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Effect of e-service quality on e-loyalty

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Abstract---Information and communication technology (ICT) is developing very rapidly, supported by the Internet and increasingly adequate connectivity so that digital transformation occurs in various aspects of life by giving birth to a new mindset and lifestyle, namely the digital lifestyle. One of the digital lifestyles that are currently trending is online transportation. Online transportation itself is a transportation service offered by transportation service providers that use a vehicle ordering system using smartphones, applications, and the Internet. Online transportation uses the application as a liaison between consumers or users with drivers and users can know in advance the fare or cost of their trip. This study aims to identify the service quality of the application (e-service quality), both according to service users and drivers, online transportation service user loyalty (e-loyalty), and measure the effect of e-service quality on e-loyalty. Data collection in this study was conducted by distributing a questionnaire involving 458 users of transportation services. Online in West Java. The study results are that the service quality of the applications currently used is sufficient, the level of loyalty of application users is relatively high, and e-service quality can increase the e-loyalty of online transportation service users.

Keywords---online transportation, e-service quality, e-loyalty and digital lifestyle.

Introduction

As one of the countries with high internet users, around 143 million people out of a total population of around 262 million people in 2017, Indonesia cannot avoid the impacts such as changes in people's lifestyles who prefer easy things, including choosing transportation. Indonesian people now use online transportation applications a lot. This is indicated by the high use of online transportation applications in Indonesia. According to ComScore data as of December 2017, out of 143 million users, 15.73 million people use online transportation applications on Android phones. Among them are Go-Jek, Grab, and Uber, which are 29.6 percent of all mobile application users. As for driver-

partners, until 2018, there were 1 million driver-partners from Gojek and 2 million driver-partners from Grab who were ready to serve users' needs.

The year 2015 was a period of development of online transportation in the country. At that time, the three big players, GoCar, Grab, and Uber, participated in enlivening the competition for online transportation start-ups in Indonesia. People who have started to worry about conventional transportation, of course, feel pleased and helped by the presence of online-based transportation. Business is no longer monopolized by vehicles that are no longer fit to operate. The presence of online transportation is expected to raise awareness of the government, which is often negligent in providing proper transportation for the community. The emergence of this online mode of transportation is like an oasis in the desert. The number of his fleet also thrived. Go-jek CEO Nadiem Makarim said that in 2018 the number of online transportation drivers reached 1 million people spread over 50 regions in Indonesia. Data from the Ministry of Transportation in 2018 shows that the number of online drivers under the auspices of an application provider company reached 175,000 people.

People switch to using online transportation because of several advantages: offering convenience, lower costs, and more guaranteed comfort and security. High mobility makes people expect a safe and comfortable driving experience, so digital-based vehicles can be a solution. Nearly 100 million transactions occur every month for each online transportation platform. The growth rate is quite fantastic. However, this phenomenon is almost without being supported by an adequate regulatory framework, especially in the formed industrial relations. Drivers (Partners) and passengers of online transportation do not get protection. This can potentially position the driver as a vulnerable object and prone to exploitation. Moreover, Bernstein (2007) explains that currently unstable work in terms of wages and job security has become a contemporary economic trend. In addition, the trend of changing formal jobs to informal ones is massive (Harvey, 2007).

Service quality is increasingly recognized as an essential aspect of electronic commerce (e-commerce). Because the online comparison of the technical features of products is essentially costless, feasible, and more accessible than comparisons of products through traditional channels, service quality is the crucial determinant for successful e-commerce. A conceptual model of the determinants of e-service quality is proposed and discussed. Given the exploratory nature of this research, focus groups are used to investigate e-service quality dimensions. It is proposed that e-service quality has incubative and active dimensions for increasing hit rates, stickiness, and customer retention. The incubative dimension consists of: ease of use, appearance, linkage, structure and layout, and content. The active dimension consists of reliability, efficiency, support, communication, security, and incentives. The importance and implications of each determinant are presented (Santos. J:2003).

