



Women and the Transformation of Batik Culture in Pemusiran, East Tanjung Jabung, Jambi

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Abstract. *This study examines the role of women in transforming the Pemusiran Batik culture through a partnership with the private agency Petrochina Tanjung Jabung Jambi. The research uses the perspective of the diffusion of innovations Everett M. Rogers (1964) which explains that cultural transformation through the process of diffusion of innovation requires the role of actors as agents of change. This study uses an action research method in which the researcher together with the actor Suraedah as a female character, conducts an assessment and transforms the Pamusiran batik culture. The study was carried out for 4 months from January 1, 2021 to April 30, 2021. The study found that, as the earliest actor in adopting innovation, Suraedah played an important role in the transformation of the cultural innovation of Pemusiran batik. The transformation process occurs in the diffusion of innovations starting from: (1) studying innovations, adopting, and developing social networks through the "Batik Idola Group". This group in selecting partners uses the 5C criteria (Character, Capital, Capacity, Collateral, Condition) with several adjustments.*

Keyword:

Women, Batik Cultural Transformation, Pemusiran Batik, Social Responsibility, World Heritage

Article Info

Received:

13 May 2021

Accepted:

3 June 2021

Published:

10 June 2021

1. Introduction

Pemusiran Village does not have a history of Batik culture. Batik culture, especially its motifs, has progressed rapidly and is full of innovation. While Batik was previously known

for its fixed and standardized motifs, in its development, contemporary Batik motifs have blossomed with wide varieties that are developing fast. The process of diffusion of innovation of Batik and its culture in Pemusiran Village has happened in a short time, due to the existence of a group of innovation adopters under the category of Innovator, which has a formidable influence on the local population in pursuing career as Batik artists. This has led to positive results, including in the development of Batik art in local and regional levels, or in Tanjung Jabung Timur regency and Jambi province, respectively (Dana Kurnia, et al. 2013).

One of the multinational companies operating in Tanjung Jabung Timur regency is PetroChina International Jabung Ltd (PCJL). The company works in the upstream oil and gas industry that exploits oil and gas resources and potentials to support national energy demand. In East Tanjung Jabung, PCJL is located in Geragai District, which neighbors East Tanjung Jabung capital in Muara Sabak District. Meanwhile, Nipah Panjang District where Pemusiran Village is located, is around 120 kilometers (KM) away from Muara Sabak. As a company operating in East Tanjung Jabung, PCJL has carried out Corporate Social Responsibility (CSR) programs in various sectors, including community development, economy, education, environment and also infrastructure (Handayani et al. 2013).

One of the important parts in CSR program development is identification of potentials, analysis of potential development and identification of vulnerable groups as program targets.

PCJL has observed that the batik development in Pemusiran Village has many social and economic potentials. Batik artists in Pemusiran Village established the Batik Idola group, which is the only group in Pemusiran Village that works in batik art.

Members of Batik Idola group are highly enthusiastic and is led by a housewife with a strong commitment on developing batik business. On the other hand, Batik Idola also requires strong external support from the government and the private sector, considering the susceptibility of the group's assets and access (Kartorningsih et al. 2009).

In various cases of CSR program development, the lack of passionate leadership is among the major factors of failure or unsustainability. Therefore, companies must define the right criteria in determining CSR program beneficiaries.

This paper will discuss the connection between diffusion of innovation of batik culture that has been progressing rapidly in Pemusiran Village, linked with strong determination from the drivers of Batik Idola business group and company's support in selecting Pemusiran Village Batik development as a Corporate Social Responsibility program.

2. Literature Review

2.1. Innovation and Development of Batik in Pemusiran Village

Innovations are relevant when analyzed through the theory of diffusion of innovation. This theory was first put forward by Rogers (1964); Geertz (1983, 1992b) and it essentially described how new ideas and technologies spread in a culture. In the book titled *Diffusion of Innovations*, Rogers defines diffusion as a process by which an innovation is communicated through various channels over time among the participants in a social system. Meanwhile, innovation is any idea, practice, or object that is perceived as new by an individual or other unit of adoption. The theory believes that an innovation is diffused to all members of society in predicted patterns. Some individuals or groups will adopt an innovation soon after they hear the innovation, while some other individuals or groups need more time to adopt the innovation.

