

# **Product Quality Innovation and Service Quality in Relationship with Consumer Purchasing Decisions for Coconut Shell Charcoal at UMKM Mitra Jaya Bandung Regency, West Java**

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## **Abstract**

**Purpose**, this study aims to describe product quality innovation, service quality and purchasing decisions and analyze how much influence product quality and service quality have on purchasing decisions for coconut shell charcoal at Mitra Jaya MSMEs. The object of research is MSME consumers Mitra Jaya with descriptive and verification research methods. **Methods**, Sampling using random sampling technique. The research data collection instrument or tool used is a questionnaire in the form of a Likert scale and has also gone through validity and reliability tests. The data analysis model uses multiple linear regression, coefficient of determination, partial t test, simultaneous F test which uses a significance level of  $\alpha = 5\%$ , with the help of SPSS version 25 data processing tools.

**Result and Finding**, of descriptive analysis show that product quality is in a fairly good category, service quality is in a fairly good category, and consumer purchasing decisions are also in a fairly good category. The results of the verification analysis through hypothesis testing show that product quality and service quality simultaneously have a significant effect on consumer purchasing decisions, while the resulting coefficient of determination is 0.536.

**Keyword** : Product Quality, Service Quality and Purchasing Decisions

## **1. Introduction**

Indonesia is one of the world's major coconut producing countries, the coconut plantation area in 2017 according to the Ministry of Agriculture (Google 2020), was dominated by Sumatra Island 1.05 million ha (32.90%), Java Island 781.67 thousand ha (23.2%), and Sulawesi Island 781.23 thousand ha (22.49%).

The utilization of coconut is usually taken from the pulp alone to be made into copra, oil and coconut milk for household use, while other by-products such as coconut shells have not been so much utilized. The weight of the coconut shell can reach  $\pm 12\%$  of the weight of the coconut fruit itself. Thus, when the average annual production of coconut fruit is 5.6 million tons, it means that there will be around  $\pm 672$  thousand tons of shell produced. If this coconut shell is utilized properly, it will become a product that has a selling value.

One form of downstream utilization of coconut shell is to make it as charcoal. In the next process this charcoal can be processed into activated charcoal which leaves a black carbon residue where the coconut shell charcoal can be used as fuel, in this case the charcoal that has been formed is further processed into coconut shell charcoal briquettes. To get to the coconut shell charcoal briquette stage, innovation is needed from coconut shell charcoal MSME business actors.

In the Bandung area, coconut shell charcoal is used as a fuel to burn satay, grilled chicken, barbecue, block cakes, surabi and so on. This is because the flame on coconut shell charcoal can last long and stable and does not produce too much smoke. Culinary business owners who use coconut shell charcoal feel that there is a change in the taste of food to be better than other charcoal fuels.

If the quality of coconut shell charcoal products is continuously improved, it is likely that many culinary businesses will switch to using coconut shell charcoal. This is due to the use of coconut shell charcoal, if used for cooking, it will cause a distinctive burnt aroma so that it will get a better taste in the food, so that it will increase food sales.

Currently, coconut shell charcoal has the highest price compared to other competing products such as; wood charcoal, coal briquettes, special stoves for burning food. The difference in quality can reach twice that of competing products. This indicates that good quality charcoal products will get a high price in the market.

Mitra Jaya is a home industry company (MSME) engaged in agro-business whose main sale is coconut shell charcoal. Mitra Jaya has more than one regular supplier of raw materials (coconut shells) from several areas in West Java, such as; Garut, Tasik, and Pangandaran, even now raw materials are sought to the island of Sumatra.

Seeing the increasingly fierce competition, especially in the same business, Mitra Jaya MSMEs, not only try to maintain and improve product quality well but also need product innovation in order to get loyal customers. The product quality in question is the perfect maturity of coconut shell charcoal, the suitability of water content, ash content, size, carbon content, production methods, and neatly closed packaging so that it is not damp and the durability of coconut shell charcoal does not easily shrink in weight. If the quality of the product is met, the quality of food that is burned using the charcoal will be more delicious, fragrant, and does not emit excessive smoke. Currently, innovation in coconut shell charcoal is being carried out, namely by converting coconut shell charcoal into coconut shell briquette charcoal. Product innovation must be in accordance with the needs and desires of consumers. In addition, product innovation requires considerable costs because it must add machines and change product packaging.

Innovative product quality is not enough. Another thing is service quality. The dimensions of empathy, competence, good facilities and infrastructure (physical facilities), technical mastery of work, and assurance of the quality of services and products physically, will greatly influence consumer attitudes and behavior in purchasing decisions. (Amrullah, Pamasang S. Siburian, Saida Zainurossalamia ZA, 2016).

