3. RESEARCH DESIGN

3.1 Introduction

The writers have explained the underlining variables used in this research in the previous chapter. In this chapter, the writers elaborate on his research design. Terzidis (2007), in his research defined design as a process formulation to come up with an idea to be able to be implemented into reality. Based on Sekaran and Bougie (2017); De (2001) research design defined as a step for the collection, measurement, and analysis of data to answer back the research questions ambiguously as possible. The writers discuss several things in this chapter includes foundations of the research, description of data, description of variables, and methods of data analysis. Those items are used by the writers to answer the research questions which already mentioned in the first chapter.

3.2 Foundations of The Research

In this section, the writers explain the foundation of this research paper, which are philosophical stance, research methodology and method, and research ethics.

3.2.1 Philosophical Stance

Brundett and Rhodes (2014) explained the philosophical stance as the fundamental assumption about the nature being of reality (ontology) and what is knowledge (epistemology). The perspective of Ontology is about how reality is defined. Creswell and Poth (2016) mentioned Ontology is a set assumption of the nature of reality. Ontology is divided into two categories, which are objectivism and constructionism. Objectivism views nature as a fixed reality which just needs to be discovered and has no relationship with the researcher while constructionism views the reality as a dynamic which can be altered in certain situation. While epistemology is dealing with how knowledge is created. It is also categorized into two philosophical positions which are positivism and interpretivism (Brundrett & Rhodes, 2014). Positivism views the researcher is the source of knowledge. While

interpretivism views, the knowledge is made by collaboration between researcher and participants (Brundrett & Rhodes, 2014).

In this research, the writers use objectivism-ontological approach. This is necessary in order to determine the relationship between independent variables which are perceived web quality, trust, perceived value, and switching cost with e-customer loyalty. On the other hand, the writers also use positivism-epistemological approach since this research discover/ produce knowledge which will enrich others.

3.2.2 Methodology and Method

Brundrett and Rhodes (2014) defined methodology as an action to observe the latest event happening in society. Brown (2006) also mentioned methodology is an idea as the foundation of the research. Sekaran and Bougie (2017) further categorized methodology into six categories which are namely, experiments, survey research, ethnography, case studies, grounded theory, and action research. In this research, the writers use a survey technique to collect data from participants as the research is positivism-epistemological research. Sekaran and Bougie (2017) defined survey as a method to collect information about attitudes, knowledge, and behavior from a certain group of people.

Whereas method is related to how a researcher conducts the research in relationship with research data. According to Brundrett and Rhodes (2014) method is a method which proven to be scientific enough to be used during the process of research. Sekaran and Bougie (2017) further divided survey methods into three separate groups, which are interviews, observation, and self-administered questionnaires. The only relevant method which the writers can use is the self-administered questionnaires to get data in a large number of quantities regarding the experience of Traveloka.

3.2.3 Research Ethics

De (2001) argues that researcher need to make sure that respondents answer the research question thoroughly. In the process of taking that information, the researcher needs to ensure that the process is done ethically. In addition, Sekaran and Bougie (2017) have suggested that ethics is a code of conduct in the process of

research. In this case, every party is included in the process. Therefore, both researcher and applicants need to pay attention to the ethical behavior when the research is conducted. The writers will not expose the respondents' identity in this research and make them stay anonymous.

3.3 Description of Variables

In the previous section, the writers have explained the underlying data for the research. In this section, the writers elaborate the variables which are used for this research. Generally, there are four types of research variables which are independent variable, dependent variable, moderating variable, and mediating variable (Sekaran & Bougie, 2017). For this research, as the writers have explained in the previous chapter in the theoretical framework, the variables which are used for this research are limited only to four independent variables and one dependent variable.

As the writers want to answer the research questions by using those variables mentioned above, it is important for the writers to operationalize the variables in order to measure them correctly. According to Sekaran and Bougie (2017), operationalization is providing a tangible measurement to reduce abstract notion in the research.

3.3.1 Perceived Web Quality

The first independent variable operationalized is the perceived web quality. According to the writers' explanation in the previous chapter, this variable has six items with each of them have their own specific elements. The explanation can be seen in the table below.

