



Decision Models of Purchasing food Case study: Elementary Students in Medan

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Abstract

Elementary school age is an unstable age which is easily affected by everything; companies do various ways to attract their attention. However, unfortunately not all products produced are good for health. In addition, the prevalence of obesity in children is increasing every year. This proves that healthy food products cannot compete with unhealthy products. This study aims to analyze the simultaneous influence of packaging, color, taste and nutritional knowledge on food product purchasing decisions for elementary students. The sample of this study was 50 elementary school students aged 8-9 years old. Data collection was carried out by distributing closed questionnaires with 5 Likert scales. The data were analyzed by SPSS 18 version, the test performed was the F test, the coefficient of determination, multiple linear regressions and determine the decision models to purchase. Based on the results of the study, it was found that simultaneously $F_{count} (262,302) > F_{table} (5,0175)$, it was found that taste, color, packaging and nutritional knowledge influenced their purchasing decisions. It influenced purchasing decisions, at a significant level of 5%. Furthermore, based on the results of the analysis of the determination coefficient of 95.9%, purchasing decisions are influenced by packaging, taste, color and nutrition. The spider web purchasing decision models show that packaging and the sense of being in the position are the most influential for the purchasing decision. A number of 82% students agree that nutritional content influences purchasing decisions. This shows that providing education to students can influence decisions in purchasing food products. The results of the study can be used as a source of information for food product entrepreneurs in conducting promotions to attract the elementary students market.

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Key-word: - Model, purchasing decisions, Food Packaging, Nutrition

1. Introduction

Eating habits and food selection can cause obesity in humans. Children's nutritional status can affect health in adulthood. Eventually it will affect the national health level of the population. Elementary School students are reluctant children who are easily influenced. Imbalance in children's diet and food intake is influenced by the environment, for example the school environment that sells variety food products with different packaging designs, diverse tastes and colors can cause high rates of obesity at their age. The Government has drafted a law on the supervision of the importance of food packaging materials in the Regulation of the Head of the Republic of Indonesia Drug and Food Supervisory Agency Number HK. 00.05.1.55.1621 (2009) to protect consumers. According to the Ministry of Health of the Republic of Indonesia in Septiani and Raharjo (2017), the prevalence of overweight and obesity in elementary school age reaches 18.8%, and that number is increasing every year. Number of research have shown that there is a relationship between marketing strategies of the food industry and the increasing prevalence of childhood obesity (Bruce, et.al., 2014).

The habit of consuming healthy snacks hasn't yet possessed by school (Nirmala, 2012). Recently, healthy food products get less attention from consumers. This is the background to help healthy food products to be more noticed and desirable. Packaging is the main thing that triggers buyers' response to make choices. Food packaging is material used to wrap, accommodate food both in direct contact with food or not. Packaging is one of the factors that must be considered to grab the attention of consumers. This is because packaging can be a strategy used in marketing a product to attract consumers' interest (Larissa, 2016). Color and taste are the attributes that most determine the product is bought again or not by the consumer. The color of the packaging affects the choice of snacks for consumers, especially children. The light food industry always targets children aged 7 - 12 years as their main consumers, so they will design, provide additional color and flavor so they can attract attention. The use of warm colors such as red can stimulate sensory properties such as sweetness, while the use of cool colors such as blue and green is related to the perception or calm assessment of health products (Huang, 2015). The use of striking colors like pink, bright red, purple and others gives the perception of the use of additional coloring in the product. But unfortunately, the products and additives used can endanger the child for a long period. In food products, taste also influences purchasing decisions. In food business competition, companies are required to be able to provide innovations in various flavors according to consumer demand (Fatih et.al., 2018). According to Drummond and Brefere (2010), taste is a way of choosing food that must be distinguished from the taste of the food. However, the taste of a food product will determine the sustainability of the product in consumers' sights. Based on the results of the preliminary study found that > 60% of the children chose the product based on its packaging appearance and shape, although education was given that the product was not healthy. So the problem to be examined in this study is to analyze the effect of packaging, color, taste and nutritional knowledge on food product purchasing decisions. So find a decision model to purchase food products.