Sales are very important for the company. That's where the profit for the company to get profit. Without sales, the company will not get profit to be able to finance its operational activities.

Below, the researcher presents sales data for Mitra Jaya MSME coconut shell charcoal during the early days of the Covid 19 Pandemic, namely the January-December 2019 period.

**Table 1. Sales Data of Mitra Jaya MSMEs for the January-December 2019 Period**

Month	Total Sales (Rp.)	Change	%
Januari	35.750.000	-	-
Februari	37.230.050	1.480.050	4,14
Maret	34.538.317	-2.691.732	-7,23
April	38.741.631	4.203.313	12,17
Mei	33.918.298	-4.823.333	-12,45
Juni	26.608.904	-7.309.393	-21,55
Juli	28.003.211	1.349.306	5,24
Agustus	30.739.125	2.735.913	9,77
September	26.690.782	-4.048.342	-13
Oktober	31.286.935	4.596.152	17,22
November	34.650.280	3.363.345	10,75
Desember	42.567.869	7.917.589	22,85
Rata-rata	33.393.783	627.382	2,54

Source: Mitra Jaya MSME data in 2019.

Based on the data above, it can be explained that the sales of coconut shell charcoal at Mitra Jaya MSMEs, during the early days of the Covid 19 pandemic, fluctuated and unstable. There was even a significant decrease in June by 21.5%. The average monthly sales of coconut shell charcoal for Mitra Jaya MSMEs is Rp.33,393,783, with an average change of Rp.627,382 with a percentage of 2.54%. There was a small increase in sales. Many factors cause this, including; companies pay less attention to product quality and service quality so that consumers become more interested in products offered by competitors. In addition, the economic crisis due to the Covid 19 pandemic is also very influential. Based on the results of pre-survey on Mitra Jaya MSME customers, to find out problems related to product quality variables, the following results were obtained:

1. Customers consider the product packaging to be in a less neat condition and not airtight / not tightly closed so that the product becomes damp.
2. Customers state that the weight of the product shrinks easily.

3. Customers state that the product is easy to fold and damp.

Initial observations of researchers in conducting a pre-survey on service quality, the results are as follows:

1. The distance of the sales location is considered quite far from consumers.
2. The services provided are still considered less precise and less accurate.
3. Product return guarantee (if not as promised), not as expected.

In the process of making purchasing decisions, everyone is essentially the same, starting from; recognition of needs and wants, information search, evaluation of purchase alternatives, purchase decisions, and behavior after purchase (Swastha and Handoko, 2000: 15). In practice, making purchasing decisions, each person will be different. One of them is colored by personality characteristics, age, income and lifestyle (Widha Emil Luthfia, 2012). In other words, many factors will influence purchasing decisions other than product quality and service quality.

Purchasing decision is a problem-solving approach to human activities to buy a good or service in fulfilling their wants and needs which consists of recognizing needs and wants, searching for information, evaluating purchasing alternatives, purchasing decisions, and behavior after purchase (Swastha and Handoko, 2000: 15).

Good service is the type of service that satisfies and matches the service expected by consumers. Judging from the results of the pre-survey, the problems complained about by consumers of Mitra Jaya MSMEs include; packaging that sometimes still uses used sacks and the links are less neat and less closed so that they can trigger moisture, the weight is easy to shrink, and the charcoal is not easy to break. In addition, in terms of services, such as sales locations that are less strategic / far according to consumers, employees who do not guarantee in serving consumers, such as; explanation of product specifications, and not precise and accurate in providing services.

## **1.1 Objectives**

The purpose of this study was to determine, describe and analyze product quality and service quality on consumer purchasing decisions for Coconut Shell Charcoal at Mitra Jaya MSMEs in Bandung Regency, West Java.

## **2. Literature Review**

A purchase decision is an action selection from two or more alternative choices. According to Sudaryono (2016: 131): If a person is faced with two choices, namely buying or not buying, and then he chooses to buy, then he is in a position to make a decision. The decision process begins with a need that is trying to be met. Schiffman and Kanuk in Ujang Sumarwan (2015: 357) define a purchase decision as choosing an action from two or more alternative choices. A consumer who wants to make a product choice must determine an alternative choice. There are 4 indicators of purchasing decisions according to Kotler (2016: 222), namely:

1. Product stability. Excellent product quality will build consumer confidence, thus supporting satisfaction with the consumer himself.
2. Product Buying Habits. A way of repeating in purchasing the same product continuously.
3. Providing Recommendations

Providing information about something that can be trusted and also recommending it is interpreted as a suggestion, to invite to join, and advocate a form of order.

