Corak
JURNAL SENI KRIYA

Article Process
Submited : 9 August 2021
Revised : 10 April 2022
Accepted : 10 May 2022

p-ISSN: 2301-6027
e-ISSN: 2685-4708

Corak : Jurnal Seni Kriya, Vol 11, No 1
30 May 2022

Application Of Block Printing Technique With Waste Pallet Wood On Ready-To-Wear Clothes

Suci Widya Putri
Telkom University, suciwidya23@gmail.com , suciwidyaputri@student.telkomuniversity.ac.id
https://orcid.org/0000-0002-9045-1432

Mochammad Sigit Ramadhan
Telkom University, sigitramadhan@live.com , sigitrmdhn@telkomuniversity.ac.id
https://orcid.org/0000-0003-0860-4864

Keywords:
Block Printing, Waste Wood, Ready-To-Wear

ABSTRACT

Block printing is a decorating technique using a block coated with dye and then pressed repeatedly along the fabric to create a pattern. Currently, the block printing technique is still poorly known and developed, especially in Indonesia, even though this technique is user friendly and the materials are abundantly available. One of them is pine pallets, which are usually used to protect products in shipping goods. This study uses a qualitative method. The data was collected from literature study, observation, and exploratory experiments, which are divided into several stages. The research results show that block printing plates made of waste pallet wood can visualize the shape of the motifs on textile materials, which are then applied to the design of ready-to-wear fashion products.

Kata Kunci:
block printing, kayu bekas*, ready-to-wear*

ABSTRAK

Block Printing merupakan teknik menghias menggunakan suatu blok yang dilapisi pewarna lalu ditekan berulang kali disepanjang kain untuk membuat pola. Namun saat ini teknik *block printing* masih kurang dikenal dan berkembang terutama di Indonesia, padahal teknik ini mudah dilakukan dan dapat menggunakan material bekas yang ada disekitar. Salah satunya adalah dengan memanfaatkan kayu palet bekas berjenis pinus yang biasanya digunakan untuk melindungi produk dalam proses pengiriman barang. Penelitian ini menggunakan metode kualitatif dengan teknik pengumpulan data yang diperoleh melalui proses studi literatur, observasi dan eksperimen eksploratif yang terbagi dalam beberapa tahap. Hasil penelitian yang dilakukan adalah plat cetak *block printing* yang terbuat dari kayu palet bekas yang dapat memvisualisasikan bentuk motif pada material tekstil yang kemudian diaplikasikan pada perancangan produk *fashion* berupa busana *ready-to-wear.*

INTRODUCTION/ PENDAHULUAN

Block printing is an ancient decorating technique using a dye-coated block that is pressed repeatedly along the fabric to create a pattern. Block printing techniques can produce uniquely designed fabrics because they are not made by machines (Ganguly & Amrita, 2013). At first, the blocks used for printing were made of stone and wood. A creator makes designs on blocks by scraping or scratching the surface, then inking them in various ways, and then stamping them on the cloth (Kafka, 1973).

Block printing is a graphic art technique that is currently not well known in Indonesia. Although there have been many efforts made by several parties through various ways such as workshops, exhibitions, competitions, and discussions, the existence of block printing is still underdeveloped in the wider community (Rahman, 2017). This is a potentially up-to-date developed technique. The tools and materials are easily obtained and the process is quite easy (Adi et al., 2020). Therefore we have to innovate by substituting materials with other abundant materials that have potentially unique prints. No new expensive materials are needed since we can also use waste such as waste wood. When processing waste goods into new works, we can develop creativity and save funds as well (Rohani, 2017). Moreover, with proper processing, waste wood can produce variations and characteristics as needed. It can also be potentially processed into craft art with natural resources (Abrar & Raharjo, 2017).

Waste wood can be transformed from the previous function into a new one (Safitri & Rachmat, 2016). Of the various kinds of waste wood, waste pallet wood is potentially reused. Pallet wood serves to protect the merchandise in the shipping process. Generally, this pallet of wood is disposed of when the goods arrive and are unloaded at the destination. The pallet wood is then only left to pile up (Lumintan et al., 2019). Pallet wood is a type of pine wood or also known as Dutch teak. This softwood has many knots with wood texture characters that tend to be more firmly visible and have a distinctive smell.

