The empowerment of sustainable design in food packaging as designer responsibilities

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Abstract. The purpose of this paper is emphasized on the empowerment of sustainable design in providing the dual function of a food packaging. Which can extend the life of paper, cardboard, plastic, aluminum foil so as to reduce the contribution of waste on earth. The methodology used in this research is using qualitative research. With the main approach taken on the layout of the packaging design, the approach that relies heavily on the data in the form of packaging design. For the process of observation, the authors should compare with the forms of food packaging designs that are contained in the diversity of food packaging types from products outside Indonesia. The purpose of this study is also intended as a recommendation through observation of data interviews and survey related products. Conclusion through material exploration, packaging structure exploration, efficient exploration of ink usage and packaging usage patterns.

Keywords: lifestyle, packaging, ink usage, packaging usage patterns, sustainable design

1. Introduction

Today with the entry of the free market era, the competitiveness of foreign products increases in the nation's economic arena. In Indonesia, especially in the city of Jakarta as the capital of the country has an acceleration lifestyle and the velocity of money is so great. The purchasing power and consumption of both individuals and families is so dynamic. Seen from the urban lifestyle is very fond of buying all the daily needs of both urgent and optional nature is no longer a special attention to the function of the things he bought. Starting from the needs of clothing and food, as well as things related to hobbies and lifestyle. The author's attention is focused on the amount of wasted packaging after the content of the product is no longer in use. The most common thing is seen from the purchase of food products everyday. The period of the packaging function is lost after the product is consumed. In the case study this time is on the packaging of food such as on Boneto Milk Packaging, Frisian Flag Milky Packaging, Honey Stars Cereal Packaging, Gulaku Sugar Stick Boxes Packaging, Quick Melt Kraft Cheese Packaging, Gong Pudding Packaging and Marga Mulia Misua Packaging. Other functions of packaging in addition to protecting the products therein may also serve as another useful thing as a sustainable design. So that the period of disposal of packaging that is no longer used. It is hoped that the form of responsibility of a Visual Communication Designer and Product Designer can be implemented to the dual function of packaging design. At least we can support the reduction of waste in our family first for a better environment in the future base on sustainable design theory. The purpose of this paper is emphasized on the empowerment of sustainable design in providing the dual function of a food packaging.
2. Research Method
The methodology used in this research is using qualitative research. With the main approach taken on the layout of the packaging design, the approach that relies heavily on the data in the form of packaging design. Kristina Niedder and Seymour Roworth-Stokes clarified the use of practice in research into three major groups, ie research involving practice; Critical inquiry; And practice through reflection and/or research. Research involving practice includes practice-based research, studio-based research, practice-centered research, art-based research, and design-based research. In this case the research process is based on or rooted in practice or practice playing a steering role in the inquiry process. Interventions / experiments are an investigative ‘framework’ of how practices can be improved or improved [1]. The purpose of this study is to generate a direct contribution to or relevant to the progress of practice. Another goal is that the practice informs the theory of research in order to gain new insights, knowledge or understanding. There are several supporting theories in the observation of the author, which is based on Theory of Victor Papanek in his book entitled 'The Green Imperative Ecology and Ethics in design and Architecture', which states as follows: “The relationship between design and ecology is very closed one, and makes for some unexpected complexities. The designed product goes, as shown, through at least six potentially ecologically dangerous phases. Product Life Cycle Assesment is the evaluation incorporating all of them, from the original acquisition of raw materials, through the manufacturing process and assembly, the purchase of the complete product (which also includes shipping, packaging, advertising and the printing of instruction manuals), the use, the collection of the product after use, and finally the re-use or recycling and final disposal. It can best be understood through the hexagonal diagram, the six-sided ‘Funtion Matrix’ (Figure 1). At the moment Life Cycle Assesment is very new, and can be profoundly complicated, demanding a great deal of study, testing and experimentation.”

![Six function matrix](image)

**Figure 1.** Six function matrix [2].

In his book Chuck Groth entitled 'Exploring Package Design' he gave the example of the packaging process design with the case studies '(Baking Mix) Quick & Easy to make Blueberry Muffins', describes how:
1) Understand the problem and determine the solution. For example visual packaging should show quality, clear, and organized.
2) Define the hierarchy, create a list of elements and determine the location of elements on the panel [3].
3. Results and Discussion

For the process of observation, the authors should compare with the forms of food packaging designs that are contained in the diversity of food packaging types from products outside Indonesia. Why is that? Because not many domestic food packaging products that have awareness of sustainable design. Here are some of the results of the author's observations in collecting some of the food packaging contained in major cities in Indonesia, especially in hypermarkets in Jakarta. One of them has taken advantage of other functions of a package.

Among these we can observe from several products, including: Boneto Milk Packaging Products (Figure 2a & 2b), Frisian Flag Milky Packaging (Figure 3a & 3b), Honey Stars Cereal Packaging (Figure 4a & 4b), Sugar Stick Boxes (Figure 5a & 5b), Quick Melt Kraft Cheese Packaging (Figure 6a & 6b), Gong Pudding Instan Package (Figure 7a & 7b), and Mulia Misua Marga Packaging (Figure 8a & 8b).
From the overall case study observed, it can be concluded that from seven packs, six of them newly optimally use the rear side of the packaging as another function. While only one pack, that is on Sugar Stick Box Gulaku product that can be reused crib as container with other uses. For Boneto Milk Packaging Products and Honey Stars Cereal Packaging, Frisian Flag Milky Packaging uses the back side of the packaging for children's board games. On the back of Frisian Flag Milky Packaging is used as a coloring area. While on the Quick Melt Kraft Cheese Packaging use optimally both sides of the
rear area to put pictures of recipes related to cheese. While in Gong Pudding Packaging and Marga Mulia Misua Packaging only use one side on the back of the packaging to put recipes related to their products. Consider also the current weight of distribution, content security, cost and the possibility of realizing it. Here are examples of forms in material exploration (Figure 9a, 9b, 9c, 9d, 9e, 9f, 9g, & 9h):

**Figure 9a.** Vegetable tag - seed paper [5].

**Figure 9b.** Solar mill - seed paper [6].

**Figure 9c.** Pan - non plastic bread packaging [7].

**Figure 9d.** Eco way-take away packaging [8].

**Figure 9e.** Harvest hills [9]

**Figure 9f.** Premium thai pomelo [10].
In the exploration of creative packaging design structures and can be a packaging waste solution by reducing the carbon footprint. Things to note include: 1) Size, piece, waste; 2) Stage in production process; 3) The amount of weight at the time of distribution; 4) Product content security issues

Here is an example of the forms in the exploration of the packaging design structure. Exploration of ink usage, among others, in the following ways: 1) Taking into account the use of the number of colors; 2) Pay attention to the color area. Here are examples of forms in the exploration of ink usage. Therefore, the full responsibility of visual communication designers and product designers is required to participate in using the recommendations of the exploration forms described above. The conception of sustainable design should be applied as soon as possible and socialized significantly into society. As a form of responsibility towards world civilization and the survival of mankind. Exploration of packaging usage, among others, as follows: 1) Multiple Functions; 2) Disposable; 3) Biodegradable; 4) Return the packaging to the manufacturer.

4. Conclusion
Conclusion through material exploration, exploration of packaging structures, efficient exploration of ink usage and packaging usage patterns. Material exploration is expected to find more sustainable materials without compromising economic and social functions. As for some recommendations that can be done, among others: 1) by using biodegradable paper; 2) using environmentally friendly plastics; 3) using glass material; 4) using aluminum; 5) using recycled corrugated; 6) using other alternative materials.

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