2. Methodology

This study was applied in private elementary school in Medan, it is Elementary School of Pangkalan Brandan and Private Elementary School in Medan. It was applied in a year from January 2019 – December 2019. Table 1 shows operational definition of this study.

Table 1. Operational decisions

Variable	Indicator	Scale
Variable X	Packaging :	Likert
	- Packaging colour	
	- Packaging design	
	Colour of the product	Likert
	Taste of the product	Likert
	Nutrition awareness	Likert
Variable Y	Purchasing decisions	Likert

Data Collection Method

The data was collected from some stages by applying observation method, closed interview questionnaire based on Larissa (2016) with some modification. The questionnaire used Likert Scale (5 scale), by explaining individually. Nutrition awareness will be investigated after giving information or education about food nutrition to the respondents.

Data Analysis method

The data was analysed by SPSS ver 18. It would be tested, such as F test to analyse the influence of packaging, taste, color and nutrition simultaneously towards purchasing decision. Then, it would be analysed by multiple linear regression to get the linear equation, as follow;

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4$$

Information :

Y = Purchasing decision

a= constant

b_1, b_2, b_3, b_4 = regression coefficient

X_1 = packaging

X_2 = taste

X_3 = color

X₄ = nutrition

Coefficient determination test is also conducted to get how influenced are packaging, taste, color and nutrition towards purchasing decision. To determine the purchasing model, it was conducted by counting the presentage of rate score from every variable and describes it in a spider web diagram.

3. Results and Discussion

Uji F

F test was conducted to analyse the influence of independent variable on dependent variable simultaneously.

Hypotesis:

Ho : there is no influence significantly between packaging, taste, color and nutrition simultaneously on purchasing decision.

Ha : there is influence significantly between packaging, taste, color and nutrition simultaneously on purchasing decision..

The significant level used $\alpha = 5\%$, F count 262,302, F table = 5,0175, F count > F table, 262,302 > 5,0175, therefore Ho was rejected and Ha was accepted. The conclusion is that there is significant influence between packaging, taste, color and nutrition simultaneously on purchasing decision. Based on the result (Table 2) it was gained that packaging, taste, color and nutrition influence elementary students' decision in purchasing foods (F = 262,302).

Table 2. F test

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	357,181	4	89,295	262,302	,000 ^b
	Residual	15,319	45	,340		
	Total	372,500	49			

a. Dependent Variable: KEPUTUSAN_PEMBELIAN

b. Predictors: (Constant), GIZI, KEMASAN, WARNA, RASA

Inside of nutritions, packaging is factors influenced purchasing decision for elementary students. Packaging is used as one of the most valuable things in communication marketing. Package should be designed attractively to neccess more detail analysis of componenents and impact on consumers' behaviour. Package play as mantainance role, even identity of a product, it can also be used to enrich the value of a product. According to Darmawan (2017), that packaging helps consumers in deciding a product to buy from varieties product. Nowadays, food products used package as promotion media, however food contributors still used plastics for packaging. It gives negative impact on plastic trash in the world and it can be influenced consumers' health. Plastics can be used to affect migration of chemical plastics into a product in certain temperature.

Linear Regression

Based on multiple regression linear test, it gains equation as follow;

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4$$

$$Y = 0,0434 - 0,095X_1 + 0,082X_2 + 0,031X_3 + 1,124X_4$$

Information:

Y = purchasing decision

a= constant

b₁,b₂,b₃,b₄ = regression coefficient

X₁ = packaging

X₂ = taste

X₃ = color

X₄ = nutrition

Based on the above equation it can be interpreted that:

1. If the packaging, taste, color and nutrition score is 0, then the purchase decision score is 0.0434.
2. The packaging variable regression coefficient (X₁) of -0.095; this means that if other independent variables have a fixed score and the packaging has increased 1%, then the purchasing decision will decrease by 0.095. Negative coefficient means that there is a negative relationship between packaging and purchasing decisions.
3. Regression coefficient of taste variable (X₂) of 0.082; meaning that if other independent variables have a constant score and a sense of increase of 1%, then the purchase decision (Y) will experience an increase of 0.082. Positive coefficient

means that there is a positive relationship between taste and purchasing decisions, the better of the taste, the more purchasing decisions increase.

