CHAPTER III

RESEARCH METHODOLOGY

3.1   Research Design

This study employs a quantitative research design. Quantitative research is defined by Nunan et al. (2020) as research methods that aim to quantify data and usually involve statistical analysis. In order to test their assumptions, the research data is presented as numerical values that may be computed using statistical analysis.

The writer employed descriptive research designs in this study. According to Nurhayati (2020), the researchers' sole goal while using this type of research design is to elucidate the subject of the study. Descriptive research is a design that is predicated on the theory developed through data collection, analysis, and presentation. It facilitates comprehension of the significance of the research by others.

Schultz (2020) defines the correlational approach as a technique that uses the correlation coefficient to represent the degree of link between two variables. The correlational technique entails the writer examining the links between variables. When using the correlational technique, researchers are interested in the link between the variables and how one variable's behavior varies or changes depending on the other.

3.2   Population and Sample

3.2.1   Research Object

The object of research in this study is customers who have made at least one or more purchases at Golden Lamian Sun Plaza Medan located at Jl. Jl. KH. Zainul Arifin No.7, Central Petisah, Medan Petisah District, Medan City, North Sumatra.

3.2.2   Population

According to Swarjana (2022), Population includes all people, cases, or things that are the target of the application of research findings. The population in this research is company customers who have visited at least one or more times at the Golden Lamian Sun Plaza Medan with an unknown number.

3.2.3   Sample

Swarjana (2022) defined a sample in a research as a subset of the population chosen using sampling procedures. This study employs population-based sampling methods. The sample selection approach uses accidental sampling, a technique based on chance where anyone who meets the researcher can be chosen as a sample if deemed suitable. Furthermore, the writer will apply the Lemeshow formula to calculate the sample size. Riyanto and Hermawan (2020) mentioned that to calculate the number of unknown samples and populations, the Lemeshow formula technique can be used.

$$n = \frac{z^2 \rho(1-\rho)}{d^2}$$

Where:

n   = sample size

z   = z score at 95% confidence (1.96)

ρ = maximum estimation (0.5)

d   = alpha (0.10) or sampling error = 10%

Result of calculation of sample size is as follows:

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.1)^2}$$

= 96.04 ≈ 97 customers

The sample size in this research is 97 customers with accidental sampling method. Because the writer use Smart PLS so this data conduct 100 customers.

3.3   Data Collection Method

The data used in this research are as follows:

a.   Primary data

Primary data is data collected directly from the research object and must be processed by the researcher. Primary data is collected using the following techniques:

1) Observation.

The writer collect data with observation to the research object such as company's business activities and condition in the company

2) Interview

An interview is a meeting in which two people meet to exchange ideas and information through questions and answers, allowing for communication and shared understanding of a particular issue.

3) Questionnaire

Questionnaire is the list of questions that is answered by the respondent. The answer is in response scale as follows:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

b. Secondary data

It is data obtained through the research literature relating to the research title and document from the company. Books, journals, the internet, and other literary studies are some of the ways that writers gather secondary data.

3.4 Operational Variable and Variable Measurement

3.4.1 Operation Variable Definition

The operational definition of a variable means giving it meaning, specifying an activity, or outlining how to measure it. The writer uses three different kinds of variables:

1.   The independent Variable (Variable X)

       An independent variable is one that has an impact on the dependent one. Restaurant atmosphere, menu variety, and promotion are the research's independent variables.

2.   The Dependent Variable (Variable Y)

       The dependent variable is the one in which the researcher is most interested. The dependent variable must be comprehended, described, its variability explained, or predicted by the writer. The customer revisit intention is the dependent variable in this study.

3.   The Moderating Variable (Variable Z)

       Moderating variables can strengthen or weaken the relationship between independent and dependent variables; brand loyalty is the dependent variable.

