The Relationship Between Customer Satisfaction and Customer Loyalty in Online Environment

Devi Rosana Leonata
International Business Management Program, Petra Christian University
Jl. Siwalankerto 121-131, Surabaya
E-mail: devileonata@hotmail.com

ABSTRACT

Many researches have already discussed about the relationship between customer satisfaction and customer loyalty. However, there is only few discussing about the relationship in online environment. Thus, this research is conducted to see whether there is significant relationship between customer satisfaction and customer loyalty in online environment as well as to know which best viewpoint that may describe the relationship. This research focuses on people who have done online transactions. The sampling method is simple random sampling and finally got 97 valid and reliable responses. Next, the valid data will be processed through several methods comprising Simple Linear Regression, Multiple Linear Regression, and Regression with Mediating Variable using SPSS Program. After going through several tests, the results of this research show that customer satisfaction has positive significance relationship to customer loyalty in online environment. Also, it is proven that the model with mediating variable, trust, may best define the relationship between customer satisfaction and customer loyalty in online environment.

Keywords: Satisfaction, Loyalty, E-Commerce, Online Environment

ABSTRAK

Banyak penelitian yang membahas tentang hubungan antara kepusasan pelanggan dan loyalitas pelanggan. Namun, masih sedikit yang membahas hubungan tersebut secara online. Penelitian ini bertujuan untuk melihat adakah hubungan yang signifikan antara kepuasan pelanggan dan loyalitas pelanggan secara online serta untuk mengetahui model hubungan apakah yang terbaik untuk mendeskripsikan hubungan tersebut. Sampel dari penelitian ini adalah semua orang yang pernah melakukan transaksi secara online. Sampel diambil secara acak dan mendapatkan 97 sampel yang valid dan reliable. Kemudian, data akan dianalisa menggunakan metode Simple Linear Regression, Multiple Linear Regression, dan Regression with Mediating Variable melalui program SPSS. Setelah melalui beberapa proses, penelitian ini menunjukkan bahwa kepuasan pelanggan mempunyai hubungan yang positif signifikan terhadap loyalitas pelanggan di lingkungan online. Selain itu, penelitian juga membuktikan bahwa model terbaik untuk mendeskripsikan hubungan antara kepuasan pelanggan dan loyalitas pelanggan di lingkungan online adalah model dengan kepercayaan sebagai variabel mediasi.

Kata Kunci: *Kepuasan, Loyalitas, E-Commerce, Lingkungan Online*

INTRODUCTION

In this era, Internet users have been increasing thoroughly. The number of worldwide Internet users will exceed 3 Billion in 2015 (Emarketer, 2014). This number shows that people nowadays may access Internet easily, including in Indonesia. Internet users in Indonesia will reach 93.4 Million and still be growing up to 102.8 Million in 2016 (Emarketer, 2014). In addition, those numbers actually comprise about 38% of Indonesian population (Emarketer, 2013).

The easiness to access Internet is also supported by the increase of smartphone usage in Indonesia, which account for 74.8 Million users (Statista, 2012). Though there are laptops, PC Desk, and tablets to access the Internet, people using smartphone still take the largest percentage, which is 59.9% (Yuniar, 2014).

Looking at the Internet users growth and their dependency to access Internet through smartphones, there are big opportunities in Indonesia to develop its online environment, especially in e-commerce. E-commerce in Indonesia is actually experiencing constant growth (Masna, 2014). It is expected that e-

commerce in Indonesia will exceed US$ 4 Billion in 2016 (Tang, 2014).

However, there are several challenges that Indonesia has to overcome in e-commerce. First of all, it is about the infrastructure. The Internet speed is not fast enough compared to other countries like South Korea and Japan. Another infrastructure challenge is the transportation problem, which affects delivery time. For example in Jakarta, the traffic is so awful that it may cause the delivery time becoming unreliable. Second, it is about the product. The price, quality, and variety are somehow not as reasonable as offline. Sometimes, the product in the picture looks great, but the actual is not. Third, it is about the payment method. Indonesia's banks are considered slow to adapt with e-commerce. Up to now, most people pay use bank transfer, while it is not as simple as using credit card (Utoyo & Ramda, 2012).

But, regardless of the challenges, people still purchase through online. As a result, the number of e-commerce in Indonesia also keeps growing. When people keep purchasing online on one certain website, it means that they are by any means satisfied with the action done by the website. For instance, this website provides punctual delivery time and varieties of products. However, it barely means that they are loyal. It is possible when customers are highly satisfied, but not loyal when there are many alternatives (Castañeda, 2011)..

Even though there were several researches done to reveal the relationship between customer satisfaction and loyalty, there are still gaps found. For example, in the research done by Barbara Cater and Tomaz Cater (2009), they were discussing about the relationship between satisfaction and loyalty in manufacturing, which is in offline environment. Another research done by Castañeda (2011) already discussed about the relationship between satisfaction and loyalty in online environment using four viewpoints. Those four viewpoints are simple or linear, non-linear, operative definition of satisfaction, moderating and mediating variable (Castañeda, 2011). However, this research was conducted in Spain, whose behavior is different from Indonesia. Hence, writer would like to fill the research gap in online environment in Indonesia by conducting the research referring to the research done by Castañeda (2011). In this research, writer will focus only on three models, which are linear, operative definition of satisfaction, and mediating variable for several reasons that writer will explain in the next section.

Knowing the fact that e-commerce is growing in Indonesia, yet there was not much research done about e-commerce in Indonesia, writer would like to investigate the relationship between customer satisfaction and loyalty in online environment. The research will refer to the viewpoints proposed by Castañeda (2011).

The first viewpoint is the simple or linear relationship between satisfaction and loyalty. In linear relationship, most of studies assume that there is a direct positive relationship happened between those two variables (Bloemer et al., 1990, 2003; Fornell, 1992; Szymanski & Henard, 2001). It means that higher customer satisfaction will result to higher customer loyalty.

The second viewpoint is the operation definition of satisfaction. In this viewpoint, the study focuses on the dimensionality of customer satisfaction. Previous study proposed satisfaction and dissatisfaction as the delimitation of satisfaction dimensionality (Yi, 1990). Thus, in this viewpoint it is about how satisfaction and dissatisfaction affect loyalty in online environment. The third viewpoint discusses about mediating variables. In this viewpoint, there is an addition variable affecting the relationship between satisfaction and loyalty. There will be trust as the mediator between satisfaction and loyalty (Bauer, Grether, & Leach, 2002).

