

Quilling Paper Stamp for the Efficiency of the Batik Production Process

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Abstract

Batik is making motifs on cloth with a coloring system using a wax barrier. The United Nations Educational, Scientific and Cultural Organization (UNESCO) notes batik as a cultural heritage. Batik is one of the traditional cultural characteristics of Indonesia. Batik work has become a traditional skill for some Indonesian people. Batik is currently produced by many craftsmen in several regions in Indonesia. There are several types of batik, one of which is the stamping technique, namely the technique of making batik motifs by stamping wax on the fabric. The stamp technique aims to produce batik motifs automatically bulk. With a tool in the form of a batik stamp, you can speed up the batik production process. Batik stamp tools generally use tools made of copper metal. This material in the procurement process is relatively expensive. This paper aims to improve the efficiency of batik products by applying quilling paper stamp batik as an alternative tool that is cheap and easy to make to assist the batik production process. Quilling paper stamp batik can provide benefits for Micro, Small and Medium Enterprises (MSMEs) in the batik production process. Because batik cap made of copper requires relatively complicated materials and the manufacturing process. In this paper, qualitative methods are used by exploring batik motifs and batik paper stamp quilling tools in one pattern unit, namely applying batik stamp quilling paper tools. Quilling paper stamp batik can be a new alternative as a tool in batik production. Quilling paper batik stamp has the advantage of being more economical and efficient. Production and diversification of batik motifs are more varied. It is hoped that the batik industry will experience an increase in the production of fits and the economy of the batik industry in Indonesia is increasing.

Keywords

quilling paper; stamp; and batik.



I. Introduction

Clothing is a human need. Batik has entered into a fashion clothing in the fashion world. Fashion awareness as clothing significantly influences social awareness in fashion clothing (Madinga et al. 2020). The trend of dress has developed along with the culture of the world community. Fashion trends as an effort to forecast seasons to predict shapes, colors, motifs in clothing fashions carried out by the forecasting group (Ma et al., 2020). In fashion culture, the practice of dressing aims to beautify oneself someone in his social environment as self-existence (Sitar 2020). Individual awareness to dress as a form of expression of awareness about the importance of culture. Fashion is an individual's interpretation of today's social and cultural environment. It is a symbol of one's pleasure and enjoyment (Siluk et al. 2018). Batik is in great demand as a pleasure, classic cloth batik made with ornamental motifs with Indonesian cultural nuances with motifs of on the

cloth. Batik has been in great demand by the people of Indonesia and the world. Batik is used in daily activities, parties, and traditional ceremonies (Firdaus and Nugroho 2019). Batik has a strategic position, especially in the education of batik culture to the younger generation. Batik can describe the character of Indonesian culture (Risdiyanti and Prahmana 2018). Batik is full of philosophy and symbolically reflected in the batik motifs applied to the fabric with the aim of glory and happiness. Currently, many efforts are being made in every region in Indonesia to produce batik in accordance with the essence of local culture as a good symbol of traditional life (Firdaus and Nugroho 2019). The meanings contained in batik include simplicity, regularity, consistency, and cooperation, which reflect the traditional life of the supporting community (Karanglo et al. 2018). These values are then the use of different batik motifs and has a high philosophical meaning in each region. In today's era, the division of strata of batik functions decreases along with the changing times that uphold democratization. Everyone has the right of each to determine the clothes used.