Table 3.1 Definition of Operational Variables

Variable	Variable Definition	Variable Indicator	Measurement Scale
Restaurant Atmosphere (X1)	Atmosphere is a stimulus that in turn causes cognitive and emotional influences on individuals which in turn causes behavioral responses	1. Music 2. Aroma 3. Color 4. Lighting 5. Temperature Fuada & Wulansari (2024)	Likert
Menu Variety (X2)	Menu variety is the diversity of products or menus in a restaurant that can attract consumers when visiting a restaurant	1. Product taste 2. Portion size 3. Product Quality 4. Attractive product appearance 5. Availability of menus to support consumer orders Sihombing M et al (2022)	Likert
Promotion (X3)	Promotion is a marketing mix that seeks to communicate products or services to consumers so as to create continuous demand until they eventually become loyal customers	1. Promotion frequency 2. Promotion time 3. Special offers Febriana (2020)	Likert

Variable	Variable Definition	Variable Indicator	Measurement Scale
Brand Loyalty (M)	Brand loyalty is a brand's ability to keep its consumers trusting and making purchases from that bran.	1. Level of purchasing the same product 2. Repeated product purchases 3. Not switching to other brands. 4. Recommending to others. Komalasari & Khatimah (2022)	Likert
Customer Revisit Intention (Y)	Revisit intentions is a form of behavior (behavioral intention) or customer desire to make a return visit based on previous visit experiences.	1. Willingness to visit again 2. Willingness to invite 3. Willingness to positive tale 4. Willingness to place the visiting destination in priority Putri et al. (2023)	Likert

Source : Prepared by Writer (2025)

3.4.2 Variable Measurement

This research employs a Likert scale. Purba et al. (2021) state that the measured variables will be described and serve as indicators for items in the form of statements or questions. Responses range from very positive to very negative, using terms like: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree (Purba et al., 2021).

3.5 Data Analysis Method

This is an analytical model that gathers, categorizes, and then analyzes data to provide a summary of the issues encountered and to elucidate the computations' outcomes. information gathered from primary sources via a questionnaire that several respondents completed.

3.5.1 Test of Research Instruments

It is a group of techniques for organizing, compiling, presenting, analyzing,

interpreting, and drawing conclusions from data once experiments have been planned and data has been collected.

a. Validity Test

Ghozali (2021) explains that the validity test determines if a questionnaire is valid by assessing if the questions can accurately measure what the questionnaire is intended to measure. The validity test can be conducted using the SPSS program and Pearson Correlation, represented as r count. The criteria for assessing validity is if r count > r table, the questionnaire item is valid, and if r count < r table, the item is invalid.

b. Reliability Test

Ghozali (2021) stated that reliability is used to assess a questionnaire's consistency over time. Cronbach Alpha (α) is utilized for testing, with a value > 0.70 indicating reliability and < 0.70 indicating unreliability in the questionnaire's items. If a person's responses to questions remain consistent or stable, the questionnaire is considered reliable as an indicator of a variable or construct.

3.5.2 Descriptive Statistics

According Sugiyono (2022), The distribution of a certain attribute across a set of data may be quantitatively described using descriptive statistics:

a. Mean

The mean can be calculated by dividing the total of the data items by their total. To calculate the mean, you can use the following formula:

$$\bar{X} = \frac{\sum X}{n}$$

Where :

$\bar{X}$ = Mean

x = value

n = total number of sample

b. Median

When the data set's elements are ordered sequentially, that is, in either ascending or decending order of magnitude, the middle value is known as the median. The following formula may be used to get the median:

$$Me = \frac{(n+1)}{2}$$

Where:

Me = Median position

n = total number of sample

c. Mode

The mode, or point with the highest frequency, is the value of an observation that appears most frequently in the data collection.

3.5.3 Partial Least Square Structural Equation Modelling

Partial least squares structural equation modeling, or PLS-SEM, blends interdependence and dependence techniques (Hair et al., 2019). PLS-Path Modeling consists of two models: the Measurement model (Outer Model) and the Structural model (Inner model) (Sihombing, et al., 2024).

3.5.3.1 Outer Model Test

According to Hair Jr et al. (2019), the outer model test in SEM (Structural Equation Modelling) examines the measurement model. It uses Partial Least Square Structural Equation Modelling (PLSSEM) to assess the relationship between observed indicators and latent constructs. The outer model test includes convergent validity and discriminant validity.