Humans as innovation adopters, in the views of Rogers (1964) and a number of other communication scientists, are identified in five categories: First, **Innovators**. They are brave and willing to try new things. They tend to have tighter social relationships compared to other social groups. These people are able to establish proper communication despite geographical distances. Second, **Early adopters**. This group is more local than the innovators. The category produces more opinions than other categories and is always in search for information about innovation. Those in this category are highly respected by their group due to their success and willingness to try new innovations. Third, **Early majority**. This category of adopters comprises people who do not want to be the first ones to adopt an innovation. On the contrary, they will carefully compromise before making any decision in adopting an innovation, even over a long time. People in this category carry an important function in legitimizing an innovation or showing to all communities that an innovation is worth using and beneficial.

Fourth, **Late majority**: This group is more cautious regarding the functions of an innovation. They wait so that most people will have tried and adopt an innovation before making any decision. Sometimes, group pressure may motivate them. In other cases, economic interests encourage them to adopt an innovation. Fifth, **Laggard**: This group comprises the last people to adopt an innovation. They are more traditional and reluctant to try new things. Members of this group commonly socialize with like-minded people. Once laggards adopt an innovation, most people will have adopted other, newer innovations and consider them as outdated. What is interesting in these five categories is that Innovators are the most active adopters of innovation that does not only adopt innovations passively.

Meanwhile, the stages of diffusion process are as follows: **First, Learning Innovation**. This is an early stage when people begin to see and observe new innovations from various sources, especially mass media. Early adopters are usually people who often read newspapers and watch television, which makes them aware of the latest innovations. If an innovation is deemed hard to understand and apply, it will not be adopted quickly by them. The case is different if the new thing is considered easy to use, then they will adopt it faster. Some types of innovations must be socialized through interpersonal communication in close physical proximity.

Second, Adoption. In this stage, people begin to use an innovation that they have learned about. There are several factors behind whether an innovation is adopted or not by people. Research shows that the more beneficial a behavior is, the more incentive there is for people to adopt it. Adoption of innovation is also affected by people's believe in a person's skills. Before an individual decides to do something new, they usually ask themselves whether they are able to do it. If the individual believes that they can do it, they tend to adopt the innovation. Furthermore, status can be a strong motivational factor in adopting innovations. Some individuals wish to always be the center of attention in adopting new innovations to showcase their social status in front of others. Adoption of innovation is also affected by an individual's values and self-perception. If the individual considers an innovation as deviant or not in line with values they adhere to, they will not adopt it. The bigger the sacrifice involved to adopt an innovation is, the smaller the adoption rate will be.

Third, Development of Social Network. A person that has adopted an innovation will spread the innovation to the surrounding social network, so that the innovation can be widely adopted by society. Diffusion of an innovation is inseparable from the process of

dissemination from one individual to another through their social relationship. Research shows that close members of a solid group adopt an innovation through their group. In the process of adopting innovations, communication through mass media can raise public awareness on the spread of new innovations faster than on interpersonal communication channels. Interpersonal communication influences people to adopt innovations that have been introduced by mass media.

3. Methods

This research is an action research, which is research carried out by researchers together with natives collaborating in carrying out cultural transformation through the theory of diffusion of innovation (Bourdieu 1993; 1998). A number of women figures together with researchers carry out discussions, identify problems, analyze needs and basic potentials, establish a group of women's batik artists, create an action plan and carry out activities of cultural transformation both as. Through the initiation process up to transforming culture, women figures as local champion are observed closely, interviewed with ethnographical interview technique, until patterns are found on how they transform local culture through the establishment of their group of women's batik artist (Geertz, 1992a). Other than serving as actors in cultural activities, they are also positioned as key informants and primary source of information in this research.

4. Findings and Discussion

4.1. Pemusiran Batik

Batik Idola emerged as a group of batik artists in 2017 and appointed Suraedah as the head of the group. During the interview on June 5, 2021, she elaborated how she decided to get into batik art. "I first developed an interest in batik art when I visited a friend's house. I started learning batik art in 2016 and I have been producing my own batik since 2017. I call it Batik Idola. Alhamdulillah, the business has expanded far and wide now. I have been receiving support not just from my family but also from PetroChina and well-established relationships with other agencies. This has helped Batik Idola to compete in the market," says Suraedah. From her simple, easy to understand explanation on how she started her business, it can be said that Suraedah has implemented the Diffusion of Innovation theory in her work (Alamsyah; 2014).