There are many home industries in the Yogyakarta, Solo, and Pekalongan areas, Central Java, Indonesia. Batik is a daily activity for batik craftsmen. The batik industry requires the speed of the production process in making batik (Dwinugroho et al. 2019). The speed of production is in line with consumer demand that continues to grow and is required to have varied motives. Production activities applying the principle of efficiency have a positive impact, especially on sustainable company performance (Raharjo 2019). In Indonesia, there are MSMEs in the field of batik, which is one form of increasing community economic activity. The batik industry has become social capital to improve the economic development of the batik craftsman community (Tohani and Sugito 2019). The business community is the source of life in society, both large and small companies. In Europe, there are 23 million SMEs that make up 98 percent of the business community (Oláh et al. 2019). Shows that the business community in the business sector has the same passion for developing new businesses. So, the role of the batik industry in absorbing labor and of course being able to support the progress of science and technology in the future continues to be developed (Saber, 2018). The same understanding is needed to develop the batik industry from various stakeholders so that the activities of the batik production process in small and medium enterprises can develop well (Lias, Ismail, and Hamid 2020). Development is a systematic and continuous effort made to realize something that is aspired. Development is a change towards improvement. Changes towards improvement require the mobilization of all human resources and reason to realize what is aspired. In addition, development is also very dependent on the availability of natural resource wealth. The availability of natural resources is one of the keys to economic growth in an area. (Shah, M. et al. 2020)

The batik production process requires efficiency by applying various possible exploration tools for batik. Batik tools using the stamp technique are one of the effective means of making batik. Batik stamp is a way to quickly produce wax motifs, generally made of copper metal. Batik stamps can make batik motifs with mass and fast repetition. The technique of batik can also be made by embroidering, but the production process is less efficient. Sometimes users do not understand between batik stamps and written batik (Firdaus and Nugroho 2019). Batik stamps rely on tools to make motifs on cloth and written batik using canting relies on working motifs with hand skills. Batik stamps can be applied to explore regional motifs as symbols of distinctive cultural characteristics such as Medan's North Sumatran batik (Dhani, Wiratma, and Misgiya 2020). By making a symbol as a regional characteristic and then stamping it repeatedly to form motifs on the fabric.

The potential for batik stamps has good prospects. However, the exploration of batik motifs is still constrained by the limitations of the implementation when making batik. Motive diversification has not been maximized, especially in limited quantities with different motifs. Therefore, efficiency is needed in making batik stamp motifs made of paper called quilling paper stamp batik. Relative stamp batik quilling paper making effectively and efficiently utilize paper waste and does not require special labor. Quilling paper batik stamp is a new way to become an alternative to batik tools to reduce production costs as well as to make batik stamps.

II. Research Method

This method of writing describes descriptively qualitatively, including technical means, making quilling paper batik stamps , and exploring batik motifs . The right media can be used to test the effectiveness of using a batik stamp tool made of paper (Nuraini et al. 2020). Effectiveness includes the shape, paper material, and artistic value of the motifs made. So the creation of batik motifs pays careful attention to the shape and curvature of the paper in the manufacturing process. Development of creativity with basic design and aesthetic approach to create batik motifs with economic, cultural, and environmental perspectives creative process as one's belief to increase connection in subjective judgment (Koster et al. 2015). Product design is obtained from the visual appearance of aesthetic perception in approaching emotions and experiences (Paliewicz 2019). Overall considering aspects related to the material, the process of formation, application, and of course adjusting to the design of contemporary motifs.

The main point that must be analyzed is the case study of quilling paper which is used as a batik stamp. The method using quilling paper batik stamps easily transfers various forms of images that are useful in reproduction (Kang et al. 2011). Application and learning of batik tools to understand new knowledge in batik and test the effectiveness of the new tools applied (Nuraini et al. 2020). This tool is relatively new in the batik world and has been applied to several productions in Nurohmad's Dongaji batik industry. Quilling paper batik stamp is one way to speed up the repetition of motif images by attaching wax to the fabric (Karanglo et al. 2018). Quilling paper batik stamp has been modified to become a batik stamp tool. Starting with the exploration of the motifs made by quilling paper batik stamps and functioned as stamped batik tools in the batik industry . Exploration of batik motifs is formed with waste papers equipped with handles to form motifs that are lined up in a row. The application of batik in the industry is one of the successful trials.