Based on the visual character and availability of waste wood, especially waste pallets, the author assumes that waste pallets can be used as an alternative material in the application of block printing techniques. The purpose of this research is to identify the right way to make waste pallet wood with a block printing technique to visualize new motifs on textile materials. It is applied to the design of the textile product and fashion crafts.

METHOD

This research uses qualitative methods. The data was collected through the techniques of:

1. Literature Review

The data was collected from journals and books on block printing techniques, wood, waste wood, waste pallet wood, textiles, and fashion. The study referred to the journal entitled "A brief studies on block printing process in India" written by Debojyoti Gangguly and Amrita in 2013. In addition to the journal, the book entitled "Batik, Tie-Dyeing, Stenciling, Silk Screen, Block Printing: The Hand Decoration of Fabrics" written by Francis J Kafka in 1973 was also referred.

2. Observation

This observation is carried out by directly coming to the location where waste pallet wood is collected. The observations made on Jl. Kp. Cibuntu Asem, Kec. Cibitung Bekasi, West Java, on October 9, 2020, found a lot of piled-up waste Dutch teak pallets. This waste pallet wood is softwood that has a distinctive smell and lots of knots. It has bright white, yellowish, reddish, or brown colors, and also has straight and oval fibers. The wood with brittle and uneven surface was put aside. Some waste pallets with only a slightly rough surface and have economic value were used as a printing plates for block printing.

Figure 1. Piled-Up Waste Pallet Wood.
(Source: Personal document)

1. Experiment

In this study, the author conducted an exploratory experiment by applying ink on a printing plate to various kinds of fabrics using the block printing technique on waste pallet wood, MDF wood, oil-based dyes or offset inks, water-based dyes or soft ink fabrics, acrylic paints, linen, toyobo cotton, viscose rayon, and Japanese cotton. The woodcutting and laser engraving techniques were also applied. The aim is to identify the optimal application in fashion products.

RESULT AND DISCUSSION

a. *Block Printing*

Hand block printing in textiles is a technique in which a carved block of wood is repeatedly dyed and then pressed along the fabric to create a pattern. The beginning of this stamping or printing of colored designs on textiles is not identified. Block printing is believed to have originated in China in the early 3rd or the 4th century. It was initially found in Egypt and several Asian countries and then spread to Europe. Ganguly & Amrita (2013) in their book entitled "A Brief Study on Block Printing Process in India" defines block printing as the essence and craftsmanship that has brought India popular in the world. However, some arts and crafts are fading. Accordingly, they have to be updated and revived. Hand block printing has a unique design. Therefore, it is not suitable for automated machine processes because 100 m of fabric will have the same design and color. This technique is very unique in that the design must be engraved first and then printed onto the fabric. Its use has also been greatly reduced. The skills have been passed down from generation to generation, and are traditionally practiced and preserved. Even though factory prints are cheaper and faster than block prints, the block-printed fabric is a human work, and the craftsman's sensitivity to fabric cannot be mechanical.

Figure 2. *Block Printing*
(Source: Ganguly & Amrita, 2013 *"A Brief Study on Block Printing Process in India"*)

b. Waste Pallet Woods

Indonesia has the richest natural forest resources in the world, one of which is wood. But nowadays, wood is continuously exploited. Not all of the existing wood has a short growing age. Consequently, some types of wood are increasingly scarce. Therefore to overcome the scarcity, the government suggests using renewable resources or even reusing waste to make a valuable product (Tantoroputri et al., 2018). Wood has many unique properties and characteristics. Indonesian timber industry receives a large amount of wood demand from other countries. However, they demand specific characteristics of wood suitable for the climate in each country (Wayan, 2016).

Rustanti (2016) stated that wood is classified into two groups, namely softwood (softwood/needle leaf wood) and hardwood (hardwood/broad leaf wood. By understanding the nature and characteristics of these two types of wood, it will be easier to apply the processing and utilization techniques.