Suraedah's statement: "I first developed an interest in batik art when I visited a friend's house..." shows she can be categorised as an innovator based on the Diffusion of Innovation theory elaborated by Everett M. Rogers (1964). Suraedah lives in an area with difficult access and batik art was generally non-existent. However, Suraedah was interested in batik straight away when she visited her friend's house. Since then, the events that followed have created a process of diffusion of innovation. This shows in her statement: "... I started to learn batik in 2016 and I have been producing my own batik since 2017. I call it Batik Idola. Alhamdulillah, the business has expanded far and wide now. I have been receiving support not just from my family but also from PetroChina and well-established relationships with other agencies. This has helped Batik Idola to compete in the market".

During the interview with researchers, it can be seen that Suraedah has fulfilled the three steps of the diffusion of innovation theory. The first step, Suraedah 'learned the innovation' by saying, "... I started to learn batik in 2016...". The second step shows the process of adoption, "...I have been producing my own batik since 2017. I call it Batik Idola...". The third step shows the 'development of social network' as she states,

“Alhamdulillah, the business has expanded far and wide now. I have been receiving support not just from my family but also from PetroChina and well-established relationships with other agencies. This has helped Batik Idola to compete in the market.”

The most critical step in the innovation diffusion process is the process of adoption. It is important because this step determines whether or not there will be a continuation in the innovation diffusion process and creating explosions in innovation. People can easily develop interests in new things. This is because it is natural for humans to have curiosity (Dana Kurnia et al, 2013). However, to proceed into the adoption stage, there are more sacrifices in terms of materials, time, energy, and there will be calculations regarding profits shall innovation adopters continue with the process. In the next step, the ‘development of social network’, innovation adopters are more sure that they are on the right track and looking for support and expanding their social networks.

4.2. Criteria in Choosing Beneficiaries for Social Responsibility Programs

Choosing beneficiaries for a social responsibility program can be challenging. The CSR program will provide a number of activities for prospective beneficiaries which would require a budget to be prepared. The disbursed budget is expected to have a positive impact, both socially and economically to ensure the sustainability of the program. In addition, it is also important to establish mutually beneficial relationships between beneficiaries and the company. Thus, this makes the selection of prospective beneficiaries crucial as it determines the sustainability of a CSR program. One way to determine prospective beneficiaries is to use 5C criteria, the same criteria used in the banking industry (Mitchell 1991; Nurainun et al. 2008; Scot. 1991)..

These 5C criteria may be modified for determining prospective beneficiaries for the CSR program. Taking Batik Idola as an example, the elaboration of the 5C is as follows:

The first criterion is **character**. This criterion explores the prospective beneficiary’s background and characteristics, to determine whether or not they fit into the program. This includes the reputation of the prospective beneficiary, criminal record, bad habit, and commitment. This criterion serves as the basic in determining the potential of the prospective beneficiary. Suraedah, as the leader of Batik Idola, has proved to be of high integrity. She has adequate communication and leadership skills, as well as her commitment to fulfill requests. In addition, she has also been referred by district government offices. Thus, it can be said that Suraedah has scored well in this criterion.

The second criterion is **capacity**. Capacity is often referred to as capability. This determines how capable the prospective beneficiary is in running the business. Before PCJL support, Batik Idola was already up and running. Suraedah and the other members have already been producing batik. However, it needed to be improved.

The third one is **capital**. As opposed to the banking industry, prospective beneficiaries were chosen because of their vulnerabilities to access and assets. Therefore, capital in this case is not limited to tangible assets but also intangible assets such as reputation, business potential, and Batik Idola’s social standing.

Collateral serves as the fourth criterion in the process of selecting beneficiaries. As mentioned above, beneficiaries were selected because of their limited access to tangible assets. Therefore, collateral in this case does not only consist of physical guarantees but also non-physical ones. These may be obtained from individuals and/or government agencies. While non-physical guarantees have no legal standing, it is important to note that CSR programs aim to improve social capital. These non-physical guarantees are also used

to minimize risks and provide moral strength for beneficiaries and the company. In the case of Batik Idola, when assistance was disbursed to build a workshop in 2020, where PCJL partially supported the funding, there was a written statement stating the commitment of Batik Idola to complete the entire construction independently. The workshop was able to be completed through synergy between PCJL and the group (Wellman, 1988).

The fifth criterion is **condition**. This criterion refers to specific and general economic conditions in the industry where beneficiaries operate. Under normal conditions, Batik Idola has a lot of business potential in the market. Batik art continues to grow with adequate response from the market. Batik Idola also aims to market their products digitally and penetrate the digital market. However, in the current pandemic condition, the industry has experienced a significant decline. PCJL, as a company that can survive in the current condition, is encouraged to support other MSMEs including Batik Idola (Pringgienies et al. 2013).

