

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Design

In this study, the writer used a quantitative research method to collect and analyze data objectively and systematically. This research method uses an instrument to collect data such as a questionnaire, which data is then processed and analyzed into numbers and will be made into a conclusion. In quantitative research methods, the writer also has the power to determine relevant questions that follow the research objectives and can be used to obtain answers that can be used for research. According to Ahmad et al., (2019), applying the methods of the natural sciences, quantitative research provides real facts and numerical data from many respondents. It uses mathematical, computational, and statistical techniques to demonstrate a cause-and-effect link between variables.

This research uses descriptive and causal research methods, where descriptive design can help writers collect accurate and detailed phenomena on the variables being studied. Causal research can also help in identifying the relationship or influence on the two variables, namely the influence of the independent variables, (café atmosphere, customer satisfaction, and social media marketing on Instagram) towards the dependent variable (purchasing intention).

The tool that will be used as a source of data and information collection from customers is by using a questionnaire. It makes it easier for the writer to directly obtain customer information about the experiences at Nakama Brew Guru

Patimpus Medan by focusing on its café atmosphere, customer satisfaction, social media marketing on Instagram, and purchasing intention. Furthermore, the information used in this research is taken from various journals and articles that follow the research, and numerical analysis will be used to examine the research approach and assess if the hypotheses are accepted or rejected.

3.2 Population and Sample

3.2.1 Population

According to Rahayu, A. (2022), a population is all the subjects used for research, and the sample is part of the population used for research. The population of this study consists of all customers who have visited Nakama Brew Guru Patimpus Medan. This café serves various customer segments of multiple ages, genders, education levels, and socio-economic backgrounds. By drawing on this broad population, the research aims to deeply understand customer experiences related to café atmosphere, customer satisfaction, and social media marketing on Instagram on purchasing intention.

3.2.2 Sample

According to Nurchaliza, R. (2024), a sample is a selected population group that uses the data to analyze results from research. A sample is a part of the population that will be representative in providing information related to the object being studied. Besides the availability of two sampling techniques, namely probability sampling and non-probability sampling, the writer will use non-probability sampling precisely purposive sampling to conduct this research. Non-

probability sampling is a sampling that is not chosen at random. According to Dana P. Turner (2020), as cited by Sampoerna University, purposive sampling is a method of sampling that researchers use when already have target participants who fit the research's criteria.

Given that the total customer population for this research is unknown and confidential by the owner of Nakama Brew Guru Patimpus Medan, the author used the Lemeshow's formula namely as follows:

$$n = \frac{Z^2 \cdot P \cdot (1 - P)}{d^2}$$

Where:

n = number of samples

Z = 95% confidence level ($Z = 1.96$)

P = maximum proportion of estimation (0.5)

d = sampling error of 10%

$$n = \frac{1.96^2 \cdot 0,5 \cdot (1 - 0,5)}{0,1^2} = 96.04 \approx 97$$

In this research, the sample size that will be used is 97 respondents with the population being unknown and the following characteristics:

1. Gender of Male and Female
2. Respondents of all ages
3. Respondents who have visited Nakama Brew Guru Patimpus Medan

3.3 Data Collection Method

Data collection methods are methods chosen by the writer to collect relevant data and information that are then used in research. The data collection method in this research involves the use of primary data and secondary data to provide a comprehensive picture of the influence of café atmosphere, customer satisfaction, and social media marketing on Instagram on purchasing intention.

3.3.1 Primary Data

Primary data is data taken from respondents' direct experience of the research object and in this research, the primary data is collected through questionnaires and observation of the customers of Nakama Brew Guru Patimpus Medan.

1. Questionnaires

The writer will design a questionnaire using Google Forms with relevant questions following the research objectives. Questionnaires will be distributed via social media to customers who have visited Nakama Brew Guru Patimpus Medan. After collection, the questionnaire is checked to ensure completeness and consistency of answers, then the data is entered into analysis software for further processing.

2. Observation

The writer conducted direct observations of the experiences received by Nakama Brew Guru Patimpus Medan customers, such as the purpose of the visit, interactions, and duration of the visit made by customers to the café.

3.3.2 Secondary Data

Secondary data is data that already exists or is publicly and privately available. This data can come from journals, books, articles, or private information the company provides to researchers. Secondary data in this research was obtained from various relevant sources to support primary data analysis. These sources include journals and articles from previously conducted research on similar topics and articles. Additionally, analysis of online reviews such as Google Reviews is used to understand customer perceptions of café. This secondary data is analyzed to provide additional context and strengthen the findings from the primary data.

