The citizens' satisfaction on service quality of mobile government (case study: wargaku surabaya application)

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Abstract

This research aims to analyze the citizens' satisfaction with the service quality of a mobile Government application named WargaKu Surabaya, by using the Mobile Government Service Quality (SQ-mGov) measurement involving four indicators, namely connectivity, interactivity, authenticity, and understandability. The research method used was quantitative using SmartPLS version 0.3 software with primary data sources in the form of questionnaires totaling 100 respondents. This research is interesting because it discusses citizens' satisfaction with the quality of government services using parameters for measuring the quality of mobile government services. The research results show that the connectivity and understandability influence the citizens' satisfaction with the service quality of WargaKu Surabaya application. However, the interactivity and authenticity do not affect the citizens' satisfaction on WargaKu Surabaya application. The practical implications of this research can be used as an input for the government to improve the quality of mobile government services, particularly WargaKu Surabaya application, with the hope that as the service quality mobile Government increases, the citizens' satisfaction will also improve.

1. Introduction

The rapid evolution of technological developments currently supports internet access on mobile phone devices, making it easy for people to explore accessing various information using mobile phones [1]. The sophistication of mobile phones is now starting to replace the sophistication of desktop computers. This is because the sophistication of mobile phones or cellular devices has low costs so that all levels of society can buy them and use them to communicate and access information [2], [3]. This evolution encourages the government to improve services from electronic government to mobile government [4]. The mobile government application makes services more effective and can be accessed anytime and anywhere, not having to be in front of a desktop computer [5].

Mobile Government aims to enhance e-Government services by introducing a supplementary means of access through wireless technology and mobile gadgets like smartphones, Wi-Fi-capable devices such as laptops, and various other wireless tools. These tools enable the provision of services that are accessible at any time and from anywhere [6]. The presence of m-Government is one of the government's efforts to increase the level of service quality and the level of citizen satisfaction [7]. In this case, citizens' satisfaction is something that needs to be considered in implementing mobile government applications. This is due to the high or low satisfaction of the community as citizens determine for the success or failure of the implementation of m-Government [8].

The shift of electronic-based government services called electronic government (e-Government) towards mobile government (m-Government) has been implemented in government services in Indonesia, [9]–[12] one of which is the Surabaya city government [13], [14]. WargaKu Surabaya application is widely used by the people of Surabaya city in expressing complaints, accessing information, and interacting in giving criticism and suggestions in government services [15]. The WargaKu Surabaya application is the latest innovation in services introduced by the Surabaya city government to convey the citizen aspirations and share various information [16]. In the process, complaints submitted by residents will immediately be transferred to the authorized Regional Apparatus Organization (OPD) to be handled quickly. If the obstacles expressed by the community are not immediately followed up, they will automatically reach the attention of the Mayor of Surabaya [17].

The implementation of mobile government in Surabaya using WargaKu Surabaya application aims to improve the quality of service and satisfaction of Surabaya people [18]. Several previous studies have shown that the WargaKu Surabaya application is considered quite effective even though it initially confused the public due to the dualism of media which almost have the same function and role [19]. The service quality of WargaKu Surabaya application makes government services in Surabaya better and makes the complaint handling process easier [10], [19], [20]. However, the implementation of mobile government WargaKu Surabaya application cannot be said to be optimal. This is based on previous research data which shows that WargaKu Surabaya application requires quality improvements in the affordability of message transformation [17], [21]. This is also in line with the author's survey of user reviews of WargaKu Surabaya application on Google Playstore which showed that users of WargaKu Surabaya application gave many complaints about this application. These complaints include the followings:

"The response to the complaint I faced was that I was thrown away and told to discuss it with the local sub-district"

"If you want to register, you can't, instead it says username already exists even though you've never registered at all"

"How come there's suddenly an error, the media center can't be opened. I uninstalled and reinstalled and couldn't log in. This error application"

"The application has an error, I want to register and I can't log in, it says there is a technical error"

"It's useless to make an application but there is no response at all. Uninstalled"

Based on the complaints from the users of WargaKu Surabaya application, it shows that there are problems with the quality of mobile government services that require attention from the Surabaya City government. Measuring the quality of service in the implementation of mobile government is needed to see the level of citizen satisfaction and make an evaluation on improving the quality of mobile government implementation. Therefore, research is needed related to measuring the level of citizens satisfaction with the quality of mobile government services. Service Quality Mobile Government (SQ mGov) is a measurement of service quality implementing mobile government which is very necessary in the current era with the high use of mobile devices in government services [22]. Based on this, the author wants to examine citizen satisfaction with Mobile Government Service Quality on the WargaKu Surabaya application using measurements from the Service Quality Mobile Government (SQ mGov) indicators which consist of Connectivity, Interactivity, Authenticity and Understandability indicators [23]. This research is an interesting topic to discuss because in previous research there has been no previous research that examined WargaKu Surabaya application from the perspective of measuring the citizen satisfaction with Service Quality Mobile Government, so it is the latest research in this topic.