As one of the processed forms of natural wealth, wood has many types and characteristics. Pallet wood is an arrangement of boards and wooden blocks used for packing or pedestals of goods during shipping in a container with the main function of protecting merchandise and facilitating the movement of goods when loading and unloading using a forklift (Lumintan et al., 2019).

In general, pallet wood is made of pine wood or is often also called Dutch teak. There are two types of pine wood on the market, namely local Indonesian pine which is usually yellowish-white in color, and European pine wood which is yellowish-white with a slightly reddish color. This type is sold for Rp. 55.000 up to Rp. 60.000, per unit, depending on the quality of the wood (Safitri & Rachmat, 2016).

Its flexible, inexpensive, strong, and easy to repair characteristics are the main reason for using Dutch teak wood as a material for making pallets. In addition, Dutch teak has a beautiful fiber and texture with a smooth surface. The physical character is soft and the color is brighter than other types of wood. This material is insect resistant due to the presence of wood sap (Study et al., 2018). Unfortunately, this pallet wood is only used once. When the merchandise has arrived and is unloaded at the destination, the pallet wood is then just left to pile up.

This study collected the waste pallet pine or Dutch teak wood. Dutch Teak wood or whose original type name is pine or pinewood is the softwood that has a distinctive smell and many knots. Pinewood itself has straight and oval fibers, a smooth texture with a glossy wood surface, and bright white, yellowish, to reddish or brown in color.

Figure 5. Waste Pallet Wood.
(Source: Personal document, 2020)

c. Initial Exploration I

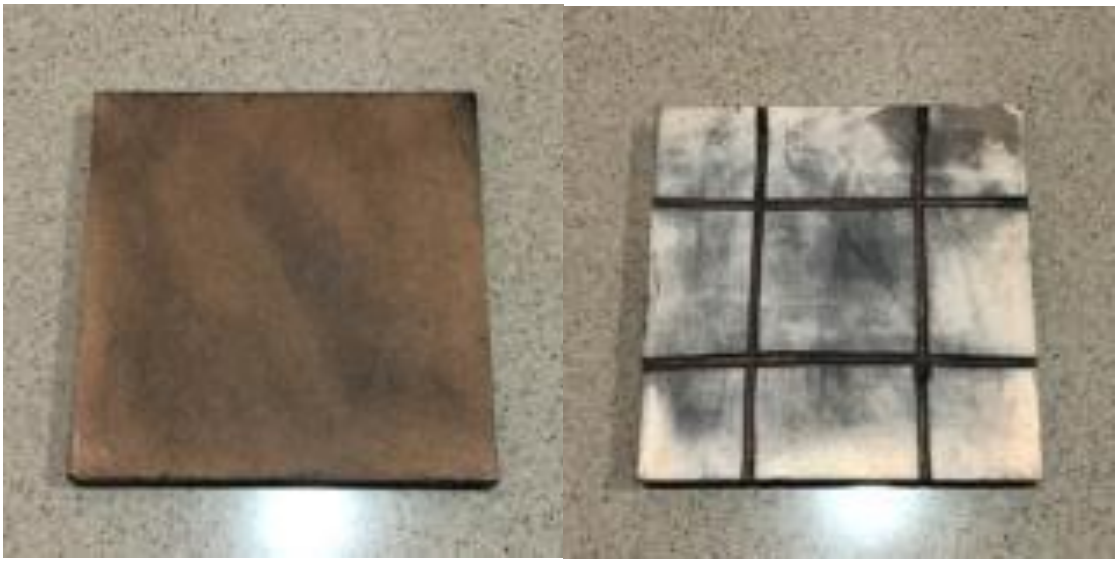


Figure 6. MDF Engraved Wood Plate dan MDF Woodcutting Technique.
(Source: Personal document, 2020)