3.4 Operational Variable Definition and Variable Measurement

As cited by Valerie, (2024), Perrin, K. M. (2022) stated that an operational variable is utilized to thoroughly explain the variables in the study. Operational Variable is the process of specifying how the variables used will be analyzed or observed in research. The operational variables in this research include:

1. Independent Variable (X)

As cited by Euodia Grace Maranatha et al., (2023), Sugiyono (2017) stated that the independent variable is the variable that affects, causes, or creates the dependent variable. In this research, the independent variables are café atmosphere (X_1), customer satisfaction (X_2), and social media marketing on Instagram (X_3).

2. Dependent Variable (Y)

As cited by Euodia Grace Maranatha et al., (2023), Sugiyono (2017) stated that the dependent variable is the variable that is impacted by or results from independent variables. In this research, the dependent variable is purchasing intention (Y).

Table 3.1 Variable Measurement of Café Atmosphere (X₁)

Variables	Indicators	Questions
Café Atmosphere (X ₁)	Interior	1. The lighting in this café is too dark and makes it difficult to interact or work. 2. The colors used in this café are too plain and not very attractive.
	Exterior	3. The exterior of this café is attractive and makes me want to go in. 4. The exterior design of this café reflects the atmosphere inside the café.
	Store Layout	5. The arrangement of tables and chairs in this café makes it easy for me to move around. 6. I feel that this room is quite spacious and not stuffy.
	Interior Display	7. The decoration inside the café is too plain and unattractive. 8. The tables and chairs provided by this café have unique designs and are comfortable.

Source: Prepared by the Writer (2024)

Table 3.2 Variable Measurement of Customer Satisfaction (X₂)

Variables	Indicators	Questions
Customer Satisfaction (X ₂)	Encounter Satisfaction	9. I feel welcome every time I visit this café. 10. The staff at Nakama Brew Guru Patimpus provides clear and helpful information about the menu.
	Overall Satisfaction	11. I always enjoy visiting Nakama Brew Guru Patimpus because of its consistent and good previous experience. 12. Nakama Brew Guru Patimpus is my favorite place to relax and enjoy coffee.
	Overall Quality	13. I feel the quality of the products presented in this café is inconsistent. 14. I am very satisfied with the cleanliness and tidiness of the environment in this café.
	Image	15. Nakama Brew Guru Patimpus is known as a café with reliable quality. 16. Nakama Brew Guru Patimpus has a positive image in my eyes as a customer.
	Future Expectation	17. I believe that this café will continue to grow and become better. 18. I am optimistic that Nakama Brew Guru Patimpus will always meet my expectations as a customer.

Source: Prepared by the Writer (2024)

Table 3.3 Variable Measurement of Social Media Marketing on Instagram (X₃)

Variables	Indicators	Questions
Social Media Marketing (X ₃)	Advantageous Campaign	19. The campaign or content presented by Nakama Brew caught my attention and increased my interest in visiting their Instagram page. 20. The campaigns or content displayed on Nakama Brew's Instagram often make me interested in making a purchase immediately.
	Relevant Content	21. The information provided on Instagram is very relevant and always follows the Nakama Brew Guru Patimpus offline store. 22. Nakama Brew's Instagram provides useful content and contains information that I need as a customer.
	Up-to-date Content	23. I can always find the latest updates about promotions or events on Nakama Brew's Instagram. 24. I always know about Nakama Brew Guru Patimpus' latest information or products through Instagram.
	Content Popularity	25. Posts related to Nakama Brew Guru Patimpus are often shared by my friends on Instagram. 26. Nakama Brew Guru Patimpus often uploads content that attracts public attention.

Source: Prepared by the Writer (2024)

Table 3.4 Variable Measurement of Purchasing Intention (Y)

Variables	Indicators	Questions
Purchasing Intention (Y)	Interest	27. I was interested in visiting Nakama Brew Guru Patimpus because of its interesting interior design. 28. Testimonials from my friends and family made me interested in coming to Nakama Brew Guru Patimpus.
	Desire	29. I have a strong desire to spend time with friends or family at Nakama Brew Guru Patimpus 30. I want to be a regular customer at Nakama Brew Guru Patimpus
	Conviction	31. I believe that Nakama Brew Guru Patimpus provides a satisfying coffee-drinking experience. 32. I would recommend Nakama Brew Guru Patimpus to my friends.

