

Analysis of Influence of Product Design and Product Quality on Customer Satisfaction case Study at Hand Made Shoes Umkm Bang MUS

Nurul Aini¹, Dr. Iskandar Muda²

^{1,2}Department of Accounting, Faculty of Business Management, North Sumatera University

ABSTRACT: This study discusses how product design and product quality affect consumer satisfaction in Bang Mus Hand Made Shoes UMKM. The purpose of this study was to identify the influence of product design and product quality that can affect consumer satisfaction in Bang Mus Hand Made Shoes UMKM. The sampling technique used a questionnaire with a number of questionnaires of 100 respondents who were consumers in Bang Mus Hand Made Shoes UMKM. The independent variables in this study are Product Design (X1) and Product Quality (X2), while the dependent variable in this study is customer satisfaction (Y). The analytical test tool used is SPSS 21 Multiple Linear Regression Analysis Method.

The results showed that product design had a positive and significant effect on customer satisfaction, product quality had a positive and significant effect on customer satisfaction, and product design and product quality together had a positive and significant effect on customer satisfaction.

KEY WORDS: Product Design, Product Quality, Customer Satisfaction.

1. INTRODUCTION

One of the goals of creating products is to increase the wisdom of local products. Introducing the public to the abundance of local craftsmen in Indonesia. Product design is an activity that starts with an analysis of market perceptions and opportunities, then ends with the production, sales and product delivery stages. For this reason, Bang Mus Hand Made Shoes UMKM must pay attention to the design of its products to meet consumer expectations. In an effort to meet the needs and desires of consumers effectively and efficiently, companies need to carry out various strategies and careful planning in their production. The basic concept of product life exposes producers to two possibilities. First, because all products will decline, manufacturers must prioritize developing new products to replace old products. Second, the manufacturer must observe the recycling status of each product and adapt the marketing strategy to the demands of each stage in the product life cycle concept. The quality problem in a product is one of the factors that requires special attention because the target consumers are often questioning the quality of the product. The design aspect is one of the attractions of a product. Good product design is a product design that focuses on quality, because quality can be used to reduce prices and increase market share at the same time (Zulian Yamit, 2001: 117).

To improve product quality, product providers must know the satisfaction felt by consumers. This can help product providers improve products to meet consumer expectations and provide more optimal satisfaction.

Joseph S. Martinich stated that the specifications of the dimensions of product quality that are relevant to customers can be grouped into six dimensions, namely performance, range and type of features, reliability and durability, maintainability and serviceability, sensory characteristics, and ethical profile and image (in Zulian Yamit, 2001: 11). Therefore, product design and product quality are things that have been deeply embedded in the minds of consumers and consumers have an important role in the business that is being run.

The quality of a good product design can meet consumer expectations, it will create a harmonious relationship between product providers and consumers and create loyalty from these consumers.

Product quality according to W. Edwards Deming is whatever the consumer needs and wants (in Zulian Yamit, 2001: 7). In this case, consumers will compare the quality of the product with others and consumers can find out where the quality of the product is. Automatically consumers will recommend word of mouth and it is profitable for product providers.

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Product quality in Bang Mus Hand Made Shoes UMKM can be seen from the packaging. The best quality and specially designed packaging, in the packaging, is available thin paper and packing must be cap which makes the condition of the shoes not easily moldy and avoid termites. It is very important for companies to know the characteristics of consumers by understanding consumer behavior because this determines whether consumers are satisfied or not.

Consumer satisfaction is a major factor in determining industrial competitiveness in the shoe sector. Due to the increasing number of consumers a few months after the product was introduced, it is necessary to pay attention to the increase in product quality in competing for consumers.

2. METHODOLOGY

2.1. Research Approach

This research uses descriptive research type with a quantitative approach. Quantitative Research Methods are research methods based on the philosophy of positivism, used to research on certain populations or samples, data collection using research instruments, data analysis is quantitative or statistical, with the aim of testing predetermined hypotheses (Sugiyono, 2016). whether the hypothesis can prove or reject.

2.2 Research Variables and Operational Definition

2.2.1. Research variable

Research variables are anything in the form determined by the researcher to study so that information is obtained about it, then conclusions are drawn (Sugiyono, 2016).