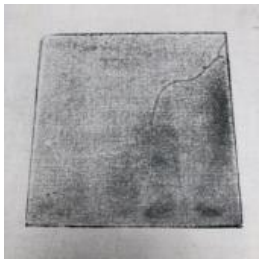
No.	Purpose of Exploration	Processing	Exploratory Documentation	Analysis Result
1.	Get optimal results in terms of oil-based (offset ink) when applied to toyobo cotton fabrics without a pickling process.	MDF wood cutting plate measuring 10x10 cm is rectangular in shape using oil-based dye (offset ink) which is applied with a rubber roller and then printed on toyobo cotton cloth.		The dye is not evenly distributed on the fabric, making it less visible. • The shape of the printing plate on the fabric is less than perfect. •
2.	Finding optimal results in terms of oil-based (offset ink) when applied to Toyobo cotton fabric by the curing process.	The MDF wood printing plate was cut using a chisel knife to form a rectangular line measuring 10x10 cm using oil-based dye (offset ink) which was applied with a rubber roller and then printed onto Toyobo cotton cloth.		The dye is fairly even on the fabric. • The shape of the printing plate on the fabric is quite visible. • The shape of the printing plate on the fabric is quite visible. •

Table 1. Initial Exploration I
(Source: Personal data, 2020)

From the exploration, it can be concluded that the aim of exploring the pieces of MDF wood is to identify the coloring when printed on some fabrics and to pick MDF wood. The wood is easily chopped

because the wood is not hard. Such fabrics as toyobo cotton, viscose rayon, and Japanese cotton have almost the same character. The exploration process takes a long time. Consequently, the results are not observable in a short time. The best result from this exploration is toyobo cotton fabric, while the dye is oil-based (offset ink) which is easily evenly distributed on the fabric. From this exploration, the author can understand how to chop wood using a chopper and understand the basic block printing techniques such as making printing plates and applying the dye to block printing plates.

d. Initial Exploration II

Figure 7. Engravedd Plate of Waste Pallet Wood with Cutting Technique.
(Source: Personal document, 2020)

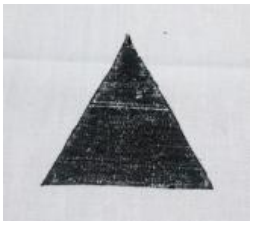
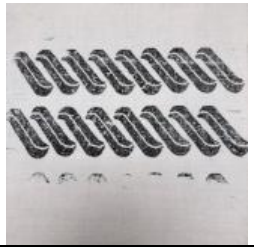
No.	Purpose of Exploration	Processing	Exploratory Documentation	Result of Analysis
1.	Finding optimal results in terms of oil-based (offset ink) when applied to Toyobo cotton cloth and trying to pick out waste pallet wood.	The waste pallet wood printing plate was engraved using a chisel knife in the shape of a 10x10 cm triangle; oil-based dye (offset ink) was applied with a rubber roller and then printed onto Toyobo cotton cloth.		The dye is very evenly distributed on the fabric and a texture is found on the surface of the waste pallet wood plate. • The shape of the printing plate on the cloth is visible. •
2.	Finding optimal results in terms of acrylic paint when applied to Toyobo cotton cloth and trying other forms when picking waste pallet wood.	The waste pallet wood printing plate was engraved using a chisel knife to form fiber grooves on the wood 10x10 cm; acrylic paint dye was applied with a sponge and then printed on toyobo cotton cloth.		The dye is very evenly distributed on the fabric and a texture is found on the surface of the waste pallet wood plate. • The shape of the printing plate on the cloth is visible. •

Table 2. Initial Exploration II
(Source: Personal data, 2020)

e. Initial Exploration III

The exploration is aimed at identifying the characteristics of waste pallet wood with the chipping technique for making printing plates. It can be concluded that it is difficult to pick hardwood as the alternative materials for waste pallet wood using the pickling technique. Some fabrics have almost the same character as toyobo cotton, viscose rayon, and Japanese cotton. The surface of linen cloth has its texture while the dye used has a different character. The exploration takes quite a long time so the results are only observable later. The results of this exploration show that cotton toyobo fabric is the best. The dye is oil-based (offset ink) and is easily evenly distributed on the fabric. From this exploration, the author can understand how to chop wood using a chopper and understand the basic block printing techniques in the process, such as making printing plates and also the process of applying dye to block printing plates.