An increase follows the increasing number of online transportation users in online transportation competition. This gives rise to intense competition between driver-partners (Akbar, Dhani). The large number of driver-partners also affects the income of each driver-partner and does not necessarily determine the welfare

of the driver-partners. Another phenomenon related to driver-partners is that there are no restrictions on working hours for drivers and clear and fixed requirements to become driver-partners. Another case in the field is when a user is going to order an ojek or taxi online and gets a vehicle with a number plate in the application; many users get a vehicle with a vehicle number plate that is different from the system. This is related to the user's trust in driver-partners and online transportation providers. However, the safety factor is still unclear if there is an accident or whether there is a third party such as insurance for the safety of partners or users. Based on the phenomena above, this study aims to identify e-service quality and user e-loyalty and the effect of e-service quality on e-loyalty of online transportation users in Indonesia.

Research Method

This study was designed using a descriptive survey research method, with a quantitative approach. The sample in this study is online transportation users in West Java, as many as 458 consumer users. Primary data collection by distributing online questionnaires to users of online transportation services (Grab and Go-Jek). Data analysis used descriptive statistics (Prayuda, Rendi), to identify the e-service quality and e-loyalty of online transportation users. Measurement of the effect of e-service quality on e-loyalty using Multiple Linear Regression. This regression has one dependent variable followed by more than one independent variable with the following equation model:

$$Y = a + b_1X_1 + b_2X_2 + \dots + e$$

Concept Theory Online Transportation

According to Khisty and Lall (2003), transportation is a process of planning and operating a transportation system to increase the mobility of goods, vehicles, people, and others by saving resources to maintain the quality of the environment and life. Transportation Management System (Adriansyah, 2015) is a series of systems or management of transportation equipment or modes carried out by certain parties. In general, transportation management is a system that involves planning and managing the flow of transportation so that the transportation objectives are achieved. Several means or modes of transportation are used to support human activities and can be accessed by land, air, and water. Indonesia itself has several alternatives for means or modes of transportation, such as cars, ships, public transportation, buses, planes, trains, and commuter lines, and the newest one is Mass Rapid Transit or MRT for short.

The ways to access the various modes of transportation above are different, some are conventional and some are online. The community's dynamic lifestyle, supported by the development of technology and the Internet, has made many people switch from conventional modes of transportation to online modes of transportation. So that nowadays, many people, especially land transportation users, know what online transportation is. Online transportation itself is a transportation service offered by transportation service providers that use a vehicle ordering system using smartphones, applications, and the Internet. Online

transportation uses the application as a liaison between consumers or users with drivers and users can find out in advance the fare or fare of their trip. Online transportation itself is more commonly known as motorcycle taxis or online taxis because the modes of transportation offered by service providers are motorbikes and cars.

Apart from ordering and fares that are different from conventional modes of transportation such as city transportation, city buses, conventional taxis, and so on, they are also different in terms of resources or vehicle ownership. Resources or vehicle ownership from conventional transportation modes are owned or provided by transportation service providers. As for online-based transportation, vehicle ownership rests with the partner or driver who has previously registered to be a driver at an online transportation service provider company. The company only provides and develops applications to support online transportation operations.

The review shows that e-service quality dimensions tend to be contingent on the service industry. Despite the standard dimensions often used in evaluating e-SQ, regardless of the type of service on the Internet ('reliability/fulfillment', 'responsiveness', 'web design', 'ease of use/usability', 'privacy/security', and 'information quality/benefit'), other dimensions are specific to e-service contexts. The study also identifies several conceptual and methodological limitations associated with developing e-SQ measurements, such as the lack of a rigorous validation process, the problematic sample size and composition, the focus on functional aspects, and the use of a data-driven approach. This is the first study to undertake an extensive literature review of research on the development of e-SQ scales. The findings should be valuable to academics and practitioners alike (Riadh: 2010).