- Dependent Variable

Dependent variables are often called output variables, criteria, consequently, in Indonesian it is called the dependent variable. Bound variables are variables that are affected or that are the result of the independent variables (Sugiyono, 2016). The dependent variable used is Customer Satisfaction (Y).

- Independent variable

The independent variable which is denoted by (X) is often referred to as the stimulus, ordictor, and antecedent variable. In Indonesian it is called the independent variable. Independent variables are variables that affect or cause the change or dependence (Sugiyono, 2016). The independent variables in this study are product design (X1) and product quality (X2).

2.2.2. Operational Definition of Research Variables

Operational Definition The variables used in this study are the independent variable and the dependent variable. Based on the research variables used by the author, to make it easier, the authors describe making in table form.

Table of Operational Definition of Research Variables

No.	Variable	Operational definition	Indicator
1.	Product design	Product design is one of the elements in advancing the industry so that the industrial products of these products can be accepted by the community, because the products they get have good quality, attractive designs and so on. (Bagas Prastyowibowo, 199: 5)	<ul style="list-style-type: none"> - Model - Attractive style - Shape - Up to date
2.	Product quality	Product quality is the ability of a product to perform its function. Can be seen from the diversity, safety, packaging, form. (Kotler and Armstrong, 2012)	<ul style="list-style-type: none"> - Durability - Reliability - Precise - Ease of Maintenance - Repair
3.	Customer Satisfaction	Customer satisfaction is if consumer expectations for the product are felt to exceed expectations. (Kotler and Keller, 2005)	<ul style="list-style-type: none"> - Quality - Product design - Product quality - Score - Price

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2.3. Population and Sample

2.3.1. Population

Sources of data in this study are subjects where data can be obtained. To obtain these data sources, a population is needed. Population is a generalization area consisting of objects or subjects that have certain qualities and characteristics that are determined by researchers to study and then draw conclusions (Sugiyono, 2016). The population in this research is consumers who buy UMKM Hand Made Shoes Bang Mus products. The number of consumers in Bang Mus Hand Made Shoes UMKM is infinite, so it cannot be counted, so the research was carried out by sampling.

There are two approaches that are usually used, namely probability sampling and non-probability sampling. Determination of the sample in this study using non-probability sampling because researchers do not know the exact population size where the number of consumers is countless. The study used non-probability sampling. The sampling method used was convenience sampling, which is a method of accidental sampling of people who are willing to fill out questionnaires and are deemed suitable in filling in data sources. Respondents who are suitable are consumers who buy Bang Mus's UMKM Hand Made Shoes.

2.3.2. Sample

The sample is part of the number and characteristics of the population (Sugiyono, 2016). Researchers cannot study the entire population, so researchers form population representatives called samples. The population is very large, researchers take several samples to represent that population. The sampling technique was determined using the Rao Purba 1996 formula:

$$n = \frac{Z^2}{4(\text{Moe})^2}$$

Information:

n = Number of Samples

Z = The level of normal distribution at the 5% significance level (1.96)

Moe = Maximum margin of error of 10%

So that the sample for this research is obtained, namely:

$$n = \frac{1,96^2}{4(0,10)^2}$$

n = 96.04 Round to 100

Based on the above calculations, the number of samples was rounded from 96 to 100 people in anticipation of the questionnaire that could not be processed by the researcher.

2.4. Method of collecting data

2.4.1. Type of Data

There are two types of data used in this study, namely:

2.4.1.1. Qualitative data

Data in the form of words, sentences, schemes, and pictures, such as literature and theories related to the author's research.

2.4.1.2. Quantitative data

Data in the form of numbers, or qualitative data made into numbers (scoring). There are two types of data used in this study, namely:

2.4.1.2.1. Primary data

Primary data is data that is directly obtained from the first source of the research object. Primary data of this research is data that is given directly to respondents through a questionnaire regarding the analysis of the effect of product design and product quality on customer satisfaction.

2.4.1.2.2. Secondary Data

Secondary data is data that is indirectly obtained from the object of the researcher. The secondary data needed can be obtained from the UMKM Hand Made Shoes Bang Mus web site and data from the company regarding information related to the main researcher.

