

# Sling Bag Design for Young Women from Doyo Weaving (Ulap Doyo) Material

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**Abstract**— The development of art and product design cannot be separated from various innovations from previous works. One of these developments is the emergence of creative and innovative works, such as the manufacture of sling bags made from typical doyo weaving (ulap doyo) from East Kalimantan Province, Indonesia from the raw material of doyo leaf fiber for young women. The purpose of this research is to design and introduce the typical woven fabric to teenagers through the use of doyo weaving in the design of the designed sling bag. The method used is from Vinod Goel which consists of several stages, namely the design of the results from the beginning, design development, final design and development. The result of this research is the design of a bag made from doyo weaving with a shape that is of interest to young women based on the results of the analysis. The design of this bag is expected to be one way to introduce doyo weaving to the public as a cultural heritage from the province of East Kalimantan, Indonesia.

**Keywords**— Bag, Young Women, Doyo.

## I. INTRODUCTION

The bag is used in addition to storing things, it also serves to support appearance while traveling. The use of bags other than for convenience, and safety for storing goods for traveling, a good bag shape and design is always abreast of fashion developments [1]

Apart from being a complement in dressing to support the appearance of the bag, it can be part of a lifestyle. Some types of bags that are often found today are tote bags, sling bags, waist bags, and others. Sling bags are generally made of cloth and leather. Even now there are sling bags made with traditional woven fabrics from the province of East Kalimantan, Indonesia, namely doyo weaving (ulap doyo) [2,3].

Kalimantan Island has a rich culture in the form of various types of traditional textiles that have their own uniqueness and characteristics. One of the traditional textile products is doyo weaving. Doyo weaving is a type of weaving made from doyo leaf fiber (*Curliglia Latifolia*). This leaf comes from the pandanus plant which has strong fibers and grows wild in the Kalimantan region, one of which is in the Tanjung Isuy area, Jampang, West Kutai, East Kalimantan Province.

In order to be used as raw material for weaving, these leaves must be dried and slashed following the direction of the leaf fibers until they become fine fibers. These fibers are then woven and rolled to form coarse threads. This woven fabric has become a kind of identity for the Benuaq Dayak tribe who inhabit parts of East Kalimantan. The raw materials, manufacturing processes and specific motifs of these weavings

are a priceless cultural heritage of the Benuaq Dayak community. In general, the motifs in doyo weaving are inspired by flora and fauna that exist in the Kalimantan region [4,5].

The lack of use of doyo weaving in the field of product design, especially bags for young women, makes doyo weaving less exposed even among young people in Kalimantan. From the survey conducted, there were 35 responses from Kalimantan, 15 of which did not know about doyo weaving.

For this reason, this study proposes the idea to design a sling bag for young women from doyo weaving material as an addition to the variety of types of bags that use natural materials and have cultural heritage values in the bag product. This bag product is designed to introduce the regional identity of East Kalimantan, especially through the use of doyo weaving. So that this bag will become a means of cultural recognition as well as a carrying tool that meets the activity needs of its users.

## II. DESIGN METHOD

In order to achieve the result of a good product, the design process must be passed in a structured manner through the use of appropriate product design methodologies. The design methodology used in this research is the design methodology developed by Vinod Goel. In general, the design method developed by Vinod Goel is divided into 3 stages, namely initial design, design development, and final design and development [6].

## III. DISCUSSION

Analysis and discussion are needed in carrying out the design product development method. The analysis and discussion are:

### A. Market Analysis

Market segmentation as an analysis of this product market later is the division of consumer/buyer groups according to different needs, characteristics, and behaviors in a market, so that later it becomes a homogeneous market unit and the market is sought with its own marketing strategy [7].

Market analysis is needed to find the target users of the product. Based on geographical segmentation, this product is set for Indonesia and abroad. Based on the results of demographic segmentation analysis, the target market for this sling bag product is aimed at young women.

**B. Ergonomic and Anthropometric Analysis Market Analysis**

Ergonomics is directed at improving human work in terms of speed, accuracy, and work safety in a job or activity. The activities in question are all human activities that come into contact with products, humans, and the environment.