2. Research Method
2.1 Research Method Design
This research employed quantitative methods using the smart PLS version 0.3 application to describe citizens' satisfaction with the Service Quality of mobile Government (SQ-mGov) WargaKu Surabaya application [24]. This research used a random sampling of respondents with respondents who were citizens of WargaKu Surabaya application. The data collection technique used was a survey technique, where the data were collected through distributing questionnaires online (Google Form). The utilization of Smart PLS 3.0, a software tool for Partial Least Squares (PLS) analysis, is a valuable method within the field of variance-based Structural Equation Modeling (SEM). This approach is particularly useful for addressing challenges such as multiple regression issues, small sample sizes, missing data, multicollinearity, and associated statistical problems [25].

2.2 Sampling Technique
The sampling technique in this study used the Slovin formula to determine the number of samples with a sampling error of 10% with the slovin formula as follows: [$n = N/(1 + Ne^2$)[24]. Based on data from the Play Store, WargaKu Surabaya application has been downloaded 100 thousand times. The results of calculating the determination of the sample in this study using the Slovin formula presented in Equation 1, Equation 2, Equation 3, Equation 4, and Equation 5 as follows:

$$n = N/(1 + Ne^2) \tag{1}$$

$$n = 100,000/(1 + 100,000(0.10^2)) \tag{2}$$

$$n = 100,000/(1 + 1,000 \tag{3}$$

$$n = 100,000/1,001 \tag{4}$$

$$n = 99,90 \tag{5}$$

Based on this calculation, for a survey with a population of 100,000 citizens and an uncertainty level of 10%, the minimum sample size required was around 100 respondents. This research used a random sampling technique with a total of 100 respondents. The random sampling technique selected respondents at random from the program participant population. In this case, each program participant had the same opportunity to be selected as a respondent [24].

2.3 Research Instruments

The research instrument in this study used a questionnaire based on the indicators from the Mobile Government Service Quality (SQ-mGov) measurement consisting of four indicators, namely connectivity, interactivity, authenticity, and understandability. The research instrument Table 1 for this research is as follows:

Table 1. The Research Instrument

Indicators of Research Instrument		
Connectivity (C)	C 1	The service can be accessed via my mobile device or phone at any time
	C 2	The service can be accessed from any location using my mobile device or phone
	C 3	The service can be reached at any time using my mobile device or phone
	C 4	The service can be reached from any location via my mobile device or phone
	C 5	I can finish my task on time using my mobile device or phone
Interactivity (I)	I 1	Navigating through the service on my mobile device or phone is a straightforward process
	I 2	Performing my task through my mobile device or phone is a simple process
	I 3	I find it quite convenient to carry out the service using my mobile device or phone
	I 4	The steps to seek the service can be easily executed through my mobile device or phone
Authenticity (A)	A 1	In general, the service process through my mobile device or phone is dependable
	A 2	Overall, any transaction made while conducting the service through my mobile device or phone is reliable
	A 3	The result of using my mobile device or phone for the service is assured
	A 4	The government assumes accountability for any technical issues that may arise while processing the service on my mobile device or phone
Understandability (U)	U 1	The instructions for processing the service are clear and comprehensible when using my mobile device or phone
	U 2	The service furnishes all pertinent information required to meet my needs when using my mobile device or phone
	U 3	The result of the service is clear when accessed through my mobile device or phone
Service Quality (SQ)	SQ 1	I efficiently accomplished the task using my mobile device or phone
	SQ 2	I effectively accomplished the task using my mobile device or phone
	SQ 3	I am satisfied with the service provided through my mobile device or phone in its entirety
	SQ 4	I am satisfied with my experience in overall service conducted through mobile devices/phones.