2.4.2. Data collection technique

In this study, the technique used to collect data was a questionnaire. A questionnaire is a research or survey consisting of a series of written questions, aimed at getting responses from groups, selected people through personal interviews or through a

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list of questions (KBBI). The data collected was sourced from the data from the UMKM Hand Made Shoes Bang Mus questionnaire. The answer provided in each question or statement uses a Likert scale. Likert scale is used to measure attitudes, opinions, and perceptions of a person or group of people regarding social phenomena. The scoring criteria for alternative answers for each item are as follows: (1). Score 5 for the answer strongly agree, (2). Score 4 for answers agree, (3). Score 3 for neutral or doubtful answers, (4). Score 2 for the answer disagree, (5). Score 1 for the answer strongly disagree.

Likert Scale Table

Answer	Score
Strongly agree	5
Agree	4
Neutral / Undecided	3
Disagree	2
Strongly Disagree	1

2.4.3. Validity and Reliability Test

2.4.3.1. Validity test

The validity test is the degree of accuracy between the data that occurs on the research object and the power that can be reported by the researcher. The validity test is used to determine whether the data is valid or not the questionnaire distributed to respondents. Thus, valid data is data that does not differ between the data reported by the researcher and the data that actually occurs on the object of research. If the research sample is representative, the research instrument is valid and reliable, how to collect funds for data analysis is correct, then the research will have high external validity (Sugiyono, 2016). To find out if a questionnaire can be declared valid, then $r_{count} > r_{table}$.

2.4.3.2. Reliability Test

Reliability test is a test to show the extent to which a measurement tool is reliable and free from errors. In this study, reliability testing was carried out to determine whether the

2.4.4. Data analysis method

2.4.4.1. Descriptive Statistical Analysis

Descriptive statistics are statistics that are used to analyze data by describing or describing the collected data as is without the intention of making generalized conclusions or generalizations. Descriptive statistics are the presentation of data through tables, graphs, pictograms, calculation of data distribution through calculating means and standard deviation, calculation of percentages. Descriptive statistical data was carried out to find the strength of variable relationships through correlation analysis, regression analysis, and comparing sample and population data (Sugiyono, 2016)

2.4.4.2. Classic Assumption Testing

2.4.4.2.1. Normality test

According to Ghozali (2011), the normality test can be done by graphical analysis, namely by looking at the histogram graph and the P-Plot graph which compares the cumulative distribution of the normal distribution, the basis for decision making.

1. If the data spreads on a diagonal line and follows the direction of the diagonal line or the histogram graph shows a normal distribution pattern, the regression model meets the assumption of normality.
2. If the data spreads on a diagonal line and follows the direction of the diagonal line or the histogram graph shows a normal distribution pattern, the regression model does not meet the assumption of normality.

2.4.4.2.2. Multicollinearity Test

According to Ghozali (2011), this multicollinearity test aims to test whether the regression model found a correlation between independent variables. If there is a correlation, it is called multicollinearity. A good regression model should not have a correlation between the independent variables

1. The amount of VIF, a regression model that is free of multicollinearity, is $VIF > 0.10$
2. The amount of VIF, a regression model that is free of multicollinearity, is $VIF < 0.10$.

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2.4.4.2.3 Heteroscedasticity Test

The heteroscedasticity test is used to determine whether or not there are deviations from the classic assumption of heteroscedasticity, namely the inequality of variants of the resume for all observations in the regression model. A good regression model is homoscedasticity or heteroscedasticity does not occur (Ghozali, 2011). The way to determine whether there is heteroscedasticity is to look at the plot graph. If there are certain patterns, such as those that form a certain pattern (wavy, widened then the dots narrow) then it indicates that there has been heterodasticity

2.4.4.2.4. Multiple Linear Regression Analysis

The data analysis method used in this research is multiple linear regression analysis method. The analysis is used to determine how much influence the independent variables, namely product design (X1) and product quality (X2) on the dependent variable consumer satisfaction (Y) products of SMEs Hand Made Shoes Bang Mus. The results of this regression are in the form of coefficients selected by predicting the value of the dependent variable with an equation below.