Figure 8. Initial Exploration III
(Source: Personal data, 2020)

No.	Purpose of Exploration	Processing	Exploratory Documentation	Analysis Result
1.	Finding maximum results in terms of oil-based (offset ink) when applied to Toyobo cotton cloth and trying laser engraving	Waste pallet wood printing plate of 15x15 cm in a simple design formed with a laser engraving technique; an oil-based dye (offset ink) which is applied in a		The dye is fairly evenly distributed on the fabric and a texture is found on the surface of the waste pallet wood plate.

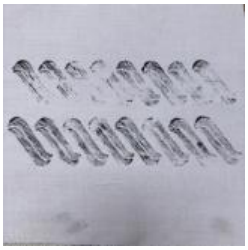
	techniques in making printing plates from waste pallet wood.	roll and then printed on toyobo cotton fabric.		• The shape of the printing plate on the cloth is visible.
2.	Get optimal results in terms of acrylic paint when applied to Toyobo cotton cloth and try the laser engraving technique in making printing plates from waste pallet wood.	Waste pallet wood printing plate of 15x15 cm in a simple design formed with a laser engraving technique; acrylic paint, which was applied with a sponge and then printed on toyobo cotton cloth.		The dye is not evenly distributed on the fabric and there is a texture from the surface of the waste pallet wood plate. • The shape of the printing plate on the cloth is visible on the cloth. •

Table 3. Initial Exploration III
(Source: Personal data, 2020)

The exploration aims to identify the characteristics of waste pallet wood using the laser engraving technique for the manufacture of printing plates. It can be concluded from the overall initial exploration, the laser engraving technique has the potential to make block printing plates. This technique can be manufactured in a short time. Therefore, it is very effective and efficient. The best dye in the process of making this initial exploration is oil-based (offset ink) because this dye is easily evenly distributed and the color produced is also easily visible on the best fabric, namely cotton toyobo which will potentially be applied to ready-to-wear clothing.

f. Advanced Exploration

The next phase of this research is making a module that was inspired by an Imageboard that the author made. Imageboard is a visual image as a reference for designing work according to the expected theme. The Imageboard is dominated by a combination of bright to dark colors with casual clothing adapted from the 2021/2022 Trend Forecast. One of the themes is Essentiality with the characteristics of geometric motifs. These are patterns composed of a repeated single unit (Samuel , 2021) in the presence of shapes such as hexagons, rectangles, circles, and lines.

The digitally created and shaped geometric module that combines several modules is about 10x10 cm, which will be formed using laser engraving techniques. The following modules are used in advanced exploration.

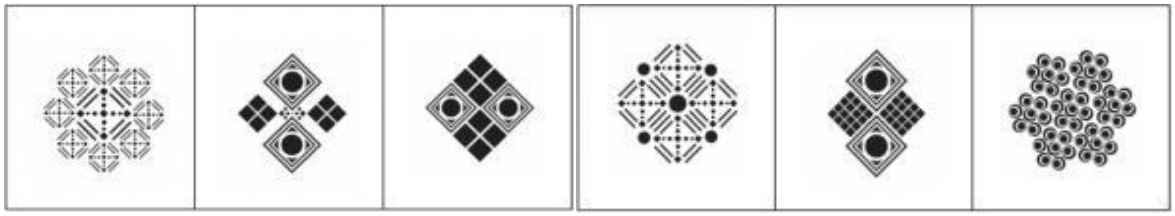
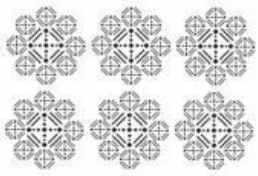
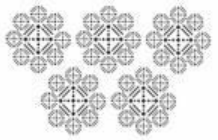
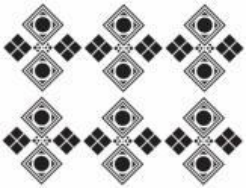
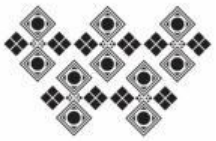
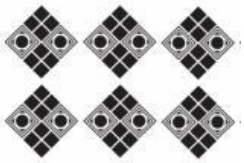
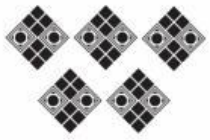
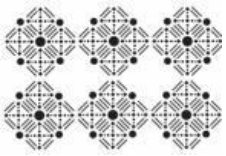
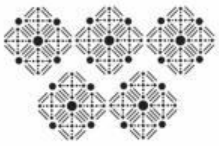
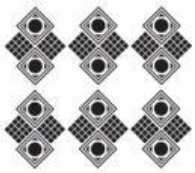
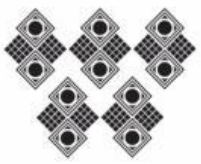