Electronic Service Quality (E-Service Quality)

According to Parasuraman et al. (2005) Electronic service quality (E-Service Quality) is how a website facilitates shopping, purchasing, and delivery of a product or service effectively and efficiently. Chase et al. (2007), revealed that the quality of electronic services (E-Service Quality) is a service provided to consumers through the internet network as an extension of the ability of a site to facilitate shopping, purchasing, and distribution activities. This opinion is supported by Rolland & Freeman (2010), who argue that the quality of electronic services (E-Service Quality) must be expanded to a global level and consider the quality of electronic services in all aspects of transactions, including service delivery, customer service, and other supporting aspects.

The following opinion from Bressolles & Durrieu (2011) argues that the quality of electronic services (E-Service Quality) is the ability of a website to facilitate shopping, purchasing, and delivery of a product or service effectively and efficiently. Meanwhile, Purba et al., (2016) define electronic service quality (E-Service Quality) as interactive customer service based on the Internet and integrated with technology and systems offered by service providers.

Parasuraman et al. (2005:7) has revealed a conceptual model to understand and improve the quality of electronic services or services (e-SQ or e-SERVQUAL) and identified seven dimensions (Efficiency, Fulfillment, System Availability, Privacy, Responsiveness, Compensation, and Contact) that form a “core online service” scale and a “recovery online service” scale. Four main dimensions (Efficiency, Fulfillment, System Availability, and Privacy) constitute the core e-SQ scale used to measure customer perceptions of the quality of services provided by online retailers. Meanwhile, the three-residual recovery scale has three dimensions, namely responsiveness, compensation, and contact. Parasuraman et al. (2005:8) formulate the scale of E-S-QUAL (Electronic core service quality) and E-RescS-QUAL (Electronic recovery service quality).

Electronic Loyalty (E-Loyalty)

Anderson & Srinivasan (2003), defines Electronic Loyalty (E-Loyalty) is the tendency of customers to continue to use certain websites, visit frequently, and show high site adhesion with high detention times. Another opinion was expressed by Chiu et al., (2009), that Electronic Loyalty (E-Loyalty) has the purpose to offer dependence and identification of a product or service on a website. Cheng (2011), revealed that loyalty is the primary goal of relationship marketing, especially in electronic transactions, with the aim of avoiding customers switching to other companies. This opinion is supported by Christian & Nuari (2016), which states that Electronic Loyalty (E-Loyalty) is a consumer tendency to repurchase e-retailing.

New technologies have converted traditional commerce to modern or Electronic Commerce (E-commerce). The advantages of this transformation are less process time, cost, errors and mistakes for sellers and buyers. On the other hand, companies lose their Electronic Customers (E-customers) due to the competitive business environment on the Internet. In this respect, Electronic Trust (E-trust), Electronic Satisfaction (E-satisfaction) and Electronic Loyalty (E-loyalty) play vital roles. In addition, acquiring new loyal customers requires time and money. In this research, a conceptual framework has been presented that shows E-loyalty formation based on E-trust and E-satisfaction. The model, which was formed based on the literature review, has been improved by factor analysis and the effect of every construct has been determined by regression analysis. The direct and indirect effects of organizational, technological and customer factors on E-loyalty were calculated by path analysis. The results show that technological factors have the most effect on E-satisfaction and the organizational factors have the most effect on E-trust (Nader: 2013).

Results and Discussion

Descriptive analysis of e-service quality of online transportation users in Indonesia

The E-Service Quality variable is measured using eight dimensions: the Efficiency Dimension, System Availability Dimension, Fulfillment Dimension, Privacy Dimension, Responsiveness Dimension, Compensation Dimension, and Contact Perceive Value Dimension. These eight dimensions are measured using their

respective indicators. The following will describe the results of data processing for each dimension.

Dimension of efficiency

The purpose of measuring this efficiency dimension is to see the perception of online transportation users based on indicators of the level of ease of using online transportation applications in finding the mode of transportation to be used, clarity of Information in online transportation applications, and user friendly level in the use of online transportation applications.

