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Research Paper

The Effect of Mobile Shopping Service Quality on Customer Satisfaction and Customer Loyalty: A Case of *Bukalapak* in Indonesia

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ABSTRACT

Bukalapak's position as the fifth-ranked e-commerce platform suggests a decrease in the number of visitors, which may be attributed to factors such as customer satisfaction. To address this, it is crucial to focus on mobile shopping service quality, customer satisfaction, and customer loyalty to retain and attract more users. This study aims to examine the effect of mobile shopping service quality on customer satisfaction and loyalty among Bukalapak users in Indonesia. The research employed a quantitative approach, utilizing a causal research design. Data was collected through questionnaires distributed to at least 400 respondents who have used or are currently using the Bukalapak. The data was analyzed using Structural Equation Modeling (SEM) in SPSS 29 as well as the AMOS 26 program. The analysis reveals that mobile shopping service quality has a significant and positive effect on customer satisfaction. Furthermore, customer satisfaction significantly affects customer loyalty. However, the effect of mobile shopping service quality on customer loyalty is positive but not significant. Factors such as efficiency, fulfillment, responsiveness, and contact demonstrate a significant and positive relationship with both customer satisfaction and loyalty.

Introduction

Digital technology and the internet have revolutionized various aspects of life in Indonesia, especially in the business sector, through the transformative emergence of e-

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commerce. The need for mobile applications increases with the use of mobile devices such as smartphones (Kilimci, 2021; Sheu & Chang, 2022; McLean et al., 2020). This is evident through the emergence of electronic commerce (e-commerce) trends that have transformed people's lives (Sari & Prasetio, 2018), particularly during the pandemic (Hoh et al., 2022; Tran, 2020). Every day, we witness the emergence of new and versatile mobile apps designed to meet the evolving needs of users (Balapour et al., 2020). The conventional system of buying and selling has transitioned to online platforms, encompassing both e-commerce and m-commerce (Dumanska et al., 2021). This transformation in transaction methods is facilitated by technological advancements, enabling convenient online mobile shopping experiences through e-commerce. As defined by Candiwan and Wibisono (2021), e-commerce refers to the utilization of the internet, websites, browsers, and specific mobile applications on mobile devices for conducting business transactions. In the modern business landscape, e-commerce has become a necessity for companies looking to expand their operations, given the numerous advantages it offers (Prasetio et al., 2021). Among the evolving innovations in e-commerce is mobile commerce (m-commerce), which enables businesses to conduct transactions via wireless internet-connected mobile devices (Pratama, 2015).

Mobile shopping apps are preferred by consumers for personalized shopping experiences and seamless integration across multiple channels (Chopdar & Sivakumar, 2018; de Canio et al., 2022). Shopping apps enhance retailer-customer engagement, increasing satisfaction and loyalty (Sinemus et al., 2022). In terms of e-commerce visitors, data from the third quarter of 2021 reveals that Bukalapak ranks third with a total of 30.1 million visitors. Tokopedia holds the first position with 158.1 million visitors, followed by Shopee in second place with 134.4 million visitors. Although Bukalapak experienced a 1.26% increase in visitors in 2021, it faced a decline in visitors in 2022. According to iPrice, Tokopedia remains the most visited marketplace with 157.23 million visitors, followed by Shopee with 132.77 million visitors, and Lazada in third place with 24.68 million visitors. Bukalapak ranks fourth with 23.1 million visitors, trailing behind Lazada. These data indicate a decrease in the number of users for Bukalapak compared to the previous year, placing it in the third position with a total of 30.52 million visitors. SimilarWeb data also shows that Bukalapak ranked fifth in February 2023, with 18.1 million visits, in comparison to other competing e-commerce brands. In response to the decline in visitors to the Bukalapak application, the researchers aim to understand the factors contributing to this decrease, identifying customer loyalty as one of the key issues to be explored (Ahdiat, 2022).

The results of a survey conducted by EcommerceIQ revealed that many Bukalapak users complained about the inconvenience they experienced while shopping on the platform. Compared to other e-commerce platforms such as Tokopedia, Shopee, Lazada, JD.ID, and Blibli, Bukalapak ranked second as the least favored e-commerce platform among users, with a percentage of 15.8%. Similarly, a survey conducted by the Indonesian Consumers Foundation (YLKI) reported that Bukalapak and JD.ID received the most customer complaints throughout 2019, accounting for 17.6% of the total complaints. Out of 1,871 consumer complaints recorded in 2019, Bukalapak and JD.ID topped the list with the highest number of complaints. Despite procedures being in place, users encountered difficulties when attempting to file a complaint. Moreover, many consumers received

products that did not match their orders. Given these issues, we aim to assess the level of customer satisfaction regarding the problems encountered on the Bukalapak platform.

Consumer satisfaction is the sentiment experienced after consuming or using a product (Kotler & Keller, 2016). Moreover, societal demands for improved service quality can also influence customer satisfaction (Kotler & Keller, 2016). Customer Satisfaction and customer loyalty, are influenced by the decrease in Bukalapak application users and the negative complaints received from users, indicating consumer disappointment with the Bukalapak experience. Consequently, the researchers aim to assess user satisfaction levels and enhance user loyalty by striving to create a sense of satisfaction among Bukalapak users. Consumer dissatisfaction often arises from the perception-reality gap, where consumers compare their expectations with the actual experience. If the consumer's experience falls below expectations, dissatisfaction arises, while exceeding expectations leads to satisfaction. To address this, it is crucial to focus on mobile shopping service quality, customer satisfaction, and customer loyalty to retain and attract more users. This study focuses on examining the effect of mobile shopping service quality on customer satisfaction and customer loyalty.

Hypothesis Development

Mobile shopping service quality has a strong relationship with customer satisfaction, affecting professionals in M-Shopping who may consider switching to other competitive businesses. It can also enhance marketing quality through a broader sales network. Previous studies support this relationship, with Andini et al. (2022) demonstrating a positive and significant effect of mobile shopping service quality on customer satisfaction. Mulyono and Pasaribu (2021) further confirm the positive effect of mobile shopping service quality on customer satisfaction. Khatoon et al. (2020) found that electronic service quality positively influences customer buying intentions mediated by customer satisfaction. Oppong et al. (2021) discovered that among the three dimensions of m-health service quality, only interaction quality significantly affects user satisfaction, while all three dimensions have a positive effect. Thus, two hypotheses were formulated:

H1: Mobile Shopping Service Quality (MS-SQ) has a positive and significant effect on customer satisfaction.

H1a: Each dimension of mobile shopping service quality has a positive and significant effect on customer satisfaction

Mobile Shopping Service Quality can affect customer loyalty through customer satisfaction. This is supported by previous research by Dharaman and Chei Razak (2020), indicating a positive effect of mobile shopping service quality on customer loyalty. Aditya et al. (2021) also found a positive and significant relationship between customer satisfaction and customer loyalty. Mulyono and Pasaribu (2021) further emphasized that mobile service quality positively affects customer loyalty and satisfaction. Satisfied users are likely to develop loyalty toward the company or service provider (Majeed et al., 2022). However, a contrasting view is presented by Andini et al. (2022), stating that mobile shopping service quality has a positive but non-significant effect on customer loyalty on the Tokopedia mobile site in Yogyakarta City. Consequently, two hypotheses were developed:

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H2: Mobile Shopping Service Quality (MS-SQ) has a positive and significant effect on Customer Loyalty.
H2a: Each dimension of mobile shopping service quality has a positive and significant effect on customer loyalty.