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Sumber: (Abdullah, 2015)

Information:

Y = Customer Satisfaction

β_1, β_2 = Regression coefficient

X₁ = Product Design

X₂ = Product quality

e = Standard estimation error

2.4.4.3. Hypothesis test

2.4.4.3.1. Coefficient of Determination (R²)

The coefficient of determination (R²) measures how far the model is able to explain the dependent variation. The coefficient of determination is between zero and one. Small value (R²) means that the ability of the independent variables to explain variable variations is very limited. The use of the coefficient of determination is biased towards the number of independent variables included in the model. Every additional one independent variable, then (R²) will increase regardless of whether the variable has a significant effect on the dependent variable. To evaluate the best regression model, the researcher races on the Adjusted value (R²). Adjusted value (R²) can increase or decrease if one independent variable is added to the model.

2.4.4.3.2. F-test

The F statistical test shows that all independent variables have a simultaneous influence on the dependent variable (Gozali, 2016). This research was conducted by looking at the ANOVA which compared the mean of squares from the regression and the mean of squares from the residuals, so that the result is called F count. Simultaneous regression coefficient testing or the F test is used to test whether the hypothesis proposed in this study is accepted or not by knowing whether the independent variables jointly (simultaneously) affect the dependent variable. As a basis for decision making, the following testing criteria can be used

2.4.4.3.3. T-test

T-test is tested to determine the effect between the independent and dependent variables partially. To determine the effect of the independent variable partially on the dependent variable, the t test was used. The partial regression coefficient test or t test is used to test whether the hypothesis proposed in this study is accepted or not by knowing whether the independent variable individually affects the dependent variable. In this case, does the variable product design perception and product quality really affect the consumer satisfaction variable. This research was conducted by looking at the Quick Look and comparing the value of the T statistic with the critical point according to the table with a level of $\alpha = 5\%$. As a basis for decision making, the following testing criteria can be used

1. If T count > T table and the significance level < α (0.05), then the independent variable individually affects the dependent variable
2. If T count < T table and the level of significance > α (0.05), then the independent variable individually does not affect the dependent variable

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3. RESULTS

3.1. Validity and Reliability Test

3.1.1. Validity test

The validity test is used to determine whether or not the questionnaire distributed to respondents is valid. To find out if a questionnaire is valid, the value of $r_{count} > r_{table}$. In this study, the amount of data that can be used is 100 questionnaires, with a confidence level of 95% ($\alpha = 5\%$), then the r_{table} value of 100 is 0.195. This validity test uses the SPSS Statistics 21 application. The following are the results of the validity test:

Validity Test Table

Variable	Item	Corrected Item-Total Correlation	r-table	Information
Product Design (X1)	X1.1	0,776	0,195	Valid
	X1.2	0,802	0,195	Valid
	X1.3	0,756	0,195	Valid
	X1.4	0,661	0,195	Valid
Product Quality (X2)	X2.1	0,460	0,195	Valid
	X2.2	0,735	0,195	Valid
	X2.3	0,523	0,195	Valid
	X2.4	0,522	0,195	Valid
	X2.5	0,772	0,195	Valid
	X2.6	0,681	0,195	Valid
Customer Satisfaction (Y)	X2.7	0,608	0,195	Valid
	X3.1	0,681	0,195	Valid
	X3.2	0,499	0,195	Valid
	X3.3	0,613	0,195	Valid
	X3.4	0,718	0,195	Valid
	X3.5	0,636	0,195	Valid
	X3.6	0,713	0,195	Valid
X3.7	0,666	0,195	Valid	

By looking at the table, it can be seen the magnitude of the correlation coefficient of all the items in the research variables. Based on the results of the calculation of the correlation coefficient, all questions have a pearson correlation significance greater than r_{table} , where r_{table} is 0.195 ($r_{count} > r_{table}$). Therefore, it can be concluded that the questions can be used as an instrument for further research.