4. Color variable regression coefficient (X_3) of 0.031; this means that if other independent variables have a constant score and the color has increased 1%, then the purchase decision (Y) will experience an increase of 0.031. Positive coefficient means that there is a positive relationship between color and purchasing decisions, the better of the color, the more purchasing decisions will increase.

5. Nutrition variable regression coefficient (X_4) of 1.124; this means that if other independent variables have a constant score and nutrition has increased 1%, then the purchasing decision (Y) will experience an increase of 1.124. Positive coefficient means that there is a positive relationship between nutrition and purchasing decisions, the better of the nutrition, the more purchasing decisions will increase.

6. Linear diagrams are listed in Figure 1.

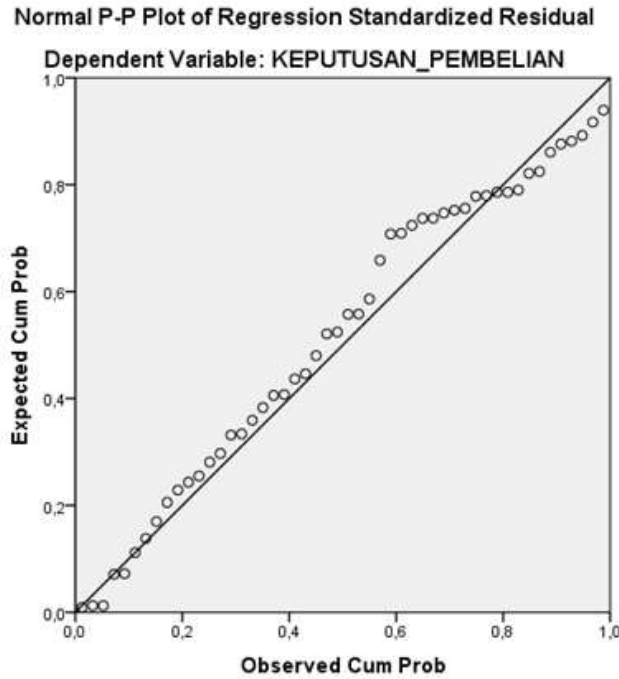


Figure 1. Linear diagram

Determination coefficient

Multiple linear regressions in determination analysis were conducted to get the contribution presentage of the influenced independent variable on dependent variable simultaneously. Table 3 listed the result of determination analysis.

Table 3. The Result of Determination Analysis

Model Summary ^a				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,979 ^a	,959	,955	,58346

a. Predictors: (Constant), GIZI, KEMASAN, WARNA, RASA
 b. Dependent Variable: KEPUTUSAN_PEMBELIAN

Table 3 shows that $R^2 = 0,959$ or 95,9%. It shows that the percentage of influence contributes to packaging, taste, color and nutrition on purchasing decision 95,9%. However, the rest of it 4,1% was influenced by other variables which were nor analysed on this study.

Influential Models in Purchasing

Based on the result of this study, it was concluded that some factors that influenced purchasing decision are listed in figure 2.

