

# **GO GREEN FOLDING BAGS AS THE SUBSTITUTE OF PLASTIC BAGS**

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**Abstract:** Plastic waste is a certain old plastic containers that are not used anymore and then discarded by users. It takes tens until hundreds of years to decompose plastic waste well. Moreover, It will take 1000 years to decompose plastic waste perfectly. It is a very long time. A plastic bag is popular when it is used at supermarket in some cities. Based on the fact and information that plastic waste is dangerous. The government focuses on socialization and education to implement the policy of paid plastics in 23 cities that is regulated on the letter from the Ministry of Environment and Forestry General Directorate of Dangerous and Toxic Waste Management No. S.1230 / PSLB3-PS / 2016 about the Price and Mechanism Implementation of Paid Plastic Bags. This policy will encourage some alternatives to substitute the use of plastic bags, one of them is go green folding bags. This bag is an alternative shopping bag that can be a choice because it is slight, easy to fold, enough for many stuff, and easy to bring in a bag or a pocket. The methodology of this research is a qualitative analysis based on literature sources with descriptive analysis. In this research, the writer limits design analysis folding bags in Indonesia and China. By product analysis comprehensively based on Mayall 's and Kotler's theory, output this research will be the first reference to design go green folding bags as an alternative to substitute the use of plastic bags for the next project.

**Keywords :** *Plastic bags, Go green, Folding bags*

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## **1. INTRODUCTION**

Indonesia is a country that has many islands and surrounded by seas. It also becomes the second largest country which throws plastic waste into the ocean. Plastic consumption per capita in Indonesia has reached 17 kilograms per year with consumption growth 6-7 percent. This material becomes dangerous when it goes into the food chain through fish, marine biota, and come into human body. From many fact and information that plastic waste is very dangerous, therefore some researchers observe and assess it. Then, many volunteers give knowledge to the society in order to open their eyes and do not throw the trash in any place. It also becomes a study by Waste Management Deputy in Ministry of Environment and Forestry (KLHK) that nowadays the government is currently focusing on socialization and education about policy implementation of paid plastic in 23 cities (started from February 2016). The goals are to avoid misunderstanding in society and to educate them in reducing plastic consumption when they go to supermarket. In line with the government policy of paid plastic, it affects to the reduction of using plastic bags effectively. It also can encourage the alternative of plastic bags, one of them is creating craft shopping bag and go green bag. Nowadays craft shopping bags and go green bags are ogled by many people to replace plastic bags. The demand of craft shopping bags and go green bags is predicted increasingly in line with the implementation of this policy. To encourage the conversion of plastic bags usage into crafts shopping bag and go green bag that are produced by UMKM, it needs the government's intervention, both central and local, in promoting the use of shopping bags so that new demand will be created in market. Folding bag is a great alternative shopping bag which can be a choice because it is easy to bring, fold, and has a big size so that it can be put into pocket and can be fulfilled by many stuff. According to this condition, the researcher wants to analyse the design of folding bags in Indonesia. Therefore, it can be a reference for the next design of folding bags.

## 2. THEORETICAL BACKGROUND

### 2.1. Plastic Bags

#### 2.1.1. The derivation of plastic bags

Originally the word plastic is derived from the Latin word "plasticus" and Greek word "plastikos" which mean creating, printing and forming. Plastic material is derived from petroleum. Based on carbon chemistry, plastic is a chain of long carbon atom or it is called polymers. Natural polymer composed of epidermis, dirt bees, tortoiseshell, animal horn and tree sap or latex / rein. In a certain temperature and pressure, the polymer is useful for making household stuff. In the 1800s, celluloid (Klimchuk, 2007) was formed from polymer modification and in the 1900s, Bakelite was formed. In addition, from the book of *Plastic bag history* in 1977, plastic is used as a shopping bag. It was started from a man from the United States, Gordon Dancy. He was worried about the use of paper as a packaging, finally he designed plastic bag for shopping. At that time the shopping bag which was used by world society made from paper and the main material of paper is tree. Then he offered his idea on local store and it was the time when a plastic bag was known as a shopping bag (Burton:2016).