However, writer will not include non-linear and moderating models for several reasons. For non-linear model, it may not be applicable for this research since the data gotten will be in Likert scale and averaged, which shows linearity instead of exponential or non-linearity (Linting, Meulman, Groenen, & Van Der Koiij, 2007). Whereas for moderating variable that includes involvement as the moderator, writer would not discuss in this research as writer would like to focus more on the e-commerce challenges faced in Indonesia, which having concerned more on trust (Tang, 2014; Kadin Indonesia, 2014; Mamuaya, 2011).

As there are a lot of industries in e-commerce, writer would like to limit the research subject into one e-commerce only, Agoda.com as one of the biggest online hotel reservation platforms with the highest growth in the world. Besides its business size, writer uses Agoda.com as research subject for its recognition and adaptation in Indonesia.

So, the objective condungting this research is to understand the relationship between customer satisfaction and customer loyalty in online environment, and also to know which viewpoint best explains the relationship in online environment.

LITERATURE REVIEW

In this research, there will be 4 concepts used to explain the relationship between customer satisfaction and loyalty in online environment. The concepts account for customer satisfaction, trust, customer loyalty, and online environment. To have a better understanding before conducting the research, writer has to acknowledge the suppressed theories that explain the issue. Hence, in this section, writer will define the concepts thoroughly.

Customer Satisfaction

Satisfaction is about how consumers' judgments toward a product, whether it gives them pleasure or displeasure (Moliner, Sa'nchez, Rodri'guez, & Callarisa, 2007). According to Kotler and Keller (2012), satisfaction is "a person's feelings of pleasure or disappointment that result from comparing a product's perceived performance (or outcome) to expectations" (p. 150). Customer will satisfy when the performance matches the expectations (Kotler & Keller, 2012). The better the performance, the higher will be the satisfaction level a customer has (Kotler & Keller, 2012). On the other hand, dissatisfaction will appear when the performance is far below customer's expectation (Kotler & Keller, 2012). Previous study researched that there are several theories explaining about customer satisfaction that include the Dissonance Theory, the Contrast Theory, and the Expectancy Disconfirmation Theory (Yüksel & Yüksel, 2014). To fit with this research, writer will only use Expectancy Disconfirmation Theory definition to explain the concept of customer satisfaction. The Expectation Disconfirmation Theory was first proposed by Oliver (1977) to explain better definition of customer satisfaction. In this theory, the standard used is customer's expectation level. Afterwards, the outcomes will be compared with the expectation level. If the expectation equals to the outcome, then there is a confirmation. However, a difference between expectation and the outcome will be a disconfirmation.

Customer's satisfaction or dissatisfaction is then measured as the result of positive or negative disconfirmation. For instance, the outcome is higher than the expectation. Then there is a positive disconfirmation occurred. On the other hand, the negative disconfirmation happens when the outcome is less favorable than the expectation.

Customer Loyalty

Loyalty is defined as "repeat purchasing frequency or relative volume of same brand purchasing" (Tellis, 1988). Then, loyal customers were defined as customers, who repurchased a brand, had a thought only at a brand, and seek no more information on the related brand (Newman & Werbel, 1973). However, those definitions only covered on how consumer behaved toward a brand (Oliver, 1999). Hence, looking at the gap, Oliver (1999) then defined customer loyalty as:

> A deeply held commitment to rebuy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, *despite* situational influences and marketing efforts having the potential to cause switching behavior (p. 34).

To have depper understanding about the definition of customer loyalty, writer will use composite measurement. This measurement measures customer loyalty through customer's product preferences, purchase frequency, purchase recency, and purchase total (Pritchard & Howard, 1997). Also, composite measurement has been used to help understanding customer loyalty in several industries like retail, recreation, and airlines (Day, 1969; Jacoby and Kyner, 1973; Backman & Crompton, 1991; Pritchard, Howard, and Havitz, 1992; Pritchard and Howard, 1997). So, in composite measurement, customers considered loyal are those who have positive attitude toward the brand or company, commitment to repurchase the products or service, and willingness to recommend the brand to others (Bowen & Shiang, 2001). In addition, Zeithaml et al. (1996) previously also argued in their article that a favorable loyalty customers are those who keep purchasing one brand, say positive things, recommend the brand to others, which also support the composite measurement theory.

Trust

As an individual, people must have limitation since nobody is perfect. As a result, there is dependency from one to another to fulfill the goal of their daily life and even business. The interdependency leads to collaboration from one party to another, where trust arises and is used as a foundation to solve the problem (Tomlinson & Lewicki, 2002). According to Blaze et al. (1999), trust is critical in computing system distribution that is used to guarantee the system through trust management in order to be able to provide valid and effective information service.

In trust establishment process, there are three things that can be constructed as evaluation. Those three things comprise ability, benevolence, and integrity (Grandison & Sloman, 2000; McKnight and Chervany, 2001; Tomlinson & Lewicki, 2000). First of all, ability refers to website's knowledge, skills, and competency in the field whether it performs well or not (Grandison & Sloman, 2000). For example, as an online hotel reservation platform, Agoda.com has to be able to provide the information such as price and availability to customers. Through those abilities, customers may evaluate whether Agoda.com is competent or not. This evaluation then may lead customer to trust in Agoda.com later in the future or not.

Secondly, it is about the benevolence. Benevolence implies compassion of the service concerning about customers' comfort and benefit that are beyond customers' expectation (McKnight & Chervany, 2001). The action may in a form of giving bonus or giving extra service, which they do not request, to customer. Thirdly, it is about the integrity. Integrity refers to how the website shows certainty, consistency, and reliability.

Having defined the concept of trust, writer will use three things in trust establishment processes as the measurement in this research, which comprises ability, benevolence, and integrity.

Online Environment

Online has a meaning of "connected to the Internet or World Wide Web" (Oxford Dictionaries, 2015). However, environment means, "the overall structure within which is a user, computer, or program operates" (Oxford Dictionaries, 2015). In this era, online environment has become part of people's lives. It is because in the online environment, people do not have to meet directly, instead, they may discuss ideas throughout bulletin news (Bender, 1978; Rheingold, 1994). Moreover, people may also exchange their interest, social relationship, fantasy, and transaction (Bender, 1978; Rheingold, 1994).

