

CHAPTER III

RESEARCH METHODOLOGY

3.1 Types of Research

This research is using quantitative approach. Types of research used in this research is associative correlational research. Correlational research is type of research that aims to determine the relationship between two or more variables and their cause and effect (Fraenkel & Wallen, 2009). (Bhandari, 2020), stated that quantitative research is the process of collecting and analyzing numerical data. Quantitative research used to find patterns, averages, prediction, test causal relationships, and generalize results.

3.2 Data Sources

Data sources used in this research is primary data. Sugiyono (2016) states that data is obtained directly from the source and given to data collectors or researchers. In addition, the respondents from Indonesia, Malaysia, Philippines, Vietnam, Thailand, and Singapore are the primary data in this study.

3.3 Data Collection Method

In this study, researchers collected data using the field research with survey method, where the questionnaires that had been distributed via Google Form. According to Sugiyono (2013) data collection techniques are strategic, because the main objective of research is to obtain data.

The measurement method used in this study is the ordinal scale. Ordinal scale used to differentiate data, which contains elements of ranking or degree through certain assessments.

Table 3.1

Ordinal Scale

Choice	Answer
1	Strongly Disagree
2	Don't agree
3	Neutral
4	Agree
5	Strongly agree

Source: questionpro.com (2013)

3.4 Population and Sample

3.4.1 Population

Population is the total number of individuals, organizations, events, objects, or items from selected sample for measurement (al Kindy et al., 2016). This study uses a population which will then be used as a research subject. The population in this study is e-money services user in Indonesia, Malaysia, Philippines, Vietnam, Thailand, and Singapore.

3.4.2 Sample

The sample is a subset of a population, the sample provides a true picture of the population. In this study, the sampling method used is non-probability sampling with the technique of purposive sampling.

According to Notoadmodjo (2010), purposive sampling is a method of sampling based on certain considerations such as the characteristics of populations or other known characteristics.

The sample used in this study is a portion of the population of e-money services user in Southeast Asia. To determine the number of samples, researchers used the following formula of (Hair et al, 2010):

Sample = Total of items x Degree of Trust (5-10)

Sample = 20 x 5

Sample = 100

The number of samples is set at 100 respondents. The sampling method used in this research is non-probability sampling with purposive sampling method.

3.5 Research Variables

According to Creswell (2012) variable is a characteristic or attribute of a unit that researchers can be measured or observed and varies among every unit. The variable itself is divided into two types, namely the independent variable and the dependent variable. In this study, the independent variables to be examined were Perceived Benefit, Perceived Ease of Use, Perceived Compatibility, Attitude toward Using, and Behavioral Intention to Use, while the dependent variable were Decision to Use.

3.6 Variable Operational Definition

Table 3.2

Variable Operational Definition

Variable	Conceptual Definition	Operational Definition	Indicator	Measuring Scale
Perceived Benefit	Benefit obtained by consumers when they making purchase of certain	An advantage gained by users when using online payment system.	1. Effectiveness. 2. Finish tasks quicker. 3. Useful 4. Advantageous.	Ordinal

	product or services. (Lukiyana & Sofiyanti, 2022)		(Reno, 2022)	
Perceived Ease of Use	The extent to how person believes that by using certain application, will help them to free from effort. (Candrawati et al., 2021)	A perception of how people think online payment system can be used easily without many efforts.	1. Easy to learn. 2. Easy to use. 3. Clear and understandable. 4. Become skillful. (Iriani, 2020)	Ordinal
Perceived Compatibility	The extent to which an innovation is seen as aligned with the needs of existing values and based on existing experience from potential	How much an innovation of online payment sistem goes aligned with the user's needs.	1. Compatible with lifestyle. 2. Compatible for current needs. 3. Compatible for current situation. (Yang et al., 2021)	Ordinal

	users. (Moore & Benbasat, 2011)			
Attitude toward Using	A user's assessment of the desirability of using a specific information system application. (Ajzen and Fishbein, 1980)	How a person rates the use of online payment system based on their experience.	1. Favorable attitude of the technology. 2. Beneficial for users. 3. Idea of transaction. (Chauhan, 2015)	Ordinal
Behavioral Intention to Use	A measure of someone's interest in performing the behavior. (Jogiyanto, 2008)	How likely a person will use an online payment system.	1. Would certainly use the system. 2. Would recommend to others. 3. Would use the system as much as possible. (Chauhan, 2015)	Ordinal
Decision to Use	An integration	A process of evaluating	1. Fastest and safest services.	Ordinal

	process used to combine knowledge and evaluate two or more alternatives and choose one of them. (Peter & Olson, 2013)	many options and choose one of them.	2. Time spent is shorter, effective, and efficient. 3. Balance can be topped up at any time. (Susanti et al., 2021)	
--	---	--------------------------------------	---	--

3.7 Test Instrument Requirements

3.7.1 Validity Test

(Pallant, 2011) states that the validity test is used to measure the validity or validity of a questionnaire that can show if the results are truthful. A questionnaire is said to be valid if the questions on the questionnaire are able to reveal something that will be measured by the questionnaire. A questionnaire can be said to be valid if the questionnaire can carry out its measuring function, or provide precise and accurate measurement results.

