



# Measurement of Service Quality and Customer Satisfaction Level Marketplace in Bekasi with Fuzzy Servqual Method

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## ABSTRACT

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The increasing number of internet users in Indonesia encourages business actors (traders, distributors, producers) and consumers to choose to conduct buying and selling transactions of goods or services online. This is one of the factors starting the number of online businesses in Indonesia. Starting from online shops, e-commerce, and marketplaces. Marketplace is a place for transactions (between business actors and consumers). The number of marketplace business actors makes each other try to offer the best products, low prices, and other services with the aim of achieving consumer satisfaction in transactions. This research was conducted to measure the quality of service provided by Marketplace developers to customer satisfaction in Bekasi in particular. The method used is Fuzzy Servqual by measuring based on five dimensions of service quality and with the Customer Satisfaction Index (CSI) to measure customer satisfaction. The five dimensions of service quality show the gap negative relationship between the service received and the service expected. Meanwhile, the Customer Satisfaction Index (CSI) produces a value that can be categorized into a "Satisfied" value.

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## 1. Introduction

The business world today is strongly influenced by technological developments, thus changing patterns and strategies in the business world. The existence of internet support makes any information very easy to find quickly. The Internet is the process of delivering information, products, services, and payment processing via telephone lines, Internet connections and other digital access. The internet can provide information to the public without being limited by location and time. [1]

Based on data obtained from the survey results of the Indonesian Internet Service Providers Association (APJII) in 2017, the number of internet users in Indonesia has reached 143.26 million people out of a total population of 262 million Indonesians. The increasing number of internet users in Indonesia can encourage business actors (traders, distributors, producers) and consumers to choose to conduct buying and selling transactions of goods or services online. Online transactions make it easier and more efficient for consumers to choose the products to buy, besides that, payment transactions for buying and selling goods or services can be done quickly. On the other hand, business actors can promote products that are widely offered at a lower cost. This is one of the factors starting the number of online businesses in Indonesia, ranging from online shops, e-commerce, and marketplaces.

Marketplace is a place for transactions (between business actors and consumers) which in online shopping is starting to attract people's attention. Some examples of marketplaces that exist in Indonesia today include Tokopedia, Bukalapak, and Shopee and many more. The number of business actors in a marketplace



makes each other try to offer the best products, low prices, and other services, with the aim of achieving consumer satisfaction in transactions.

Service has a very important role. How a trading business serves and fulfills the needs of its consumers, affects the level of consumer satisfaction in shopping [2].

Based on the description above, it is necessary to have a measurement of the quality of service and the level of customer satisfaction using the Fuzzy Servqual method, so that business actors can find out the strategies that must be applied in order to continue to compete and have an impact on the marketplace in the future.

## 2. Method

### 2.1 Objek of Research

The object of this research is Service Quality and Customer Satisfaction in Marketplace which exist in Indonesia.

### 2.2 Research Instrumen

According to [11] stated that, "Research instrument is a tool used to measure the observed natural and social phenomena".

This research was conducted by collecting data in the form of assessments from respondents. In this study using a questionnaire that refers to five dimensions Servqual that is Tangibles, Reliability, Responsiveness, Assurance, and Empathy.

### 2.3 Data Collection Techniques

"Data is an important part in applying Statistical procedures and Scientific Methods" [12]. In this study, data collection was obtained through primary data.

Primary data is data taken from the source, and has never been published by a particular agency. Generally, primary data is generated from field survey activities and by using instruments such as questionnaires, questionnaires, and focus group discussions (FGD) [12].

According to [11] explained that, Questionnaire is a data collection technique which is done by giving a set of questions or written statements to respondents to answer. The questionnaire that the author uses consists of 2 parts, namely:

- Questionnaire A, namely respondent data and respondent characteristics. Contains email address, gender, name of marketplace, age and occupation.
- Questionnaire B, which is a variable that plays a role in the implementation that affects customer satisfaction.

### 2.4 Population and Sample

"Population is an area of generalization in the form of subjects or objects under study to be studied and conclusions drawn, or in other words, population is the totality of all research objects" [12]. The population in this study is the people of the Bekasi area.