4. Make Repurchases

An individual in purchasing a product or service and determining it to buy again, then in the second and subsequent purchases it is called a repeat purchase.

Every purchasing decision has a structure that includes several components as described by Sudaryono (2016: 119) as follows:

1. Decision about the type of product

Consumers can make purchasing decisions to buy products or use their money for other purposes. In this case the company must focus on people who are interested in buying products and other alternatives that are considered.

2. Decisions about product form

Consumers can make decisions to buy a product including size, style, and so on. In this case the company must conduct marketing research to find out what consumers like about the product in order to maximize their attractiveness.

3. Decisions about brands

Consumers must make decisions about which brand to buy, each brand has its own specialty, in this case the company must know how consumers choose brands.

4. Decisions about sales

Consumers must decide whether to buy products at wholesalers, retailers or other stores.

5. Decisions about the number of products Consumers can make decisions about how many products they will buy. In this case the company must prepare many products according to the different wishes of the buyers, because there may be purchases that may be more than one unit.

6. Decisions about the time of purchase Consumers can make decisions about when to make purchases, because this involves whether or not money is available. Therefore the company must know the factors that influence consumer decisions in determining the time of purchase, so that the company can manage the timing of its production and marketing activities.

7. Decisions about the method of payment Consumers must make decisions about the method or method of payment for the products purchased, whether in cash or installments. These decisions will affect decisions about the seller and the number of buyers.

Harman Malau (2017: 236) states: consumers before making a purchase decision usually go through the following five processes:



Source : Harman Malau (2017:236)

**Figure 1**  
**Purchasing Decision Process**

Based on the picture above, it can be explained as follows:

1. Problem Recognition

The problem recognition process begins when the buyer recognizes a problem or need. The buyer feels a difference between his real situation and the desired situation. This need can be triggered by an internal or external stimulus.

2. Seeking Information

Interested consumers may seek further information. If the consumer's drive is strong and a satisfactory product is nearby, he is likely to buy it again. However, if the product is not satisfactory, it is likely to stop the purchase.

3. Evaluating Alternatives

Alternative evaluation is the process of selecting from existing alternatives, which have been adjusted to the needs of consumers. Usually consumers consider an item to be purchased with alternative internal and external information searches that are carried out before making a purchase.

4. Purchase Decision

After evaluating the existing alternatives, consumers will make a purchase decision based on the most preferred alternative. The decision may be to not choose one of the available alternatives.

5. Post-Purchase Behavior

An attitude of satisfaction or dissatisfaction only occurs after the purchased product is consumed. Consumers will take post-purchase actions, namely between continuing to use the product or turning to other products. Consumers who feel satisfied will continue to make purchases, while those who feel dissatisfied will immediately stop buying. At the alternative evaluation stage, consumers are faced with various product choices. Of course, consumers will choose products that provide a lot of "value" or benefits to be chosen. Better product quality as a result of innovation and quality service, are two variables that are very influential for consumers in determining the most profitable product choices for these consumers.

According to Kotler and Armstrong in Nana Herdiana (2015: 71): "Products are all things that can be offered to the market to attract attention, acquisition, use or consumption that can satisfy a want or need."

Innovation according to the large Indonesian dictionary (KBBI) is the inclusion or introduction of new things or updates. Another meaning is an effort made by someone by utilizing thinking, imaginative abilities, various stimulants and individuals who surround them. Product innovation is creating new products that can meet the needs and desires of consumers so that buying interest in these products is expected to be realized through purchasing decisions.

According to Rosyda Nur Fauziyah (Gramedia Blog, 2021: 1): Product innovation is the latest idea that provides added value and has a positive impact on human life. Therefore, product innovation is usually related to technology as well. In general, product innovation is a way to create new products aimed at meeting consumer needs and desires. According to David Garvis in Fandy Tjiptono (2016: 134) product quality has eight dimensions as follows:

1. Performance, which is the main operating characteristic of the core product purchased.

2. Features or additional characteristics (features), namely secondary or complementary characteristics.

3. Reliability, which is less likely to experience damage or fail to use.

4. Conformance to specification, namely the extent to which design and operating characteristics meet predetermined standards.

5. Durability, which is related to how long the product can be used.
  6. Serviceability, including speed, competence, comfort, ease of repair; and satisfactory handling of complaints.
  7. Aesthetics, namely the attractiveness of the product to the five senses.
  8. Perceived quality, namely the image and reputation of the product and the company's responsibility for it.
- According to Nasution in Muhamad Rusydi (2017: 39); "Service quality is the level of excellence expected and control over that level of excellence to fulfill consumer desires.