In this research, writer would like to dig deeper on the transaction done in online. A transaction conducted electronically on the Internet is defined as e-commerce (Oxford Dictionaries, 2015). E-commerce is also defined as "the process of buying, selling, transferring, or exchanging products, services, and/or information via computer networks, mostly the Internet or intranets" (Turban, King, Lee, Liang, & Turban, 2011, p. 38).

E-commerce is possible to happen in the electronic market, the e-marketplace, in which buyers and sellers do transactions like exchanging goods, services, money, or information through online (Turban, King, Lee, Liang, & Turban, 2011, p. 39). According to Turban, King, Lee, Liang, & Turban (2011) there are 9 classifications of e-commerce based on the transactions and also the participants' relationship as follows:

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Business-to-Business-to-Consumer (B2B2C)
- Consumer-to-Business (C2B)
- Intra-business E-Commerce
- Business-to-Employees (B2E)
- Consumer-to-Consumer (C2C)
- Consumer-to-Consumer (C2C)
- E- Government

Despite of the classifications above, writer would focus on Business-to-Consumer (B2C) classification only. The reason is that writer will emphasize the research subject on Agoda.com, the online hotel platforms worldwide, which is categorized as B2C.

As stated by Turban, King, Lee, Liang, & Turban (2011), B2C is a transaction that will cover retail products or services from businesses to individual buyers. Lazada.co.id, Bhinneka.com, Agoda.com, Zalora.co.id are several examples of B2C e-commerce. In B2C e-commerce, the website has a role as a platform to bridge the businesses and the customers. For example, Agoda.com offers several

hotel options for customers to select. Having many options, it means that Agoda.com provides more than one hotels with different brands too. Thus, Agoda.com becomes a platforms for the hotel businesses and customers.

Relationship Between Customer Satisfaction and Customer Loyalty in Online Environment

The simple or linear model believes that there is a direct relationship between two variables, which are customer satisfaction and customer loyalty in online environment. In addition, it also believes that the relationship is positive. Thus, the higher customer satisfaction may result to higher customer loyalty. To measure the customer satisfaction, writer will use the measurement proposed by Oliver (1980). On the other hand, customer loyalty will be measured through initial study proposed by Zeithaml et al. (1996), which will be explained on the next section.
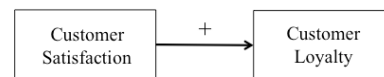
Figure 1. The Linear Relationship Between Customer Satisfaction and Customer Loyalty in Online Environment

Relationship Between Customer Satisfaction and Customer Dissatisfaction Toward Customer Loyalty in Online Environment

In this perspective, the study focuses on the delimitation of satisfaction, which is the dimensionality. Previous study proposed that satisfaction and dissatisfaction, which have one-dimensional perspective, could become the delimitation of satisfaction. Therefore, in this model, the satisfaction and dissatisfaction will be the independent variables influencing the loyalty.
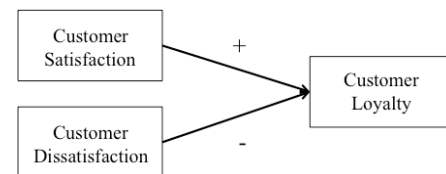
Figure 2. The Relationship Between Customer Satisfaction and Customer Dissatisfaction to Customer Loyalty in Online Environment
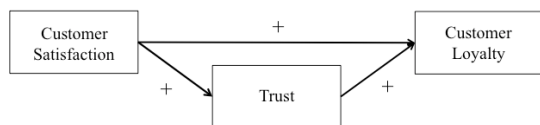
Relationship Between Customer Satisfaction and Customer Loyalty Mediated by Trust in Online Environment

As for mediating variable, there is total or partial involvement from the third variable. Revaluation of trust variable is believed to be in the relationship of marketing theory. As a result, relationship-marketing theory believes trust may become a total or partial mediator of customer satisfaction and customer loyalty relationship in online environment (Bloemer

& Odekerken-Schröder, 2002; Delgado & Munuera, 2001; Hennig-Thurau & Klee, 1997; Ganesan, 1994; Selnes, 1998). On Chapter 3, writer will explain how to measure trust using McKnight et al. measurement (2002).

Figure 3. The Relationship Between Customer Satisfaction and Customer Loyalty Mediated Totally by Trust in Online Environment

Figure 4. The Relationship Between Customer Satisfaction and Customer Loyalty Mediated Partially by Trust in Online Environment

Then, as the foundation of the research, writers have developed hypotheses that will be explained below:

H1: Customer satisfaction and dissatisfaction simultaneously have significant relationship to customer loyalty in online environment.

H2: Customer satisfaction and dissatisfaction individually has significant relationship to customer loyalty in online environment.

H3: Customer satisfaction jas significant relationship to customer loyalty mediated by trust.

RESEARCH METHOD

According to Cooper and Schindler (2014), there are three types of research method. The research methods comprise exploratory method, descriptive method, and causal method.

Writer will apply causal method as it is applied when the researchers want to study a causal relationship between variables. The objective is to get a conclusion through the hypothesis testing. Furthermore, the purpose of causal method is to know whether a change occurred in one variable will cause a change in another or not and to know the reason of the change (Cooper & Schindler, 2014). So, this research will apply causal method as it will reveal the relationship between customer satisfaction and customer loyalty.

Defining the variables, there will be independent, dependent, and mediating variables in this research. The independent variable will be manipulated in order to see the change occurred on the dependent variable for it is believed that the independent variable is the cause of other variable. Therefore, the independent variable will be the customer satisfaction. However, as stated in the previous chapter, writer will use satisfaction and dissatisfaction as an indicator on one of the models. Afterwards, to measure customer satisfaction, writer will use the measurement proposed by Oliver (1980).

According to Baron and Kenny (1986), a variable can be categorized as a mediator when the variable is able to influence the relationship between independent and dependent variables. Furthermore, it also postulates a causal link. In this research there is a mediating variable, which is trust. The variable will be measured using McKnight et al. (2002) measurement that is believed having suitable psychometric qualities in validity and reliability.

The dependent variable is measured, predicted, or observed by writer. Moreover, researchers usually expect dependent variable will be influenced by the independent variable (Cooper & Schindler, 2014). As stated above, the dependent variable is the loyalty that will be measured through initial study proposed by Zeithaml et al. (1996). As for Zeithaml et al., there are 6 items to measure loyalty.