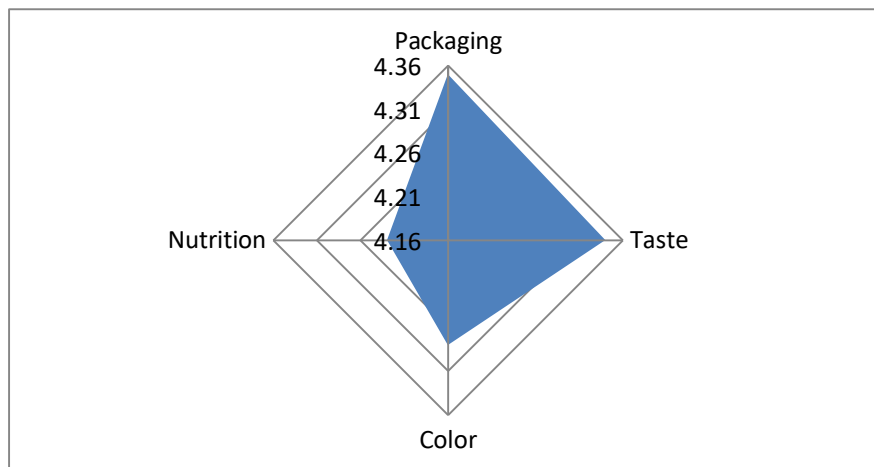


Figure 2. Influential models in Purchasing decision

Figure 2 shows that primary students give much attention to the packaging in buying a product. Based on table 4, there interval statement proposed by Arikunto (2010).

Table 4. Statement Interval

Interval	Statement
4,55 – 5,00	Very agree
3,55 – 4,50	Agree
2,55 – 3,50	Neutral
1,55 – 2,50	Disagree
1,00 – 1,50	Very disagree

Source : Arikunto (2010)

On table 5, it's found that 40% elementary students are very agree and 56% elementary students are agree that packaging influence them in making decision to buy a product. Furthermore, there are 68% students agreed and 28% very agree to state that taste of the food influence them in purchasing decision. There are 60% students agree that color of food influence them in taking purchasing decision. Table 5 also shows that 82% students are agree that food nutrition make them in taking decision after they get education about the food's nutritions.

Tabel 5. Recapitulation of Score

Score	Packaging	Taste	Color	Nutrition
4,55 – 5,00	40	28	36	10
3,55 – 4,50	56	68	60	82
2,55 – 3,50	4	4	4	8
1,55 – 2,50	-	-	-	-
1,00 – 1,50	-	-	-	-

Sumber: data was processed

The results of this study are in line with the study conducted by Getie (2017), which stated that the packaging attributes affect consumer purchasing decisions. Food packaging is very necessary in today's modern lifestyle because of high demand and easy to carry and easy to prepare.

Innovation in packaging becomes the basic strategy for the success of a product to sell on the market. Innovative packaging design can change a person's perception and product in making a product position in the market. Good packaging design is considered an important part of a successful food business. Elementary students are consumers of children aged 8-12 years old; tend to choose products based on what is seen by the eyes. So attractive packaging will make them choose the product.

Furthermore, as 28% of elementary school students stated strongly agree that taste influences them in buying a product, and as many as 36% of elementary students state that color influences buying a food product. Giving nutritional knowledge to elementary students can influence them in determining the decision to buy a product. As many as 82% of elementary school students agree that nutrition influences their decision to buy products. There are five factors that affect students' nutritional knowledge, namely education, information, culture, experience and socio-economics (Hestiana, 2014). At first glance at seeing a product's packaging, color is the most striking part of the view, so that color can attract our attention to see the product, even we can recognize a product only from the color of the packaging. Poturak (2014) proves that color has a strong effect on perception. The right color choice is an important factor to create the impression needed to influence brand and product choices. Poturak (2014) also suggested that packaging is used to recognize a product, so it plays an important role that makes the product stand out and attractive. Poor design on the packaging can make consumers' perception of a bad product, so consumer interest is low. Conversely, if the packaging is assessed from an attractive packaging design, it will increase consumers' interest to buy.

3. Conclusions

Based on the results of the study, it was found that there was a simultaneous influence of $F > F$ table ($262.302 > 5.0175$) between packaging, taste, color and nutrition on purchasing decisions. Elementary students are very concerned about packaging in buying a product. Providing education about nutrition of food products is proven enabling to change students' perceptions and influence student purchasing decisions on a food product. The results of this study can be a reference for food product producers in dominating the market with the target of school children.

4. Acknowledgment

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