#### 2.1.2 The danger of plastic waste

Plastic bag is one of the biggest trash in the world. We use plastic in almost retail activities such as for food, clothes, and groceries packaging. Plastic bag is made from material that is difficult to decompose fast, namely petroleum. Plastic consumption in large quantities also impacts on petroleum consumption that leads to the decrease of petroleum stock in the world. Plastic is also dangerous for environment if it is burned because it will create air pollution. While the plastic from polythene takes 1000 years to be decomposed in soil and 450 years in water. Plastic bag in water can kill mammals and birds which find food on water surface. According to environment experts, there are 100.000 mammals in the water die in every year because they eat up plastic waste in North Pacific Ocean. Meanwhile, on the land, plastic bag is also eaten by some animals accidentally and they die too because they can not digest it. Plastic waste that can be decomposed also leave particles that contaminate soil and water, it is different from organic waste that is easy to decompose in 2-3 weeks (Adiwija, 2009).

#### 2.1.3 The reduction of plastic bags in Indonesia

Based on some fact and information that plastic bag is dangerous, many retailers in supermarket and store that reaccept it and give compensation for returning a plastic bag or plastic bottle, but only a few who recycle those plastic products. The role of government and its policy are needed for reducing plastic danger. Based on that problem, nowadays the government focuses in socializing and educating the implementation of paid plastic in 23 cities. It is regulated on the letter from the Ministry of Environment and Forestry General Directorate of Dangerous and Toxic Waste Management No. S.1230 / PSLB3-PS / 2016 about the Price and Mechanism Implementation of Paid Plastic Bags and until this November, the government still implements a paid plastic at the supermarket or retailer and hopefully society will bring their shopping bags from home in order to save on plastic payment.

### 2.2. Kotler's Theory

Kotler, Keller (2007: 9-12) explains about the product differentiation. He said that in order to get brand, a product must be differentiated. Some aspects in product differentiation are:

- a. Shape, shape of the product include: size, model, and physical structure of a product. Although a product has the same benefits, the shape must be distinguished as a product identity.
- b. Features, it means as the benefit of a product that is offered and fits up its function. Features that related additional costs must be charged to consumers
- c. Quality of performance, is the level of basic product characteristic.
- d. Quality of conformance (conformance quality), is the suitability and fulfillment of a product toward the promised specification.

- e. Durability (durability) is the age of operational product in normal condition.
- f. Reliability (reability), is the measure of probability that a product will not be broken and failed in a certain period
- g. Easily fixed, is the simplicity in repairing product, when it is failed to work
- h. Style (style), describes the appearance and feeling which are caused by the product.

### 2.3. Mayall's Theory

Mayall, 1979, he explains the principles of classification and assessment in design factors which are essential, important, and desirable of a product. The assessment in design factors of a product consisted of expected function from the product itself, and the usage of the product : who, where, and when. This theory encourages product analysis comprehensively from value of function, aesthetics, and socio-cultural. From the function, a product can be called good if it has the value of function. From aesthetics aspect, a product has aesthetic if it is nice to see by eyes, especially the suitability with environmental theme at that place. From sociocultural aspect, a product can be called has this aspect if it is appropriate to habit and improve interaction among users.

### 2.4. Folding Bags as the Substitute of Plastic Bags

Folding bag is one of shopping bag alternatives that can be a choice because it is easy to bring, fold, and has a big size so that it can be put into a pocket and can be fulfilled by many stuff.

#### 2.4.1 Retail folding bags in Indonesia

Retail and supermarket business are some businesses that are spread in almost cities in Indonesia such as Carrefour and Alfamart. Nurhablisyah's journal, *Scientific Journal of Language and Art, DIEKSIS* Vol. 05, 2013, explains about the comparison among eco-friendly folding bags in Indonesia based on Kotler's theory by focus on it's shape, features, quality, suitability, durability, reliability, ease to repair, and style. Here is the explanation about some retail shopping bags.



Figure 1 carrefour shopping bag  
Source: Nurhablisyah's documentation

The main material of figure 1 is hemp cotton; Size: 40 cm x 40 cm x 18 cm; length of rope: 54 cm; Weight: 200 grams. Model: tote bag and shoulder bag, physical structure: rectangle, with two straps on both sides. Features: special benefit: as an eco-friendly bag that can be used many times. Quality performance: strong and sturdy. Suitability: suitable for carrying a heavy stuff, up to more than 5 kg. Durability: the cotton fiber is tight, so it is strong to carry heavy loads. This bag is easy to repair if it is broken. It requires specific needle and thread because it's material is quite thick. Style: from it's design is not something unique. Price: Rp. 10.000-20.000. Obstacles: it is difficult to clean when it is dirty and this bag is not water and oil proof.