According to [12] explained that, the sample is the object of observation selected from the population, so that the sample is part of the population and reflects the characteristics of the population. The number of research objects in the sample is called the sample size. The population in this study is the population of the Bekasi City area in 2020, which is 2,543,676 people (Source: Central Statistics Agency). And the sampling of this research is determined based on the Slovin formula:

$$n = \frac{N}{1 + N(d)^2}$$
$$n = \frac{2.543.676}{1 + 2.543.676 (10\%)^2}$$
$$n = \frac{2.543.676}{1 + 2.543.676 (0,01)^2}$$
$$n = \frac{2.543.676}{1 + 25.436,76}$$

$$n = \frac{2.543.676}{25.437,76}$$

n = 99,99 rounded up to 100

Information:

n = sample size

N = population size

d = selected error rate (10%)

So based on the Slovin formula above, the minimum sample required is 100 questionnaire samples. Some of the tests carried out in this study were the Validity and Reliability Test.

### 3. Result and Analysis

#### 3.1 Respondent Data

Respondent data describes the characteristics of respondents that can provide an overview about the respondent's condition. The characteristics of the respondents studied included gender, age and type of work.

##### a. Respondents by Gender

**Table 1**  
Respondent's Gender

No	Gender	Amount	Percentage
1	Man	40	40 %
2	Woman	60	60 %
	<b>Amount</b>	98	100%

Source: Processed data (2021)

##### b. Respondents by Age

**Table 2**  
Respondent's Age

No	Age	Amount	Percentage
1	<20 years	19	19 %
2	20 – 30 years	79	79 %
3	31 – 40 years	2	2 %
4	>40 years	0	0 %
	<b>Amount</b>	100	100%

Source: Processed data (2021)

##### c. Respondent by Type of Work

**Table 3**  
Respondent's Job

No	Type of Work	Amount	Percentage
1	Student/College Student	70	70 %
2	Private sector employee	24	24 %
3	Self-employed	4	4 %
4	Housewife	0	0 %
5	Other	2	2 %
	<b>Amount</b>	100	100%

Source: Processed data (2021)

#### 3.2 Validity Test Result

The purpose of this data validity test is to determine the accuracy of the distributed questionnaires. Questionnaire is said to be valid if r count (Coreccted Item Total Correlation) > r table, and the questionnaire is said to be invalid if r count (Coreccted Item Total Correlation) < r table.

**Table 4**  
Customer Perception Validity Test Results

Variable	Perception Indicator	r Count	r Table	Result
Tangibles	X1	0,602	0,164	Valid
	X2	0,607	0,164	Valid
	X3	0,557	0,164	Valid
	X4	0,719	0,164	Valid



Variable	Perception Indicator	r Count	r Table	Result
Reliability	X5	0,793	0,164	Valid
	X6	0,710	0,164	Valid
	X7	0,595	0,164	Valid
	X8	0,767	0,164	Valid
Responsiveness	X9	0,671	0,164	Valid
	X10	0,723	0,164	Valid
Assurance	X11	0,632	0,164	Valid
	X12	0,737	0,164	Valid
	X13	0,644	0,164	Valid
Empathy	X14	0,720	0,164	Valid
	X15	0,751	0,164	Valid

Source: Processed data (2021)

**Table 5**  
Customer Expectation Validity Test Results

Variable	Expectation Indicator	r Count	r Table	Result
Tangibles	X1	0,765	0,164	Valid
	X2	0,775	0,164	Valid
	X3	0,778	0,164	Valid
	X4	0,808	0,164	Valid
	X5	0,820	0,164	Valid
Reliability	X6	0,794	0,164	Valid
	X7	0,812	0,164	Valid
	X8	0,853	0,164	Valid
Responsiveness	X9	0,884	0,164	Valid
	X10	0,839	0,164	Valid
Assurance	X11	0,835	0,164	Valid
	X12	0,842	0,164	Valid
	X13	0,878	0,164	Valid
Empathy	X14	0,797	0,164	Valid
	X15	0,763	0,164	Valid

Source: Processed data (2021)

Based on the validity test, all data in the questionnaire are declared valid because the value of r count > r table, where r table is 0.164.

### 3.3 Reliability Test Result

In reliability testing, the questionnaire was tested using the Cronbach alpha method. Cronbach alpha, measuring the lower limit of the reliability value of a construct. The alpha value must be greater than 0.60 [13].