Source: Prepared by the Writer (2024)

Each variable is equipped with indicators that cover the critical aspects to be measured. Measurements were carried out using a 5-point Likert scale to facilitate an in-depth evaluation of the influence of these variables on purchasing intention at the Nakama Brew Guru Patimpus Medan. The 5-point Likert Scale will consist of: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

3.5 Data Analysis Method

3.5.1 Descriptive Analysis Method

As cited by Valerie, (2024), Sugiyono stated that descriptive analysis is a statistical method of data analysis that involves identifying or explaining obtained data. Descriptive statistical analysis was used to describe the basic characteristics of the data collected in this research. Variables such as café atmosphere, customer satisfaction, social media marketing on Instagram, and purchasing intention will be analyzed to obtain the mean, median, mode, variance and standard deviation.

a. Mean

The mean value of a set of data is calculated by adding up all the values in the sample and dividing by the total amount of data.

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

Where:

\bar{X} = Mean of the sample data

$\sum x$ = Total of sample data ($X_1 + X_2 + X_3 + \dots + X_n$)

n = Total number of samples

b. Median

The median is the middle value of data when the data is ordered from smallest to largest. The median provides a more stable picture of the center of the data distribution.

- Formula for odd data

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

- Formula for even data

$$Me = \frac{\text{Data } \left(\frac{n}{2}\right) + \text{Data } \left(\frac{1}{2}n + 1\right)}{2}$$

Where:

Me = Median

n = Total data of samples

- c. Mode

Modes are the values or categories that appear most frequently in a data distribution.

- d. Variances

Variance is a measure of the spread or variation of a set of data. It is calculated by measuring the average of the squared differences between each data value and the mean of that data. Variance provides information about how far individual values are spread out from the mean value, with higher variance values indicating greater variation in the data.

$$s^2 = \frac{\sum(X_i - \bar{X})^2}{n - 1}$$

Where:

s^2 = Sample variance

X = Number of samples

\bar{X} = Mean of sample

n = Total of sample

e. Standard Deviation

It is used to measure how far the data can spread out from the average value.

$$s = \sqrt{s^2}$$

Where:

s = Sample standard deviation

s^2 = Sample variance

3.5.2 Research Instrument Test

1. Validity Test

According to Ramadhan et al., (2024), validity refers to how accurately and carefully a measuring instrument (test) performs its task of measuring the desired variable. Data validity refers to the extent to which a questionnaire measures what it is supposed to measure accurately. Validity ensures that the questionnaire used can accurately measure the variables studied. The use of SPSS in testing the validity of questionnaires allows researchers to carry out in-depth statistical analysis to verify that the measurement instruments used are reliable in collecting accurate and relevant data for research purposes. Thus, the guaranteed validity of the questionnaire ensures that the resulting analysis results can be trusted and are useful in decision-making. The following is the formula for the validity test:

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

Where:

r_{xy} = Correlation of Coefficient

X = Number of items

Y = Number of all respondent's items

n = Respondent

The criteria of the validity test are:

- a. It is considered valid if $r_{count} > r_{table}$.
- b. It is considered invalid if $r_{count} < r_{table}$.

2. Reliability Test

According to Sitoresmi, A. R., (2023), reliability refers to the likelihood that a component of equipment or a system is designed to continue to perform its function according to a predetermined design or process. Reliability refers to the extent to which the questionnaire used is consistent and reliable in measuring the variables studied. To test reliability using the SPSS can be seen from Cronbach's Alpha coefficient which measures internal consistency between questions in the questionnaire related to café atmosphere, customer satisfaction, social media marketing on Instagram, and purchasing intention.

$$r_a = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma b^2}{\sigma t^2} \right)$$

Where:

r_a = Reliability instrument

k = Total number of questions

$\sum \sigma_b^2$ = Total variance of questions

σ_t^2 = Total variance of respondents' scores

The criteria of the reliability test are:

- a. It is considered reliable and consistent if the Cronbach's Alpha Coefficient ≥ 0.6 .
- b. It is considered unreliable and inconsistent if the Cronbach's Alpha Coefficient ≤ 0.6 .

3.5.3 Classical Assumption Test

1. Normality Test

The results of a normality test indicate whether or not the sample data came from a population that was normally distributed (Editage, 2022).