According to Cooper and Schindler (2014), there are four types of data that are nominal, ordinal, interval, and ratio data. Among those four types of data, writer will use nominal, interval and ratio data. The purpose of using nominal data is for writer to know the respondents, like the gender and profession. Writer will also use interval data for screening questions in the questionnaire in order to know the range of respondents' age and range of respondents' income. Then, interval data also helps writer to analyze the survey since writer will use Likert Scale and to measure the satisfaction and loyalty.

To collect the data, writer will use primary data and secondary data as the source. The primary data is collected through survey distribution. Writer will distribute the survey only for those who ever purchase goods or services through online environment, specifically Agoda.com, in order to achieve the research objective. It means that for those who never purchase at Agoda.com will be irrelevant for this research. Moreover, writer also uses secondary data taken from books, journals, and websites that are relevant to support the research.

The population of this research is people of Indonesia who ever purchase through Agoda.com. To upturn the research accuracy, writer would like to focus on young adult by limiting the age range for the population. The minimum age will be 20 years old, whereas the maximum age will be 50 years old. Deciding the minimum age, writer believes that 20 year-old individual has already had purchasing power and also has high dependency to online environment (Scheepers, Scheepers, Stockdale, & Nurdin, 2014). Furthermore, writer also considers 50 years old as the maximum age as they are still considered productive (The World Bank, 2014). Afterwards, the questionnaire will be distributed using Google Forms, a platform provided by Google to create and distribute

survey through online taking people in Indonesia as the population.

This research will apply probability-sampling method. Then, there are several methods in the probability sampling itself, which are simple random sampling, systematic sampling, stratified sampling, and cluster sampling. Writer will focus on simple random sampling where writer will choose random people in the population without considering their profile, status, and caste. So, everyone has equal chance to be the sample (Cooper & Schindler, 2014).

For the sample size, writer refers to Tabachnick and Fidell's formula (2013). The researchers believe that the independent variables influence the sample size. As stated by Tabachnick and Fidell (2013), the number of sample (N) should be bigger than $50 + 8M$, where M represents the number of independent variables. Therefore, the respondents of this research should be more than 66, for there are two independent variables in this research.

Having collected the data, writer will process it through validity and reliability, classic assumption test, F-test, t-test, and Sobel Test.

Validity test is a test used to measure how well the measurement test measures the items proposed to be measured (Cooper & Schindler, 2014). To tell whether an indicator is valid or not, writer will compare the R-values gotten from questionnaire data (R data) and table (R table). The r data refers to the value on the Cronbach Alpha's output, Correlated Item-Total Correlation column. To know the R table value, first writer has to define the degree of freedom (df) through N-2 formula, where N is the number of sample. Afterwards, writer will check on 2-tailed R table. If the value of R data is positive and higher than R table value, then the indicator is valid.

According to Cooper and Schindler (2014), reliability is "a characteristic of measurement concerned with accuracy, precision, and consistency" (p. 62). A survey is considered reliable when the respondents' answers toward statements are consistent and stable from time to time. The variable is considered reliable if the value is higher than 0.7 (Nunnaly & Bernstein, 1994). Afterwards, writer needs to check Cronbach's Alpha if Item Deleted column. If there is Cronbach's Alpha value in that column higher than current Cronbach's Alpha, then writer has to delete the item to achieve higher data reliability ("Reliability Analysis", n.d).

Prior to conduct multiple linear regression analyses, writer has to do the classic assumption tests. The tests include multicollinearity, autocorrelation, heteroscedasticity, and normality tests. To identify multicollinearity, there are several indicators need to be checked. According to Ghozali (2013), multicollinearity may be checked through tolerance value and contrary, the variance inflation factor (VIF) (Ghozali, 2013). As a result, low tolerance value equals to high VIF value (VIF = 1/Tolerance) (Ghozali, 2013). Multicollinearity is considered not occurred when the tolerance value exceeds 0.1 or the VIF value is equal to or lower than 10.

To identify autocorrelation, writer will use Run Test. Having conducted the Run Test, writer will compare the test value with the significance level (0.05) of the standardized residual (Ghozali, 2013). If the test value is higher than the significance, then it can be said there is no autocorrelation in the regression model. For heteroscedasticity test, writer will use Park Test in this research. Writer will refer to p-value and the significance level (0.05). When the p-value exceeds 0.05, the null hypothesis will be accepted. It means that there is no heteroscedasticity occurred in the regression model. But, if the p-value is less than 0.05, then the null hypothesis will be rejected. It shows that there is heteroscedasticity in the regression model.

In normality test, writer will apply Kolmogorov-Smirnov (K-S) test to identify the variable distribution. To know whether the variable is normally distributed or not, writer will refer to the result of Asymp. Sig. (2-tailed). If the result exceeds the significance level (0.05), then it can be said that the residual data is normally distributed.

Since there are three different models in this research, then the statistical tests will be conducted following each type of the model. As for this research, the simple linear regression will be applied on the linear relationship model. Simple linear regression is conducted in order to reveal the relationship between two variables and to estimate the value of dependent variable (Y) according to the selected independent variable (X). The model equation in simple linear regression is:

$Y' = a + bX$

where:

Y'   = the predicted value of Y variable for X value

a   = the Y intercept or the estimated value of Y when X = 0

b   = the slope of the line or the average change in Y' for each change of one unit (either increase or decrease) in the independent variable X

X   = value of the independent variable

The formulas for b and a are:

$$b = \frac{n\,(\Sigma\,XY) - (\Sigma\,X)(\Sigma\,Y)}{n\,(\Sigma\,X^2) - (\Sigma\,X)^2}$$

$$a = \frac{\Sigma\,Y}{n} - b\,\frac{\Sigma\,X}{n}$$

Then, coefficient of determination test is used to know how well the variables fit in the regression model. In this test, the R Square result shows how immeasurably the dependent variable can represent

the independent variable. The more it closes to 100%, the better the result is (Ghozali, 2013). It means that the model fits. Furthermore, there are one more related test needs to be conducted, which is t-test. The purpose of using significance test is to know whether there is significant relationship between the dependent variable and the independent variables (Cooper & Schindler, 2014). Writer will compare t value gotten from the calculation with t value from the table. If t value calculation is higher than significance level of 0.05, then it can be said that independent variable has significant relationship to dependent variable.

