

# Analytical Hierarchy Process of Instant Chocolate Drink Development based-on Consumer Preferences

Moh. Wahyudin <sup>\*</sup>,<sup>1</sup>, Wagiman <sup>1</sup>, and Vivi F. Khulsum <sup>1</sup>

<sup>1</sup> Department of Agroindustrial Technology, Faculty of Agricultural Technology  
Universitas Gadjah Mada, Jl. Flora No.1 Bulaksumur 55281, Indonesia.  
Email: moh.wahyudin@ugm.ac.id<sup>\*</sup>

## Abstract

*Instant chocolate drink is chocolate powder in sachet packaging that has been accompanied by additional ingredients and is easy to consume. Sales competition between products has a determining factor in product selection by consumers and needs to be analyzed on factors that influence consumers to buy. This study aims to find out what are the priority attributes of decision-making in willingness to buy instant chocolate drinks. The method used in this research is the Analytical Hierarchy Process (AHP) approach, by arranging the problems hierarchically and then weighting and ranking priorities obtained from the results of distributing questionnaires aided by processing using the Super decision 2.0 application. Based on the results, there are seven (7) sub-attributes that could be influence consumers in buying an instant chocolate drink: originality taste, affordable prices, product quality, additional flavors, packaging visualization, producers of instant chocolate drink should be able to maintain the originality taste because it becomes the final factor in purchasing decisions. Beside the original taste, producers should be able to maintain affordable prices and not experience an increase in sales prices.*

**Keywords:** analytical hierarchy process. consumer preference, instant chocolate drink, product development

## 1. INTRODUCTION

Indonesia is the third-largest exporter of cocoa in the world after Ghana and Ivory Coast. The agricultural sector is superior after oil and gas, the market potential for cocoa in the country is still quite large. The utilization of cocoa in the industry is still growing and continues to increase, one of which has the potential to make instant chocolate drink.

Processing cocoa into various products is aimed at increasing added value. According to Indonesian Industrial Crops and Freshener Research Institute (Anonymous, 2018), cocoa products in the market are dark chocolate, milk chocolate, and cocoa powder. The manufacture of instant Chocolate drink has a potential market that can market cocoa beans with the processing industry in Java. The right marketing strategy is needed for the company to achieve sales targets. According to Kotler dan Armstrong (2014), marketing tools that can be controlled include products, prices, distribution and promotions which are combined to produce an appropriate response to market prey or commonly called a marketing mix.

Marketing mix is a combination of variables or activities which are the main things of the marketing system, where variables can be controlled by marketing to influence the reactions of buyers (Assauri, 2013). So in the concept of the marketing mix, it is necessary to determine the attributes that can be used by producers to influence the responses or responses from consumers.

According to Central Bureau of Statistics Cocoa bean production is still dominated by community plantations at 95.97% with state and private plantation companies at 2.19% and 1.84% (Anonymous. 2018). The purchase of cocoa beans from abroad doubled in the last 5 years. Indonesia has imported around 240,000 tons of cocoa beans. To support the processing of cocoa beans in Asia, which has risen more than 25% to around 780,000 tons. Cocoa bean grinding also increased by around 10% in line with the increased consumption of chocolate candy, bread, and chocolate drinks. Currently, Coffee farmers experienced a decrease in production due to plant disease outbreaks that caused losses,

so farmers switched to other more profitable alternative commodities (Muttaqeina, 2019).

The government has handled the decline in production and increased cocoa imports by helping farmers revitalize their crops with special fertilizers and high quality seeds. So that global players continue to invest in Indonesia and can become the largest market in the world for cocoa powder production in 2020. The increase in consumption of cocoa products can influence the increase in the processing industry. Competition in the cocoa processing industry and its derivative products is getting tighter, including competition for instant chocolate drinks (Makmun, 2012).

In an effort to maintain competitive advantage, producers must be able to find out consumer preferences for the direction of instant chocolate drink development. This research was conducted to determine what attributes are considered by consumers in purchasing decisions for instant chocolate drinks. Knowing these attributes will make it easier for manufacturers to develop their products for their instant chocolate drinks and, furthermore, to increase their customer satisfaction.

**2. METHOD**

This research was conducted in May 2019 - September 2019. The selected respondents are those who have ever consumed instant chocolate drinks, and they were selected using purposive random sampling technique. In this study, consumer preference for instant chocolate drinks was approached using the Analytical Hierarchy Process (AHP) method assisted by using Super Decision 2.0.0-RC1 software. The AHP approach was chosen because this method provides logical consistency in assessing and determining priority scales.

In this study, the attributes used were 4 factors and seven attributes and 3 alternative products. Each is as follows:

**1. Packaging**

Explain how important product packaging factors are for consumers when buying instant chocolate drinks. Included in this factor are (a) packaging visualization, and (b) packaging information.

**2. Brand**

Explain how products are viewed from the opinions of consumers. The attributes included in this factor are (a) Product quality, and (b) Producer reputation,

**3. Price**

It represents the level of consumers' willingness to pay for an instant chocolate drink product,

**4. Taste**

Is the definition of taste for every instant chocolate drink. The attributes included in this factor are (a) Originality taste, and (b) Additional flavor.