Customer satisfaction is not a guarantee of customer loyalty, but if customers are loyal, it can be inferred that they are satisfied. Satisfied customers are more likely to make repeat purchases, highlighting the importance of satisfaction in relation to customer loyalty (Kotler, 2015). Additionally, Andini et al. (2022) found that higher service usage increases customer satisfaction, leading to stronger repurchase intentions. Research consistently demonstrates that customer satisfaction has a positive and significant effect on customer loyalty. This finding is supported by Berliana and Zulestiana (2020), who highlight the positive and significant effect of customer satisfaction on customer loyalty. Furthermore, Risanty et al. (2021) state that high customer satisfaction drives increased customer loyalty in mobile shopping. However, Aditya et al. (2021) present contrasting results, suggesting no positive and significant relationship between service quality, customer satisfaction, and customer loyalty. Thus, a hypothesis was formulated:
H3: Customer satisfaction has a positive and significant effect on customer loyalty.

The theoretical framework for this study is as presented in Figure 1:

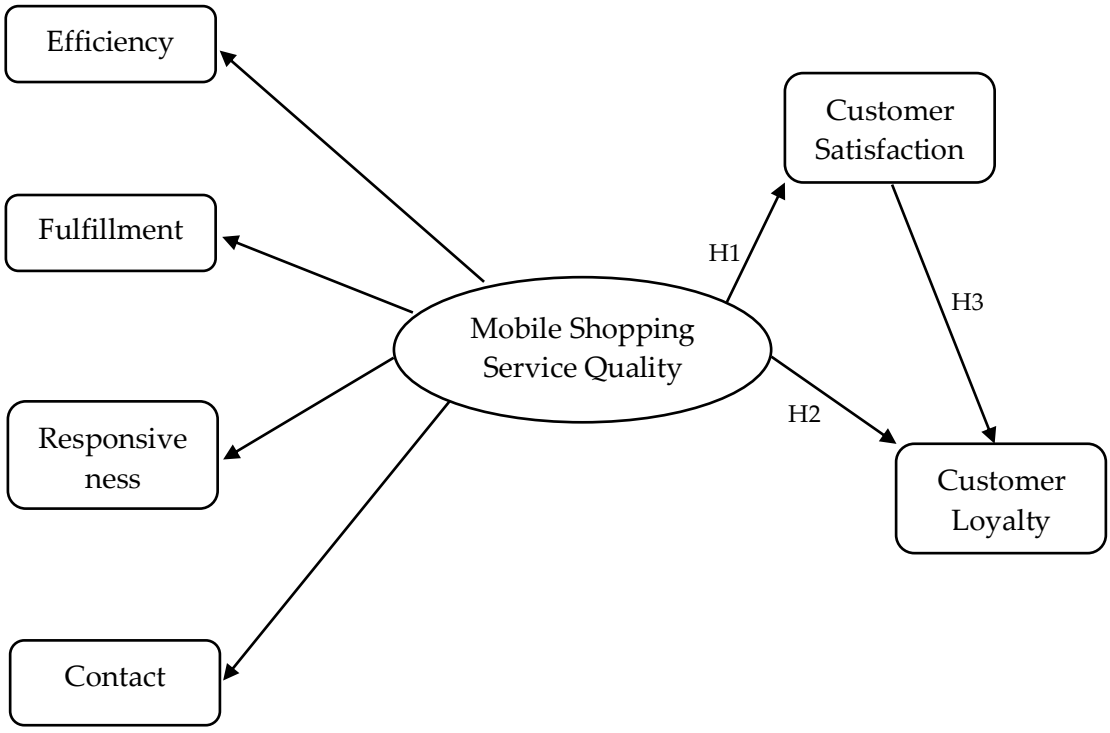

Figure 1. Theoretical Framework

Method

This research employed a causal research design to examine the relationship between the independent and dependent variables (Sugiyono, 2018). The research is conducted in a non-contrived setting, meaning it occurs naturally or aligns with field studies (Indrawati, 2015). The researcher utilized a cross-sectional method, considering the

limited time frame for data collection. In this research, the independent variable examined is mobile shopping service quality. The dependent variables are customer satisfaction and customer loyalty.

This study involves the population of Bukalapak users in Indonesia. The exact number of users is unknown. Sampling was conducted nationwide, using a non-probability sampling technique, specifically purposive sampling. The Cochran formula was employed to determine the sample size, resulting in a minimum requirement of 385 respondents with a 5% margin of error and 95% confidence level. To mitigate questionnaire errors, the researchers rounded up the sample size to 400 respondents.

Primary data in this research was collected using an online Google form questionnaire distributed through various social media platforms such as Line, Instagram, Twitter, WhatsApp, and Telegram. The responses from 385 participants constituted the primary data. Secondary data sources included journals, websites, relevant articles, official sources from Bukalapak, books, and previous research.

The descriptive analysis in this study utilized a standard assessment calculated as 100% - 20% = 80% divided by 5, resulting in an interval value of 16%. The sample's distance was measured based on the resistance value, resulting in an interval value of 18.75%. These calculations provide the following score interpretation criteria: 20% - 36% (Very Poor), > 36% - 52% (Poor), > 52% - 68% (Fair), > 68% - 84% (Good), and 84% - 100% (Very Good).

The SEM (Structural Equation Modeling) was utilized for hypothesis testing through the AMOS 26 program. It involves indicators from each variable and structural models within the research. These indicators help explain and establish relationships between the variables, which are interdependent on one another. SEM was chosen due to the presence of indicator variables categorized as exogenous and endogenous variables (Hair et al., 2010). This technique is suitable when dealing with numerous variables in the structural model, divided into exogenous and endogenous variables (Sugiyono, 2018).

Results

Respondent Characteristics

Table 1 displays the characteristics of the respondents, including their gender, age, level of education, and occupation

Table 1. Respondent Characteristics

Characteristics	Total	Percentage
Gender		
Male	144	36%
Female	256	64%
Age		
< 18 years	0	0%
18 – 25 years	349	87.3%
26 – 30 years	42	10.5%
> 30 years	9	2.3%
Level of education		
Junior High School	0	0%

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Characteristics	Total	Percentage
Senior High School	262	65.5%
Diploma	19	4.7%
Bachelor	119	29.8%
Occupation		
Student	250	62.5%
Self-employed	36	9.0%
Private-sector employee	12	3.0%
Other	102	25.5%

Questionnaire Responses

The responses provided by the participants in the questionnaire are presented in Tables 2 and 3. According to Table 2, the mobile shopping service quality variable falls within the range of 68% to 84% in a cross-sectional analysis. In this study, the perception of mobile shopping service quality is measured at 81.88%. This indicates a positive evaluation from users regarding the services and products offered by Bukalapak.