**Table 6**  
Questionnaire Reliability Test Result

Questionnaire	Alpha Value	Information
Perception	0,901	Reliable
Expectations	0,946	Reliable

Source: Processed data (2021)

From the results of the reliability test of customer perceptions and expectations, each alpha value is > 0.60, it can be stated that the questionnaire is reliable.

### 3.4 Processing with Fuzzy Serqual

Below is the calculation data of the fuzzyfication value of perceptions and expectations of customer answers from all variables on the questionnaire which is processed using Microsoft Excel software.

**Table 7**  
Fuzzyfication Customer Perceptions and Expectations

Indicator	Customer Perception			Customer Expectations		
	TFN			TFN		
	c	a	b	c	a	b
X1	7,18	8,68	10,18	7,68	9,18	10,68
X2	7,34	8,84	10,34	7,70	9,20	10,70
X3	7,42	8,92	10,42	7,68	9,18	10,68

Indicator	Customer Perception			Customer Expectations		
	TFN			TFN		
	c	a	b	c	a	b
X4	7,04	8,54	10,04	7,66	9,16	10,66
X5	6,56	8,06	9,56	7,64	9,14	10,64
X6	6,46	7,96	9,46	7,58	9,08	10,58
X7	5,70	7,20	8,70	7,22	8,72	10,22
X8	6,40	7,90	9,40	7,58	9,08	10,58
X9	6,64	8,14	9,64	7,58	9,08	10,58
X10	6,60	8,10	9,60	7,56	9,06	10,56
X11	7,02	8,52	10,02	7,72	9,22	10,72
X12	7,00	8,50	10,00	7,70	9,20	10,70
X13	6,92	8,42	9,92	7,64	9,14	10,64
X14	6,18	7,68	9,18	7,26	8,76	10,26
X15	6,60	8,10	9,60	7,34	8,84	10,34

Source: Processed data (2021)

Then the data is processed using the formula Geometric Mean to get a single value Defuzzification.

**Table 8**  
Defuzzification Customer Perception

Variable	Indicator	TFN			Defuzzification	Rank
		c	a	b		
Tangibles	X1	7,18	8,68	10,18	8,68	3
	X2	7,34	8,84	10,34	8,84	2
	X3	7,42	8,92	10,42	8,92	1
	X4	7,04	8,54	10,04	8,54	4
Reliability	X5	6,56	8,06	9,56	8,06	11
	X6	6,46	7,96	9,46	7,96	12
	X7	5,7	7,2	8,7	7,2	15
	X8	6,4	7,9	9,4	7,9	13
Responsiveness	X9	6,64	8,14	9,64	8,14	8
	X10	6,6	8,1	9,6	8,1	9
	X11	7,02	8,52	10,02	8,52	5
Assurance	X12	7	8,5	10	8,5	6
	X13	6,92	8,42	9,92	8,42	7
Empathy	X14	6,18	7,68	9,18	7,68	14
	X15	6,6	8,1	9,6	8,1	10

Source: Processed data (2021)

From the results of processing customer perception data after being defuzzification, the highest perceived value or performance is obtained from the quality of the service system Marketplace to customers, namely the X3 indicator "Has a good and attractive page design/display" with a value of 8.92. Meanwhile, the lowest perception or performance value is the X7 indicator "Reliable and rarely makes mistakes" with a value of 7.2.

**Table 9**  
Defuzzification Customer Expectations

Variable	Indicator	TFN			Defuzzification	Rank
		c	a	b		
Tangibles	X1	7,68	9,18	10,68	9,18	4
	X2	7,7	9,2	10,7	9,2	2
	X3	7,68	9,18	10,68	9,18	5
	X4	7,66	9,16	10,66	9,16	6
	X5	7,64	9,14	10,64	9,14	7
Reliability	X6	7,58	9,08	10,58	9,08	9
	X7	7,22	8,72	10,22	8,72	15
	X8	7,58	9,08	10,58	9,08	10
Responsiveness	X9	7,58	9,08	10,58	9,08	11
	X10	7,56	9,06	10,56	9,06	12
Assurance	X11	7,72	9,22	10,72	9,22	1
	X12	7,7	9,2	10,7	9,2	3



Variable	Indicator	TFN			Defuzzification	Rank
		c	a	b		
Empathy	X13	7,64	9,14	10,64	9,14	8
	X14	7,26	8,76	10,26	8,76	14
	X15	7,34	8,84	10,34	8,84	13

Source: Processed data (2021)

From the results of data processing customer expectations after being defuzzification, the highest expectation value or expectation from the quality of the Marketplace service system to customers is the X11 indicator "Always updating the status of the transaction process appropriately" with a value of 9.22. Meanwhile, the lowest expectation value is the X7 indicator "Reliable and rarely makes mistakes" with a value of 8.72.