Table 3.1 Perceived Web Quality Operationalization

Concept	Items	Indicator	Items (adaptation)
Perceived Web Quality	Catalogue website internal browsing meets my needs.	W1	Traveloka website internal browsing meets my needs.
	The ordering process used by the catalogue website is simple.	W2	The ordering process used by Traveloka website is simple.
	The catalogue website page content quickly loads.	W3	Traveloka website page content quickly loads.
	The catalogue website internal search capabilities meets my needs.	W4	Traveloka website internal search capabilities meets my needs.
	Little search effort is needed to find the needed product/information in the catalogue retailer website.	W5	Little search effort is needed to find the needed product/information in Traveloka website.
	Overall, this website is well-designed.	W6	Overall, Traveloka website is well-designed.

3.3.2 Trust

The second independent variable operationalized is trust. According to the writers' explanation in the previous chapter, this variable has four items with each of them have their specific elements. The explanation can be seen in the table below.

Table 3.2 Trust Operationalization

Concept	Items	Indicator	Items (adaptation)
Trust	They keep promises with their customers.	T1	I believe that Traveloka keep promises with their customers.
	I trust the information that this online bookstore provides.	T2	I trust the information that Traveloka provides.
	This online bookstore considers customers' interest as much as their own interest when making important decisions.	T3	Traveloka considers customers' interest as much as their own interest when making important decisions.
	I believe that this online bookstore does its best for the sake of customers.	T4	I believe that Traveloka does its best for the sake of customers.

3.3.3 Perceived Value

The third independent variable operationalized is perceived value. According to the writer's explanation in the previous chapter, this variable has four items with each of them have their specific elements. The explanation can be seen in the table below.

Table 3.3 Perceived Value Operationalization

Concept	Items	Indicator	Items (adaptation)
Perceived Value	The prices of the products and services available at the site (how economical the site is).	V1	The prices of the products and services available at Traveloka is economical
	The overall value you get from this site for your money and effort.	V2	The overall value I get from Traveloka worth my money and effort.
	The extent to which the site gives you a feeling of being in control.	V3	Traveloka gives me a feeling of being in control of my travel plans
	The overall convenience of using this site.	V4	Overall, using Traveloka website is convenient.

3.3.4 Switching Cost

The fourth independent variable operationalized is switching cost. According to the writer's explanation in the previous chapter, this variable has three items with each of them have their own specific elements. The explanation can be seen in the table below.

Table 3.4 Switching Cost Operationalization

Concept	Items	Indicator	Items (adaptation)
Switching Cost	Overall, it would cost me a lot of time and energy to find an alternative website.	S1	Overall, it would cost me a lot of time and energy to find an alternative website other than Traveloka.
	I would lose a lot of information about my transaction history if I change.	S2	I would lose a lot of information about my transaction history if I change to other Online Travel Agents aside from Traveloka.
	I cannot be sure that the new website can provide better service than the old one.	S3	I cannot be sure that the new Online Travel Agent can provide better service than Traveloka.

3.3.5 E-Customer Loyalty

The dependent variable operationalized is e-customer loyalty. According to the writer's explanation in the previous chapter, this variable has five items with each of them have their specific elements. The explanation can be seen in the table below.

Table 3.5 E-customer Loyalty Operationalization

Concept	Items	Indicator	Items (adaptation)
E-customer Loyalty	I try to use the website whenever I need to make a purchase.	E1	I try to use Traveloka website whenever I need to make a purchase.
	When I need to make a travel purchase, this website is my first choice.	E2	When I need to make a travel purchase, Traveloka website is my first choice.
	I like to use this website.	E3	I like to use Traveloka website.
	In my opinion, this website is the best website for buying a travel.	E4	1n my opinion, Traveloka website is the best website for buying a travel.
	I believe that this is my favorite travel reservation website.	E5	I believe that Traveloka is my favorite Online Travel Agent website.

3.4 Description of Data

In the previous section, the writers have explained the fundamental aspect of their research. In this section, the writers describe the types of data, sources of data, and sampling method used for this research.

3.4.1 Types of Data

In research, based on Sekaran and Bougie (2017) there is some scale used to measure data from respondents in the form of numbers, which are nominal, ordinal, interval, and ratio. In this research, the writers will apply the nominal scale, ordinal scale, and interval scale. Cooper and Schindler (2019) defined nominal scale as a type of scale used to collect information of certain variable and can be divided into several divisions which are exclusive and collectively exhaustive, naturally or by design. Ordinal scale based on Sekaran and Bougie (2017) suggested it is a type of scale to categorizes qualitative differences in the variable of interest and also allow rank-ordering meaningfully while Interval scale is a multipoint scale which explains the differences, the order, and the equality based on the differences on respondents' answers (Sekaran & Bougie, 2017).