The normality test refers to the error distribution of a linear regression model. To validate the normality test, statistical methods such as the Kolmogorov-Smirnov test are used, which if the results are close to a p-value greater than 0.05 ($p > 0.05$) indicates that the normality test can be considered normal. If the results are close to a small p-value of 0.05 ($p < 0.05$) it indicates that the normality test is not normal.

2. Multicollinearity Test

When independent variables in a linear regression equation are correlated, it is known as multicollinearity (Murel, J. & Kavlakoglu, E., 2023). Multicollinearity occurs when there is a strong correlation between the independent variables in the regression model. To test multicollinearity, methods such as Variance Inflation Factor (VIF) are used, where if the VIF value is high or more than 10, it indicates that there is significant multicollinearity between the independent variables.

$$VIF = \frac{1}{(1 - R_n^2)}$$

Where:

VIF = Variance inflation factors

R_n^2 = Coefficient of determination variables

n = Number of independent variables

$(1 - R_n^2)$ = Tolerance value

3. Heteroscedasticity Test

Heteroscedasticity refers to a concept that, once the predictors have been included in the regression model, the residual variability remains varies based on an external factor (Ohaegbulem, E. U., & Iheaka, V. C., 2024). Heteroscedasticity refers to the imbalance of residual variance across the values of an independent variable. Using the Glejser test, it has the following criteria:

- If the result is smaller than 0.05 (< 0.05), means there is Heteroscedasticity

- if the result is greater than 0.05 (> 0.05), then there is no Heteroscedasticity

3.5.4 Multiple Linear Regression

As cited by Valerie, (2024), Ghozali (2005), stated that regression analysis examines how the dependent variable depends on the independent factors to predict the dependent variable's value from the independent variables' values. Linear regression analysis was used to test the hypothesis proposed in this research. The dependent variable is purchasing intention, while the independent variables are café atmosphere, customer satisfaction, and social media marketing on Instagram. Multiple linear regression is used to understand how significant the influence of each independent variable is on the dependent variable.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + e$$

Where:

Y = Dependent variable

α = Constanta

β_1 = Regression coefficient for X_1

β_2 = Regression coefficient for X_2

e : Standard error

$X_1 \dots X_n$ = Independent variable

3.5.5 Coefficient of Determination

The coefficient of Determination is used to evaluate how well a regression model can explain variations in the dependent variable based on the included independent variables. As cited by Valerie, (2024) Sanusi, (2019) stated that the closer the value is to 0 on a scale of 0 - 1, the less of an impact the independent variable has on the dependent variable, and vice versa. R^2 measures the percentage of variation in the dependent variable that can be explained by the independent variables in the model. The higher the R^2 value, the better the regression model is at explaining the relationship between the variables studied.

$$R^2 = (r)^2 \times 100\%$$

Where:

R^2 = Coefficient of determination

$(r)^2$ = Coefficient of correlation

3.5.6 Hypothesis Test

In statistics, a hypothesis is a test that an analyst does on a population parameter assumption (Majaski, C., 2024). The hypothesis test in this study examines the influence of café atmosphere, customer satisfaction, and social media marketing on Instagram towards purchasing intention at Nakama Brew Guru Patimpus Medan. The hypothesis proposed includes the possibility of a positive relationship between the level of a pleasant café atmosphere, good customer satisfaction, and the effectiveness of social media marketing with the level of purchasing intention. Through multiple linear regression analysis, this research

aims to test and measure the significance of the influence of each independent variable on the dependent variable, thereby providing a deeper understanding of the factors that contribute to customer satisfaction at the café.

a. t-test

It is used to test whether each of the independent variables influences the dependent variable. The t-test results will show that the independent variable has a real influence on the dependent variable. It has the following criteria:

- If $t_{count} < t_{table}$ then H_0 is accepted, and H_a is automatically rejected.
- If $t_{count} > t_{table}$ then H_a is accepted and H_0 is automatically rejected.

b. F-test

It is used to test the overall significance of the regression model. F-test tests whether there is at least one independent variable that influences the dependent variable. The F-test results indicate that the regression model can explain variations in the dependent variable. It has the following criteria:

- If $F_{count} < F_{table}$ or sig. value > 0.05 , then H_0 is accepted and H_a is rejected
- If $F_{count} > F_{table}$ or sig. value < 0.05 , then H_0 is rejected, and H_a is accepted.