Table 2. Responses to Mobile Shopping Service Quality

No.	Item	Answer					Total Score	%	Category
		1	2	3	4	5			
1	It is easy for me to find what I'm looking for in Bukalapak.	0	4	9	124	261	1844	92.2	Very good
2	The navigation on Bukalapak is user-friendly and easy to use.	0	8	83	224	83	1584	79.2	Good
3	Transactions on Bukalapak can be completed quickly.	0	8	39	201	152	1697	84.85	Very good
4	The information on Bukalapak is well-organized and logically presented.	0	5	52	172	170	1708	85.4	Very good
5	Pages on Bukalapak load quickly.	0	8	67	229	94	1611	80.55	Good
6	Orders placed on Bukalapak are promptly shipped.	0	5	7	47	340	1923	96.15	Very good
7	Bukalapak provides a clear timeframe for delivery.	0	7	15	94	282	1853	92.65	Very good
8	Orders from Bukalapak are accurate and fulfill the customer's specifications.	0	4	48	193	153	1697	84.85	Very good
9	Stock information on Bukalapak is reliable, displaying only available items.	0	35	81	167	115	1564	78.2	Good
10	Bukalapak offers convenient options for returns.	0	35	132	216	16	1414	70.7	Good
11	The Bukalapak has a clear process for returning goods	0	35	81	167	115	1564	78.2	Good

No.	Item	Answer					Total Score	%	Category
		1	2	3	4	5			
12	Bukalapak provides guarantees for incorrect or undelivered orders.	0	17	199	171	12	1379	68.95	Good
13	Guidelines are provided on Bukalapak for addressing any issues that may arise.	0	15	63	206	115	1622	81.1	Good
14	Bukalapak offers contact options to reach company representatives.	0	2	3	18	375	1968	98.4	Very good
15	Online chat support is available for interactions between buyers and sellers.	0	0	10	57	333	1923	96.15	Very good
16	Customer Service on Bukalapak is friendly, helpful, and responsive to problems.	1	30	112	231	25	1450	72.5	Good
17	Customer Service consistently offers useful suggestions.	1	49	143	191	14	1370	68.5	Good
18	Service partners affiliated with Bukalapak provide polite and reassuring assistance.	0	3	49	295	50	1595	79.75	Good
19	Service partners can quickly solve problems.	0	18	207	156	16	1373	68.65	Baik
Total							31117	81.88684	Good

Based on the findings presented in Table 3, users have provided a positive assessment of user satisfaction regarding their shopping experience on the Bukalapak. This positive assessment indicates that the platform has successfully met their expectations.

Table 3. Responses to the Customer Satisfaction

No	Item	Answer					Total Score	%	Category
		1	2	3	4	5			
20	I am pleased with my decision to use the Bukalapak application.	2	30	128	227	12	1418	70.9	Good
21	The Bukalapak has exceeded my expectations.	1	62	103	205	29	1399	69.95	Good
22	Choosing Bukalapak was the right choice for me.	0	7	54	215	123	1655	82.75	Good
23	My shopping experience on the Bukalapak has been highly satisfying.	0	52	128	199	20	1388	69.4	Good

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No	Item	Answer					Total Score	%	Category
		1	2	3	4	5			
24	The Bukalapak application offers a delightful shopping experience	1	21	40	207	129	1644	82.2	Good
Total							7504	75.04	Good

Table 4 shows that customer satisfaction is recorded at 65.69%. This indicates a positive assessment by users, leading to user loyalty as indicated by their intention to use the Bukalapak platform for future purchases, considering it as their first choice, recommending it to others, and expressing willingness to use it again in the future.

Table 4. Responses to Customer Loyalty Variables

No	Item	Answer					Total Score	%	Category
		1	2	3	4	5			
25	I plan to continue using the Bukalapak for my future purchases of goods/clothing.	12	19	46	193	129	1609	80.45	Good
26	Whenever I need to buy goods/clothing, the Bukalapak will be my top preference.	62	238	79	20	1	860	43	Not good
27	I would recommend the Bukalapak to others	5	23	90	255	26	1475	73.75	Good
28	I will encourage people to buy goods/clothing from the Bukalapak	4	59	139	191	6	1337	66.85	Pretty good
29	Despite the availability of cheaper options on other platforms, I will remain loyal to the Bukalapak for my purchase.	65	238	61	28	8	876	43.8	Not good
30	I am likely to use the Bukalapak again in the future.	3	11	52	239	94	1611	80.55	Good
31	The Bukalapak will be my preferred choice for my next shopping experience.	3	36	107	236	17	1429	71.45	Good
Total							9197	65.69	Sufficient

Structural Model

Next, structural models are used in this research to visually depict the relationships between variables and their theoretical connections. SPSS 29 and AMOS 26 software were employed to create the models. They present the items within each variable and illustrate the causal relationships between factors in Figure 2 and Figure 3. The constructs in the diagram include MS-SQ (Mobile Shopping Service Quality), CS (Customer Satisfaction), and CL (Customer Loyalty). The constructs include EF (Efficiency), F (Fulfillment), RE (Responsiveness), and CC (Contact).