2.4 Research Hypotheses

The research instrument in this study used a questionnaire based on the indicators from the Mobile Government Service Quality (SQ-mGov) measurement consisting of four indicators, namely connectivity, interactivity, authenticity, and understandability. The research instrument table for this research is presented as follows:
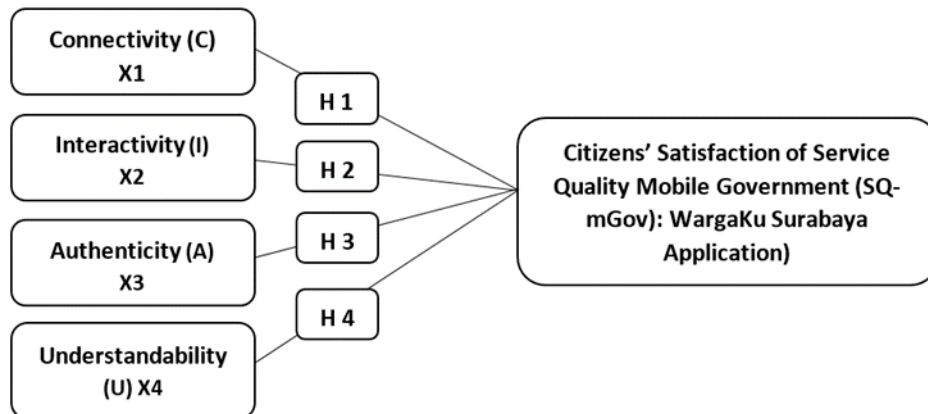

Figure 1. The Theoretical Framework

Based on Figure 1 above, it shows the theoretical framework. From the perspective of the theoretical framework, within the context of influences citizens' satisfaction on Service Quality of Mobile Government (SQ-mGov): WargaKu Surabaya Application, The formulation of hypotheses is as stated below:

H1: Connectivity significantly influences the citizens' satisfaction of the Service Quality of Mobile Government (SQ-mGov): WargaKu Surabaya Application

H2: Interactivity significantly influences the citizens' satisfaction of the Service Quality of Mobile Government (SQ-mGov): WargaKu Surabaya Application

H3: Authenticity significantly influences the citizens' satisfaction of the Service Quality of Mobile Government (SQ-mGov): WargaKu Surabaya Application

H4: Understandability significantly influences the citizens' satisfaction of the Service Quality of Mobile Government (SQ-mGov): WargaKu Surabaya Application

Derived from the previously posited hypothesis, the variables employed in this investigation encompassed the followings:

1. Dependent Variables
   a. Connectivity (C): The extent to which the service is available and accessible from anywhere at any time with reasonable speed through mobile device
   b. Interactivity (I): The extent to which the service is easy to use both technologically, psychologically, and structurally
   c. Authenticity (A): The extent to which the processing of complete service starting from instruction and information organization to outcome is understandable
   d. Understandability (U): The extent to which the process, transaction, and outcome of the service is reliable with the government's legal responsibility
2. Independent Variable: Citizens' Satisfaction on Service Quality of Mobile Government (SQ-mGov): WargaKu Surabaya Application: This variable looks at the service quality of mobile Government on WargaKu Surabaya Application.

3. Results and Discussion
3.1 The Demographic of the Respondents

The demographic profile of the respondents is presented in Table 2. Most of the respondents were male, 58.00%, while female had a percentage of 42.00%. Then, in terms of the age of the respondents, the central dominance was the age of 17-25 years with 50.00%, 30.00% at the age of 26-35 years, and 20.00% at the age of 36-45 years. Furthermore, regarding the period of experience of Surabaya community users, 30% had less than 1 year, 45% with experience using the Wargaku Surabaya application 1 year, and 35% of citizenswith experience using the WargaKu Surabaya application 2 years.

Table 2. The Demographic of the Respondents

Characteristic	Surabaya Regency	
	Freq	Percentage
Gender		
Man	58	58%
Women	42	42%
Age		
17-25	40	40%
26-35	35	35%
36-45	15	15%
>45	10	10%
WargaKu Surabaya Application User Experience		
< 1 Year	30	30%
1 Year	45	45%
2 year	35	35%