In data scaling methods, there are ten types of it which are dichotomous, category, semantic differential, numerical, itemized rating, Likert, fixed, staple, graphics rating, and consensus scale (Sekaran & Bougie, 2017). The writers in this research uses dichotomous, category, and Likert scale. Dichotomous is a scale specifically use for Yes or No questions. Category is a scale to let respondents do single response from multiple items. While the Likert scale is a scale to measure the strength from agreeing to disagree by using five-point scale statements.

The questionnaires then can be constructed based on the types of data and rating scale which the writers used for this research. The questionnaires can be seen in the table below.

Table 3.6 Data Type and Rating Scale Classification of Question

Questions	Options	Type of Data	Rating Scale
Introductory Questions			
Gender	1. Male 2. Female	Nominal	Category
Age Group	1. 17-19 2. 20-39 3. 40-54 4. 55-73 5. >74	Ordinal	Category
Monthly Expenditure	1. <1 million 2. 1-5 million 3. 5-10 million 4. >10 million	Ordinal	Category
Highest Education Level	1. High School 2. Bachelor's Degree 3. Master's Degree 4. Others	Nominal	Category

Table 3.6 Data Type and Rating Scale Classification of Question *(Continued)*

Occupation	1. Student 2. Entrepreneur 3. Employee 4. Others	Nominal	Category
Screening Questions			
Have you ever buy Traveloka website? (If no, stop until here)	1. Yes 2. No	Nominal	Dichotomous
Have you ever use several OTA website to buy a travel-related products?	1. Yes 2. No	Nominal	Dichotomous
Main Questions			
Each of the independent variable's item	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	Interval	Five-point Likert scale

able 3.6 Data Type and Rating Scale Classification of Question *(Continued)*

Each of the dependent variable's item	1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly Agree	Interval	Five-point Likert scale

3.4.2 Sources of Data

According to Sekaran and Bougie (2017) categorized research data sources into two types, namely primary and secondary data. Primary data is a type of data which is collected from first-hand sources. The technique which can be used to gather this primary data is by conducting interviews, do field observation, administering questionnaire, and do experimentation. On the other hand, secondary data is a type of data which is gathered from existing sources. This can be in the form of statistical bulletins, government publications, and the Internet (Sekaran & Bougie, 2017). Thus, for this research, the writers utilize primary data by administering a questionnaire.

3.4.3 Sampling Method

Sekaran and Bougie (2017) suggested that sampling is a step to choose the right respondents representing the whole population. Sekaran and Bougie (2017) also defined population as the entire category of people which the writers use for research. The population selection will be very helpful for the writers to determine the targeted respondents as the subject of research. The population criteria can be seen in the table below.

Table 3.7 Population Criteria

Criteria		Reason
Experience	Have ever bought travel related services online through Traveloka website.	To make sure the respondents to give valid answers as they have ever use Traveloka website.

According to Sekaran and Bougie (2017), there are several types of sampling method, which are probabilistic sampling and non-probabilistic sampling. In the case of probabilistic sampling, the respondents know that they are being selected as a part of the research. While non-probabilistic sampling has the opposite meaning which the respondents do not know that they are selected as a part of the research (Sekaran & Bougie, 2017). For this research, the writers used a simple random sampling technique. Sekaran and Bougie (2017) defined a simple random sampling technique as the total targeted population has the same chance to be selected as the subject of the research.

To gather the primary data for this research, the writers distributed the questionnaire to the respondents directly by using the writers' phones. The respondents, then, must fill the questionnaires without the writers' involvement or help to understand the questionnaires. The locations to gather the respondents are in Surabaya, and the data collection timeframe was within three days.

The sample size used for this research is based on Green (1991) to determine the sample size since the size is unknown. The formula can be seen below.

$$n > 50 + 8m \quad (3.1)$$

In the formula above, n represents the sample size while m represents the number of independent variables in the research. This research has four independent variables which mean that the sample size must be higher than 82.

3.5 Methods of Data Analysis

In the previous section, the writers have explained about the operationalization of variables used for this research. In this section, the writers explain about the analytical tools which consist of piloting, validity and reliability test, and analytical procedures mainly about multiple linear regression to analyze the research questions.

3.5.1 Piloting

Marshall (2005) stated that piloting is a process to make sure data in the distributed questionnaires are reliable and valid. The minimum respondents according to Fink (2003) is ten respondents. Therefore, the writers conduct pilot testing with ten respondents who ever use Traveloka.

