

Exploration of Wayang Kulit (Indonesian Leather Puppet) Leather Leftover Material for Jewelry

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Abstract: Wayang Kulit, a traditional puppet shaped Indonesian art which has been made since the 8th century is now recognized by UNESCO as World Master Piece of Oral and Intangible Heritage of Humanity. In the process, the material of Wayang Kulit like cow and buffalo hides cannot be used up without leaving material waste, up until now this waste material usually recreated into craft products. Both making process of the main products and the waste materials use manual techniques, named Tatah Sungging. The experimental method used in this study is laser cutting test on leather material, coloring test and mix material. The application of laser cutting technology is intended to increase the processing productivity of waste material. The results of this study are form style variants (aesthetics) and product quality variants..

1 INTRODUCTION

Wayang Kulit and Tatah Sungging. Wayang kulit has been acknowledged by UNESCO as Masterpiece of Oral and Intangible Heritage of Humanity (Nurgiyantoro, 2011). Wayang kulit recognized as a masterpiece because it has a high value for human civilization, full of value, both reflected in the characters, stories, and various other elements. Wayang which generally tells the story of the character of a hero who fights evil figures is favored from generation to generation and has been embedded in the minds of the people, showing how puppets have important meanings and high value in Indonesian society.

In addition to having an important meaning in shaping the character of the nation, Wayang, especially shadow puppets, gives importance to the development of creative industries based on local culture. In line with the national creative industry roadmap, the Wayang Tatah Sungging industry contributed significantly to exports by 18% according to the year 2010 Disperindag data. Wayang kulit is a product of strategic creative industries because it is based on Indonesian local cultural values (local cultural heritages of creative industries) that need attention so that they still exist in this modernization era (Murtiasri, 2015).

Tatah Sungging is an icon of Central Javanese crafts that has a number of 70 small and medium enterprises (SME) that spreads in Sukoharjo, Wonogiri, Klaten and Magelang. The Sonorejo Urban Community has the largest number of Tatah Sungging SME with 20 SMEs who makes Wayang Kulit and craft products.

The exploration of leftover leather material into jewelry products is supported by the phenomenon of the use of materials that are not commonly used as jewelry. Like contemporary jewelry products made from cow intestine by Korean-originated Munich – based artist Eunmi Chun in a jewelry exhibition titled Flora & Fauna (Ornamentum, 2014). These unusual jewelry turns out to be an exclusive and limited edition urban contemporary jewelry.

The expressive character of urban society is indicated by their style in clothing and the accessories they wears. The existence of urban jewelry products can be a medium for visualizing the image and expression of its users.

2 PROBLEM STATEMENT

Like the case study in Kampung Wayang, Kepuhsari, Wonogiri - Central Java. There are a total of 78 crafters of wayang kulit in this village which produce as much as 1 kg leather leftover daily. Hence 78 kg of

skin left over from production per day is produced by this village and if projected within 1 month there will be 2.3 tons of leather material left over from production. Therefore, the problem can be formulated as follows. 1) It is necessary to develop the rest of the wayang leather production material in the form of exclusive products in the form of jewelry as a medium of expression for urban society. 2) Processing of existing puppet skin waste material is done manually by craftsmen..

3 RESEARCH OBJECTIVE

In the future this research is expected by the authors to be useful for, 1) As an alternative choice for fashion products for the people who want to lift the exclusivity of wayang leather waste products without losing traditional and historical elements from wayang kulit. 2) As an alternative method for utilizing puppet skin waste for wayang waste leather entrepreneurs in Indonesia. 3) As a form of culture appreciation and increasing awareness of urban people about the prestige value of wayang kulit in the form of media expression that can be used daily.

4 LITERATURE STUDIES

Definition of Rawhide Material. Rawhide or raw skin is the skin of native animals that have not gone through the process of tanning or chemical processes. Similar to parchment, it has a lighter color than the skin through vegetable tanning. Before used, rawhide skin is prepared by removing all feathers, meat, fat or blood on the skin and then stretched and dried (UGM, 2012). The original character of raw leather is hard, stiff, slightly patterned and translucent. But it can be flexed through repeated bending and stretching processes. If necessary, oil coating or lubrication can be carried out on the surface of the skin to make it waterproof. Raw leather material commonly used to make puppets comes from cow skin, buffalo and goat.