In ergonomics, product designers need to pay attention to dynamic motion positions. This is done to avoid the occurrence of static movements that cause human fatigue in activities [8]

One part of ergonomics is anthropometry. Anthropometry is a field of ergonomics that discusses the size of the human body as a user. The size of the human body as a user of this product will affect the size of the product designed to be used by humans as users [9]. Anthropometry is a field that is closely related to the size or calibration of the human body. The use of anthropometric data is intended so that the design of a product or work facility can later be in accordance with the size of the human body that will use it [10].

In this study, the type of sling bag designed has a bag strap that can be adjusted to the user's body length or according to the user's wishes like seen in figure 1. To determine the width of the bag, Indonesian women's hip width anthropometry is used with an average percentile of 5% because the position of the bag when used is behind the hip. The bag does not exceed the size of the hips. The width of the designed bag is 22 cm.

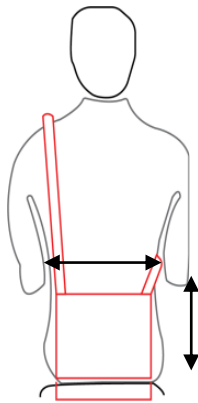


Fig. 1. Anthropometry for bag design

To determine the maximum bag height, Indonesian women's arm length anthropometry was used with a 5% percentile. The dimensions used are the length of the palm to make it easier to reach the bag. So the height of the bag is 15 cm.

In designing this product, the maximum length of the bag strap used is shoulder height in a sitting position  $\times 2$  + chest thickness + tolerance =  $(56 \times 2 + 14 + 4 = 130 \text{ cm})$  and the maximum length of the bag strap is 130 cm. For the design of the bag strap length used in this study is 106 cm.

**C. System Analysis**

In this study, we will also discuss the existing system in the design of the sling bag. The system in question is a unity of interconnected parts that are in one product area.

System analysis is carried out to find out and explain what

systems are needed for sling bag products so that they can function properly without reducing the comfort of the product. The use of doyo weaving material and the fabric used for its coating requires a connection system that can be used to connect doyo weaving pieces with other fabrics. The connection system applied to the product is stitching. The locking system used is a zipper which is used in the inner pocket and a duck tongue lock which is used on the cover.

**D. Material Analysis**

Material analysis is used to determine good materials that can be used in this bag product. The material that will be used in the product will be seen in terms of strength, beauty and price according to the style of the bag design. The main ingredient of this women's sling bag product is doyo weaving woven fabric and has a motif. The patterned doyo weaving material was chosen because it has a beauty value that suits the needs of the bag.

The inside of the bag is made of satin fabric, which is reinforced with a thin foam material. Satin fabric was chosen because it has a smooth texture, is easy to sew, has many color choices, and can last a long time when used. For thin foam, it is used to strengthen the bag structure because it can be directly applied to the bag-forming structure because it has a very supple and dense texture, and can maintain the shape of the bag. In terms of strength, beauty and price, with doyo weaving, satin fabric and thin foam is very suitable for the designed sling bag product.

**E. Color Analysis**

Color analysis is carried out to determine the color that matches the women's sling bag product. Color analysis is also carried out to choose the most appropriate color combination and is considered capable of attracting buying interest in the existing target market. The color that will be used is adjusted to the chosen design style, namely the rustic design style. For the main material doyo weaving, brown color will be chosen as the natural color of weaving. Brown color is associated with soil and wood which gives the impression of being safe and comfortable.

Based on a survey conducted on 40 young women respondents with an age range of 20-26 years, it was found that 33.3% of respondents chose a neutral like brown color, which means that the product does not need to be combined with other colors. The survey results are in accordance with the product design concept and the intended target market, so it can be concluded that the color that is suitable to be applied to the product is brown.

**F. Design Process**

Process design is the next step after some previous analysis has been carried out. The purpose of the design process here is to develop a sling bag product design for young women. In this alternative design, the basic shape of the bag that is taken is square at the bottom and shrinks in shape at the top which has a lid on the bag, so the bag looks simple and ergonomic.

The designed bag strap is located on the side of the bag using a chain and doyo weaving decoration on the strap. The

bag closure uses a metal bag lock. The advantages of this designed bag design are simple and the bag design is made of doyo weaving so that it will add to the aesthetics of the product.