From the 5C criteria, it can be seen that the selection of Batik Idola is based on the character. PCJL is using character as the main criteria to determine the selection of PCJL CSR program beneficiary.

4.3. Batik Idola Group, Suraedah, and Batik Idola Achievement

Batik Idola is a small-medium enterprise registered with the East Tanjung Jabung Department of Industry and Trade since 2017. During that time, there were only 12 active members with Suraedah as the head of the group. Batik Idola is the youngest among the groups of batik artists. The average production capacity for the group is 200 pieces batik cloth per month, along with other products such as t-shirts and jumputan cloth. Batik Idola has also received support from other agencies, both at the district and provincial levels.

The pattern of Batik Idola's products is unique to the surrounding environment of Pemusiran Village, which is located in a coastal area. The flora and fauna found in the village are the main features of Batik Idola. There are patterns with hibiscus motifs, banana leaves, *jeruju* (from the *Arcanaceae* family) and *pidada* (from *Lythraceae* family, commonly called mangrove apple) leaves.

Pidada tree (*Sonneratia caseolaris*), often called *Pedade* by Pemusiran Village locals, is a mangrove plant that grows in Pemusiran coastal area. The shape of the fruit is round with stemmed tip and wrapped in flower petals at the base. The fruit is 6-8 centimetres in diameter and weighs between 52-54 grams. This green coloured fruit has 800-1200 seeds and a distinctive aroma. The fruit is non-toxic and can be consumed directly.

The fruit is also known to have many benefits. It is one of the local primates' favourites as well as other fruit-eating animals such as bats and birds. The fruit is also often used as syrup, *dodol* (South-East Asian sweet toffee), jam, and crackers. Another benefit of the fruit is that it can be processed into flour which contains higher protein compared to tapioca and sweet potato flour (Ahmed et al. 2013).

Similar to floral patterns, animal patterns in Batik Idola's products are also unique to Pemusiran coastal area. These include crabs, jellyfish, and mudskippers. Locals have called mudskippers, *tempakul*. Other names are: *timpakul*, *gelodok*, *belodok*, *belodog* or *blodog*, *belacak* (from Malay language), sea snakehead, and *lunjat*. Mudskippers are a type of fish that can crawl up to the land or perch on the roots of mangrove trees. The fish live in the tidal zone, in mudflats with mangrove populations. Mudskippers are resilient to environmental damage and can survive even in poor conditions.

There are many mudskippers found at the bottom of houses including Batik Idola's workplace during low tide. Most houses in the area are Jambi's traditional stilt houses. Suraedah mentioned that the mudskipper motif is the one that she really liked. She is inspired by the creature's survival ability and it also becomes her motivation.

Batik Idola also incorporates a local tradition of Safar Bathing (*Mandi Safar*). A culture in East Tanjung Jabung, the bathing is an ancestral tradition brought by *Bugis* migrants when settling in the area. During the ritual, people ask the Almighty for protection against danger and disease, and to purify themselves from sin by throwing themselves into the sea. The annual tradition has become the main tourist attraction in the district.

The people who take part in the ritual are required to have *Sawang* leaves tied on their heads or around their waists. The leaves are given prayers or tattoos by elders or religious authorities. According to traditional belief, the use of the leaves is so that people who bathe are safe from all dangers and disturbances, be it from animals or evil spirits.

In East Tanjung Jabung, the ritual is centered in Air Hitam Laut Village, Sadu Subdistrict, neighbouring Pemusiran Village. The area also has great potential for natural and cultural tourism. Air Hitam Laut Village is also one of the entrances to Berbak National Park (TNB), an area home to a vast diversity of native flora and fauna.

In addition, Air Hitam Laut Village is also within proximity to Cemara beach, a white-sanded beach covered in beach sheoaks. The beach is about 20 kilometres long, between 20-30 metres wide and less than five metres deep. In calm weather, the beach is perfect for sports such as surfing or fishing. Batik Idola also creates motifs that target young people. The motifs presented for the younger generation are sunflowers and butterflies which depict their youthful spirit.

PCJL have implemented a number of programs with Batik Idola: basic batik training in 2018, advanced batik training with natural dye and development of batik production tool in 2019, as well as supporting the development of Batik Idola's workshop in 2020. In addition, PCJL also facilitated the marketing of Batik Idola and helped sell them at the company's internal shop and integrate them with other small-medium enterprises development programs in East Tanjung Jabung.