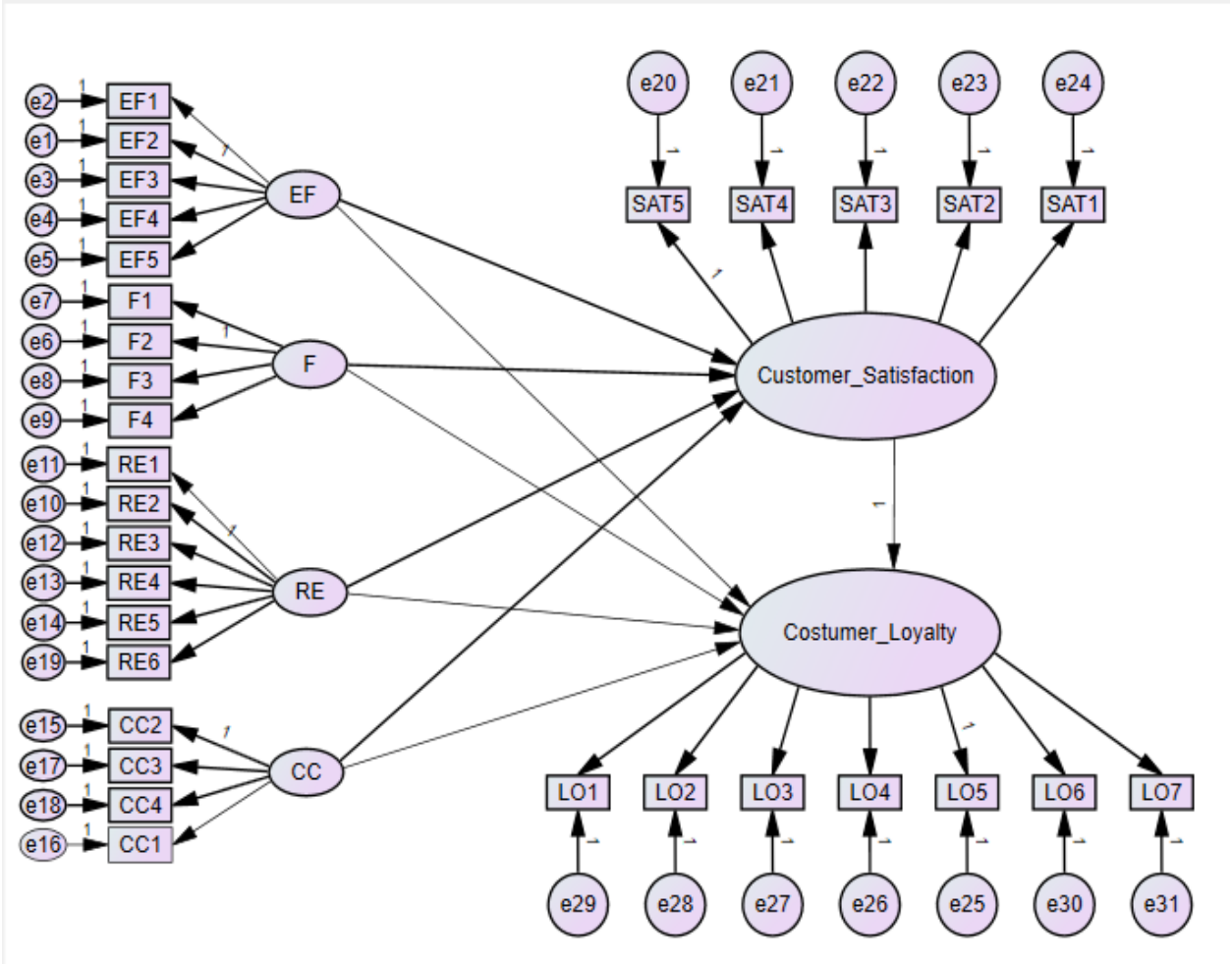

Figure 2. Model 1

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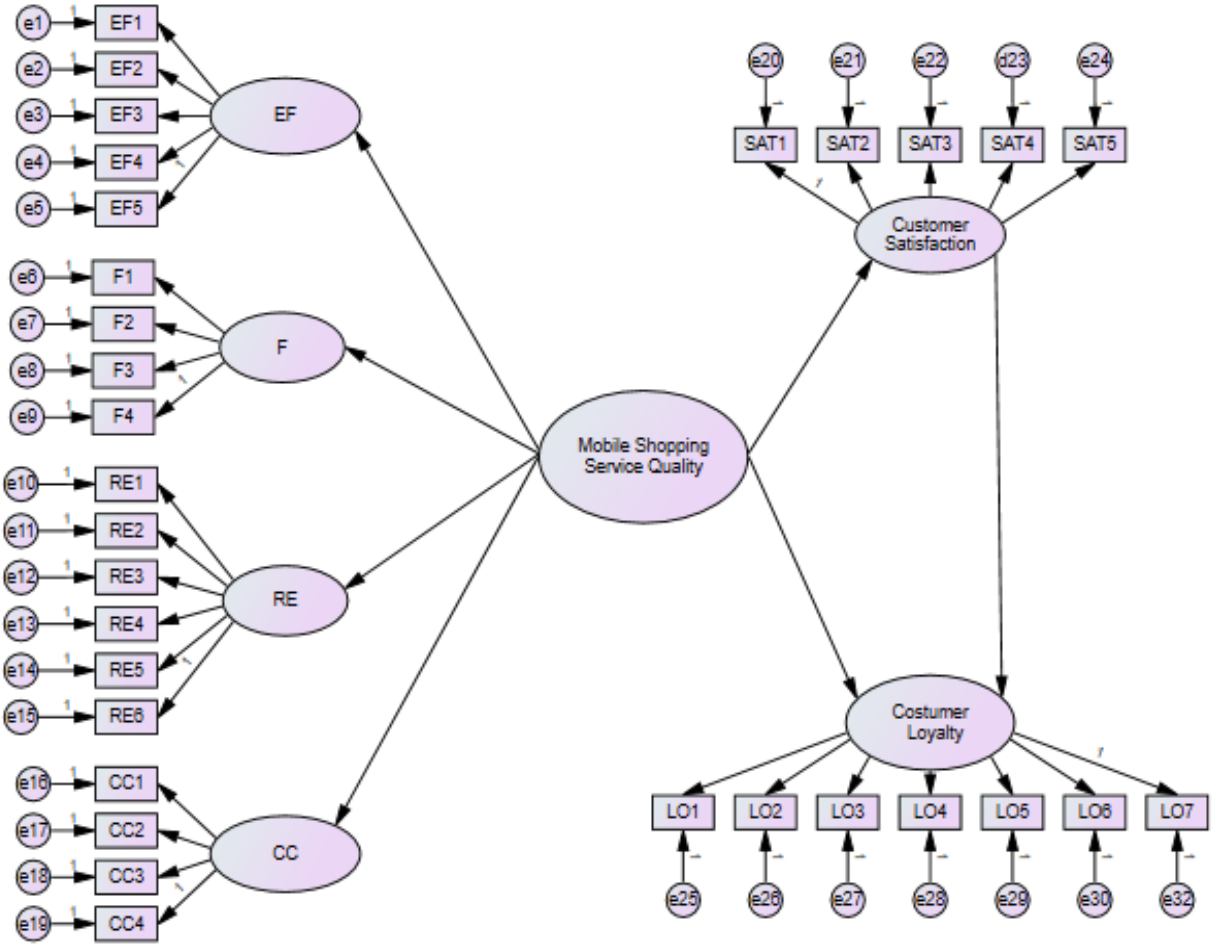

Figure 3. Model 2

Confirmatory Factor Analysis

This model assesses the unidimensionality of the exogenous and endogenous constructs using confirmatory factor analysis (CFA). CFA is applied to all constructs to evaluate their goodness-of-fit based on predetermined criteria. The feasibility test on the CTA model shows a good level of fit. The CFA measurement test for Model 2 indicates a good goodness of fit for the variables in the CTA model. Inaccurate dimensions representing latent variables are eliminated using the modification index (MI). By improving the model based on the highest MI value, the chi-square value (X2) is significantly reduced. The revised results in Figure 4 and Figure 5 demonstrate the improved fit indices and parameter estimates of the modified model. The revised model enhances the validity of the study by offering a more accurate representation of the underlying constructs.