### 3.5 Calculation Servqual Gap

#### a. Calculation of Servqual Gap Value Between Indicators

Mark Servqual Gap between indicators is obtained based on the difference between performance/perception and expectations/expectations of customers. It is used to show the extent to which the company provides a service system in accordance with the wishes and problems of customers.

**Table 10**  
Calculation Servqual Gap between indicators

Variable	Indicator	Defuzzification		GAP	Rank
		Perception	Expectations		
Tangibles	X1	8,68	9,18	-0,5	3
	X2	8,84	9,2	-0,36	2
	X3	8,92	9,18	-0,26	1
	X4	8,54	9,16	-0,62	4
	X5	8,06	9,14	-1,08	11
Reliability	X6	7,96	9,08	-1,12	13
	X7	7,2	8,72	-1,52	15
	X8	7,9	9,08	-1,18	14
Responsiveness	X9	8,14	9,08	-0,94	9
	X10	8,1	9,06	-0,96	10
Assurance	X11	8,52	9,22	-0,7	5
	X12	8,5	9,2	-0,7	6
	X13	8,42	9,14	-0,72	7
Empathy	X14	7,68	8,76	-1,08	12
	X15	8,1	8,84	-0,74	8

Source: Processed data (2021)

From the results of the calculation of the gap as a whole, it shows that there is no positive gap value. While a positive gap value means that what customers get is in accordance with what customers expect, while a negative gap value means what customers get is not in accordance with customer expectations. Based on the table, it can be seen that the indicator that has the largest negative gap value is X7 (Reliable and rarely makes mistakes) with a gap of -1.52 so that this indicator gets the most dissatisfaction from customers.

#### b. Value Calculation Servqual Gap Between Indicators

Based on the calculation results Servqual Gap Among the indicators that have been processed previously, five indicators with the largest negative gap are obtained that are of concern to be improved. The five indicators that need to pay attention to include:

**Table 11**  
Mark Servqual GAP Biggest

Indicator	Defuzzification		GAP	Rank
	Perception	Expectations		
X7	7,2	8,72	-1,52	1
X8	7,9	9,08	-1,18	2
X6	7,96	9,08	-1,12	3
X14	7,68	8,76	-1,08	4
X5	8,06	9,14	-1,08	5

Source: Processed data (2021)

From the data above, it is known that there are five indicators that need attention to be improved, with details:

- 1) Reliable and rarely make mistakes with a gap of -1.52. This is supported by the results of observations and customer complaints on the Marketplace because errors often occur such as the goods arriving at home are different from the goods ordered.
- 2) Accurate and appropriate in providing information with a gap of -1.18.
- 3) On time in providing services to delivery with a gap of -1.12.
- 4) Quick in responding to complaints with a gap of -1.08.
- 5) The services provided are as promised with a gap of -1.08.

**c. Value Calculation Servqual Gap Between Dimensions**

This calculation is used to get the value of Servqual Gap based on five dimensions Servqual consisting of Tangibles, Reliability, Responsiveness, Assurance, and Empathy. The Servqual Gap value between dimensions is obtained based on the difference between performance/perceptions and customer expectations/expectations that have been added up per dimension group. From each dimension, the number of gaps is calculated and the ranking results are determined from the lowest value to the highest value.