Figure2 Alfamart shopping bag  
Source: Nurhablisyah's documentation

The main material of figure 2 is spunbond fabrics; product shape: base size, rectangle: 32 cm x 18; the size of front side, trapezoid: 50 cm x 32cm; the size of left / right side, triangle: 18 cm x 40 cm; length rope: 52 cm; weight: 64 grams. Model: tote bags and shoulder bags. The physical structure: it's base is rectangle and it's front side is trapezoid. The left and right sides are triangle. Product features: a special benefit: as an eco- friendly bag that can be used many times. Quality performance: stylish and slight. Suitability: Suitable for carrying stuff less than 5 kg. Durability: the fiber is tight, but frail. The rope and fabric are easy to torn if carrying heavy loads. Obstacles: it is difficult to clean when it is dirty because if it is often to wash and brush, it will be broken. This bag is also not water and oil proof. It tends to be more quickly absorbed if it is contacted to oil . This fabric is also less durable (max: 1 year). The fabric is similar to paper so if it is sewed, it will be untidy. However this bag is easy to repair and it's style is quite interesting because of it's shape, trapezoid. Price: Rp. 20.000-50.000

#### 2.4.1 Retail folding bag in China

It is an example of folding bag from China.



Figure 3 eco foldable & reusable tote shopping bag piggy  
Source: Uniquely one

The material of figure 3 eco-friendly shopping bag can be used repeatedly, easy to bring, cute, & fashionable. It is suitable as a shopping bag. It's shape: foldable purse bag and keychain (purse with zipper and chain). If it isn't used, it can be folded into purse and can be hung like a keychain on bag. Price: Rp.10.000- 20.000. Fabric: waterproof fabric (thick parachute).



Figure 4 strawberry shopping bags  
Source: id.aliexpress.com

The materials of figure 4 is nylon and polyester. Color: red, green, light orange, purple, yellow, red rose, light green, and blue. Size: 11x11 cm (folding); Size: 33x57 cm (Unfold); Weight: 30g; Quantity: one shopping bag. Price: Rp.9000- 15.000.

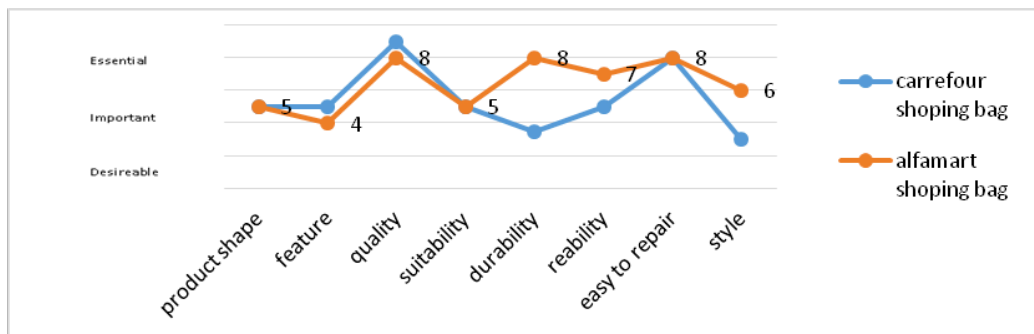
### 3. THE RESEARCH METHOD

#### 3.1 Research Approach

This research uses qualitative analysis methodology based on literature sources. A qualitative approach will produce a descriptive analysis. Content analysis delivers three rules, namely: objectivity, systematic approach, and generalization. The analysis must be based on the rules that are formulated explicitly. To fulfill the systematic rule, this category has to use specific information. The results of analysis must present in general, it means the research finding must have theoretical contribution (Sujono, 2005). The consideration as the base for the writer touse this approach is she wants to know the design development of folding bags in Indonesia and China society. By using an analysis from Mayall's theory, which explains about the clasification and assessment of design factors of a product such as essential, important, and desireable (ideal desire) (Mayall, 1979), the writer hopes this research can be a reference for designing a go green folding bag as an alternative to replace plastic bags.