Definition of Split Leather Material. Split skin is the skin of a buffalo or cow that has gone through a chemical process, then split using a splitter machine into two or more parts. The split parts are nerf (grain split), flesh split and middle split. The split skin process can produce more sheets of skin, making the price cheaper than raw skin (Susilawati, 1992). Split skin has two sides, on average has a smooth surface and on the other hand is more rough due to skin fibers that are "split forcibly" during the splitting process.

Split skin has more flexible character than raw skin, more translucent. This skin is more sensitive to temperature, easily curved or rolled when exposed to heat or humidity.

Definition of Jewelry. Jewelry, small jewelry and goldsmith items, are used as decorative items that are worn for personal jewelry both body and clothing. Made of precious materials (precious metals: gold, silver, platinum, gemstones, ivory) decorated with various techniques and characterized by artistic execution. Including indigenous ornaments, primitive ornaments with colorful stones, horns, bones, and others. Jewelry has been known in all historical periods and in all cultures that define the social role of jewelry along with a number of basic forms. Initially it was a function of an object, especially that used to decorate clothes such as pins, buckles and pins (Clarke, 2010).

Coloring Technique and Leather Finishing. Basically the wayang coloring technique uses white wall paint mixed with color pigments and PVAC glue. While the Gold coloring usually uses gold foil. Varnish or neutral waterbase topcoat used for finishing.

Laser Cutting. Laser (Light Amplification by Stimulated Emission of Radiation) technology that uses lasers to cut material and is usually applied to manufacturing industries. Laser cutting works by directing a high-power laser to cut material and use the computer to direct it. Industrial laser cutting has been designed to concentrate a high amount of energy into a small place. Usually laser cutting rays are around 0.003-0.006 inches in diameter when using a laser with a short wavelength. Following are the types of lasers and their uses, 1) Laser CO2

Used to cut, make boring, and carve. 2) Neodymium (Nd). Used to make boring, it takes big energy with low reps. 3) Laser Neodymium Yttrium-Aluminum-Garnet (Nd-YAG). Very high power is used to make boring and engrave.

Here are the capabilities of the laser cutting:

- 1) Marking. The laser beam damages the surface of the material so that it leaves a mark in the form of a scratch according to the pattern image designed.
- 2) Engraving. Plasma laser light scratches the surface of the material with different depths so as to produce carved shapes or images or motifs that match the pattern images that are designed.
- 3) Perforating/Punching/Cutting. Plasma laser light is used to hollow out material with the shape according to the design pattern that is designed.

5 RESEARCH METHODS

The method of this research data collection is done through, 1) Literature Studies, 2) Survey, 3) Deep Interview, 4) Experiment. The experiments carried out in this study were using the application of laser cutting technology, coloring experiments and mix material.



Figure 3. Chemical (Textile) Dyes Coloring

6 EXPERIMENTS

Laser Cutting Test 1. In this laser cutting author used the orceLASER FL-1310 machine using 22-25 speed 18 power, with pattern that arranged with varied distances ranging from 0.1 mm, 0.3 mm, 0.5 mm, 0.7 mm to 1 mm.

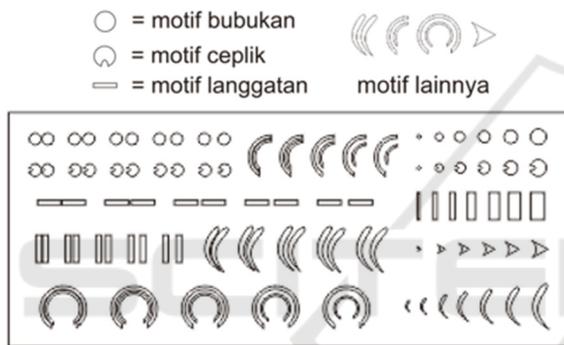


Figure 1. Vector Design Pattern for Laser Cutting Test 1

Laser Cutting Test 2. In the next stage, laser cutting tests were carried out by using the selected pattern of Tatah Sungging arranged in the form of a mandala with the following design,



Figure 2. Design Pattern for Laser Cutting Test 2

Coloring Test. The coloring test carried out on this experiment is using a wet staining technique using chemical and natural dyes.