Then, multiple linear regression analysis will be applied on the operative definitions of satisfaction construct and mediating variable model. The purpose of multiple regression analysis is to find the explanatory relationship of two or more independent variables toward one dependent variable. In this model, the independent variables will be customer satisfaction and customer dissatisfaction, while the dependent variable will be customer loyalty. Further, this analysis may be used to show whether the relationship between variables is positive or negative. The model equation in multiple regression analysis is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots . + \beta_n X_n + \varepsilon$$
where :
Y = dependent variable
X_1 = independent variable
X_2 = independent variable
β_0 = constant, the value of Y when all X values are zero
β_n = the slope of the regression surface (The β represents the regression coefficient associated with each X_1)
ε = an error term, normally distributed about a mean of 0

Coefficient of determination test is used to know how well the variables fit in the regression model. In this test, the Adjusted R Square result shows how immeasurably the dependent variable can represent the independent variable. The more it closes to 100%, the better the result is (Ghozali, 2013). It means that the model fits. Furthermore, there are two more related test needs to be conducted, which are F-test and t-test. F-test or global test is conducted to know whethere there is a relationship on the model or not. If p-value is higher than 0.05, then it can be said there is significant relationship in the model. Afterwards, t-test will be conducted as writer has explained before.

To know the significance of the mediation effect in the model, Sobel test has to be conducted. If p-value is higher than 0.05, then it can be said that there is mediation effect in the model. In addition, to prove the connection between total effect and indirect effect, it is shown that total effect of customer satisfaction on customer loyalty (c) is the sum up of mediated effect of customer satisfaction on customer loyalty through trust (ab) and direct effect of customer satisfaction on customer loyalty (c') within rounding error.

c = ab + c'
where:
c = Total effect of customer satisfaction on customer loyalty
ab = The mediated effect, multiplication of path coefficients a and b
c' = The direct effect of customer satisfaction on customer loyalty

RESULTS AND DISCUSSION

The result in this section will cover validity and reliability, classic assumption test, coefficient of determination, F-test, t-test, and Sobel test. The variables will be tested are customer satisfaction and customer dissatisfaction (independent variable), trust (mediating variable), and customer loyalty (dependent variabel). First of all, all of the variables are valid and reliable. But, to increase data reliability, writer needs to remove item TRUST 2 in trust variable and LOY 2 in customer loyalty variable.

Afterwards, writer conducted classic assumption tests comprising multicollinearity, autocorrelation, heteroscedasticity, and normality tests. Having conducted the tests, it is proven that all of the regression models have passed the tests. As a result, writer may move on to conduct the statistical test.

In the linear or customer satisfaction and customer loyalty model, it can be seen through R square value that 47.3% variation in dependent variable can be explained by the variation in independent variable.

Table 1. Model Summary of Customer Satisfaction and Customer Loyalty Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.688[a]	.473	.468	.41756

a. Predictors: (Constant), AVG_SAT

The result of t-test can be seen through table of regression coefficient below.

Table 2. Table of Regression Coefficient for Customer Satisfaction and Customer Loyalty Model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.066	.307		3.467	.001
AVG_SAT	.708	.077	.688	9.235	.000

a. Dependent Variable: AVG_LOY

Regression Equation Result of Customer Satisfaction and Customer Loyalty Model:

$Y_{LOY} = 1.066 + 0.708\ SAT$

Looking at table 2, the significance t value is lower than 0.05. In addition, the t value of 9.235 is higher than t table of +1.9853. Thus, null hypothesis is rejected. It means that customer satisfaction as an independent variable has significant relationship to customer loyalty in online environment. In addition, having unstandardized coefficient of +0.708, it means that every 1 unit increase in customer satisfaction will increase customer loyalty by 0.708 unit and the relationship between customer satisfaction and customer loyalty is positive.

Through model summary in table 3, it is stated that the adjusted R square value is 0.460. It means that 46.0% variation in dependent variable, the customer loyalty, can be explained by the variation in independent variable, the customer satisfaction.

Table 3. Model Summary of Customer Satisfaction, Customer Dissatisfaction, and Customer Loyalty Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.686[a]	.471	.460	.44666

a. Predictors: (Constant), AVG_DISSAT, AVG_SAT

Afterwards, F-test is conducted to know whether the model has significant relationship or not. Having conducted F-test, it is seen through table 4 that the significance F (p-value) is 0.000. In addition, the F value of 41.811 is also far beyond F table of 3.1047. Since the p-value is under 0.05 and the F value is higher than F table, then null hypothesis is rejected. It means that customer satisfaction and customer dissatisfaction simultaneously have significant relationship to customer loyalty in online environment.

Table 4. ANOVA Table for Customer Satisfaction, Customer Dissatisfaction, and Customer Loyalty Model

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	16.683	2	8.342	41.811	.000[b]
Residual	18.754	94	.200		
Total	35.437	96			

a. Dependent Variable: AVG_LOY

b. Predictors (Constant) , AVG_DISSAT, AVG_SAT

To know the impact of each independent variable towards dependent variable, then t-test is conducted. As seen in the table 5, customer satisfaction's significance t (p-value) is 0.000, which is under 0.05. Moreover, the t-test statistic value of 8.890 is far beyond t-critical value of +1.9855. Hence, the null hypothesis is rejected. It means that customer satisfaction individually has significant relationship to customer loyalty. In addition, having unstandardized coefficient of 0.771, it means that every 1 unit increase in customer satisfaction, there will be increase by 0.771 in customer loyalty.

However, customer dissatisfaction's significance t (p-value) is 0.384, which is beyond 0.05. Also, the t-test statistic value is 0.875, which is in between of t-critical value of -1.9855 and +1.9855. Thus, the null hypothesis is failed to be rejected. It means that customer dissatisfaction individually has no significant relationship to customer loyalty.