3.2 Validity Test

The purpose of conducting validity tests is to establish benchmarks that enable researchers to determine whether a variable is valid or not when searching for findings [26]. In this study, researchers proposed a model to test data consisting of constructs: connectivity, interactivity, authenticity, and understandability in assessing the service quality of Mobile Government in WargaKu Surabaya Application. Convergent validity is determined by examining the factor loading value of an indicator on its corresponding latent variable. To assess convergent validity, we considered the relationship between the individual item scores or composite scores and the construct scores calculated using PLS. A reflective measurement is considered strong if it exhibits a correlation of more than 0.70 with the intended construct. Additionally, the validity of the test is also evaluated by looking at the Average Variance Extracted (AVE), which is considered valid if its value exceeds 0.5 [27]. The Figure 2 below illustrates the research model employed in this study:
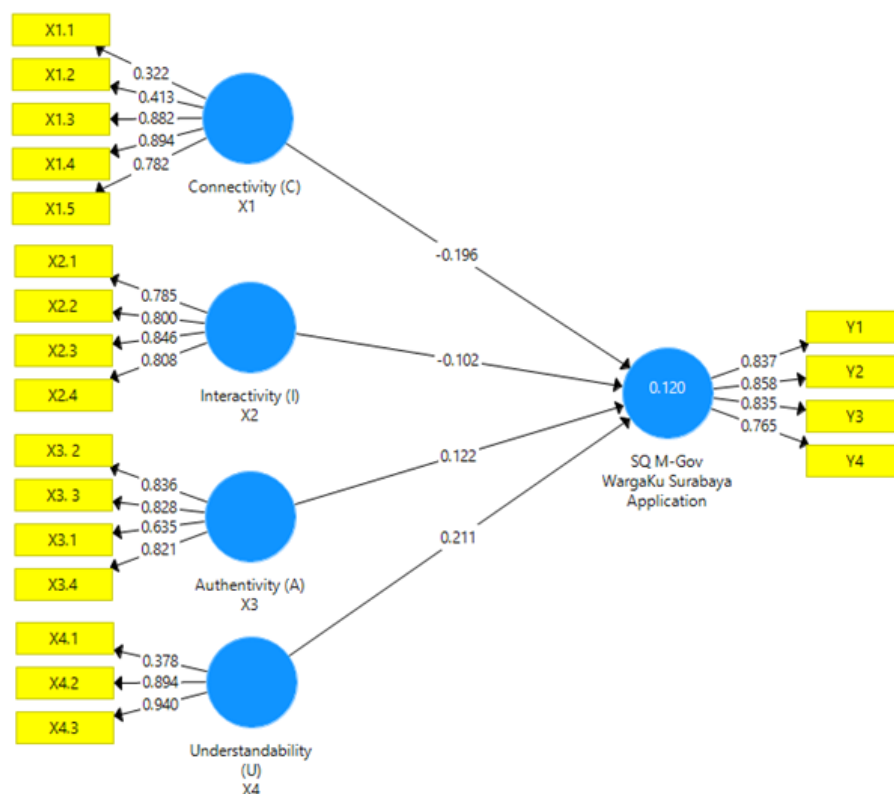

Figure 2. The Theoretical Framework

The outer loading in the validity test is as follows:

Table 3. The Outer Loading Validity test I

Variable	Indicator	Outer Loading	Information
SQ-mGov WargaKu Surabaya Application (Y)	Y1	0.837	Valid
	Y2	0.858	Valid
	Y3	0.835	Valid
	Y4	0.765	Valid
	Y5	0.837	Valid
Connectivity (XI)	X1. 1	0.322	Invalid
	X1. 2	0.413	Invalid
	X1. 3	0.882	Valid
	X1.4	0.894	Valid
	X1.5	0.782	Valid
Interactivity (X2)	X2. 1	0.785	Valid
	X2. 2	0.800	Valid
	X2. 3	0.846	Valid
	X2. 4	0.808	Valid
Authenticity (X3)	X3. 1	0.836	Valid
	X3. 2	0.828	Valid
	X3. 3	0.635	Invalid
	X3. 4	0.821	Valid
Understandability (X4)	X4. 1	0.378	Invalid
	X4. 2	0.894	Valid
	X4. 3	0.940	Valid