Figure 1. Process flow as a method of applying paper quilling in the batik process
(Diagram: Timbul Raharjo, 2021)

The population includes batik stamps made of copper, wood, canting and others. The batik stamp tool from various materials and motifs used is the existing population. Sample is a stamped batik tool made of paper, namely quilling paper batik stamp. The batik motif that is applied to the quilling paper batik stamp is the selected sketch which is a sample of the choice of motif used in making this paper batik stamp. Instruments include data collection in pattern making, paper quilling, and applications creativity p creation of motifs . This is to explore batik motifs with their characteristics and functions. Designing a paper quilling stamp design has a maximum design following aesthetics and harmony according to consumer desires (Liu et al. 2020). Of course, in making motifs, it is adjusted to the character of the quilling paper by sorting and choosing the type of paper used. The motive is not to demand a motif of sharp, inaccessible dots from the character of the paper. Also pay attention to and directly observe making batik stamped quilling paper for industrial applications. The procedure in this paper covers the flow of formation and application of stamped batik quilling paper.

III. Result and Discussion

Quilling paper was applied as a batik stamp by Nurohmad, a batik artist who lives in Sawit Hamlet, Panggungharjo Sewon, Bantul Yogyakarta Indonesia, which is used as packaging for waste paper. Nurohmad started making batik paper stamps known as quilling paper which is used as a batik stamping tool. Starting from various experiments ranging from plastic, wood, and others. Batik paper stamp material is the most effective success rate. Utilization of waste paper as a solution to problems that arise due to the emergence of paper waste that is not condensed as part of repairs due to environmental disturbances due to industrial process waste (Ferraro et al. 2020). Paper can be cut, bent, and linked, laid out to form the paper quilling technique of batik motifs as batik stamps, and used over and over again. Batik motifs are made in a series that can often be printed. Image repetition is an adaptation arranged hierarchically in a repetition effect (Feuerriegel et al. 2019) exploring simpler motifs within a single unit motif series. The motifs made as alternative sketches of new patterns inspired by plant and animal motifs were refined into more beautiful shapes.

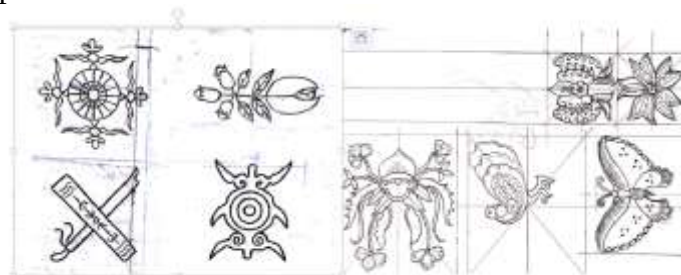


Figure 2. *Exploration of batik motifs for quilling stamp batik*

Move on a wooden plank with a picture of a choice of motifs and made by connecting with G glue on top of the motif. G glue which is made from Ethyl Cyanoacrylate material has fast dry and strong properties. The system of connecting with glue replaces the hard soldering technique in the process of making copper batik stamps. Paper is selected from the type of packaging paper used in the supermarket secondary packaging sector and how waste can be reduced (Dixon-Hardy & Curran, 2009) . The paper is made curved, straight, and centered according to the prepared sketch, the result is like picture 3. Batik motifs can be developed according to the planned motifs. Quilling

paper is made on a wooden board as a handle for tamping. The motif that appears can be seen in Figure No. 4 results of hot wax stamped from quilling paper made.



Figure 3. The process of quilling paper stamps with wax. The part of the cloth that is covered with wax and dyed with black dye produces a white motif on a black batik background (Photo: Timbul Raharjo, 2021)



Figure 3. The process of quilling paper stamps with wax. The part of the cloth that is covered with wax and dyed with black dye produces a white motif on a black batik background (Photo: Timbul Raharjo, 2021)

The resulting motif is a batik motif with brown wax in accordance with the wax used. After the wax batik stamp motifs have been attached to the fabric then dyed in color. The function of the wax as a color barrier does not enter the cloth that has been covered with the wax. Illumination is very effective, not only for distinguish between white and black but also to distinguish the hue of the color permanently (Tamura et al., 2015) . After the color is attached to the cloth that is not blocked by wax then it is removed by boiling, boiling to melt the wax and release from the cloth, then the original color of the cloth or the color covered by wax appears. This can be done repeatedly depending on the color combination to be applied and can overlap each other. The resulting batik color as shown in Figure No. 4.2. In the example presented only one dark blue color is used. The original fabric color motif is white and dark blue as the base.