The data obtained is then tabulated and then analyzed. This validity test uses the product moment correlation formula, namely:

$$r_{xy} = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n\sum x^2 - (\sum x)^2 (n\sum y^2 - (\sum y)^2)}}$$

Information:

r = Correlation coefficient

n = Number of respondents

X = Number of question scores

$\sum Y$ = Total score

To test the validity, the researcher used the SPSS 26 (Statistical Package for Social Sciences) program to determine which items were valid and which were not. Criteria for evaluating the validity test are as follows:

- a. If $r_{\text{count}} > r_{\text{table}}$, then the questionnaire items are valid.
- b. If $r_{\text{count}} < r_{\text{table}}$, it can be said that the questionnaire item is not valid.

3.7.2 Reliability Test

According to Chakrabarty (2013), reliability measures consistency, precision, repeatability, and trustworthiness of research. If in several times the measurement results obtained are relatively the same, then it can be said that the measurement results can be trusted. According to Cooper & Schindler (2014), reliability is a very important contributor to validity but is not a sufficient condition for validity.

The basis for decision making in reliability testing, based on Ghazali's statement (2016), namely:

- a. If the value of Cronbach's Alpha > 0.60 then the questionnaire is declared reliable or consistent.
- b. If the value of Cronbach's Alpha < 0.60 then the questionnaire is declared unreliable or inconsistent.

3.8 Test Data Analysis Requirements

In this study, researchers used the partial least squares (PLS) data analysis technique. Partial Least Square is a variant-based Structural Equation Modeling (SEM) statistical method designed to solve multiple regression when specific problems occur in the data, such as small study sample sizes, missing values, and multicollinearity (Hair et al., 2014). PLS is one of the analysis

techniques of structural equation modeling (SEM), with a calculation process assisted by the SmartPLS software application program.

3.8.1 Outer Model Evaluation

The outer model is a measurement model to assess the validity and reliability of the model. In this study, the evaluation stages for the outer model are as follows:

3.8.1.1 Validity Test

The validity test was carried out to determine the ability of the research instrument to measure what it should measure. In this study, researchers used two methods of validity, namely convergent validity and discriminant validity. Convergent validity is a measure of construct validity that measures the extent of the correlation between reflective indicators and unobserved variable scores (latent variables). The convergent validity test in PLS with reflective indicators is assessed based on the value of the loading factor (outer loading or loading score), namely the correlation of component values with construct values. The provisions of the convergent validity test require loading values > 0.7 (Hair et al., 2014). Meanwhile, discriminant validity is a type of construct validity that assesses the correlation of indicators with other variables. The discriminant validity test is assessed based on cross-loading measurements with the construct. If the correlation value between the indicator and the construct is greater than the correlation value between the other indicators and the other constructs, then this indicates that the latent construct predicts the size of the block better than the size of the other blocks. If these conditions are met, then the indicator meets the requirements for discriminant validity (Hair et al., 2014).

3.8.1.2 Reliability Test

A reliability test shows the accuracy, consistency, and precision of a measuring instrument in making measurements. Reliability tests in PLS are Cronbach's alpha, composite reliability, and average variance extracted

(AVE). Rule of thumb: Cronbach's alpha and composite reliability must be greater than 0.7. Meanwhile, Average Variance Extracted measures the lower limit of the reliability value of a construct with the condition that the AVE value must be 0.5.

3.8.2 Inner Model Evaluation

The structural model (inner model) in PLS is evaluated using R² for the dependent construct, the Stone-Geisser Q-square test for predictive relevance, and the path coefficient or t-value for each path for the significance test between constructs in the structural model. The R² value is used to measure the level of variation in the independent variable as compared to the dependent variable. The higher the R² value, the better the prediction model of the proposed research model. The results of the R² category on latent variables 0.00–0.19 are in the weak category, 0.20–0.33 are in the moderate category, and 0.34–0.67 are in the substantial category.

The R² value is used to measure the level of variation in the independent variable as compared to the dependent variable. However, R² is not an absolute parameter in measuring the accuracy of the prediction model because the basis of the theoretical relationship is the most important parameter to explain the causality relationship. The partial least squares research model is also evaluated by looking at the Q² predictive relevance for the construct model. Q² can measure how well the results of the observed values are produced by the model and its parameter estimates. If the value of Q² is greater than zero, it is proven that the research model has predictive relevance. Meanwhile, if the Q² value obtained is less than zero, it indicates that the research model lacks predictive relevance (Ghozali, 2014). The calculation result of R² can be used to calculate the value of Q².