#### 3.2 The Analysis of Go Green Folding Bags

##### 3.2.1. The design analysis of Go Green folding bags in Indonesia.



Graph 1 the design analysis of folding bags in Indonesia by Mayall's and Kotler's theory.  
Source: Personal Documentation

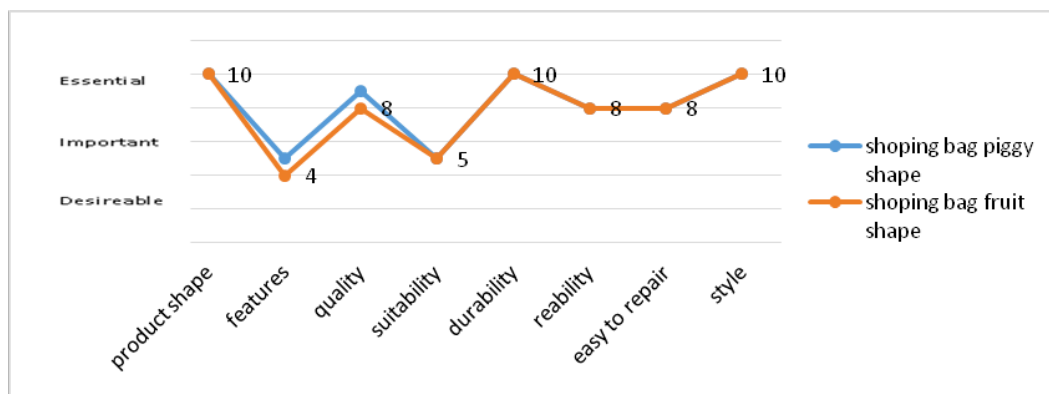
The following is design analysis of shopping bags by value analysis from Mayall's theory and function analysis from Kotler's theory. Mayall's theory is a theory which explains the principle of classification and assessment of design factors of a product such as essential, important, and desireable (ideal desire). It is completed by Kotler's theory as the previous function that develops

Mayall's theory. It talks about theory of function by looking at the shape, features, quality of performance, suitability, durability, reliability/weakness, ease to repair, and style. This graph shows the design analysis of retail shopping bags in Indonesia.

From the graph one based on Mayall's and Kotler's theory explains that retail shopping bags in Indonesia must have the essential factors such as quality of performance, durability, ease to repair & clean. For it's shape and style, it must have an important factor such as it's shape is suitable with it's function

**3.2.2. The design analysis of go green shopping bags in China**

The following is design analysis of shopping bag by value analysis from Mayall's theory and function analysis from Kotler's theory. Mayall's theory is a theory which explains the principle of classification and assessment of design factors of a product such as essential, important, and desirable (ideal desire). It is completed by Kotler's theory as the previous function that develops Mayall's theory. It talks about theory of function by looking at the shape, features, quality of performance, suitability, durability, reliability/weakness, ease to repair, and style. This graph shows design the analysis of retail shopping bags in China.



Graph 2 the design analysis of folding bags in China by Mayall's and Kotler's theory. Source: Personal Documentation

From the graph two based on Mayall's and Kotler's theory explains that retail shopping bags in China must have the essential factors such as shape & style, quality of performance, durability, reliability, ease to repair & clean. For important factors, it's features and shape quality are suitable with it's function.

**4. RESULT AND DISCUSSION**

From the analysis in chapter 3, the writer analyzes by using value analysis from Mayall's theory and function analysis from Kotler's theory. The writer differentiates retail shopping bags from Indonesia and China. Both of them have important priority in designing a product which it's function and durability must be on that product. The differentiation of shopping bags from both countries such as China implements shape and style in designing a shopping bag so the visual impression is very clear for buyers. It is an important thing because buyers' first impression in purchasing a product is very important. Based on Nurhabliyah's research in the Scientific Journal of Language and Art, DIEKSIS Vol. 05, 2013 explains about the differentiation eco-friendly retail folding bags in Indonesia and it depends on Kotler's theory by focus on it's shape, features, quality of performance, suitability, durability, reliability, ease to repair, and style, but she didn't use value theory by Mayall. According to the research finding by Nurhabliyah, eco-friendly shopping bag is created. It's main material is polyester tafetta. Polyester tafetta is a kind of polyester fabrics (umbrella fabric). It has some advantages such as the fiber fabric is tight and strong, thick fabric, and varied motif. The design specification of multifunctional shopping bags has 6 functions such as a tablecloth, a bag, a wrapper, a cover bag, an apron, and a raincoat.