Table 5. Table of Regression Coefficient for Customer Satisfaction, Customer Dissatisfaction, and Customer Loyalty Model

| Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.693	.400		1.730	.087
AVG_SAT	.771	.087	.706	8.890	.000
AVG_DISSAT	.049	.056	.069	.875	.384

a. Dependent Variable: AVG_LOY

Regression Equation Result of Customer Satisfaction, Customer Dissatisfaction, and Customer Loyalty Model:

$Y = 0.693 + 0.771\ SAT + 0.049\ DISSAT + \varepsilon_i$

Regression with mediating variable is performed to analyze whether the mediating variable, which is trust, has influence to the relationship between customer satisfaction and customer loyalty or not. To know the mediating effect, writer has to conduct regression test for three times, which will be explained below.
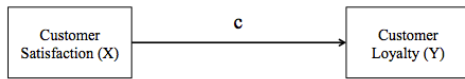
Figure 5. Total Effect of Customer Satisfaction (X) and Customer Loyalty (Y)

Regression Equation Result for Total Effect of Customer Satisfaction and Customer Loyalty:
$Y' = 1.066 + 0.708\ SAT$

Having conducted the regression in simple linear regression model, writer will refer to the result previously. The unstandardized coefficient of customer satisfaction represents the path coefficient c. Therefore, the total effect of customer satisfaction and customer loyalty, which is denoted by path coefficient c, equals to 0.708.

The second regression test will define the effect of customer satisfaction to trust, which is denoted by path coefficient a in the figure below. However, the path coefficients of b and c' will be defined in the third regression test.
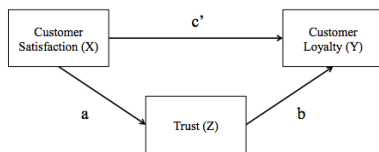
Figure 6. Indirect Relationship of Customer Satisfaction (X) and Customer Loyalty (Y) Mediated by Trust (Z)

Table 6. Table of Regression Coefficient for Satisfaction and Trust

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	1.557	.263		5.911	.000
AVG_SAT	.610	.066	.690	9.292	.000

a. Dependent Variable: AVG_TRUST

Regression Equation Result for Customer Satisfaction and Trust:
$Y_{TRUST} = 1.557 + 0.610\ SAT + \varepsilon$

Through table 6, it is known that the significant t (p-value) is 0.000 is statistically significant for it is lower than significance level of 0.05. In addition, the t-test statistic is higher than t-critical value of +1.9853. Therefore, null hypothesis is rejected. It means that customer satisfaction has significant relationship to trust in online environment.

Then, the unstandardized coefficient of customer satisfaction represents the path coefficient a.

Therefore, the effect of customer satisfaction to trust, which is denoted by path coefficient a, equals to 0.610.

Table 7. Table of Regression Coefficient for Customer Satisfaction to Customer Loyalty Mediated by Trust

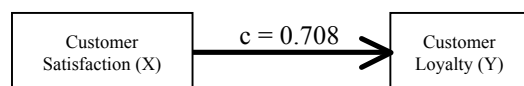| Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
1 (Constant)	.622	.350		1.774	.079
AVG_SAT	.534	.103	.519	5.170	.000
AVG_TRUST	.285	.117	.245	2.444	.016

a. Dependent Variable: AVG_LOY

Regression Equation Result for Customer Satisfaction to Customer Loyalty Mediated by Trust Model:
$Y_{LOY} = 0.622 + 0.534\ SAT + 0.285\ TRUST + \varepsilon$

Through table 7, it is known that the significant t (p-value) of customer satisfaction is 0.000. It is statistically significant for p-value is lower than significance level of 0.05. In addition, the t-test statistic is higher than t-critical value of +1.9855. Therefore null hypothesis is rejected. It means that customer satisfaction has significant relationship to customer loyalty in online environment. Then, the unstandardized coefficient of customer satisfaction represents the path coefficient c', which explains the direct effect of customer satisfaction to customer loyalty that is not mediated by trust (Warner, 2013). Therefore, the direct effect of customer satisfaction to loyalty that is not mediated by trust, which is denoted by path coefficient c', equals to 0.534.

Then, the significant t (p-value) for trust is 0.016. It is statistically significant for p-value is lower than significance level of 0.05. In addition, the t-test statistic is 2.444, which is higher than t-critical value of +1.9855. Therefore null hypothesis is rejected. It means that trust has significant relationship to customer loyalty in online environment. Then, the unstandardized coefficient of trust represents the path coefficient b, which explains the effect of trust to customer loyalty while customer satisfaction is taken. Therefore, the effect of customer satisfaction to trust, which is denoted by path coefficient b, equals to 0.285.

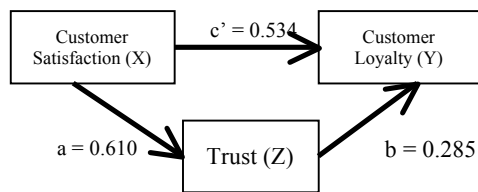Figure 7. Total Effect – Unstandardized Path Coefficients

Figure 8. Indirect Effect – Unstandardized Path Coefficients

Having all of the unstandardized coefficients, writer may know the strength of the mediation effect. To test the strength of the mediated effect, writer has to multiply the path coefficients of *a* and *b*. However, to test the significance, writer needs to conduct Sobel Test.

Table 8. Indirect Effect and Significance from Sobel Test

	Value	**S.E**	**Z**	**Sig. (two)**
Effect	0.1741	0.7400	2.3514	0.0187

As seen on table 8, the indirect effect value is 0.1741, which is the multiplication result of *a* and *b*. To prove, the result is match with the multiplication of path coefficients *a* and *b* (0.610 x 0.285) in manual and within rounding error. The z value is 2.3614, which is higher than +1.96. Then, the Sig. (two) value is also 0.0187, which is under 0.05. Therefore, null hypothesis is rejected. It means that customer satisfaction has significant relationship to customer loyalty mediated by trust.

In addition, there is actually a connection between the total effect and indirect effect models. It is proven that total effect of customer satisfaction on customer loyalty (*c*) is the sum up of mediated effect (*ab*) and direct effect of customer satisfaction to customer loyalty (*c'*) within rounding error.

The Result Equation of Total Effect, Mediated Effect, and Direct Effect:
$$0.708 = 0.17385 + 0.534$$

In conclusion, of the total effect of customer satisfaction on customer loyalty (*c* = 0.708), a small part is mediated by trust (*ab* = 0.17385), and the remaining is not mediated by trust (*c'* = 0.534). As the value of the mediated (*ab*) smaller than the direct effect (*c'*), it shows that trust is mediating the relationship partially.