Figure 4. Natural Coloring

Mix Material Test. This experiment trials mixing leather material with silver.

7 RESULT AND DISCUSSION

Result of Laser Cutting Test 1. Following figure is the result of laser cutting test on rawhide material and split leather,



Figure 5. Laser Cut Result (Rawhide)

In Rawhide:

- 1) The smallest distance needed for making appropriate bubukan, ceplik and langgatan pattern on rawhide is 0.5 mm
- 2) For the circular shape, the distance between each circle or radius should be bigger than 1mm



Figure 6. Laser Cut Result (Split Leather)

In Split Leather:

- 1) The smallest distance needed for making appropriate bubukan and ceplik pattern is 0.3 mm
- 2) For langgatan pattern there should be at least 0.5 mm distance in each pattern
- 3) For the circular shape, the distance between each circle or radius should be at least 1mm

Result of Laser Cutting Test 2. Following figure is the result of 2nd laser cutting test on rawhide material and split leather,



Gambar 7. Hasil Uji 2 Cutting Laser Mandala

Discussion:

- 1) Cutting laser result with the 1st mandala pattern turns out that it can be executed in detail even though it is small in size (25 mm).
- 2) Although large in size, the 2nd and 3rd pattern mandala design have weaknesses in the cutting edge. Proven by the failure of the cut on each design. There needs to be a wider distance between the holes so as not to break when finished cutting.

Coloring Test Result. These are the coloring test results using chemical dyes (textile dyes), the color results are vivid bright and easily absorbed by the both rawhide and split leather material under 1 hour.



Figure 8. Chemical Coloring Test Result

Whereas for coloring with natural ingredients (coffee, tea, turmeric, rosella and chocolate) takes longer than chemical dyes. The new color is seen after repeated immersion for 2-3 hours, the resulting color tends to be smooth pastel color. The following are the results of coloring the skin using natural dyes.



Figure 9. Natural Coloring Test Result

Mix Material Test Result. In the mix material test, author combining leather material with silver is used. The selection of silver material was assessed according to the jewelry design concept named Lunarian. A series of jewelry inspired by the elegance of the moon. The basic form of jewelry is also a stylization and simplification of the formation of the moon phase.

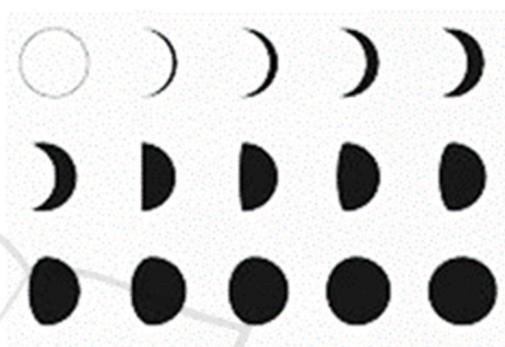


Figure 10. Moon Phase Shape Simplification

The following pictures documented the process of making silver parts in jewelry, the technique is framing the post laser cut leather leftover material. The making begins by processing the silver plate into parts of the frame and then uniting and finishing. After that, then the skin is inserted and then assembly the jewelry.



Figure 11. Jewelry Making Process

8 CONCLUSIONS

Final Design Product Photography. This Following figure is the prototype of Lunarian Jewelry, including sets of earrings, necklace and headpiece.



Figure 12. Lunarian Jewelry Set

The use of laser cutting techniques can be used on the skin of puppets, but it will produce charred effects on the surface and edges of the skin. Adjustments need to be made for each use of the new skin sheet because of the lack of water content and skin thickness. Coloring on the skin can be done using wet coloring techniques (soak) using either chemical dyes (textile dyes) or natural dyes. Chemical dyes will produce more striking colors and have a shorter coloring duration than natural dyes. Processing the rest of the wayang kulit production into jewelry products can be done and will further highlight the character of the skin when compared with combination materials that have contrasting characteristics such as metal. Details of metal processing techniques and methods. Application of laser cutting technology can support standardization and productivity.

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