To see the progress that has been made by Batik Idola, the table below shows the increase in the number of batik cloths produced from the beginning and after the implementation of the CSR program:

Table-1: Number of Batik Production and Number of Members of Batik Idola

Parameter	2017	2018	2019	2020	Note
Monthly production	30	50 - 70	150 - 300	150 - 200	Batik cloths
Number of members	10	10	12	12	Persons

Source: Researcher interview with Suraedah, June 5 2021

Batik Idola also actively participate in exhibitions such as the 2017 Regional National Craft Council (Dekranasda) Batik Exhibition in Jakarta, Dekranasda Batik Exhibition 2018 in Jakarta, collaborating with Youth and Sports Tourism Council (Dispapora) for batik exhibition in Kuala Lumpur, Malaysia in 2019, as well as actively participate in competitive fashion shows at the district and provincial levels.

In addition, Suraedah is also eager to share her passion for batik through various social activities such as providing training for students of SMA Negeri 3 public high school in Nipah Panjang, East Tanjung Jabung since 2019. The school intends to make batik as an

extracurricular for the students. The training involves creating batik art and *jumputan* fabrics. This productive activity has also spread to other schools. SMK Negeri 2 vocational high school and SMP Negeri 15 public middle school in Nipah Panjang have also asked Batik Idola to collaborate in organizing extracurricular activities for their students.

Suraedah's passion and her activeness in sharing her knowledge have also spread to members of the local family welfare program. She has been an instructor for batik training in Berbak and Sadu Districts, two districts that neighbour Nipah Panjang District where Pemusiran Village is located.

The next CSR program is planned to be implemented in 2021. The next programs are to provide installations for batik waste treatment, motivational and entrepreneurship training, and supporting batik tools and materials for batik training for high school and vocational high school students in Nipah Panjang District, East Tanjung Jabung Timur.

In determining the CSR program to be implemented, PCJL always coordinates with the Regional Development Planning Agency (Bappeda) as the coordinator of the CSR forum. PCJL is also in close coordination with relevant agencies at the local and provincial levels to plan the CSR program and determine potential beneficiaries (Pringgenies et al. 2013).

5. Conclusion

Based on empirical and theoretical analyses, this research finds that Pemusiran Village is a coastal village with potentials in constructing women figures as local champions in batik development in Nipah Panjang District, East Tanjung Jabung Regency, which originally did not have roots of batik culture among its people. In its development, the batik art of Pemusiran Village survive through innovations of motifs and designs.

A number of components such as innovators, as the group that adopts innovation the earliest, have an important role in the speed of diffusion of innovation of Batik culture in Pemusiran Village, Nipah Panjang District, East Tanjung Jabung Regency. The process of diffusion of innovation is: learning innovation, adoption and development of social network. The 5-C criteria commonly used in determining the disbursement of bank credits can be used as criteria in selecting development partners for CSR programs with several adjustments. Character of group leader is a main criterion in determining the result of development partner selection for CSR program.

Suraedah, a new batik artist who entered the industry in 2017, has shown her achievement in increasing the number of batiks produced as well as group membership. She has also spread her knowledge to other groups, including millennials, high school students and women in other villages. Synergy between parties is required so that CSR programs carried out by a company is highly effective and sustainable.

References

1. Ahmed R, Moushumi SJ, Ahmed H, Ali M, Haq WM, Jahan R, Rahmatullah M. 2010. Serum glucose and lipid profiles in rats following administration of *Sonneratia caseolaris* (L.)Engl. (*Sonneratiaceae*) leaf powder in diet. *Advances in Natural and Applied Sciences* 4(2):171-173
2. Alamsyah, Pujilestari, Titiek. 2014. Pengaruh Ekstraksi Zat Warna Alam Dan Fiksasi Terhadap Ketahanan Luntur Warna Pada Kain Batik Katun (The Effect Extraction Method And Fixatio n Of Natural Dyes To Color Fastness On Cotton Fabric). *Jurnal Dinamika kerajinan dan Batik*, Vol. 31. No. 1 Juni 2014, hlm. 2.