Figure 9. Geometric Module of Advanced Exploration
(Source: Personal data, 2021)

After making a geometric module for further exploration, of the six modules, a digital composition was made with two types of composition. They are square repeat and brick repeat to find out the potential compositions used as fabric sheets in ready-to-wear clothing.

No.	Module	*Square repeat Composition*	*brick repeat Composition*	Analysis
1.				In this module, we use a square shape, dominated by a rectangle, and combined circles. The composition looks rhythmic and comparative.
2.				In this module, we use combined squares and circles. The composition looks rhythmic and comparative.
3.				In this module, we use more combined squares and circles. The composition looks rhythmic and comparative.
4.				This module uses combined squares and circles. The modules mutually dominate each other. The composition looks rhythmic and comparative.
5.				In this module, we use more combined squares and circles. The composition looks rhythmic and comparative.

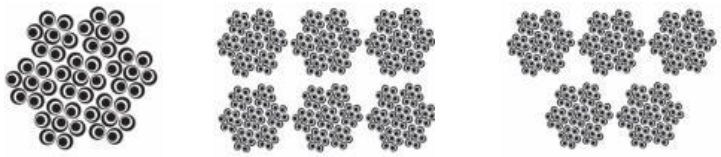
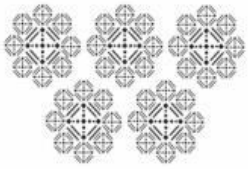
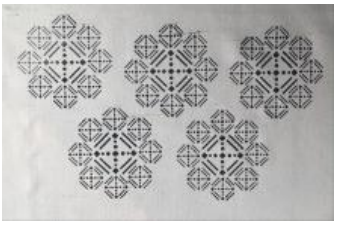
6.				This module is dominated by circular shapes of different sizes in one module, which is then combined with the same module and produces a complete module. The composition looks rhythmic and comparative.

Table 4. Composition of Geometric Modules in Advanced Exploration
(Source: Personal data, 2021)

f. Selected Exploration

Based on the further exploration of motif modules and composition, fashion motifs and designs are selected to be printed on fabric sheets for ready-to-wear clothing products.

Figure 10. Engraved Motif Plate of Selected Exploration Module
(Source: Personal document, 2021)

No.	Composition	Result of Composition	Analysis
1.			The motif composition printed onto the fabric indicates that the printing plate is made with a laser engraving technique, then printed to the side half of the size of the motif module for the bottom using an oil-based dye (offset ink) on Toyobo cotton fabric.

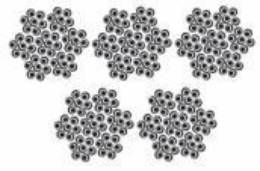
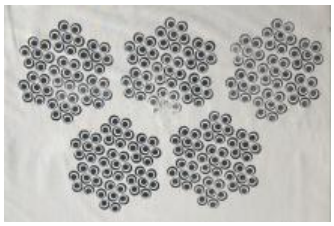
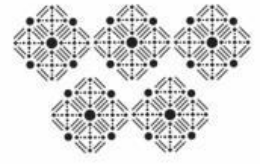
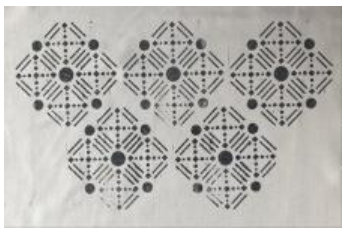
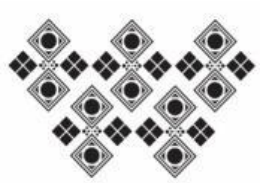
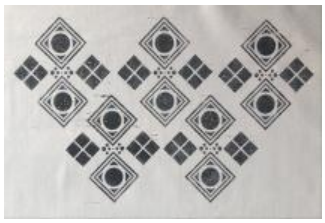
2.			The motif composition printed onto the fabric indicates that the printing plate is made with a laser engraving technique, then printed to the side half of the size of the motif module for the bottom using an oil-based dye (offset ink) on Toyobo cotton fabric.
3.			The motif composition printed onto the fabric indicates that the printing plate is made with a laser engraving technique, then printed to the side half of the size of the motif module for the bottom using an oil-based dye (offset ink) on Toyobo cotton fabric.
4.			The motif composition printed onto the fabric indicates that the printing plate is made with a laser engraving technique, then printed to the side half of the size of the motif module for the bottom using an oil-based dye (offset ink) on Toyobo cotton fabric.