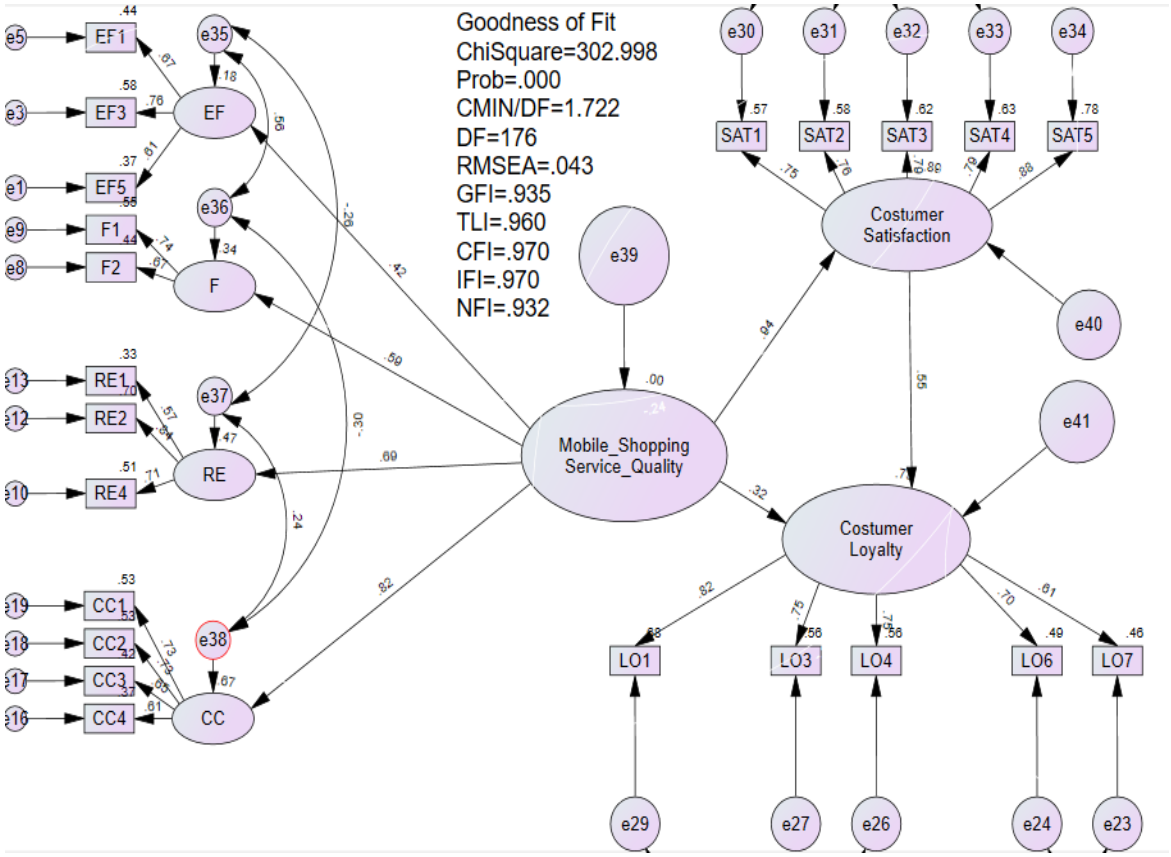

Figure 4. The Modification for Model 1

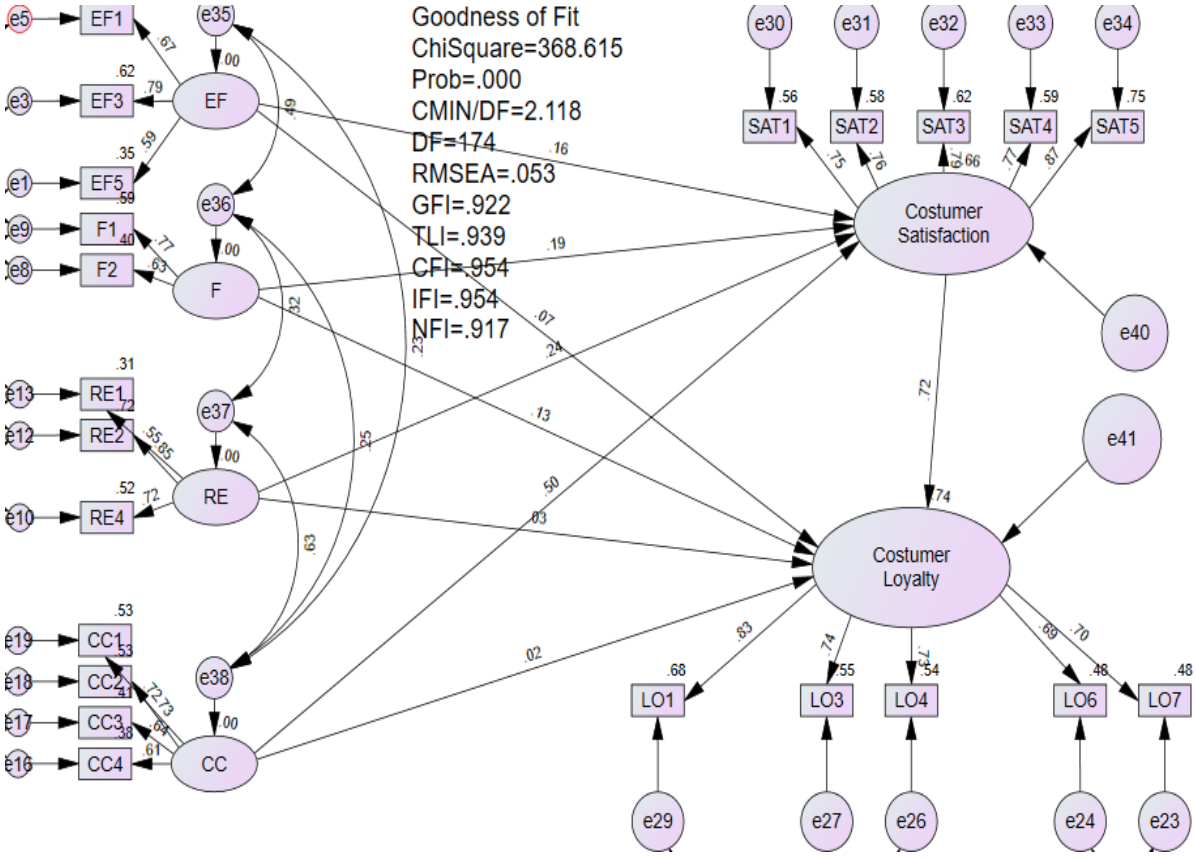

Figure 5. The Modification for Model 2

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Validity and Reliability Test

The validity test of the measurement model confirms that all indicators have an AVE value ≥ 0.5, indicating their validity. Additionally, the construction reliability test demonstrates that each reliable variable has a CR value greater than 0.70. The validity and Reliability Test Results of Model 1 and Model 2 are depicted in Table 5 and Table 6.

Table 5. Validity and Reliability Test Results of Model 1

		EF				Valid (AVE>0.5)	Reliable (CR>0.7)
ITEM	**LF**	**LF^2**	**error**	**AVE**	**CR**	**Valid**	**Reliable**
				0.671262	0.858606	Valid	Reiable
EF5	0.611	0.373321	0.299				
EF3	0.765	0.585225	0.204				
EF1	0.665	0.442225	0.183				
				0.743194	0.852324	Valid	Reiable
F2	0.666	0.443556	0.226				
F1	0.741	0.549081	0.117				
				0.637389	0.837526	Valid	Reiable
RE4	0.712	0.506944	0.291				
RE2	0.838	0.702244	0.247				
RE1	0.575	0.330625	0.338				
				0.663991	0.887113	Valid	Reiable
CC4	0.608	0.369664	0.263				
CC3	0.65	0.4225	0.16				
CC2	0.728	0.529984	0.269				
CC1	0.729	0.531441	0.246				
				0.659609	0.905618	Valid	Reiable
LO7	0.606	0.367236	0.304				
LO6	0.7	0.49	0.276				
LO4	0.747	0.558009	0.27				
LO3	0.75	0.5625	0.234				
LO1	0.824	0.678976	0.287				
				0.747588	0.936555	Valid	Reiable
SAT1	0.752	0.565504	0.213				
SAT2	0.763	0.582169	0.303				
SAT3	0.79	0.6241	0.186				
SAT4	0.793	0.628849	0.225				
SAT5	0.88	0.7744	0.145				

Table 6. Test Results for the Validity and Reliability of Model 2

ITEM	**LF**	**LF^2**	**error**	**AVE**	**CR**	**Valid (AVE>0.5)**	**Reliable (CR>0.7)**
				0.674814	0.860023	Valid	Reiable
EF5	0.594	0.352836	0.311				
EF3	0.786	0.617796	0.191				

ITEM	LF	LF^2	error	AVE	CR	Valid (AVE>0.5)	Reliable (CR>0.7)
EF1	0.673	0.452929	0.184				
				0.741106	0.850134	Valid	Reiable
F2	0.634	0.401956	0.242				
F1	0.769	0.591361	0.105				
				0.641271	0.838955	Valid	Reiable
RE4	0.719	0.516961	0.286				
RE2	0.851	0.724201	0.23				
RE1	0.554	0.306916	0.35				
				0.664449	0.887346	Valid	Reiable
CC4	0.613	0.375769	0.257				
CC3	0.642	0.412164	0.161				
CC2	0.728	0.529984	0.267				
CC1	0.725	0.525625	0.246				
				0.669102	0.909646	Valid	Reiable
LO7	0.696	0.484416	0.281				
LO6	0.693	0.480249	0.277				
LO4	0.733	0.537289	0.277				
LO3	0.74	0.5476	0.237				
LO1	0.826	0.682276	0.279				
				0.740377	0.934292	Valid	Reiable
SAT1	0.75	0.5625	0.209				
SAT2	0.759	0.576081	0.299				
SAT3	0.79	0.6241	0.182				
SAT4	0.77	0.5929	0.243				
SAT5	0.866	0.749956	0.156				

Regression Weights

Models 1 and 2, all identified items demonstrate a significant level of significance with $p \leq 0.05$, indicating their suitability for further research. The measurement model in both models exhibits good discriminant validity, as the sum of the square roots of Average Variance Extracted (AVE) exceeds the correlation between the factors/constructs. This suggests that the variables' validity is sound and appropriate for subsequent analysis using Structural Equation Modeling (SEM) (see Table 7).