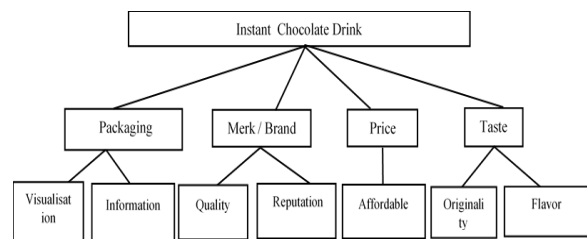


Figure 1. Model of analytical hierarchy process

**3. RESULT**

**3.1 Characteristics of Consumer**

In this study the authors obtained respondents through a research questionnaire. In Table 1, we present our findings on the intensity of consumption of processed chocolate products by respondents.

Table 1. The Intensity of consumption

Time	Percentage	Intensity
Every day	8%	frequently
3-4 times a week	3%	
1-2 times a week	56%	rarely
1-2 times a month	31%	
1-2 times a semester	6%	infrequently
Total	100%	-

The Table 1 above indicate that the respondents are dominated by consumers who have frequent consumption intensity, so that the respondents already know the product and also frequently consume processed products.

Furthermore, the authors conducted a more in-depth analysis of respondents to find out who and how their background was. As a result, respondents were dominated by women (65%)

than men (35%). Then, based on the age group category, come from the age group  $\leq 20$  years, which is as much as 8%, then with the age group 21-24 years as much as 78% and age  $\geq 25$  years as much as 14%. This is according to the age category by the Indonesian Ministry of Health in 2009. Respondents in the study were in the late adolescence category of 17-25 years, early adults 26-35 years and late adulthood 36-45 years.

Meanwhile d, 76% of respondents do not have a job and are still students and the rest work as private employees, employers and job seekers. In terms of expenditure, respondents are in the economic group (with income below 1 million) and also in the economic group of more than 2 million.

### 3.2 Product Development Strategy

In this research, instant chocolate drink product development strategy refers to the attributes of consumer preferences during the purchase process. The attributes studied were taste, price, brand image, and product packaging. The results can be seen in Table 2, where the priority weight value describes the level of consumer preference for the important attributes of instant chocolate drinks.

Table 2. Preference of attributes

No.	Factor	Weight	Priority
1	Taste	0.496	1
2	Price	0.266	2
3	Brand	0.145	3
4	Packaging	0.093	4

Each attributes has sub-attributes. The total number of sub-attributes is 7: packaging visualization, packaging information, product quality, producer reputation, affordable prices, originality taste and additional flavors. To obtain results regarding the decision making the process by consumers of the interest in purchasing certain products, an analysis of each of the above sub-attributes is then performed.

The results showed that the most important sub-attribute considered by consumers to be used to buy instant chocolate drink is the sub-attribute of the original chocolate flavor is the priority for respondents. The original chocolate flavor is considered as the most important sub-attribute in the selection of an instant chocolate drink. Originality taste is the most preferred

flavor for consuming beverage products. It is intended that producers of instant chocolate drink can evaluate the quality of taste and adjust to the desires of consumers so that the products sold are more in demand by consumers.

In detail, the priority sub-attribute can be seen in Table 3. The priority weight value illustrates the importance level of each attribute that affects consumer purchasing decisions for instant chocolate drinks.

Table 3. Preference of sub-attributes

No.	Sub-attribute	Weight	Priority
1	Originality taste	0.415	1
2	Affordable price	0.266	2
3	Product Quality	0.122	3
4	Additional flavor	0.080	4
5	Packaging visualization	0.074	5
6	Producer reputation	0.024	6
7	Packaging Information	0.019	7

The second priority sub-attribute in buying instant chocolate drink is affordable prices. This can be understood because, in purchasing, consumers prefer products offered at low prices. Purchasing products in greater quantities will result in a more affordable price when compared to purchasing one by one beverage product in sachet packaging. Then the third priority sub-attribute is product quality. According to Prabowo (2013), respondents' assessment of the quality of the product is one of the main things. As an example that has been done in aqua mineral water research, the results of the study stated that product quality has a positive influence on purchasing decisions. And according to Kotler & Keller (2009). product quality also has an important role for consumers as determining the level of brand loyalty to the product to be purchased.

The fourth priority sub-attribute is the additional flavor. Flavors other than the original chocolate flavor or additional sub-attribute that are quite important for consumers. This is a representation or characteristic of flavors in chocolate which is a combination of the basic flavors of cocoa and flavor defects (Widyotomo et al, 2004). As an alternative to product choices, the preferred extra flavor is the chocolate latte, which is predominantly creamy and not thick. And then, the fifth-order priority sub-attribute is packaging visualization. Visual forms such as colors and images from the packaging can make it easier for respondents to see a product and be

able to recognize it and be able to be distinguished from other products so that it will be a special attraction.

The sixth priority sub-attribute is producer reputation. Company image can be described by the advantages of a product, by following the wants and needs of consumers so that there is a positive brand image and can maintain the company name well. The final priority sub-attribute is information on the packaging. This attribute is not felt to be a priority in the purchase interest of the product. On the packaging regarding product information, less attention was paid by respondents. Because understanding the information requires time to read and a small writing size. Based on research of intensity of packaging reading information, Hanifati et al. (2017) said that packaging information is more influenced by packaging form, product name, quality attributes, and features.

## CONCLUSION

Based on consumer preferences, the most influential attribute in purchasing instant chocolate drinks is taste. The original chocolate taste is considered by consumer as the most important in decision to buy instant chocolate drink. For this reason, producers of instant chocolate drink should be able to maintain the originality taste, because it becomes the final factor in purchasing decisions. It is intended that producers of instant chocolate drink can evaluate the quality of taste and adjust to the desires of consumers so that the products sold are more in demand by consumer. Besides the original taste, producers must also be able to keep prices affordable and not experience an increase in selling prices.

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