1. Validity Test

a. Convergent Validity

Convergent validity is an important measure for reflective models, indicating how well the indicators of a construct explain the variance of the items. Also known as communality, this validity is evaluated through the average variance extracted (AVE). A rule of thumb for a good AVE is 0.50 or higher (Hair et al., 2019).

Convergent validity value refers to the factor loading value on the latent variable and its indicators. This value is evaluated through the correlation between item scores and construct scores calculated using PLS. Reflective measures are considered high if the correlation exceeds 0.60. Convergent validity is also assessed by the Average Variance Extracted (AVE) of each construct; AVE above 0.5 indicates validity (Sihombing, et al., 2024).

b. Discriminant Validity

Discriminant validity tests all pairs of reflective constructs in the model. Occurs when AVE is greater than the variance of other constructs. (Hair et al., 2019).

One method to check validity is to review the cross-loading factor value, where the loading value on the construct in question must be higher than the loading value on other constructs. Another method is the Fornell and Larcker approach, which involves comparing the square root of the AVE of each construct with its correlation to other constructs. If the square root of the AVE is greater than its correlation, then this indicates good discriminant validity (Sihombing, et al., 2024).

2. Reliability Test

The next step is finding each construct's internal consistency reliability. While Cronbach's alpha is a common method for assessing reliability, it does not consider the weight of individual indicators. Jöreskog's (1971) in Hair et al., (2019) explains that composite reliability addresses this issue by weighting indicators according to their loadings, making it the preferred method. Higher values show better reliability, with values from 0.60 to 0.70 being acceptable and 0.70 to 0.95 being satisfactory to good (Hair et al., 2019).

A construct reliability test was performed alongside the construct validity test. Composite reliability and Cronbach's alpha were used to measure it. A construct is reliable if both values are above 0.70 (Sihombing, et al., 2024).

3.5.3.2 Inner Model Test

According to Sihombing, et al., (2024), The structural model was evaluated using R-squared for the dependent variable and path coefficients for the

independent variables. Significance assessment was performed based on the t-statistic value of each path.

1. R Square Value

   R Square is the coefficient of determination in endogenous constructs. In general, the R square value is 0.67 (strong), 0.33 (moderate) and 0.19 (weak). The coefficient of determination (R square Adjusted) is used to show how much influence the influencing variable has on the influenced variable. Changes in the R-square value can be used to assess the influence of certain independent latent variables on the dependent latent variable whether it has a substantive influence (Sihombing, et al., 2024).

2. Effect Size (f square).

   Effect size ($f2$) is carried out to determine the goodness of the model. It is expected that the value is greater than 0.15 so that the model is said to be at least quite good (moderate) (Sihombing, et al., 2024).

3. Stone-Geisser Q-square test (Predictive Relevance)

   Stone-Geisser Q-square test for predictive relevance and t-test and significance of the structural path parameter coefficient. Q-square measures how well the observation values are generated by the model and also its parameters. Q-square value greater than 0 (zero) indicates that the model has predictive relevance value, while Q-square value less than 0 (zero) indicates that the model has less predictive relevance. Q-square value greater than 0 (zero) indicates that the model has predictive relevance value (Sihombing, et al., 2024).

4.   Goodness of Fit (gof)

Evaluation of the Goodness of Fit model uses dependent latent variables, similar to regression. A model is good if the gof value is above 0.38. (Sihombing, et al., 2024).

3.5.4   Hypothesis Test (Bootstrapping)

To assess the influence between variables, a bootstrapping procedure is necessary. This procedure resamples the entire original sample. Hair et al. (2019) recommend using 5,000 bootstrap samples, while others suggest 200-1,000 samples may be enough to correct the PLS standard error (Ghozali and Latan, 2020). The significant t-values for two-tailed tests are 1. 65 (10% level), 1. 96 (5% level), and 2. 58 (1% level). In testing Direct Effects, a variable is a moderating variable if its significant t value is ≤ 0.05. The following criteria are used for comparison:

The hypothesis is rejected if the t-count is < 1.96 or the sig value is > 0.05.

The hypothesis is accepted if the t-count is > 1.96 or the sig value is < 0.05.