Table 7. Regression Weights for Model 1

			Estimate	S.E.	C.R.	P	Label
EF3	<---	EF	1.184	.116	10.246	***	par_1
EF2	<---	EF	.775	.097	7.979	***	par_2
EF1	<---	EF	.872	.088	9.939	***	par_3
F2	<---	F	1.195	.151	7.906	***	par_4
F1	<---	F	1.077	.131	8.244	***	par_5
RE2	<---	RE	1.423	.101	14.067	***	par_6
RE1	<---	RE	.747	.076	9.771	***	par_7

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			Estimate	S.E.	C.R.	P	Label
RE6	<---	RE	.297	.046	6.422	***	par_8
CC3	<---	CC	.871	.082	10.660	***	par_9
CC2	<---	CC	1.410	.137	10.304	***	par_10
CC1	<---	CC	1.354	.133	10.214	***	par_11
LO6	<---	F7	1.178	.103	11.397	***	par_12
LO4	<---	F7	1.319	.128	10.326	***	par_13
LO3	<---	F7	1.256	.118	10.644	***	par_14
LO1	<---	F7	1.738	.167	10.430	***	par_15
SAT2	<---	F6	1.236	.080	15.480	***	par_16
SAT3	<---	F6	1.055	.069	15.244	***	par_17
SAT4	<---	F6	1.176	.068	17.190	***	par_18
SAT5	<---	F6	1.347	.075	17.957	***	par_19

In Model 2 of this study, a significance test was conducted to assess the significance level of each question item, using a threshold value of 0.05. Table 8 reveals that, overall, the p-values indicate a significant level of significance as they are all below 0.05.

Table 8. Regression Weights Model 2

			Estimate	S.E.	C.R.	P	Label
EF3	<---	EF	1.348	0.146	9.214	***	par_1
EF1	<---	EF	0.947	0.101	9.396	***	par_2
F2	<---	F	1.034	0.136	7.585	***	par_3
RE2	<---	RE	1.4	0.104	13.405	***	par_4
RE1	<---	RE	0.711	0.074	9.655	***	par_5
CC3	<---	CC	0.853	0.081	10.524	***	par_6
CC2	<---	CC	1.394	0.137	10.204	***	par_7
CC1	<---	CC	1.326	0.13	10.178	***	par_8
LO6	<---	F7	0.984	0.068	14.376	***	par_9
LO4	<---	F7	1.104	0.086	12.842	***	par_10
LO3	<---	F7	1.044	0.078	13.349	***	par_11
LO1	<---	F7	1.506	0.115	13.099	***	par_12
CS2	<---	F6	1.229	0.08	15.36	***	par_13
CS3	<---	F6	1.058	0.072	14.787	***	par_14
CS4	<---	F6	1.147	0.068	16.954	***	par_15
CS5	<---	F6	1.321	0.076	17.42	***	par_16

In terms of the Correlation Test and Discriminant Validity, the combined square root of AVE (Average Variance Extracted) in both Models 1 and 2 exceeds the correlation between the two factors/constructs. This indicates that the measurement model demonstrates strong discriminant validity, suggesting its suitability for conducting further analysis using SEM (Structural Equation Modeling).

The Coefficient of Determination, used in the SEM analysis, assesses the extent to which exogenous variables contribute to endogenous variables. The R-squared value

indicates the explanatory power of the endogenous construct. In Model 1, the variables CC (Contact), RE (Responsiveness), F (Fulfillment), and EF (Efficiency) are found to be affected by the MS-SQ (Mobile Shopping Service Quality) variable. Additionally, the variables CL (Customer Loyalty), and CS (Customer Satisfaction) are affected by MS-SQ as well. Thus, MS-SQ has a significant effect on these variables.

As shown in Table 9, CC (Contact) is explained by the MS-SQ variable, accounting for 41.7% of the variance, while the remaining 58.3% is influenced by other unexplored factors. RE (Responsiveness) is also influenced by the MS-SQ variable, explaining 56.5% of the variance, with the remaining 43.5% influenced by other unidentified factors. F (Fulfillment) demonstrates a 43.7% variance explained by the MS-SQ variable, leaving 56.3% influenced by unexamined factors. EF (Efficiency) shows a 22% variance explained by the MS-SQ variable, with 78% influenced by other unaddressed factors. CS (Customer Satisfaction) is significantly influenced by the MS-SQ variable, explaining 73.7% of the variance, while the remaining 26.3% is influenced by other unexplored variables. Furthermore, the MS-SQ variable also affects CL (Customer Loyalty), explaining 75% of the variance, with the remaining 25% influenced by unexamined factors. These findings highlight the significant role of MS-SQ in shaping customer perceptions and behaviors, underscoring the importance of focusing on improving mobile shopping service quality to enhance customer satisfaction and loyalty.

Table 9. Squared Multiple Correlations Model 1

	Estimate
CS	0.737
CL	0.75
CC	0.417
RE	0.565
F	0.437
EF	0.22

In Model 2, various variables such as CC1, CC2, CC3, and CC4 are influenced by CC, while RE1, RE2, and RE4 are affected by RE (see Table 10). Similarly, F1 and F2 are influenced by F, and EF1, EF3, and EF5 are influenced by EF. Additionally, CL and CS variables are influenced by CC, RE, F, and EF variables. The CS variables in Model 2 are explained by 66.4% through the influence of CC, RE, F, and EF variables. The remaining 33.6% (1-0.664) is attributed to other unexplored factors not addressed in this study. The CL variable in Model 2 can be accounted for by 73.9% through the influence of CC, RE, F, and EF variables. The remaining 26.1% (1-0.739) is influenced by other unexamined factors.

Table 10. Squared Multiple Correlations Model 2

	Estimate
CS	0.664
CL	0.739
CS5	0.75
CS 4	0.593

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	Estimate
CS 3	0.624
CS T2	0.576
CS 1	0.563
CL1	0.682
CL3	0.548
LO4	0.538
LO6	0.48
LO7	0.485
CC1	0.525
CC2	0.53
CC3	0.412
CC4	0.376
RE1	0.307
RE2	0.723
RE4	0.517
F1	0.592
F2	0.402
EF1	0.453
EF3	0.619
EF5	0.353

Structural Equation Model (SEM)

The next stage was the analysis of the Structural Equation Model (SEM). It assessed the unidimensionality of each dimension and the indicators comprising the variables. The results are evaluated based on model fit criteria from the goodness-of-fit. Figure 6 and Figure 7 show the SEM analysis results.

