing on online transportation applications to measure user satisfaction in the city of Padang the influence of purchase motivation, price perception, and product quality on purchasing decisions using Multiple Linear Regression analysis techniques, the following conclusions can be obtained:

The level of convenience, efficiency, and ease to remember to Grab users in Padang City are good, and the error rate is very low, resulting in a good level of satisfaction. The level of convenience, efficiency, and easy-to-remember Gojek users in Padang City is good, and the error rate is low, resulting in a very good level of satisfaction. The level of ease, efficiency, and easy to remember Maxim users in Padang City is medium and the error rate is moderate, resulting in a moderate level of satisfaction. There is no significant difference in usability testing on online transportation for Grab and Gojek on user satisfaction in the city of Padang. There is no significant difference in usability testing on Grab and Maxim online transportation on user satisfaction in the city of Padang. And there is a significant difference in usability testing on Gojek and Maxim online transportation on user satisfaction in the city of Padang.

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