

Watch and Learn: Imagery Design Process for Weaving Crafts

Zainab Anuar*

*College of Creative Arts, Universiti Teknologi MARA Cawangan Kelantan, Bukit Ilmu,
Machang, Kelantan, Malaysia
Corresponding author
Email: zainab62@uitm.edu.my*

Nani Hartina Ahmad*

*College of Creative Arts, Universiti Teknologi MARA Cawangan Kelantan, Bukit Ilmu,
Machang, Kelantan, Malaysia
Email: nanihartina@uitm.edu.my*

Wan Salwana Wan Sulaiman*

*College of Creative Arts, Universiti Teknologi MARA Cawangan Kelantan, Bukit Ilmu,
Machang, Kelantan, Malaysia
Email: salwa720@uitm.edu.my*

Adib Mohd Hasan*

*College of Creative Arts, Universiti Teknologi MARA Cawangan Kelantan, Bukit Ilmu,
Machang, Kelantan, Malaysia
Email: adib675@uitm.edu.my*

Yusof Daud @ Ismail*

*College of Creative Arts, Universiti Teknologi MARA Cawangan Kelantan, Bukit Ilmu,
18500 Machang, Kelantan, Malaysia
Email: yusof248@uitm.edu.my*

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** These authors contributed equally to this study*

ABSTRACT

Weaving craft is one process that produces woven textile products that can be constructed by hand or machine. Different theories and techniques for putting forth ideas lead to distinctive products among textile designers. New designers or weavers were unable to deduct the design process, particularly in woven textiles, from the existence of a textile designer due to a lack of references. This paper shows the weaving design process of woven textile art making to form the imagery weaving as its surface design. The primary objective of the warp-paint procedure is to emphasise the design image on the woven surface. The design process can be done manually by integrating the research into the subject matters, motif development, and the weaving process. The most detailed part of this research will be on the weaving process which shows the warp-paint colouring technique as the main approach to form the imagery weaving. The methodology would be carried out by incorporating a qualitative approach, which would involve literature reviews, interviews, observations, and fieldwork. The output of this article will serve as a resource for aspiring new weavers or textile designers who want to use the suggested idea to produce woven products with imagery design patterns. According to the study's findings, this approach

calls for knowledge of weaving procedures and weaving handling expertise to make the intended image more clearly visible on the weave's surface.

Keywords: *Design Process, Imagery Technique, Weaving Crafts*

INTRODUCTION

Crafts are artistic creations that require human hand skills to complete, and they typically result in visually appealing prefabricated goods. To become a skilled craftsperson, one must put up consistent effort with perseverance, bravery, skill, and continued viability. Crafts involving weaving are human creations that are impacted by other people and their environment. They depend on human hand skills, accuracy, and keenness (Suprianto et al., 2020). The definition of handicraft is "those items possessing clear artistic value or those with demonstrated export success, including any occupation that involves manual labour, fine handloom weaving, woollen pile carpets, engraved metalware, tie-dyed textiles, block-printed textiles, embroidered textiles, and hand-knotted carpets" (Anggadwita et al., 2023). While craft is a method of working with readily available materials, art and craft are expressions of human creativity that can differ from one another but can also share some similarities. Art is an expression of sentiments and emotions (Inocian et al., 2019).

Among the industrial sectors in the Industry 4.0 era with the most potential for explosive expansion is the creative economy sector. The arts foster the creativity, critical thinking, and cultural sensitivity of performers. The artist or textile designer's critical thinking and creativity are required for the adaptation of the theories learned in making textile designs (Permatasari et al., 2023). Weaving is an ancient textile art and older craft whose time is still unclear or unknowable. The process of creating weaving always involved two sets of yarn (Qureshi et al., 2022). Weaving is the process of integrating two sets of threads interlaced at a straight angle of 90 degrees to one another to create woven fabrics. It involves the weft (horizontal thread) moving through the warp thread (in and out) while the warp (vertical thread) is tied to the loom or frame. In other words, the weave is the process of two sets of threads that are perpendicular to one another and interwoven together often making up woven cloth (Suprianto et al., 2020). The harsh exploitation of woven textile structures, materials, and colour can reveal its design. The woven fabrics can be produced manually or on a loom. Up until the development of complex machinery to make woven cloth, the woven fabric was formerly produced by hand and was also known as non-loom woven. Weave products can be seen as warp-faced weaving and weft-faced weaving. It depends on the dominance of material uses, sizes, colours, and techniques applied. Weave can be structured by integrating plain weave, twill weave, and sateen weave. Applying all these structures can produce a pattern, texture, fabric strength, colour, look, feel, effects, cost, and so on (Redmore, 2011).