Table 12  
Calculation Servqual Gap between Dimensions

Variable	Indicator	Defuzzification		GAP	Rank
		Perception	Expectations		
Tangibles	X1	8,68	9,18		
	X2	8,84	9,2		
	X3	8,92	9,18		
	X4	8,54	9,16		
	<b>Amount</b>	<b>34,98</b>	<b>36,72</b>	<b>-1,74</b>	<b>5</b>
Reliability	X5	8,06	9,14		
	X6	7,96	9,08		
	X7	7,2	8,72		
	X8	7,9	9,08		
	<b>Amount</b>	<b>31,12</b>	<b>36,02</b>	<b>-4,9</b>	<b>1</b>
Responsiveness	X9	8,14	9,08	-0,94	9
	X10	8,1	9,06	-0,96	10
	<b>Amount</b>	<b>16,24</b>	<b>18,14</b>	<b>-1,9</b>	<b>3</b>
Assurance	X11	8,52	9,22	-0,7	5
	X12	8,5	9,2	-0,7	6
	X13	8,42	9,14	-0,72	7
	<b>Amount</b>	<b>25,44</b>	<b>27,56</b>	<b>-2,12</b>	<b>2</b>
Empathy	X14	7,68	8,76	-1,08	12
	X15	8,1	8,84	-0,74	8
	<b>Amount</b>	<b>15,78</b>	<b>17,6</b>	<b>-1,82</b>	<b>4</b>

Source: Processed data (2021)

From the results of the calculation of the gap between dimensions, it shows that all dimensions have negative gap values, which means that what the customer gets is not in accordance with customer expectations. For the calculation of the negative gap, the greater the negative value, the further the gap between customer expectations and the performance received by customers will be. Based on the table above, it can be seen that the dimension that has the largest negative gap value is Reliability with a gap of -4.9 so that this dimension gets the most dissatisfaction from customers.

**3.6 Customer Satisfaction Indexs (CSI)**

After going through the stages of CSI measurements processed with a computer program Microsoft Excel, the following results were obtained:

Table 13  
CSI Calculation

No	Rate Average Performance (X)	Rate Average Hope/Interest (Y)	Weighting Factor (%)	Weighting Score
1	4,09	4,34	6,75	0,28



No	Rate Average Performance (X)	Rate Average Hope/Interest (Y)	Weighting Factor (%)	Weighting Score
2	4,17	4,35	6,77	0,28
3	4,21	4,34	6,75	0,28
4	4,02	4,33	6,74	0,27
5	3,78	4,32	6,72	0,25
6	3,73	4,29	6,67	0,25
7	3,35	4,11	6,39	0,21
8	3,70	4,29	6,67	0,25
9	3,82	4,29	6,67	0,25
10	3,80	4,28	6,66	0,25
11	4,01	4,36	6,78	0,27
12	4,00	4,35	6,77	0,27
13	3,96	4,32	6,72	0,27
14	3,59	4,13	6,43	0,23
15	3,80	4,17	6,49	0,25
<b>Amount</b>	<b>58,03</b>	<b>64,27</b>	<b>100,00</b>	<b>3,872</b>
<b>Satisfaction Index (in %) =</b>			<b>77,44</b>	

Source: Processed data (2021)

Based on the data obtained in the table, it can be seen that the Marketplace customer satisfaction index in Bekasi is 77.44 percent. Then based on the criteria for the level of customer satisfaction mentioned in the previous chapter, the Marketplace customer satisfaction index in Bekasi (77.44 %) is included in the "PUAS" criteria (0.66 - 0.80). The performance of the Marketplace service for the Bekasi community is considered quite good because it has been able to fulfill some of the expectations of its users.

#### 4. Conclusion

From the results of data processing and data analysis, the following conclusions were obtained:

- Method Service Quality can be used to measure and get the value of service quality by measuring the level of performance/perception and expectations/expectations of customers through a questionnaire compiled based on the dimensions ServQual.
- From the calculation results gaps, all indicators show gap negative which means that what the customer gets is not in accordance with customer expectations.
- Based on measurement gap of the 5 dimensions of service quality, the results obtained that the dimensions that have a value of gap the highest is the dimension Reliability. That is, dimensions Reliability that must be a concern and a priority for evaluation.
- Calculation Customer Satisfaction Index shows the results of the customer satisfaction index of 77.44% and entered into the "PUAS" criteria so that there is a significant relationship between service quality Marketplace with customer satisfaction in the Bekasi area.