Based on Table 3 above, it is evident that the indicators X1.1, X1.2, X3.1, and X4.1 possess convergent validity values below 0.70 and AVE values below 0.50. Hence, indicators X1.1, X1.2, X3.1, and X4.1 are considered invalid and have been removed. After their removal and retesting, the data processing outcomes were as follows Figure 3:
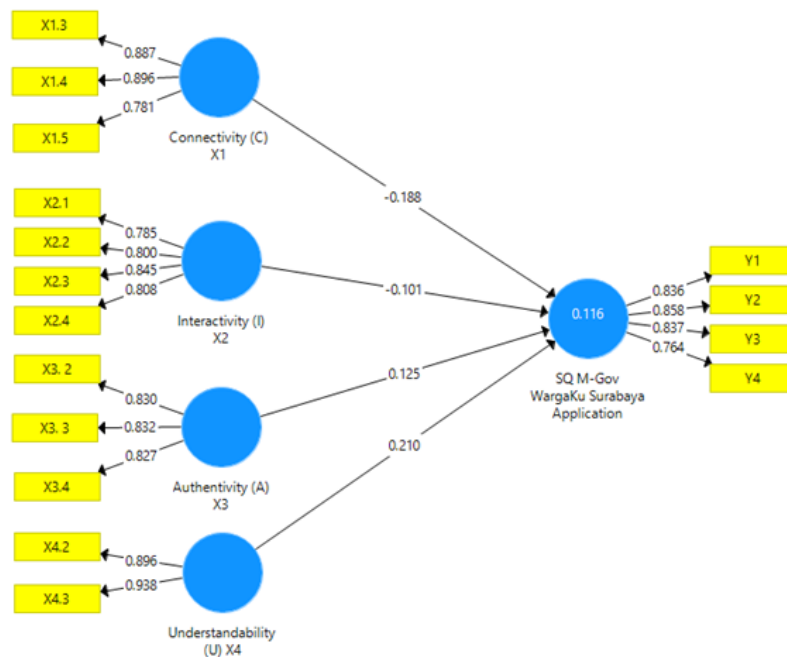

Figure 3. The Theoretical Framework II

The outer loading in the validity test is as follows:

Table 4. The Outer Loading Validity Test II

Variable	Indicator	Outer Loading	Information
SQ-mGov WargaKu Surabaya Application (Y)	Y1	0.836	Valid
	Y2	0.858	Valid
	Y3	0.837	Valid
	Y4	0.764	Valid
Connectivity (X1)	X1.3	0.887	Valid
	X1.4	0.896	Valid
	X1.5	0.781	Valid
Interactivity (X2)	X2.1	0.785	Valid
	X2.2	0.800	Valid
	X2.3	0.845	Valid
	X2.4	0.808	Valid
Authenticity (X3)	X3.2	0.830	Valid
	X3.3	0.832	Valid
	X3.4	0.827	Valid
Understandability (X4)	X4.2	0.896	Valid
	X4.3	0.938	Valid

The AVE in this research is as follows:

Table 5. AVE Validity Test II

	Average Variance Extracted (AVE)	Information
SQ-mGov WargaKu Surabaya Application	0.680	Valid
Connectivity	0.733	Valid
Interactivity	0.656	Valid
Authenticity	0.688	Valid
Understandability	0.842	Valid

Based on Table 4 and Table 5 above, the tables show that all research variables have convergent validity values in outer loading exceeding 0.60 and AVE values exceeding 0.50, so it can be concluded that all statements relating to research variables are considered valid and met the criteria for convergent validity and discriminant validity.

3.3 Construct Reliability
In addition to assessing construct validity, we also conducted tests for construct reliability by examining the composite reliability and Cronbach's alpha of the indicator block that measures each construct. A construct is considered reliable when it demonstrates both a composite reliability value and a Cronbach's alpha above 0.70 [27]. The composite reliability table is as follows:

Table 6. Composite Reliability

	Composite Reliability	Information
SQ-mGov WargaKu Surabaya Application	**0.894**	reliable
Connectivity	**0.891**	reliable
Interactivity	**0.884**	reliable
Authenticity	**0.869**	reliable
Understandability	**0.914**	reliable

Based on Table 6, it becomes evident that all constructs exihibit reliability values exceeding 0.70. Consequently, it can be asserted that the constructs under examination in this study demonstrate the necessary reliability criteria. The Cronbach's Alpha results in this research are as follows:

Table 7. Cronbach's Alpha

	Cronbach's Alpha	Information
SQ M-Gov WargaKu Surabaya Application	0.846	reliable
Connectivity	0.818	reliable
Interactivity	0.830	reliable
Authenticity	0.789	reliable
Understandability	0.815	reliable

Based on Table 7, it shows that the Cronbach alpha values for all constructs, which are 0.846, 0.818, 0.830, 0.789, and 0.815, are consistently above 0.7. This indicates that the constructs in this study are reliable and have satisfied the necessary reliability criteria.