Table 5. Selected Exploration
(Source: Personal data, 2021)

f. The final product

The design concept refers to the 2021/2022 fashion trend with the theme of Essentiality. It depicts a change in the life activities of urban groups who mostly have activities around the home environment. Therefore, they need comfortable, functional, yet less detailed clothing styles. The casual clothing style blends with femininity characterized by geometric motifs in the Essentiality theme.
From the Essentiality concept, the researcher saw an opportunity to use Toyobo cotton cloth which contains a geometric motif as a motif module. The most optimal experimental results for fashion styles will be waste pallet wood printing plate material with block printing techniques with ready-to-wear and loose cut fashion styles.

The consumers in this study have a simple and basic style of dress. They can socialize well. Besides that, they also like new places and learning new things. Consumers use their free time by going to coffee shops, and restaurants, photography, shopping, and traveling.

Figure 12. *Imageboard* concept
(Source: Personal data, 2021)

Figure 13. *Lifestyle Board*
(Source: Personal data, 2021)

The products in this research are ready-to-wear fashion products. The product refers to the imageboard and design concept.
The product design in this study adapts the concept of the 2021/2022 fashion trend namely Essentiality. Fashion designs tend to use simple cuts so that the characters from geometric motifs that have been applied with block printing techniques can stand out and are more clearly visible. The design in this research clothing is included in the ready-to-wear category. Here are some selected product sketches.

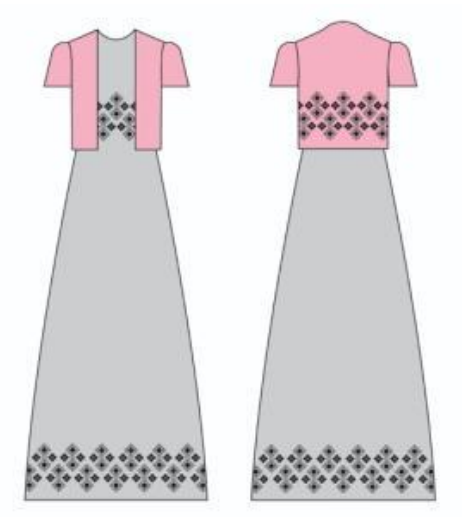


Figure 14. Sketch of *Look* 1
(Source: Personal data, 2021)

Figure 15. Sketch of *Look* 2
(Source: Personal data, 2021)

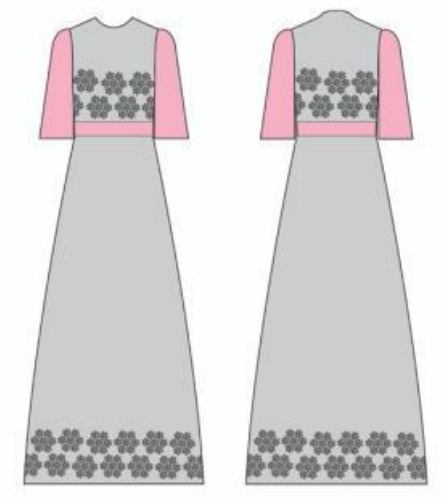


Figure 16. Sketch of *Look* 3
(Source: Personal data, 2021)