3. Bourdieu, Pierre. 1993. *The Field of Cultural Production: Essays on Art and Literature*. New York: Columbia University Press.
4. Bourdieu, Pierre. 1998. *Practical on the Theory Reason of Action*. California, Stanford: Stanford University Press.
5. Dana Kurnia, et al. 2013. Aplikasi Zat Warna Alam Pada Tenunan Serat Doyo Untuk Produk Kerajinan (Application Natural Dyestuff on Woven Fibers Doyo For Handicraft Product). *Jurnal Dinamika Kerajinan dan Batik* Volume 30 No. 1. Juni 2013, hlm. 52. Dalam <https://media.neliti.com/media/publications/61049-ID-aplikasi-zat-warna-alam-pada-tenunan-ser.pdf>.
6. Geertz, Clifford. 1983. *Abangan, Santri dan Priyayi Dalam Masyarakat Jawa*. Jakarta: Pustaka Jaya.
7. Geertz, Clifford. 1992a. *Tafsir Kebudayaan*. Yogyakarta: Kanisius Press.
8. Geertz, Clifford. 1992b. *Kebudayaan dan Agama*. Yogyakarta: Kanisius Press.
9. Handayani, et al. 2013. Pewarna Alami Batik Dari Kulit Soga Tingi (Ceriops Tagal) dengan Metode Ekstraksi. *Jurnal Bahan Alam Terbarukan (JBAT)* Vol 2 No 2 (2013) 1-6, hlm. 2.
Dalam <https://journal.unnes.ac.id/nju/index.php/jbat/article/view/2793/2846>
10. Kwartiningsih, et al. 2009. Zat Warna Alami Tekstil Dari Kulit Buah Manggis. *Jurnal Ekuilibrium* Vol. 8. No. 1. Januari 2009, hlm.41-45. Dalam https://Eprints.Uns.Ac.Id/700/1/Zat_Warna_Alami_Tekstil_Dari_Kulit_Buah_Manggis.Pdf.
11. Maziyah, et al. 2015. *Ornamen Mantingan*. Semarang: Museum Ranggawarsita Jawa Tengah.
12. Mitchell, J Clyde. (ed). 1991. *Social Network in Urban Situations: Analysis of Personal Relationships in Central African Towns*.
13. Nurainun, Heriyana, dan Rasyimah. 2008. Analisis Industri Batik Di Indonesia. *Jurnal Fokus Ekonomi (FE)*, Vol.7, No. 3 Desember 2008, hlm. 124-135. Dalam https://Scholar.Google.Com/Scholar?hl=En&As_Sdt=0%2c5&Q=Batik+dengsn+bahan+alami&btn.
14. Pringgenies, DE, et al. 2013. Aplikasi Pewarnaan Bahan Alam Mangrove Untuk Bahan Batik Sebagai Diversifikasi Usaha Di Desa Binaan Kabupaten Semarang. *Jurnal Info LPPM Edisi XV, Nomor 1, Pebruari 2013*, hlm. 7. Dalam <https://Ejournal2.Undip.Ac.Id/Index.Php/Info/Article/View/1282/968> Endogami: *Jurnal Ilmiah Kajian Antropologi* E-ISSN : 2599-1078.
15. Riniatsih, Ita, et al. 2017. Aplikasi Pemanfaatan Pewarnaan Alami Ramah Lingkungan untuk Pewarna Batik. *Materi Pengabdian Masyarakat di Grobogan, Tim LPPM Undip 2017*.
16. Rogers, Everett M. 1964. *Diffusion of Innovations*, 5th Edition. New York: Sage Publication.
17. Rohana, Irfa'ina. 2013. Corak Etnik Dan Dinamika Batik Pekalongan (Ethnic Pattern and Dynamics Pekalongan Batik). *Jurnal Dinamika kerajinan dan batik* Vol. 30 No. 2

tahun 2013, hlm. 87-89. Dalam <https://Media.Neliti.Com/Media/Publications/59202-Id-Corak-Etnik-Dan-Dinamika-Batik-Pekalonga.Pdf>

18. Satria, Yudi dan Dwi Suheryanto. 2016. Pengaruh Temperatur Ekstraksi Zat Warna Alam Daun Jati Terhadap Kualitas dan Arah Warna Pada Batik (The Effect of Natural Dyes Teak Leaves Extraction Temperature to the Quality and Color Direction in Batik). Jurnal Dinamika Kerajinan dan Batik Vol. 33 No. 2 Tahun 2016, hlm. 101-102. Dalam <https://media.neliti.com/media/publications/59538-ID-pengaruh-temperatur-ekstraksi-zat-warna.pdf> Syabana.
19. Scot, John. 1991. Social Network Analysis: a Handbook. London: Sage Publication
20. Wellman, Barry, and SD Berkowitz. (ed). 1988. Social Structures: A Network Approach. New York: Cambridge University Press.