According to Parasuraman in Fandy Tjiptono and Gregorius Chandra (2016: 137), there are five main dimensions of service quality, namely:

1. Physical Evidence (Tangibles). Dealing with the physical attractiveness, equipment, and materials used by the company, as well as the appearance of employees.
2. Empathy. The company understands the problems of its customers and acts in the interests of customers, as well as providing personal attention to customers and having convenient operating hours.
3. Reability. Relating to the company's ability to provide accurate service from the first time without making any mistakes and delivering its services accordingly.
4. Responsiveness. With regard to the availability and ability of employees to help customers and respond to their requests, as well as informing when it will be provided and then providing services quickly.
5. Assurance. Means that employees are always polite and oversee the knowledge and skills needed to handle any customer questions and or problems.

Purchasing decisions according to Tjiptono (2016: 10) are consumers' decisions for preferences for several brands in a collection of several choices, consumers also make purchasing decisions on brands they like. The indicators of purchasing decisions according to Kotler (2016: 257), namely:

1. Product stability / quality. Excellent product quality will build consumer confidence, thus supporting satisfaction with the consumer itself.
2. Product Buying Habits. A way of repeating in purchasing the same product continuously.
3. Providing Recommendations. Providing information about something that can be trusted and also recommending it is interpreted as a suggestion, to invite to join, and advocate a form of order.
4. Make Repurchases. An individual in purchasing a product or service and determining it to buy again, then in the second and subsequent purchases it is called a repeat purchase.

### **3. Methods**

The research method used is descriptive and verification method. The research model uses multiple linear regression analysis, correlation analysis, determination and hypothesis testing.

The population in this study were consumers at Mitra Jaya MSMEs from January to December 2019 totaling 660 people. This study uses probability sampling technique, which means that the sampling of sample members is carried out randomly (random) without regard to the position / strata of consumers. The sample size using the Slovin formula was obtained as many as 87 consumers.

### **4. Data Collection**

Product quality is in a fairly good category, this is obtained from the results of the average score of respondents' responses to statements related to product quality is 3.09. Included in the good enough category. The highest score is in the aesthetic dimension, namely the statement about the coconut shell charcoal of UMKM Mitra Jaya when dropped sounds like the sound of a coin of 3.75 in the good category, with the lowest score being the durability dimension in the statement that the flame of the coconut shell charcoal of UMKM Mitra Jaya is stable and durable at 2.86 in the good enough category.

Service quality is in a fairly good category, this is obtained from the results of the average score of respondents' responses to statements related to service quality is 2.86. The highest score is in the tangible dimension, in the statement: the sales location of Mitra Jaya MSMEs is easy to reach at 3.28, including in the good enough category, and the lowest score is reliability in the delivery statement on time and according to the customer of 2.57, including in the not good category.

Purchasing decisions are in a fairly good category, this is obtained from the results of the average score of respondents' responses to statements related to purchasing decisions is 3.08. The highest score is in the dimension of product stability, in the statement of the good quality of coconut shell charcoal at Mitra Jaya MSMEs, amounting to 3.23, including in the good enough category, the lowest score is the dimension of habit of buying products in the statement of coconut shell charcoal UMKM Mitra Jaya in accordance with the needs and desires of consumers of 2.87, including in the good enough category.

## 5. Results and Discussion

After conducting validity and reliability tests, researchers made changes to the data measurement scale. This is because the existing data measurement scale is ordinal while the data analysis uses a multiple linear regression model, so the ordinal data must first be converted into an interval measurement scale. Changing the measuring scale of ordinal data to intervals, researchers use Method Successive Interval (MSI). The results of data analysis, obtained the following results; The regression equation is  $Y = 1.909 + 0.111X_1 + 0.340X_2 + \epsilon$

The coefficient of determination is 0.536, meaning that the effect of product quality and service quality affects purchasing decisions by 53.6%, the remaining 46.4% is influenced by other factors not examined.

The results of the simultaneous hypothesis test (F test), using  $\alpha$  5%, show  $F_{\text{count}} > F_{\text{table}}$  ( $48.808 > 3.11$ ) that there is a positive and significant influence between Product Quality and Service Quality on Purchasing Decisions for Coconut Shell Charcoal at Mitra Jaya MSMEs in Cicalengka, Bandung Regency, West Java.

### 5.1 Proposed Improvements

For further research, the focus is not on the dependent or independent variables, but on the product to be developed, so that Coconut Shell Charcoal can be used as a renewable energy that develops.