3.4 Hypothesis testing

Hypothesis testing was conducted using Smart PLS version 3 software to address the research questions that had been previously formulated [27]. The presentation of the bootstrapping results in this study is depicted as follows:
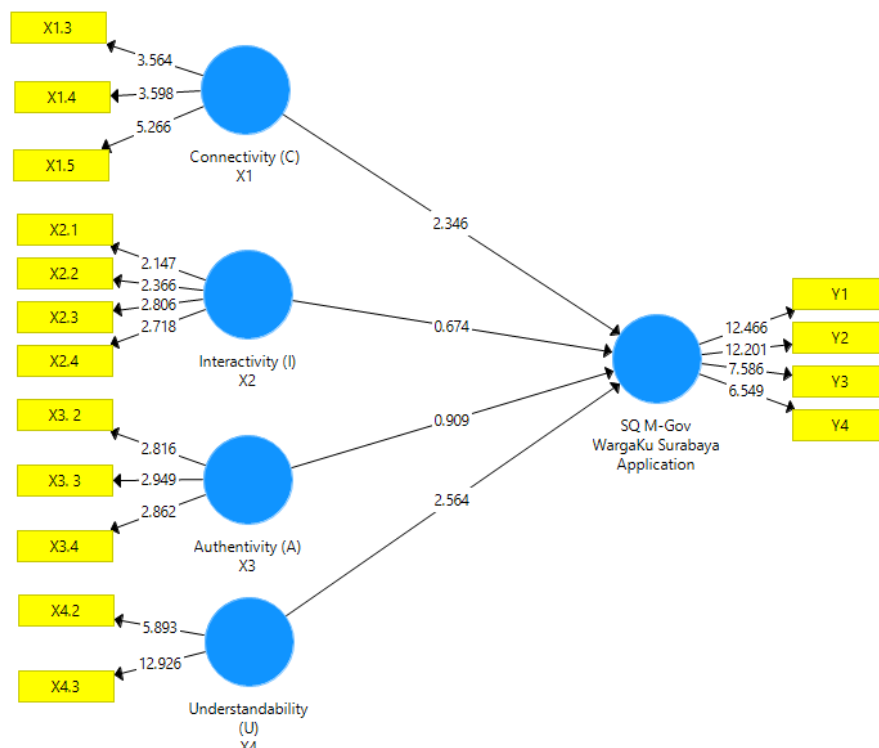

Figure 4. Bootstrapping Output

The Figure 4 above is the bootstrapping output in this research to carry out the hypothesis testing. Bootstrapping method was applied on independent and dependent variables to determine the value of reliability and validity of the study. The test used statistical numbers T and P Values to test this Hypothesis and is presented in tabular form. The significance of testing this hypothesis can be determined when the T statistics value exceeds 1.96 and the P-value is less than 0.05 [25]. The table of hypothesis testing results is as follows Table 8:

Table 8. Hypothesis testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Hypothesis
Connectivity	-0.188	-0.208	0.080	2.342	0.020	Accepted
Interactivity	-0.101	-0.117	0.156	0.645	0.519	Rejected
Authenticity	0.125	0.119	0.141	0.884	0.377	Rejected
Understandability	0.210	0.222	0.095	2.223	0.027	Accepted

Based on the research hypothesis testing in Table 8 above, the results of hypothesis testing are shown as follows:

1. The p-value of the Connectivity is 0.020 with a T value of 2.342, indicating that the hypothesis is accepted. Therefore, it is concluded that the Connectivity has a positive and significant implication on citizens' satisfaction with the Service Quality mobile Government of WargaKu Surabaya Application.

2. The p-value of the Interactivity is 0.519 with a T value of 0.645 indicating that the hypothesis is rejected. Therefore, it is concluded that the Interactivity has no significant implication on citizens' satisfaction with the Service Quality mobile Government of WargaKu Surabaya Application

3. The p-value of the Authenticity is 0.377 with a T-value of 0.884, indicating that the hypothesis is rejected. Therefore, it is concluded that the Authenticity has no significant implication on citizens' satisfaction with the Service Quality mobile Government of WargaKu Surabaya Application

4. The p-value of the Understandability is 0.027 with a T value of 2.223, indicating that the hypothesis is accepted and it is concluded that the Understandability has a positive and significant implication on citizens' satisfaction with the Service Quality mobile Government of WargaKu Surabaya Application.