#### 5. Reference

- [1] I. K. Dewi and A. Kusumawati, "Pengaruh Diskon Terhadap Keputusan Pembelian Dan Kepuasan Pelanggan Bisnis Online," *J. Adm. Bisnis*, vol. 56, no. 1, pp. 155–163, 2018, [Online]. Available: [administrasibisnis.studentjournal.ub.ac.id](http://administrasibisnis.studentjournal.ub.ac.id).
- [2] A. Hanif, "Kualitas Pelayanan Dan Tingkat Kepuasan Pengguna E-Commerce di Indonesia," *Simp. Nas. Ilmu Pengetah. dan Teknol.*, vol. 1, no. 1, p. A-1-A-9, 2016, [Online]. Available: <http://seminar.bsi.ac.id/simnasiptek/index.php/simnasiptek-2016/article/view/81/81>.
- [3] D. P. Andriani, N. W. Setyanto, and L. T. W. N. Kusuma, *Desain dan Analisis Eksperimen untuk Rekayasa Kualitas*, 1st ed. Malang: UB Press, 2017.
- [4] A. Riyanto, "Implikasi Kualitas Pelayanan Dalam Meningkatkan Kepuasan Pelanggan Pada PDAM Cibadak Sukabumi," *Ecodemica*, vol. 2, no. 1, pp. 117–124, 2018, [Online]. Available: <https://ejournal.bsi.ac.id/ejurnal/index.php/ecodemica/article/view/2911/pdf>.
- [5] H. Windasuri and H. Susanti, *Excellent service : the secrets of building a service organization*, 1st ed.

Jakarta: PT. Gramedia Pustaka Utama, 2017.

- [6] B. Harto, "ANALISIS TINGKAT KEPUASAN PELANGGAN DENGAN PENDEKATAN FUZZY SERVQUAL DALAM UPAYA PENINGKATAN KUALITAS PELAYANAN (Studi Kasus Di Bengkel Resmi BAJAJ Padang)," *J. TEKNOIF*, vol. 3, no. 1, pp. 20–30, 2015, [Online]. Available: [http://download.garuda.ristekdikti.go.id/article.php?article=307939&val=5450&title=ANALISIS TINGKAT KEPUASAN PELANGGAN DENGAN PENDEKATAN FUZZY SERVQUAL DALAM UPAYA PENINGKATAN KUALITAS PELAYANAN](http://download.garuda.ristekdikti.go.id/article.php?article=307939&val=5450&title=ANALISIS%20TINGKAT%20KEPUASAN%20PELANGGAN%20DENGAN%20PENDEKATAN%20FUZZY%20SERVQUAL%20DALAM%20UPAYA%20PENINGKATAN%20KUALITAS%20PELAYANAN) Studi Kasus Di Bengkel Resmi BAJAJ Padang.
- [7] D. Suharyadi, "Analisis Pengaruh Kualitas Pelayanan Terhadap Kepuasan Pelanggan Pada Toko Yoehan Wanaherang Bogor," *J. Ilmu Pengetah. dan Teknol. Komput.*, vol. 3, no. 2, pp. 289–296, 2018.
- [8] P. Arimbhi, I. Susanto, and S. K. Ghany, "Proses Bisnis Dan Aspek Pemungutan Pajak Atas Transaksi E-Commerce Dalam Era Revolusi Industri 4.0," *J. Reformasi Adm.*, vol. 6, no. 1, pp. 53–67, 2019, [Online]. Available: <http://ojs.stiami.ac.id/index.php/reformasi/article/download/343/205>.
- [9] E. D. Sikumbang, "Analisa Tingkat Kepuasan Pelanggan Dengan Metode Fuzzy Servqual," *J. Tek. Komput. AMIK BSI*, vol. III, no. 1, pp. 37–43, 2017, [Online]. Available: <https://ejournal.bsi.ac.id/ejurnal/index.php/jtk/article/viewFile/1341/1090>.
- [10] Jubilee Enterprise, *SPSS untuk Pemula*. Jakarta: Elex Media Komputindo, 2014.
- [11] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta, 2017.
- [12] S. T. Wahyudi, *Statistika Ekonomi, Konsep, Teori, dan Penerapan*, 1st ed. Malang: UB Press, 2017.
- [13] S. Bahri and F. Zamzam, *Model Penelitian Kuantitatif Berbasis SEM-Amos*, 1st ed. Yogyakarta: Deepublish, 2015.