Table 11. SEM analysis Results for Model 1

Index	Cut Off Value	Result	Model Evaluation
Chi-Square	≤207.955	302.938	Poor Fit
Prob	>0.05	000	Poor Fit
CMIN/DF	≤2.00	1.72	Good Fit
RMSEA	≤0.08	0.043	Good Fit
GFI	≥0.90	0.935	Good Fit
TLI	≥0.95	0.960	Good Fit
CFI	≥0.95	0.970	Good Fit
IFI	≥0.90	0.970	Good Fit
NFI	≥0.90	0.932	Good Fit

Based on the data in Table 11 and Table 12, the goodness-of-fit structural model (full model SEM) test results indicate that the values of Chi-square, Probability, RMSEA, CMIN/DF, GFI, AGFI, TLI, CFI, IFI, and NFI meet the cutoff criteria. According to Hair et al. (2019), having 4-5 goodness-of-fit measures that meet the requirements is sufficient to assess the adequacy of a model. Therefore, it can be concluded that the overall full model has passed the goodness-of-fit test.

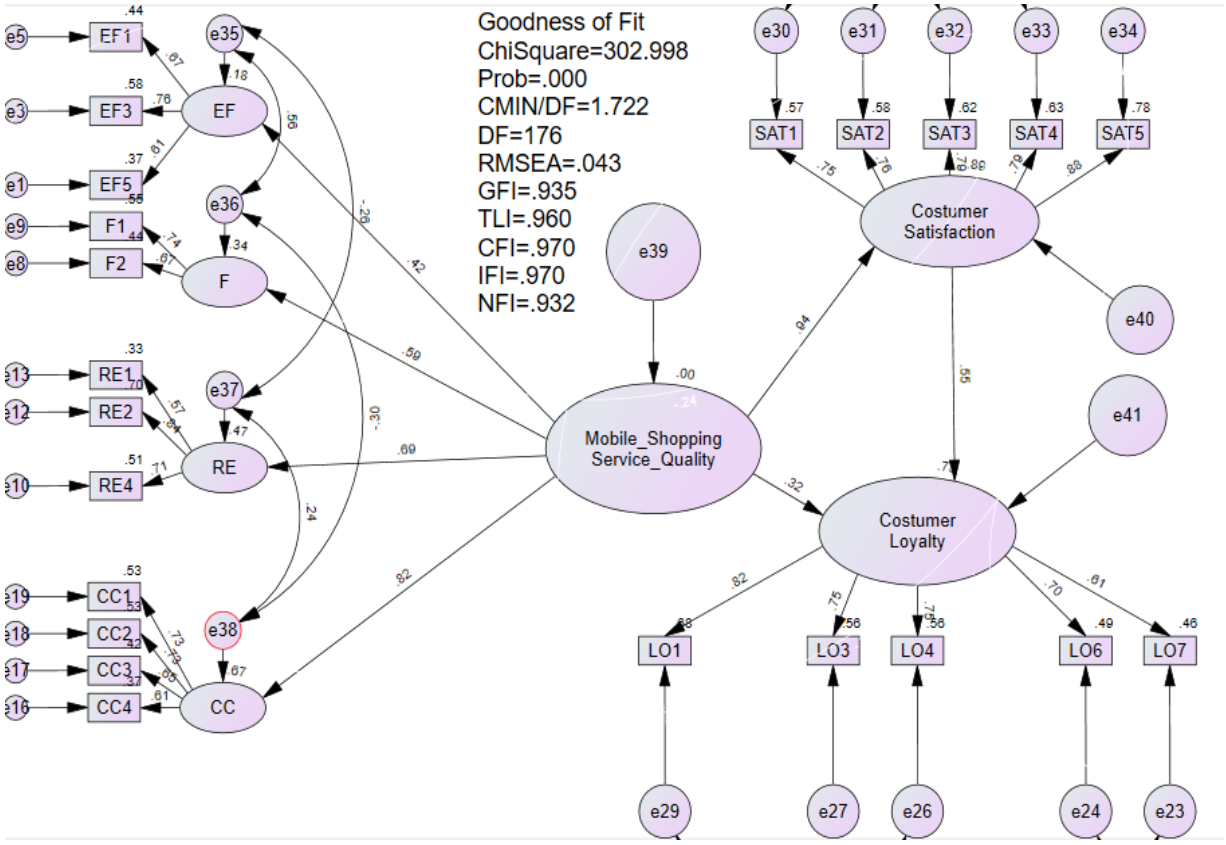

Figure 6. SEM analysis Results for Model 1

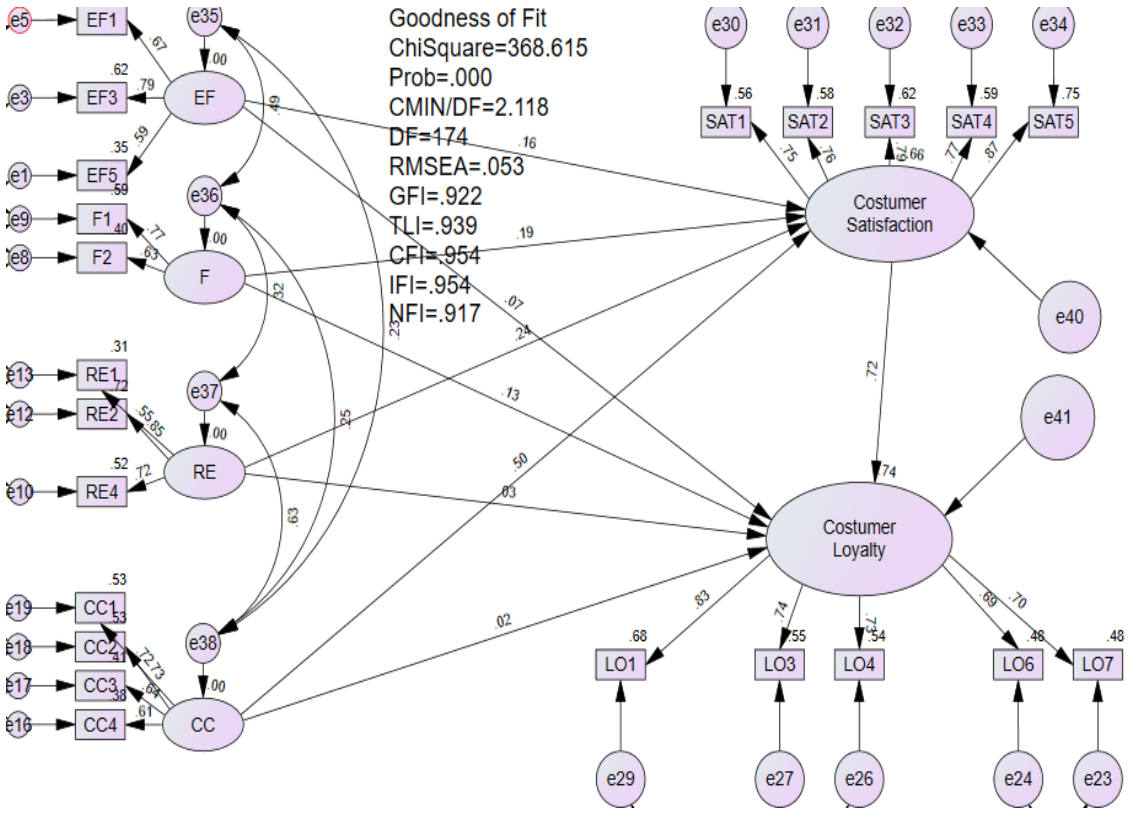

Figure 7. SEM analysis Results for Model 2

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Table 12. SEM Analysis Results for Model 2