3.5 Discussion

This research focused on testing citizens' satisfaction on the implementation of mobile government on WargaKu Surabaya application using testing theory from Service Quality Mobile Government (SQ-mGov) consisting of four indicators, namely authenticity, connectivity, interactivity, and understandability. According to the outcomes of the hypothesis test, it is evident that the first hypothesis indicates a positive and meaningful impact of the connectivity on citizens' satisfaction with the Service Quality of WargaKu Surabaya Application. This is supported by previous research which explains that WargaKu Surabaya application can be accessed by Surabaya residents online by more than 50,000 citizens dominated by young people with the number of citizen complaints submitted in 2021 having received 11,316 online complaints {Formatting Citation}. Previous research also shows that the connectivity quality of WargaKu Surabaya application provides benefits and convenience for people who use the application to submit complaints to the government more effectively and efficiently [20]. This shows that WargaKu Surabaya application service can be accessed anytime and anywhere easily using a mobile phone [28].

The second hypothesis shows that the Interactivity has no significant effect on citizens' satisfaction with the Service Quality mobile Government of WargaKu Surabaya Application. The results of this hypothesis are supported by previous research which explains that the problem felt by the community using WargaKu Surabaya application is that there is no further response from related parties in reporting that has been carried out by the reporter on WargaKu Surabaya application and the follow-up process is also quite long [19], [29]. Apart from this, the results of the second hypothesis in this research are also strengthened by previous research which also explains that the quality of interaction between the government in responding to public reports on WargaKu Surabaya application still requires training in responding to public reports because it uses standard language so it is considered less humanistic and it is feared that it will cause misunderstanding when the response is accepted by the community [21].

The third hypothesis in this research shows that the Authenticity has no significant effect on citizens' satisfaction with the Service Quality mobile Government of WargaKu Surabaya Application. The results of the hypothesis in this research are strengthened by previous research which explains that people who use the Wargaku Surabaya application often experience complaints when using WargaKu Surabaya application, they often experience errors, and the forms provided in the application are not appropriate [19]. Apart from this, other previous research also explains that WargaKu Surabaya application is often difficult to access, so the citizens feel lazy for using WargaKu Surabaya application in submitting reports and receiving services [30].

The fourth hypothesis in this research shows that the Understandability has a positive and significant implication on citizens' satisfaction with the Service Quality mobile Government of WargaKu Surabaya Application. The hypothesis results in this research are strengthened by previous research which explains that the services and features provided in WargaKu Surabaya application are easy for citizens to understand [19]. Apart from this, previous research also explains that the government as the service provider has carried out outreach to the community, so that in this case the community understands better how to use the services of WargaKu Surabaya application [21].

The results of the hypothesis in this study show that citizen satisfaction as the users of WargaKu Surabaya application has not been fully satisfied, especially in terms of interactivity and authenticity. The rejection of these two indicators in this research shows that several improvements are needed in Surabaya City government services through WargaKu Surabaya application by improving the quality of interaction and authentication, so that the user community no longer complains about applications that cannot be used, cannot log in, data incompatibility and quite a long response. This is because the citizen satisfaction is the main thing in assessing the success of a public service provided by the government.

4. Conclusion

This research aimed to see the citizens' satisfaction with the quality of mobile government implementation on WargaKu Surabaya application using four measurement indicators from Service Quality Mobile Government (SQ-mGov). The research results show that citizen satisfaction on WargaKu Surabaya application is still lacking. This lack of citizen satisfaction shows the lack of service quality of mobile Government on WargaKu Surabaya application. This is based on the results of the research hypotheses which show that the connectivity and understandability influence citizen satisfaction with the mobile government services of WargaKu Surabaya application. However, the interactivity and authenticity did not affect the citizens' satisfaction with the Government mobile services of WargaKu Surabaya application.

The practical implications of this research can be used as an input for the government to improve the quality of mobile-based government services on WargaKu Surabaya application, with the hope that increasing the quality of services provided by the government will increase the citizens' satisfaction with mobile-based government services. Although this research can explain the citizens' satisfaction with the quality of mobile-based government services on WargaKu Surabaya application, this research has several limitations such as; the scope of the research locus is not too large, the research time is relatively short (one month), the number of respondents, and the composition of the variables. For these reasons, it is hoped that the limitations of this research can be used as the recommendations for future research.

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