The results of data processing for each indicator of the efficiency dimension are that a total of 224 respondents gave a score of 4 on the indicator of the level of ease of using online transportation applications, which means that the majority of users stated that it was easy to use online transportation applications in finding the online transportation mode to use. Furthermore, a total of 243 respondents gave a score of 4 on the indicator of the clarity of the Information contained in the application, this means that users rate the online transportation application as containing clear and systematically organized Information about its use. Furthermore, as many as 214 respondents gave a score of 4 on the statement of online transportation applications that are currently user friendly or easy and comfortable to use by users. Based on the measurement of three indicators of the efficiency dimension, this shows that the efficiency level of online transportation applications currently available has met the expectations of its users.

Table 4.1
Dimensi Efficiency

Score/Variables	EFF1	EFF2	EFF3
1	0	0	0
2	3	3	1
3	66	62	36
4	224	243	207
5	165	150	214

System availability dimension

The purpose of measuring the System Availability dimension is to measure whether the current application system can be used and accessed whenever and wherever consumers need it. In the current application, statements can be used whenever needed. A total of 208 respondents gave a score of 4. The current application statement can be used wherever it is needed. This was then answered with a score of 4 by 188 respondents. Based on these results, the current online transportation application the system is stable and available whenever and wherever users need the application to make online transportation orders.

Table 4.2
Dimensi System Availability

Score/Variables	SYS1	SYS2	SYS3
1	2	3	16
2	10	19	84
3	58	97	128
4	208	188	159
5	180	151	71

Dimensions of fulfillment

In this dimension, the purpose of the measurement is to find out the services provided by the application have been able to meet the needs of its users. The statement given is that the application used is by consumer expectations, assessed from the aspect of speed and suitability of service. As promised, the statement that the online transportation application currently provides services as many as 249 respondents gave an assessment 4. Next, in the statement that this application can quickly process the ordered service, as many as 238 respondents scored 4. Finally, on the statement that this application provides an honest offer, as many as 216 respondents gave a value of 4. However, 6 respondents assessed 1 which is the lowest score. This may be due to an unfavorable experience for online transportation consumers. Nevertheless, this result shows that the service and speed of online transportation application services have been able to meet consumers' expectations.

Table 4.3
Dimensi *Fulfillment*

Score/Variables	FUL1	FUL2	FUL3
1	0	1	6
2	14	6	17
3	99	95	118
4	249	238	216
5	96	118	101

Dimension privacy

This dimension aims to measure that this application can provide a sense of security to its consumers regarding the protection of consumer data in this application. Considering a lot of consumer data that needs to be activated during application use, such as location and even contact from consumers. Three statements represent statements on this dimension: this application has been able to protect respondent behavior information in using the application. As many as 185 respondents gave a score of 4, but 12 respondents gave a score of 1 which is the lowest value. While this application statement does not share the respondent's Personal Information with other parties, 166 respondents give a score of 3. In addition, there are still 18 respondents who gave a score of 1, which means that there are some respondents who disagree that the online application

shares consumer data with other parties. While in this application statement protecting payment data and Information such as credit cards, debit cards, and others, as many as 178 respondents chose a score of 3, which is a neutral answer. Based on these results, it can be stated that online transportation applications have not been fully able to maintain and protect consumer user data in the privacy dimension.

Table 4.4
Dimensi Privacy

Score/Variables	PRI1	PRI2	PRI3
1	12	18	10
2	27	38	25
3	154	166	178
4	185	164	165
5	80	72	80

Responsiveness Dimension

In this dimension, the statement is made with the aim of measuring the current online transportation application to provide responsive customer complaint channel services so that it can be used whenever consumers need it. So that if there is a complaint, customer service on the online transportation application can be handled better. On the responsiveness dimension, the statement is that the current application provides a channel or media to convey complaints comfortably; as many as 219 respondents assessed 4. However, six respondents disagreed with the statement regarding the existence of comfortable customer service for respondents. The following statement is that the application has been able to handle customer complaints well, as many as 208 respondents gave a value of 4 and 7 respondents gave a statement disagreeing with the consumer service response in dealing with customers. In addition, in the last statement, the application will tell what consumers should do if a problem occurs, as many as 192 respondents chose a score of 4 which means that the application has available steps that must be taken if consumers face obstacles. So it can be stated that the respondents' assessment of the responsiveness dimension there are still some improvements that need to be made in improving customer service by each online transportation application service provider.