Index	Cut Off Value	Result	Model Evaluation
Chi-Square	≤205.779	368.615	Poor Fit
Prob	>0.05	000	Poor Fit
CMIN/DF	≤2.00	2.118	Poor Fit
RMSEA	≤0.08	0.053	Good Fit
GFI	≥0.90	0.922	Good Fit
TLI	≥0.95	0.939	Marginal Fit
CFI	≥0.95	0.954	Good Fit
IFI	≥0.90	0.954	Good Fit
NFI	≥0.90	0.917	Good Fit

Hypothesis Testing

Hypothesis testing was conducted in this study on five previously described hypotheses. The t-value with a significance level of 0.05 was used for hypothesis testing in the AMOS 26 program. The assessment criteria used to determine whether a hypothesis is accepted or not are a critical value (CR) > 1.967 or a probability value (P) ≤ 0.05. Based on Table 13, the regression weights from the AMOS 26 processing can be observed to determine the acceptance of each hypothesis.

Table 13. The Results of Hypothesis Testing for Model 1

Hypothesis	Path	B	S.E.	C.R.	P	Conclusion
H1	MS-SQ --> CS	1.993	0.285	6.996	0	Positive, Significant
H2	MS-SQ --> CL	0.58	0.409	1.417	0.156	Positive, Insignificant
H3	CS --> CL	0.471	0.17	2.777	0.005	Positive, Significant

Table 13 presents that mobile shopping service quality has a significant positive effect on customer satisfaction. The regression coefficient is positive, and the p-value is smaller than 0.05. Therefore, H1 is accepted. Moreover, mobile shopping service quality has a significant positive effect on customer loyalty. The regression coefficient is positive, but the p-value is greater than 0.05. Therefore, H2 is rejected. In addition, customer satisfaction has a significant positive effect on customer loyalty. The regression coefficient is positive, and the p-value is smaller than 0.05. Therefore, H3 is accepted.

Table 14 presents the significant positive effect between efficiency, fulfillment, responsiveness, contact, and customer satisfaction. The results demonstrate a significant positive relationship between efficiency, fulfillment, responsiveness, contact, and customer satisfaction. The positive regression coefficients and P-values below 0.05 support the acceptance of H1a. Furthermore, this study's results show significant positive effect between efficiency, fulfillment, responsiveness, contact, and customer loyalty. The findings reveal a significant positive relationship between efficiency, fulfillment, responsiveness, contact, and customer loyalty. The positive regression coefficients in efficiency, fulfillment, responsiveness, contact dimensions, and a P-value of ≤ 0.05 support the partial acceptance of H2a.

Table 14. The Results of Hypothesis Testing for Model 2

Hypothesis	Path	β	S.E.	C.R.	P	Conclusion
H1a	EF → CS	0.203	0.077	2.628	0.009	Positive, Significant
	F → CS	0.258	0.088	2.944	0.003	Positive, Significant
	RE → CS	0.223	0.07	3.19	0.001	Positive, Significant
	CC → CS	0.658	0.115	5.71	0	Positive, Significant
H2a	EF → CL	0.089	0.067	1.32	0.187	Positive, Insignificant
	F → CL	0.165	0.077	2.136	0.033	Positive, Significant
	RE→ CL	0.03	0.059	0.514	0.607	Positive, Insignificant
	CC → CL	0.03	0.102	0.289	0.773	Positive, Insignificant

Discussion

The relationship between mobile shopping service quality and customer satisfaction is significantly positive, as supported by previous research (Firmansyah & Mahfidz, 2023; Omar et al., 2021; Saragih, 2019). Andini et al. (2022) also support that mobile shopping service quality has a positive and significant effect on customer satisfaction. In an e-commerce context, service quality is positively associated with customer satisfaction, which leads to a reduction in customer complaints and an increase in customer loyalty (Wattoo & Iqbal, 2022).

The relationship between mobile shopping service quality and customer loyalty is positive but insignificant. Previous research conducted by Omar et al. (2021) and Andini et al. (2022) support the results of this hypothesis test, demonstrating an insignificant effect between mobile shopping service quality and customer loyalty. In contrast, the findings diverge from the studies conducted by Dharaman and Chei Razak (2020), Aditya et al. (2021), Saragih (2019), and Mulyono and Pasaribu (2021), which asserted that mobile service quality positively influences customer loyalty through customer satisfaction. According to these studies, enhanced user satisfaction leads to a sense of contentment, fostering loyalty towards the company or service provider.

Customer satisfaction has a significant positive effect on customer loyalty. This finding is supported by previous research conducted by Beirliana and Zuleistiana (2020), Firmansyah and Mahfidz (2023), Saragih (2019), and Andini et al. (2022), which states that customer satisfaction has a positive and significant effect on customer loyalty. Additionally, Risanty et al. (2021) found that high customer satisfaction increases customer loyalty in the context of mobile shopping service quality. Earlier research has indicated that customer satisfaction plays a significant role in influencing the loyalty of individuals toward mobile commerce (Lin & Wang, 2006) and mobile payment services (Zhou et al., 2010).

Efficiency, fulfillment, responsiveness, and contact have a significant positive relationship with customer satisfaction. This finding is consistent with the previous study by Omar et al. (2021), which confirms a significant positive effect between these factors and customer satisfaction, providing further support for this hypothesis. In the same vein, efficiency, fulfillment, responsiveness, and contact also exhibit a significant positive relationship with customer loyalty. However, the results of the hypothesis test only partially support this hypothesis, as indicated by Omar et al. (2021).

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Based on the findings of this study, it can be concluded that Bukalapak should focus on enhancing the quality of its mobile shopping services, particularly in the areas of contact and customer loyalty. It is essential for Bukalapak to make improvements that ensure higher user satisfaction, as there is room for enhancement in the shopping experience provided by the company. Specifically, attention should be given to improving customer loyalty concerning clothing and product prices. These research findings provide valuable insights for companies to identify areas where service quality needs improvement and to address aspects that may not have met user expectations. By striving to enhance customer satisfaction levels, companies increase the likelihood of customers continuing to use their services in the future and potentially recommending them to others.

Conclusion

There is a statistically significant relationship between mobile shopping service quality and customer loyalty. Additionally, Mobile Shopping Service Quality demonstrates a positive relationship, although it is not statistically significant. Moreover, there is a positive and statistically significant relationship between customer satisfaction and customer loyalty. Efficiency, satisfaction, responsiveness, and interaction exhibit a positive and statistically significant correlation with customer satisfaction. Likewise, these same factors - efficiency, satisfaction, responsiveness, and interaction - also demonstrate a positive and significant relationship with customer loyalty.

This study is limited to studying the relationship between Mobile Shopping Service Quality and customer loyalty. This primarily focuses on examining the dimensions of efficiency, fulfillment, responsiveness, and contact. However, there is a gap in research when it comes to investigating other dimensions or aspects of mobile shopping service quality. For example, aspects such as personalization, security, user interface design, economic value, customization, and post-purchase experience have received limited attention in the existing studies.

Authors' Declaration

The authors made substantial contributions to the conception and design of the study. The authors took responsibility for data analysis, interpretation and discussion of results. The authors read and approved the final manuscript.

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