There are 10 respondents who give feedbacks regarding the questionnaires. The writers require the respondents to fill the feedback question after filling the questions section. After the writers gather all the responds, the result concludes that the respondents have no problem in understanding the questions. However, there is one question in the introductory data section regarding highest education level, from highest education level to latest education level. Therefore, in response the input regarding the educational level question, the writers accept the input and fix the question.

3.5.2 Validity and Reliability

Before the writers test the variables using certain analytical procedures, it is important to test the validity and reliability to make sure the data taken is accurate and consistent (Sekaran & Bougie, 2017). Marshall (2005) explained that validity is a measurement to test whether the instrument measure the right target and reliability is a measurement to know whether the data taken is consistent or not. The requirement of the test can be seen on the table below.

Table 3.8 Validity and Reliability Tests

Validity	Reliability
When Pearson Correlation is significant at the level of 0.05.	The Cronbach's α should exceed 0.60 as it shows consistency.

Source: Hair, Black, Babin, & Anderson (2009)

3.5.3 Analytical Procedures

In this section, the writers conduct several analytical procedures. The writers use multiple linear regression to find out the answer to the research questions. Before the writers explained multiple linear regression, they explain the underlying assumptions to make the research successful. Those assumptions are heteroscedasticity, normality, autocorrelation, and multicollinearity (Lind, Marchal, & Wathen, 2015).

Table 3.9 Assumptions Underlying Linear Regression

Classical Assumption Tests	**Hypotheses**	**Requirements**
Heteroscedasticity is the residual variation of the values of the independent variables are the same.	The hypotheses are: H_0: There is no heteroscedasticity among residuals in the model. H_1: There is heteroscedasticity among residuals in the model.	Utilizing the Glejser Test: The p-value has to be higher than 0.05 in order to be called there is no heteroscedasticity in the model.

Table 3.9 Assumptions Underlying Linear Regression (Continued)

Normality is the data should follow the normal probability distribution.	The hypotheses are: H_0: The residuals are normally distributed. H_1: The residuals are not normally distributed.	Utilizing the Kolmogorov-Smirnov Test: The outcome of unstandardized residual as the result of the test has to be above 0.05 in order for the residual to be called normally distributed.
Autocorrelation is a method that required to test whether there is a correlation between the period (t) with previous period (t-1)	The hypotheses are: H_0: No autocorrelation (r=0) H_1: There is autocorrelation ($r \neq 0$)	Utilizing Durbin Watson table to determine d_u over Durbin Watson coefficient test result. The DW needs to be between d_u and 4-d_u in order to be called there is no autocorrelation.
Multicollinearity also important as it shows how independent variables should not be correlated.		Utilizing the Variance Inflation Factor (VIF) test, which the result has to be less than 10 and tolerance higher than 0.1 in order to be called there is no multicollinearity.

Source: Lind et al., (2015); Ghozali (2016)

After considering those assumptions, the writers can proceed into multiple linear regression analysis. Based on Lind et al. (2015), the multiple linear regression

analysis is used to describe and interpret the relationship which occurs between independent variables and dependent variable. The formula of multiple linear regression analysis proposed by Render, Stair, Hanna, and Hale (2015) can be seen below.

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots \beta_n x_n + \varepsilon \qquad (3.2)$$

where:

Y	= dependent variable
$X_1 \ldots X_n$	= independent variable
β_0	= intercept (value of Y when all $X_i=0$)
$\beta_1 \ldots \beta_n$	= coefficient of the independent variable
n	= number of independent variables
ε	= random error

Next, in order to ensure whether the equations from multiple linear regression, the writers need to check the coefficient of determination by doing a global test (F-test) and evaluate regression coefficients (t-test) (Lind, Marchal, & Wathen, 2015). The explanation and the requirements can each test can be observed in the table below.

Table 3.10 Evaluating a Multiple Regression Equation

Test	Detail	Requirements
Adjusted R-square	To measure the variation proportion in the dependent variable explained by the independent variables.	0<adj. R^2<1 The higher the adjusted R^2, the better the independent variables reflecting the dependent variable (the relationship is strong)
F-test	To see if there is simultaneous impact given by independent variables on the dependent variable.	*H_0*: $\beta_1=\beta_2=\beta_3=0$ *H_1*: Not all the β_i's are 0 If the significance level is lower than 0.05, reject H_0 or if the F value is larger than the F-critical, reject H_0.
t-test	To measure if there is a significant relationship between the independent variable.	H_0: $\beta_i=0$ H_1: $\beta_i\neq0$ If the significance level is lower than 0.05, reject H_0 or if the t-value is higher than the t-table, reject H_0.

Source: Lind et al. (2015)