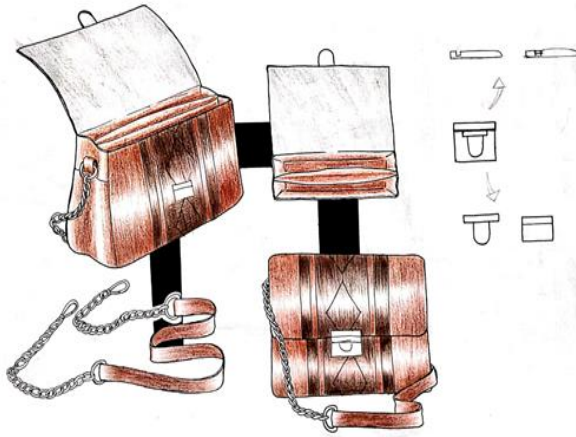


Fig. 2. Initial Design.

Figure 2 is one example of some of the initial designs of a bag product, while Figure 3 is the final design of developing a design that has been selected from the previous initial design.

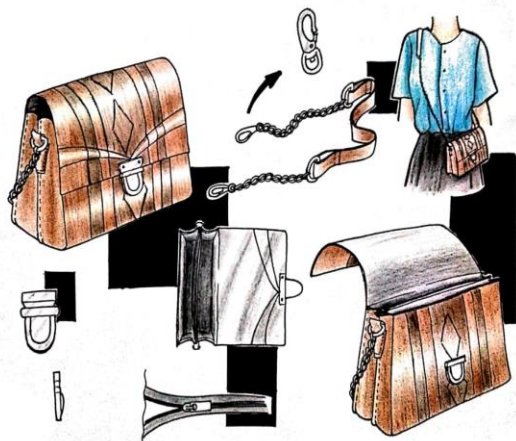


Fig. 3. Final Design

This final design is the same as the previous development design, the bag chain link has changed, which is located on the side of the bag. In the middle there is a seam that looks like it divides between the front and back sides of the bag. Based on the analysis of the existing development designs above, the final design is very suitable and in accordance with the bag that women are interested in.

Based on the analysis of the design development above, the final design is very suitable for the bag that women are interested in.

In addition to alternative design drawings, there are also 3D images, where this image is used to view the prototype in 3 dimensions so that the product looks like its original form. Figure 4 is a 3D image of a bag equipped with a mannequin in

the shape of the person using it. The picture shows how the simulation of people using the sling bag product is shown.



Fig. 4. 3D modeling of bag usage

While in figure 5 is a 3D image of a sling bag that is hung on the display area to add to the appearance of the product to be more aesthetic when displayed.

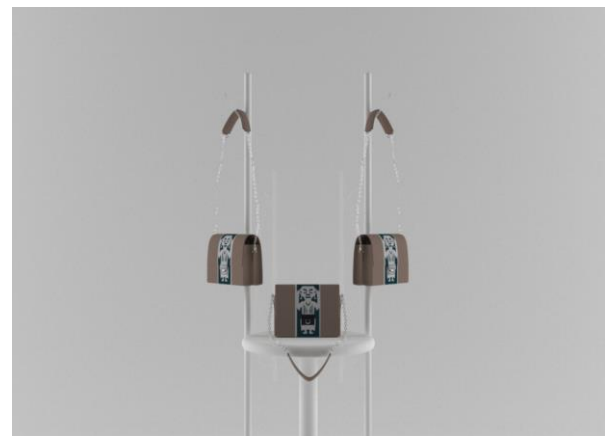


Fig. 5. 3D modeling bag display

In Figure 6 is the final product after it was produced, where this designed sling bag is for women from teenagers to adults by displaying the design and shape of the bag according to the wishes of consumers.



Fig. 6. Sling bag using doyo ulap

In addition, this sling bag product also features ulap doyo as a cultural heritage in the form of a typical woven from the Dayak tribe in East Kalimantan, Indonesia.

#### IV. CONCLUSION

Based on the results of the design process for young women's sling bags made of doyo weaving material, it can be concluded that the design of bags made from doyo weaving is in demand by the public with a focus on the design style and shape of bags for young women with one of the uses of doyo weaving in the fashion sector.

This product is designed by prioritizing comfort and safety for users of bags that are tailored for women, teenagers to adults. With the design of this bag, which in the manufacturing process involves the community, especially young women, in determining the shape and color, it is hoped that this can be the first step to introduce doyo weaving products.

This product is also designed to introduce the regional identity of East Kalimantan, Indonesia, namely the use of doyo weaving in young women's bag products. So this bag will be a means of introducing cultural heritage.

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