3.1.1.2 Reliability Test

Reliability test is a test to show the extent to which a measurement tool is reliable. In this study, reliability testing was carried out to determine whether the questionnaire distributed was reliable if the cronback alpha value was greater than 0.6 or 60%. This reliability test uses the SPSS Static 21 application. The following are the results of the reliability test

Reliability Test Table

Variable	Cronbach's Alpha	information
Product Design (X1)	0,740	Reliable
Product Quality (X2)	0,718	Reliable
Customer Satisfaction (Y)	0,765	Reliable

Based on the table, it can be concluded that all variables in this study can be said to be reliable because the Cronbach alpha coefficient is greater than 0.6. Therefore, it can be concluded that the questions can be used as an instrument for further research

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3.2. Description of Respondents' Answers

Descriptions of respondents' answers were carried out using descriptive statistical analysis to describe the state of the research variables statistically. This study uses the mean, maximum value, minimum value and standard deviation to describe the statistical descriptions of each variable. This descriptive statistic uses the SPSS Statistics 210 application

Category:

- a. 1.00 - 1.80 = Strongly disagree / very unattractive / very dissatisfied
- b. 1.81 - 2.60 = disagree / disagree / dissatisfy
- c. 2.61 - 3.40 = Neutral / Doubtful
- d. 3.41 - 4.20 = Agree / withdraw / satisfied
- e. 4.21 - 5.00 = Very agree / very interesting / very satisfied

3.2.1. Product Design Variables

Product Design Table

Indicator	Mean	Category
Bang Mus's Hand Made Shoes UMKM product design models are attractive.	3.88	Interesting
The colors of the product designs of Bang Mus's UMKM Hand Made Shoes are varied and interesting.	4.03	Interesting
The shape of Bang Mus's Hand Made Shoes UMKM products is good	3.85	Very nice
The product designs for SME Hand Made Shoes Bang Mus are up to date and follow trends	4.27	Strongly agree
Mean	4.00	Interesting

Based on the results of descriptive analysis as in the table shows that the average Product Design variable is 4.00 which is included in the interesting category. While the highest item has an average value of 4.27 and the lowest has an average value of 3.85. that is, customers are satisfied with the product designs provided by Bang Mus Hand Made Shoes MSMEs, and they consider that attractive product designs exceed consumer expectations.

3.2.2. Product Quality Variables

Product Quality Table

Indicator	Mean	Category
Bang Mus's UMKM Hand Made Shoes products have a durable product durability	3.64	Agree
Bang Mus's UMKM Hand Made Shoes products are guaranteed the quality of their products	3.99	Agree
Bang Mus's UMKM Hand Made Shoes products have good quality raw material products	3.76	Agree
The quality of Bang Mus's UMKM Hand Made Shoes products is able to beat other products	3.70	Strongly agree
Bang Mus's UMKM Hand Made Shoes products have materials that are comfortable to use	4.31	Agree
Mean	3.88	Agree

Based on the results of descriptive analysis as shown in the table, it shows that the average variable quality of the product is 3.88 which is in the good / agree category. While the highest item has an average of 4.31 and the lowest has an average of 3.64. that is, customers are more willing to agree with Bang Mus's UMKM Hand Made Shoes products with the quality that has been provided by the Bang Mus Hand Made Shoes UMKM products.

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3.3. Classic Assumption test

3.3.1 Normality test

The normality test aims to test whether in the regression model, the dependent variable and the independent variable both have a normal distribution or not. A good regression analysis model should be normally distributed or close to normal. Normal data distribution, if the probability value > 0.05. In this study, the normality test used the SPSS Statistics 21 application. The following are the results of the normality test:

Normality Test Table

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		100
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.35345394
Most Extreme Differences	Absolute	.070
	Positive	.038
	Negative	-.070
Kolmogorov-Smirnov Z		.705
Asymp. Sig. (2-tailed)		.703

a. Test distribution is Normal.

b. Calculates from data

Based on the results of the normality test in the table, it can be concluded that this regression model is normally distributed, because the resulting probability value is 0.703 which is greater than 0.05. Then this regression model is suitable for further analysis.

3.3.2. Multicollinearity Test

Multicollinearity test aims to determine whether the regression model found a correlation between independent variables. A good regression model should not have correlation between independent variables. To test multicollinearity, Variance Inflation Factor (VIF) is used. The research data is declared to be free of multicollinearity if VIF < 10. The multicollinearity test of this research variable uses the SPSS Statistics 21 application.