Table 4.5
Dimensi Responsiveness

Score/Variables	RES1	RES2	RES3
1	6	7	6
2	10	19	19
3	106	128	144
4	219	208	192
5	117	96	97

Compensation dimension

The statement on this dimension aims to measure whether the online transportation application has provided appropriate compensation if a problem occurs. The three statements on this dimension are whether there is a compensation scheme if a problem occurs and whether online transportation services provide compensation to consumers and drivers. From the statement results, respondents chose to be neutral in this statement so the conclusion drawn is that consumers feel doubtful and unsure about the compensation dimension. However, it is necessary to pay attention to the COM2 indicator which is a statement in the form of whether the online transportation application compensates the driver in the event of a punctured tire and the like, as many as 20 respondents answered disagree and 197 respondents answered doubtfully about this indicator.

Table 4.6
Dimensi Compensation

Score/Variables	COM1	COM2	COM3
1	5	20	12
2	36	55	47
3	167	197	172
4	166	124	163
5	84	62	64

Dimensions contact

This dimension aims to measure online transportation applications that have 24-hour customer contact access and access to a contact center and this service provides emergency services and can be used when a problem occurs to be resolved quickly. In this contact dimension, there are three indicators, each with a statement item. Respondents gave responses with an average value of 4 on this dimension. This means that the contact service in an emergency is sufficient. However, it is not fully responsive and can solve problems quickly and easily. Therefore, it is quite an essential note for online transportation service providers to be able to provide centralized customer services that can be easily accessed and what is essential is to be able to solve the obstacles faced by consumers.

Table 4.7
Dimensi Contact

Score/Variables	CON1	CON2	CON3
1	5	4	6
2	22	6	21
3	144	113	140
4	193	218	187
5	94	117	104

Dimensions of perceive value

This dimension is the last dimension in the e-service quality variable. This dimension aims to measure the value obtained by the user as expected. There are 4 statement item indicators in this dimension which contain a statement on the price of products and services listed in the application, the application currently being used provides convenience, and the application used is easy to operate, and this application is able to meet the needs of its users. In the 4 statements given, the average respondent answered by choosing point 4. So it can be concluded that what consumers expect is adequately accommodated by the service and value provided by online transportation applications.

Table 4.8
Dimensi Perceived Value

Score/Variables	PVA1	PVA2	PVA3	PVA4
1	1	1	1	1
2	7	2	2	6
3	55	61	40	55
4	225	226	223	226
5	170	168	192	170

Descriptive analysis of e-loyalty of online transportation users in Indonesia

The E-Loyalty variable measures the level of loyalty of online transportation service users. This variable consists of 4 indicators, namely, the respondent will give a positive response to the use of the application, the respondent will recommend this application to others, the respondent will encourage close relatives also to use this application, and the respondent will consider this application as the first choice for transportation modes in the future. If viewed from the data processing results on respondents' answers, in the first to fourth indicators, most respondents chose answers 4 and 5. This indicates that online transportation users respond positively to the use of online transportation applications; after using online transportation applications, users will recommend others to use this application, Users will encourage close relatives also to use this application. , and users are willing to consider this application as the first choice for future modes of transportation. This condition shows that the e-loyalty level of online transportation users is high, in other words, online transportation users are loyal to the use of online applications in determining the online transportation mode used.

Table 4.8
E-Loyalty

Score/Variables	LYI1	LYI2	LYI3	LYI4
1	3	3	6	6
2	3	4	9	16
3	91	89	100	97
4	228	221	214	212
5	133	141	129	127

Effect of e-service quality on e-loyalty

To measure the effect of E-Service Quality on E-Loyalty, the Multiple Linear Regression method is used. The results are as follows.