### 5.2 Validation

Before conducting descriptive and verification analysis, the researchers first conducted an instrument test on the questionnaire data for each variable. The validity test will test each variable used in this study, where the entire research questionnaire must be answered by respondents. Whether an instrument item is valid or not can be determined by comparing the Pearson product moment correlation index at the 5% significance level with its critical value. The instrument is said to be valid if it has a coefficient above 0.30. The results are as follows:

**Table 2. Product Quality Validity Test Results**

Dimension	No. Ques	R Count	R Critical	Remark
<i>Peformance</i>	P1	0,738	0,300	Valid
	P2	0,773	0,300	Valid
<i>Features</i>	P3	0,593	0,300	Valid
	P4	0,775	0,300	Valid
<i>Durability</i>	P5	0,693	0,300	Valid
	P6	0,624	0,300	Valid
<i>Conformance to specification</i>	P7	0,735	0,300	Valid
<i>Aesthetic Design</i>	P8	0,600	0,300	Valid
	P9	0,711	0,300	Valid

According to the validity test results, having r count greater than r critical of 0.30, then all questionnaires on the product quality variable consisting of 9 questionnaires, the results are valid.

**Table 3. Service Quality Validity Test Results**

Dimension	No. Ques	R Count	R Critical	Remark
<i>Tanggibles</i>	P1	0,759	0,300	Valid
	P2	0,718	0,300	Valid
<i>Reability</i>	P3	0,611	0,300	Valid
<i>Responsiveness</i>	P4	0,769	0,300	Valid
<i>Asurance</i>	P5	0,739	0,300	Valid
	P6	0,588	0,300	Valid

<i>Empathy</i>	P7	0,742	0,300	Valid
	P8	0,827	0,300	Valid

According to the validity test results, it has r count greater than r critical of 0.30, so all questionnaires on the product quality variable consisting of 8 questionnaires are valid.

**Table 4. Purchasing Decision Validity Test Results**

Dimension	No. Ques	R Count	R Critical	Remark
Product Stabilit	P1	0,890	0,300	Valid
Product Buying Habit	P2	0,818	0,300	Valid
Giving Recommendation	P3	0,890	0,300	Valid
	P4	0,718	0,300	Valid
Making Repurchases	P5	0,862	0,300	Valid

Based on the results of the validity test, having r count greater than r critical of 0.30, then all questionnaires on the product quality variable consisting of 5 questionnaires, the results are valid.

The reliability test results for the product quality variable are as follows.

**Table 5. Reliability of Product Quality Variables**

Reliability Statistics	
Cronbach's Alpha	N of Items
.866	9

Source: SPSS data processing results

Based on the reliability test output using SPSS, the Cronbach's Alpha value is 0.866, where the value is greater than the minimum Cronbach's Alpha value of 0.5, it can be concluded that the research instrument used to measure product quality variables can be said to be reliable. The results of the service quality variable reliability test are as follows:

**Table 6. Reliability of Service Quality Variables**

Reliability Statistics	
Cronbach's Alpha	N of Items
.870	8

Source: SPSS data processing results

Based on the reliability test output using SPSS, the Cronbach's Alpha value is 0.870, where the value is greater than the minimum Cronbach's Alpha value of 0.5, it can be concluded that the research instrument used to measure the service quality variable can be said to be reliable. Meanwhile, the results of the reliability test of the purchasing decision variable are as follows:

**Table 7. Purchasing Decision Variable Reliability**

Reliability Statistics	
Cronbach's Alpha	N of Items
.896	5

Source: SPSS data processing results

Based on the reliability test output using the Cronbach's Alpha value of 0.896, where the value is greater than the minimum Cronbach's Alpha value of 0.5, it can be concluded that the research instrument used to measure the purchasing decision variable can be said to be reliable.

## 6. Conclusion

Partially, there is a positive and significant influence on the product quality variable on purchasing decisions for coconut shell charcoal at Mitra Jaya MSMEs. This can be proven by the calculated t value of 3.014 which is greater than the t-table 1.989 and the significance value of 0.000 is less than 0.05.

Partially, there is a positive and significant influence on the service quality variable on purchasing decisions for coconut shell charcoal at Mitra Jaya MSMEs. This can be proven by the tcount value of 5.146 greater than the t table of 1.989 with a significance value of 0.000 less than 0.05.

Simultaneously, there is an effect of product quality and service quality on purchasing decisions. This can be proven by the F-count value of 48.808 which is greater than the F-table value of 3.11.

The coefficient of determination is 0.536, this means that the effect of product quality and service quality is 53.6% and the remaining 46.4% is influenced by other variables outside of the variables in this study.

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