Figure 17. Visualization of *Look* 1
(Source: Personal document, 2021)

Figure 18. Visualization of *Look* 2
(Source: Personal document, 2021)

Figure 19. Visualization of *Look* 3
(Source: Personal document, 2021)

Figure 20. Visualization of *Look* 1 and Cloth Sheet.
(Source: Personal document, 2021)

CONCLUSION

Based on the results of the research entitled "Application of Block Printing Techniques with Waste pallet Wood Materials on Ready to Wear Clothing", it can be concluded that:

1. The block printing technique can use alternative materials, namely waste pallet wood. In this study, the printing plates can be made of waste pallet wood using the most optimal laser engraving technique. The printing plates have geometric motifs with a depth of 2 millimeters. After it has been formed, a handle is added to ensure ease of printing on the fabric.
2. Because block printing and application of the motifs take time, application in ready-to-wear casual clothing with simple cuts is advisable. Therefore, that the character of geometric motifs with several optimal motif placements on clothes. They are processed with block printing techniques from waste pallet wood material that can stand out and be seen more clearly.

Based on the results of this study the author has some suggestions:

1. In applying the block printing technique to ready-to-wear clothing, a deeper exploration of the printing technique is advisable.
2. Printing plate module can be further developed, but it still has to maintain the clear shape and size. It is suggested that further researchers maximize the color selection of oil-based ink (offset ink) to highlight the character in color and block printing techniques more deeply.

REFERENCES

Abrar, N. I., & Raharjo, T. (2017). Jamur Dalam Ekspresi Seni Kriya Kayu. *Corak*, *6*(2), 125–135. https://doi.org/10.24821/corak.v6i2.2400

Adi, S. P., Susanti, N., & Panggabean, M. N. R. (2020). *Cetak Tinggi dan Pengaplikasiannya*. Dwi-Quantum.

Ganguly, D., & Amrita. (2013). A brief study on block printing process in India. *Man-Made Textiles in India*, *41*(6), 197–203.

Kafka, F. J. (1973). *Batik, Tie-Dyeing, Stenciling, Silk Screen, Block Printing: The Hand Decoration of Fabrics*. 1973.

Lumintan, W. V., Kusumarini, Y., Suprobo, F. P., Studi, P., Interior, D., Petra, U. K., & Siwalankerto, J. (2019). *Perancangan Produk Interior Kelas Premium Dengan Pengembangan Kreativitas Upcycling Kayu Bekas Peti Kemas*. *7*(2), 155–163.

Rahman, D. (2017). *seni grafis indonesia*. *9*(2).

Rohani. (2017). Meningkatkan Kreativitas Anak Usia 5-6 Tahun Melalui Media Bahan Bekas. *Jurnal Penelitian Dan Pengembangan Pendidikan Anak Usia Dini*, *4*(2), 137. https://doi.org/10.30870/jpppaud.v4i2.4653

Safitri, R., & Rachmat, G. (2016). Studi kelayakan kayu bekas landasan peti kemas sebagai elemen interior lepas. *ATRAT: Visual Art & Design Journal*, *4*(3), 243–252. https://jurnal.isbi.ac.id/index.php/atrat/article/view/364/310

Samuel, J. (2021). PENGOLAHAN MOTIF MENGGUNAKAN TEKNIK ESCHER DENGAN INSPIRASI TENUN IKAT SUMBA PADA BUSANA READY-TO-WEAR. *Corak*, *10*, 31–49.

Studi, P., Interior, D., Petra, U. K., Rabu, D., Kamis, D., & Mikro, U. (2018). *Pengembangan desain produk hanger untuk peningkatan kreativitas desain umkm eka di surabaya*. 1336–1345.

Tantoroputri, M., Santosa, A., Studi, P., Interior, D., Petra, U. K., & Siwalankerto, J. (2018). *Perancangan Modular Panel dengan Memanfaatkan Limbah Kayu Pinus Bekas*. *6*(2), 116–125.

Wayan, S. I. (2016). *Pemanfaatan limbah industri pengolahan kayu di kota denpasar (studi kasus pada cv aditya)*. *X*(1), 15–22.