CONCLUSION

Having presented and interpreted the results of the research, writer would like to summarize all of the

discussion throughout this research. It is proven that all of the variables are valid and reliable enough to be processed further. But, there are several items, which are TRUST 2 and LOY 2, need to be deleted to improve the data reliability. Thereafter, the data for each model, which comprises simple linear, multiple linear, and regression with mediating variable, has passed the assumption tests. Having passed the assumption tests, the data is processed to the next step.

For simple linear regression model, it can be concluded that customer satisfaction has significant relationship to customer loyalty in online environment, with R square value of 47.3% and adjusted R square value of 46.8%. For multiple linear regession model, it can be concluded that customer satisfaction and customer dissatisfaction simultaneously have significant relationship to customer loyalty in online environment. However, customer dissatisfaction as individual independent variable does not show significant to customer loyalty in online environment. Last but not least, regression with mediating variable model is also statistically significant. Hence, it can be concluded that customer satisfaction has significant relationship to customer loyalty mediated by trust, with adjusted R square value of 49.4%.

As all of the models show significant relationship, it can be concluded through the adjusted R square value that regression with mediating variable can be defined as the best viewpoints to describe the relationship between customer satisfaction and customer loyalty in online environment, as seen on table 9.

Table 9. Summary of Model Results

Method	Adjusted R Square
Simple Linear Regression	46.8%
Multiple Linear Regression	46.0%
Regression with Mediating Variable	49.4%

Afterwards, by finishing this research, writer now has better understanding about the relationship between customer satisfaction and customer loyalty in online environment. Not only that, but this research has given clear understanding, especially to online store owners, that trust as a mediator is important in influencing the relationship between customer satisfaction and customer loyalty in online environment.

Knowing the fact that the best model in defining the relationship between customer satisfaction and customer loyalty in online environment is the one with trust as mediating variable, writer would like to give several recommendations for online store

owners. First of all, online store owners should be aware that having attractive website is not enough, yet it also has to be informative. Informative means providing relevant information to customers. Secondly, trust may be built through solutions provided by the online store. Thus, online store owners should have concern of having knowledgeable customer service to give relevant solution to customer. Last but not least, trust may also be increased through safety. As a result, online store owners should be able to develop a system that is safe for everyone, since customers need to input their data and sometimes credit card number.

The limitation in this research is limited research subject. As this research analyzes the relationship between customer satisfaction and customer loyalty in online environment, there should be comparison of several websites from different industries. However, due to writer's limitation in time, this research focuses only on one website, Agoda.com, which is in online travel agency industry. Knowing the limitation in the research, writer would like to give recommendation. The upcoming research may add several research subjects in different industries to analyze the relationship between customer satisfaction and customer loyalty in online environment. The reason is that to have a better view in online environment, we better look from several view industries, for it may have different result. As a result, the research may have different perspectives to enrich the knowledge.

REFERENCES

Agoda.com. (2005). (Agoda.com) Retrieved from Agoda.com: http://www.agoda.com/id-id/info/about-agoda.html?asq=jGXBHFvRg5Z51Emf%2fbXG4w%3d%3d

Website Analysis Case Study: Agoda.com. (2014, October 6). (Binus University) Retrieved May 24, 2015, from Binus University School of Information System: http://sis.binus.ac.id/2014/10/06/website-analysis-case-study-agoda-com/

Backman, S. J., & Crompton, J. L. (1991). Differentiation between high, spurious, latent, and low loyalty participants in two leisure activities. *Journal of Park and Recreation Administration, 9*(2), 1-17.

Baron, R. M., & Kenny, D. A. (1986). The Moderator - Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Consideration. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Bauer, H. H., Grether, M., & Leach, M. (2002). Building customer relations over the Internet. *Industrial Marketing Management , 31*(1), 155-163.

Blaze, M., Feigenbaum, F., Angelos, D., & Keromytis, A. D. (1999). Trust Managementfor Public Key-Infrastructures. *Security Protocols*, 59-63.

Bowen, J. T., & Shiang, L. C. (2001). The relationship between customer loyalty and customer satisfaction. *International Journal of Contemporary Hospitality Management, 13*(5), 213-217.

Bui, M. (2014, July 15). *South East Asia Ecommerce from Insider's*. Retrieved May 24, 2015, from Ecomeye.com: http://ecomeye.com/blog/indonesia/25-trafficked-ecommerce-websites-indonesia/

Castañeda, J. A. (2011, September). Relationship Between Customer Satisfaction and Loyalty in Internet. *Journal of Business and Psychology, 26*(03), 371-383.

Cater, B., & Cater, T. (2009). Relationship-value-based antecedents of customer satisfaction and loyalty in manufacturing. *Journal of Business & Industrial Marketing, 24*(8), 585-597.

Cooper, D. R., & Schindler, P. S. (2014). *Business research Methods* (12 ed.). New York: McGraw-Hill/Irwin.

Day, G. S. (1969). A two-dimensional concept of brand loyalty. *Journal of Advertising Research,, 9*(3), 29-35.

Delgado, E., & Munuera, J. L. (2001). Brand Trust in the Context of Consumer Loyalty. *European Journal of Marketing, 35*(11/12), 1238-1258.

Emarketer. (2013, March 12). *Emarketer*. (eMarketer) Retrieved February 23, 2015, from Emarketer: http://www.emarketer.com/Article/Indonesia-New-Digital-Class-Emerges/1009723

Emarketer. (2014, November 20). *Emarketer*. (Emarketer) Retrieved February 22, 2015, from Emarketer: http://www.emarketer.com/Article/Internet-Hit-3-Billion-Users-2015/1011602

Ganesan, S. (1994). A Determination of Long-Term Orientation in Buyer-Seller Relationships. *Journal of Marketing, 58*(2), 1-19.

Ghozali, I. (2013). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 21* (7 ed.). (P. P. Harto, Ed.) Diponegoro, Indonesia: Diponegoro University.

Grandison, T., & Sloman, M. (2000). A Survey of Trust in Internet Application. *IEEE Communication Surveys*, 2-16.

Hennig-Thurau, T., & Klee, A. (1997). The Impact of Customer Satisfaction and Relationship Quality on Customer Retention: A Critical Reassessment and Model Development. *Psychology & Marketing, 14*(8), 737-764.

Jacoby, J., & Kyner, D. (1973). Brand loyalty vs. repeat purchasing behavior. *Journal of Marketing Research, 10*, 1-9.