4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.718 ^a	,515	,487	,5418

a. Predictors: (Constant), PVA4, COM2, SYS3, PVA1, PRI2, SYS2, RES2, EFF1, CON3, FUL3, CON1, EFF2, COM1, SYS1, FUL2, PRI1, RES3, CON2, PRI3, EFF3, FUL1, RES1, COM3, PVA2, PVA3

b. Dependent Variable:
LYI1

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	134,585	25	5,383	18,338	.000 ^b
	Residual	126,823	432	,294		
	Total	261,408	457			

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.750 ^a	,562	,537	,5236

a. Predictors: (Constant), PVA4, COM2, SYS3, PVA1, PRI2, SYS2, RES2, EFF1, CON3, FUL3, CON1, EFF2, COM1, SYS1, FUL2, PRI1, RES3, CON2, PRI3, EFF3, FUL1, RES1, COM3, PVA2, PVA3

b. Dependent Variable:
LYI2

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	151,896	25	6,076	22,163	.000 ^b
	Residual	118,429	432	,274		
	Total	270,325	457			

a. Dependent Variable:

LYI2

b. Predictors: (Constant), PVA4, COM2, SYS3, PVA1, PRI2, SYS2, RES2, EFF1, CON3, FUL3, CON1, EFF2, COM1, SYS1, FUL2, PRI1, RES3, CON2, PRI3, EFF3, FUL1, RES1, COM3, PVA2, PVA3

Model
Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.709 ^a	,503	,474	,6059

a. Predictors: (Constant), PVA4, COM2, SYS3, PVA1, PRI2, SYS2, RES2, EFF1, CON3, FUL3, CON1, EFF2, COM1, SYS1, FUL2, PRI1, RES3, CON2, PRI3, EFF3, FUL1, RES1, COM3, PVA2, PVA3

b. Dependent Variable:
LYI3

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	160,285	25	6,411	17,463	.000 ^b
	Residual	158,608	432	,367		
	Total	318,893	457			

a. Dependent Variable:

LYI3

b. Predictors: (Constant), PVA4, COM2, SYS3, PVA1, PRI2, SYS2, RES2, EFF1, CON3, FUL3, CON1, EFF2, COM1, SYS1, FUL2, PRI1, RES3, CON2, PRI3, EFF3, FUL1, RES1, COM3, PVA2, PVA3

Model
Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.754 ^a	.568	.543	.5840

a. Predictors: (Constant), PVA4, COM2, SYS3, PVA1, PRI2, SYS2, RES2, EFF1, CON3, FUL3, CON1, EFF2, COM1, SYS1, FUL2, PRI1, RES3, CON2, PRI3, EFF3, FUL1, RES1, COM3, PVA2, PVA3

b. Dependent
Variable:
LYI4

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	193,781	25	7,751	22,726	.000 ^b
	Residual	147,346	432	.341		
	Total	341,127	457			

a. Dependent Variable:
LYI4

a. Predictors: (Constant), PVA4, COM2, SYS3, PVA1, PRI2, SYS2, RES2, EFF1, CON3, FUL3, CON1, EFF2, COM1, SYS1, FUL2, PRI1, RES3, CON2, PRI3, EFF3, FUL1, RES1, COM3, PVA2, PVA3

Multiple Linear Regression test is conducted on the effect of the E-Service Quality variable on E-Loyalty, it can be seen that E-Service Quality affects or predicts the variability of E-Loyalty. Based on the four ANOVA tables above, it is known that the significance value (Sig.) in the F test is 0.000. Because Sig. 0.000 < 0.05, then as the basis for decision making in the F test, it can be concluded that the above results are statistically significant. Based on the coefficient of determination or R Square above, it can be concluded that E-Service Quality can predict the variability of LYI1 of 0.515; LYI2 of 0.562; LYI3 of 0.503; and LYI4 of 0.568.

Conclusion

The conclusions that can be drawn from this research are as follows:

1. The service quality of the currently used application is adequate. The presence of online transportation modes helps many users. This is indicated by the positive response given by the respondents in several dimensions and indicators of the e-service quality variable.

2. The level of E-loyalty of application users can be categorized as loyal, this is indicated by the positive response given by respondents, and the level of application recommendation is quite high for their relatives using online transportation services.
3. E-service quality is able to increase the e-Loyalty of users of online transportation service providers in Indonesia.

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