Multicollinearity Test Table

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error				Beta	Tolerance
(Constant)	.339	.323		1.048	.297		
1 Product design	.360	.075	.387	4.809	.000	.755	1.325
Product quality	.485	.485	.450	5.594	.000	.755	1.325

a. Dependent Variable: Customer Satisfaction

Based on the results of the Multicollinearity Test in the table, it can be seen that the tolerance and VIF of Variable X1 are 0.755 and 1.325 and for variable X2 are 0.755 and 1.325. Therefore, it can be concluded that the regression model equation does not contain multicollinearity problems, which means that there is no correlation between the independent variables so it is appropriate to use it for further analysis because the tolerance value is below 1 and the VIF value is far below the number 10.

3.4. Hypothesis testing

3.4.1 Multiple Linear Regression Analysis

Multiple regression models are used to test the effect of two or more independent variables on one dependent variable. Multiple linear regression test in this study uses the SPSS Statistics 21 application.

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Multiple Linear Regression Test Results Table

Model	Unstandardizet Coefficients		Standardizet Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.339	.323		1.048	.297
1 Product design	.360	.075	.387	4.809	.000
Product quality	.485	.087	.450	5.594	.000

a. Dependent Variable: Customer Satisfaction

Based on the table above, the regression model obtained is as follows:

$$Y = 0,387 X1 + 0,450 X2$$

From the regression equation above, it can be explained as follows:

1. The product design variable coefficient (X1) is 0.387 which means that every increase in the product design variable is 1 unit, then customer satisfaction will increase by 0.387 units, assuming other variables do not change or are constant
2. The product design variable coefficient (X2) is 0.450, which means that every increase in the product quality variable is 1 unit, then customer satisfaction will increase by 0.450 units, assuming other variables do not change or are constant

3.4.2. T test

Hypothesis testing in this study uses the t statistical test. The t test was carried out using the SPSS Statistics 21 application. Based on the table above, the hypothesis of this study can be explained as follows:

3.4.2.1. Effect of Product Design on Consumer Satisfaction

The result of testing the first hypothesis is that product design has an effect on customer satisfaction. This is because the effect of product design on customer satisfaction has a significant value less than 0.05, which is equal to 0.000. A positive coefficient value of 0.387 also supports that product design has a positive effect on customer satisfaction

3.4.2.2. The Effect of Product Quality on Customer Satisfaction

The result of testing the second hypothesis is that product quality has an effect on customer satisfaction. This is because the effect of product quality on customer satisfaction has a significant value less than 0.05, which is equal to 0.000. A positive coefficient value of 0.450 also supports that product quality has a positive effect on customer satisfaction

3.4.3. F test

Test Table F

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13.688	2	6.844	53.676	.000 ^b
	Residual	12.368	97	.128		
	Total	26.056	99			

a. Dependent Variable: Customer Satisfaction\

b. Predictors: (Constant), Product Quality, Product Design

The result of testing the second hypothesis is that product design and product quality together have an effect on customer satisfaction. This is because the influence of product design and product quality on customer satisfaction has a significant value less than 0.05, which is equal to 0.000. Thus it can be concluded that there is an effect of product design and product quality jointly affecting customer satisfaction.

3.5. Recapitulation of Hypothesis Test Results

From the overall analysis that has been done, it can be concluded that the research results are as in the table below:

Table of Hypothesis Test Results Recapitulation

Hypothesis	Hypothesis	Information
H1	Product design has a positive influence on customer satisfaction.	Proven
H2	Product quality has a positive influence on customer satisfaction	Proven
H3	Product design and product quality together have a positive influence on customer satisfaction.	Proven

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4. CONCLUSION

Based on the results of the analysis that has been carried out in the research both descriptively and statistically with the assistance of the SPSS program, it can be concluded from this study based on hypothesis testing that has been carried out as follows.

1. There is a positive and significant effect of product design on consumer satisfaction at Bang Mus Hand Made Shoes UMKM. This means that the better the product design, the higher customer satisfaction.
2. There is a positive and significant effect of product quality on consumer satisfaction in Bang Mus Hand Made Shoes UMKM. This means that the better the quality of the product, the higher customer satisfaction.
3. Product design and product quality together have a positive and significant effect on consumers. This means that the better the product design and product quality, the higher the consumer's satisfaction.

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