Kadin Indonesia. (2014). *E-Commerce in Indonesia - Outlook, Prospects, and Challenges*. Retrieved June 22, 2015, from Global Business Guide Indonesia: http://www.gbgindonesia.com/en/main/partner s_updates/kadin/e_commerce_in_indonesia_ou tlook_prospects_and_challenges.php

Kotler, P., & Keller, K. L. (2012). Marketing Management. In P. Kotler, K. L. Keller, S. Yagan, E. Swendsen, & M. Sabella (Eds.), *Marketing Management* (14 ed., p. 150). Pearson.

Linting, M., Meulman, J. J., Groenen, P. J., & Van Der Koiij, A. J. (2007). *Non Linear Principal Component Analysis: Introduction and Application.* American Psychological Assosiation.

Mamuaya, R. (2011, May). *The Problem with Indonesia's E-Commerce Scene*. Retrieved June 22, 2015, from DailySocial: https://en.dailysocial.net/post/the-problem-with-indonesias-e-commerce-scene/

Masna, A. (2014, March). *Daily Social*. (Daily Social) Retrieved February 23, 2015, from Daily Social: https://en.dailysocial.net/post/if-you-think-indonesias-e-commerce-market-is-perplexing-you-havent-done-your-research

McKnight, D. H., & Chervany, N. L. (2001). The Meanings of Trust. *Trust in Cyber-Societies*, 27-54.

McKnight, D. H., & Chervany, N. L. (2002). What trust means in e- commerce customer relationships: An interdisciplinary concep- tual typolo. *International Journal of Electronic Commerce, 6*(2), 35-59.

Moliner, M. A., Sa'nchez, J., Rodri'guez, R. M., & Callarisa, L. (2007). Perceived relationship quality and post-purchase perceived value: An integrative framework. *European Journal of Marketing, 41*(11/12), 1392-1422.

Newman, J. W., & Werbel, R. A. (1973, November). Multivariate Analysis of Brand Loyalty for Major Household Appliances. *Journal of Marketing Research , 10*, 404-409.

Nunnaly, J., & Bernstein, I. (1994). *Psychometric Theory*. New York: McGraw-Hill.

Oliver, R. (1999). Whence Consumer Loyalty. *Journal of Marketing*, 33-44.

Oliver, R. L. (1977, August). Effect of expectation and disconfirmation on postexposure product evaluations: An alternative interpretation. *Journal of Applied Psychology, 624*, 480-486.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decision . *Journal of Marketing Research, 17*(4), 460-469.

Oxford Dictionaries. (2015). *Oxford Dictionaries*. (Oxford University Press) Retrieved March 8, 2015, from Oxford Dictionaries: http://www.oxforddictionaries.com/definition/e nglish/online

Oxford Dictionaries. (2015). *Oxford Dictionaries*. (Oxford University Press) Retrieved March 9, 2015, from Oxford Dictionaries: http://www.oxforddictionaries.com/definition/e nglish/environment

Oxford Dictionaries. (2015). *Oxford Dictionaries*. (Oxford University Press) Retrieved March 7, 2015, from Oxford Dictionaries: http://www.oxforddictionaries.com/definition/e nglish/e-commerce

Pritchard, M. P., & Howard, D. R. (1997). The loyal traveler: examining a typology of service patronage. *Journal of Travelers Research, 35*(4), 2-11.

Pritchard, M. P., Howard, D. R., & Havitz, M. E. (1992). Loyalty measurement: a critical examination and theoretical extension. *Leisure Sciences, 14*, 155-164.

Reliability Analysis. (n.d.). Retrieved May 22, 2015, from http://psych.hanover.edu/classes/ResearchMet hods/Assignments/reliability-1.html

Statista. (2012). *Statista The Statistics Portal*. Retrieved February 23, 2015, from Statista: http://www.statista.com/statistics/266729/smart phone-users-in-indonesia/

Selnes, F. (1998). Antecedents and Consequences of Trust and Satisfaction in Buyer-Seller Relationships. *European Journal of Marketing, 32*(3/4), 305-322.

Tabachnick, B. G., & Fidell, L. S. (2013, July 23). Using Multivariate Statistics: International Edition - See more at: http://catalogue.pearsoned.co.uk/educator/prod uct/Using-Multivariate-Statistics-International-Edition/9780205465255.page#sthash.vMkn077 a.dpuf. (6).

Tang, S. K. (2014, October 1). *CNBC*. (CNBC LLC) Retrieved February 23, 2015, from CNBC: http://www.cnbc.com/id/102047026#.

Tellis, G. J. (1988, May). Advertising Exposure, Loyalty, and Brand Purchase: A Two-Stage Model of Choice. *Journal of Marketing Research*, 134-144.

The World Bank. (2014). *Age dependency ratio (% of working-age population)* . (The World Bank Group) Retrieved April 13, 2015, from The World Bank: http://data.worldbank.org/indicator/SP.POP.DP ND

Tomlinson, E. C., & Lewicki, R. J. (2002). *Trust and Trust Building*. Retrieved from http://www.beyondintractability.org/m/trustbuil ding.jsp

Turban, E., King, D., Lee, J., Liang, T.-P., & Turban, D. (2011). *Electroninc Commerce 2012: A Managerial and Social Networks Perspective* (7 ed.). Prentice Hall.

Utoyo, N., & Ramda, Y. (2012, August). *Daily Social.* Retrieved February 23, 2015, from Daily Social: http://api.dailysocial.net/en/wp-content/uploads/2012/08/eCommerce-in-Indonesia.pdf

Warner, R. M. (2013). *Applied Statistics From Bivariate Through Multivariate Techniques* (2nd ed.).

Yi, Y. (1990). A critical review of consumer satisfaction. In V. A. Zeithami (Ed.). *Review of marketing* , 68-123.

Yüksel, A., & Yüksel, F. (2014, May 22). Customer Satisfaction Theoris; A Critical Review. *Tourist satisfaction and complaining behavior.*

Yuniar, R. W. (2014, December 5). *The Wall Street Journal*. (Dow Jones & Company) Retrieved February 23, 2015, from The Wall Street Journal: http://blogs.wsj.com/briefly/2014/12/05/indonesias-mobile-internet-users-the-numbers/

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing, 60*(2), 31-46.