The differentiation of analysis between this research and Nurhabliyah's research are this research explains about retail shopping bags in Indonesia and China by considering two theories from Kotler as a function theory and Mayall as a value theory. This research also has different output that is this research can be a reference, inspiration, and standard of comparison for the next research because in conclusion the researcher puts the flowchart that can be used as a basic source for designer in designing go green folding bags.

## 5. CONCLUSION

Based on the analysis and discussion, it can be concluded that Mayall's and Kotler's theory can give new formula to make chart needs in designing go green folding bags. The writer hopes that go green folding bags can be an alternative solution for the reduction of plastic waste in Indonesia. Besides, producers have to consider value and function factors in designing a product. Then Mayall's theory is also useful for considering technology capacity and design needs. There is a design specification based on the analysis from Mayall's theory.

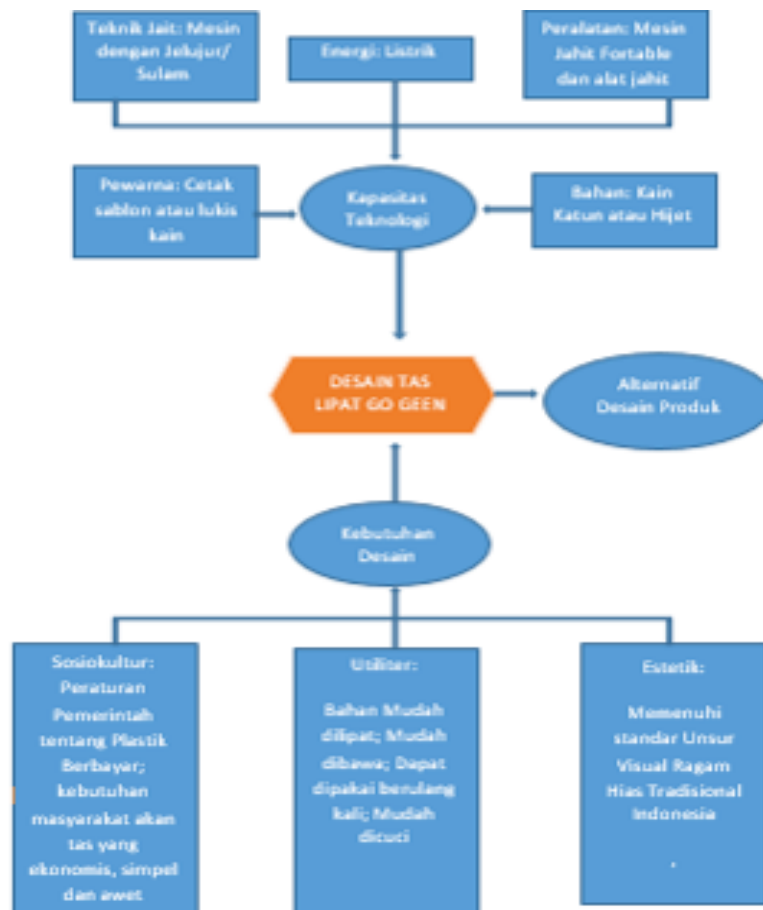


Figure 5 the chart needs in designing go green folding bags  
Source: Personal Documentation

In problem-solving to substitute plastic bags into go green bags, designers need a flowchart of design, which is having an observation about design needs of economical, simple, and durable bags in society based on it's sociocultural. Then it can be answered by utility needs that is easy to fold, bring, clean, and reusable. Therefore the role of aesthetics in design can be a complement to fulfill the standard of visual elements of traditional ornaments in Indonesia. It will be the writer's concern for the next research because traditional ornaments in Indonesia is Indonesian's characteristic. Not only in design needs, the availability of technology must be fulfilled in designing a product such as

equipment, material, dyes, engineering, and energy. Because folding bags which have small size, it can be produced in home production, but if it is produced in big scale, it can use convection or factory. By the chart needs in designing go green folding bags, the writer hopes this research will be the first reference to make go green folding bags as an alternative to substitute the use of plastic bags for the next research.

## ACKNOWLEDGEMENTS

Thanks to Allah who always blesses my husband, daughter, parents, and I. Thanks to my big family who always support me in every condition. Special thanks to Ms. Roihatul Millah as an editor of this paper.

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