Quilling paper stamps can be used repeatedly for batik motifs with new and relatively exclusive combinations. Nurohmad can make batik with many variations of batik to produce batik that is always changing in limited quantities. The design of batik motifs in

the process of creation is not worth the cost of making batik stamps made of copper which is relatively complicated. From this paper, the use of quilling paper stamp batik has advantages and good effectiveness can be conveyed as follows:

Table 1. The efficiency of the use of quilling paper batik stamp

EFFICIENCY ASPECTS	COPPER STAMP BATIK	QUILLING PAPER	DESCRIPTION
Price of materials	Rp. 200.000,00	Waste (free)	100% save
Manufacturing costs	Rp. 1,000,000.00	Rp. 200.000,00	80% cheaper
Time	20 days	four days	80 per cent faster
Skills	Requires special skills	Simple skills workable	Relatively easy

The use of quilling paper as a means of stamping to make canting candles has various motifs. Quilling paper to produce batik requires creativity with new motifs and a limited number. Quelling paper as a substitute for batik stamps made of copper has an adequate level of efficiency. Batik stamps made of copper have a level of complexity. With the Quilling batik stamp, it is obtained that the price efficiency of raw materials is 100% more efficient because it can use waste packaging paper materials that are widely available in the environment. Waste paper has good added value, especially packaging paper (Ozola et al. 2019). Nurohmad makes batik quilling stamps using paper packaging waste, which are generally of the ivory and duplex types, which are commonly found as unused waste. Packaged ivory paper generally has a thickness between 210-400 grams. Each recycled paper has a different character, environmental, economic aspects, can be analyzed and used in the manufacture of useful products. Cardboard products, evory and so on can be recycled (Ozola et al., 2019) . Quilling batik stamps can reduce material procurement by up to 80% compared to using copper batik stamps.

Labor for making paper stamp quilling is 80% cheaper. In manufacturing, labor efficiency related to productivity is required (Palatnik and Mcintosh 2020). Productivity that affects the economic sector requires innovation that includes technology (Kijek and Kijek 2019). The suppression of production costs can automatically increase revenue. Labor cost factors contribute to production costs so that efficiency in the work process is an option (Acién et al., 2012) . Quilling paper batik stamps can be done by workers who do not require a relatively high level of skill. The workforce only does simple paper cutting, bending and joining of paper. This work can be done by both women and men. It can be said that this simple technology can affect productivity in the batik industry. Simple process using a paper cutting tool and connected with G Glue batik stamp quilling paper correctly, it can save time in the production process that requires 80% faster manpower. This is because the production process of quilling paper stamp batik can be done for workers who do not require special skills. So that productivity can be maximized by saving the production budget through a predetermined time estimate. Planning can be made by determining the desired time according to the time and number of orders received. There are two demand variables in time planning with short and medium term arrangements to determine production time (Sabir & Batuk, 2014) . Good planning in accordance with the consistency of both product quality and time gives confidence to consumers. This is evidenced by the cost of production costs and production time.

IV. Conclusion

The application of batik stamp quilling paper is one of the new alternatives in accelerating the production process in the batik industry. The process of making batik using paper batik stamps provides convenience for beginners and small-scale batik industries. Ease includes materials and time in the production process. Efficiency in making new patterns as alternative batik stamps in batik production. This pattern can be applied to the existing batik industry. The batik industry can use batik stamp quilling in its production process. They can increase the diversity of batik motifs and make the production process more efficient in the batik industry. Finally, it can improve the economy of batik industry craftsmen, society, nation and state.

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