The production of woven craft, especially imagery weaving, may involve a few processes to make the design well done. The researcher had gone through the process of weaving by adapting the conceptual framework created as shown in the previous journal about the ideation of woven textile art. The framework involved research drawing, idea development of motifs and patterns, and the weaving process before it became woven textile art (Zainab et al., 2022). This research is an exposure to new designers or weavers to form an imagery weaving by implementing a variety of techniques and processes.

LITERATURE REVIEW

What Others Had Done to Form Imagery Weaving?

In Malay art, the implementation of Mathematical concepts is evident in the delicate and creative composition and pattern, which suggest meaning. It is seen in wood carving, *mengkuang* weaving, *songket* weaving, and other artistic mediums. Producing art demands a combination of abilities, imagination, critical thinking, and understanding of the natural world. Through this method, the image of woven fabric can be seen by creatively combining the mathematical concept and traditional way of creating woven art (Norazlina et al., 2022). Songket is the name of a weaving product that is produced in Malaysia. The textile motif and pattern known as “*kembang semangkuk*” inspired by medicinal purposes. The motif effectively conveyed the idea of the study's subject from, “*kembang semangkuk*”, then turned the image of subject matter to *songket* motif which is used as an inlay technique in *songket* weaving. The researcher asserts that a *songket* lacking motifs and arrangements is not a true work of *songket* art (Arba'iyah, 2019).

As weavers, the researcher already knows that the narrative is told through the tapestry weaving technique. In mediaeval Europe, tapestries were hung as visual images that served a variety of functions, including reading and displaying social and political power (British Tapestry Group, 2020). Most artists also use tapestry weaving to form imagery weaving and mix it with painted warp or painted on silk background. Besides tapestry weaving, also known as pictorial weaving, imagery weaving is another type of art that may be created by fusing mixed media, the colouring process, weaving devices, and weaving structure. There are numerous ways to create imagery weaving in woven textile art today, however, the techniques used may vary depending on the type of product being created. The artist also uses handloom to create the structure or texture by integrating the dyeing technique, paint, embroidery, and textile manipulation. Besides, they are also helped by digital computer-aided design (CAD) in the jacquard loom. The CAD/CAM system in technology enables the creation of documents that are not dated in a short amount of time, making it more straightforward, faster, more efficient, and more reliable (Kovačević et al., 2021). This statement was also said by Chan et al. (2017), decorative patterns in textile are always helped by digital technology in order to make them quickly produce rather than using the old method. An example of imagery weaving had been done by cooperating with the modern and traditional methods of producing weaving such as hand jacquard loom and dobby loom where this method is to produce imagery weaving through hand controls. The jacquard loom can produce different types of images and appearances on the fabric surface. There are also the researchers create and advance method in producing weave craft by using 3D weaving where it integrating the used of stencil block and jacquard loom to create the multilayer of image on weaving (James et al., 2020). A study had presented an image-processing-based, non-invasive, low-cost fabric weave identification scheme. This study produces fully automatic weave using digital image processing with accuracy in detecting fabric weave type in real-time (Qureshi et al., 2022).

The combination of various techniques of colouring process and weaving structure can affect the surface of the weaving image. Coloured warp threads in the weaving process can be highlighted through the selection of weaving techniques and the combination of colours to be emphasised (Mathur & Seyam, 2011). The process of making a painted warp is a bit difficult, but the painted warps are beautiful to see. Stossel (2015) stated that the technique of colouring this thread is very beautiful even though it has not been woven yet. She has used plain weave techniques to produce a scarf that went through a painting process on the warp threads. In Japan, Kasuri is another name for the woven fabric produced by integrating resist dyeing techniques such as printing and dyeing which produces the pattern on the un-dyed areas (Hemström, 2020). “*Ikat*” is one of the techniques that have a similar effect to warp-painted design to form the imagery weave in a fast way. This technique can save time in creating patterns on the weaving product and can be produced more easily compared to the *Ikat* technique (Steel,

2014). According to one newsletter created by Tien (2017), in order to show off our painted warp, she had shared about 4 tips to make it clearly to see which are using the denser sett to make the weave shine, used the finer weft yarn during the weaving process, choose the warp dominant structure such as twill weave as the main structure and create the block of colour alternately for warp and weft yarn during the weaving process.

RESEARCH METHODOLOGY

The methodology would be carried out by incorporating a qualitative thematic approach, which would involve literature reviews from books, journals, and articles, interviews, observations, and fieldwork. The output of this article will serve as a resource for aspiring new weavers or textile designers who want to use the suggested idea to produce woven products with imagery design patterns. The fieldwork had been done by following the conceptual framework as shown in Figure 1.

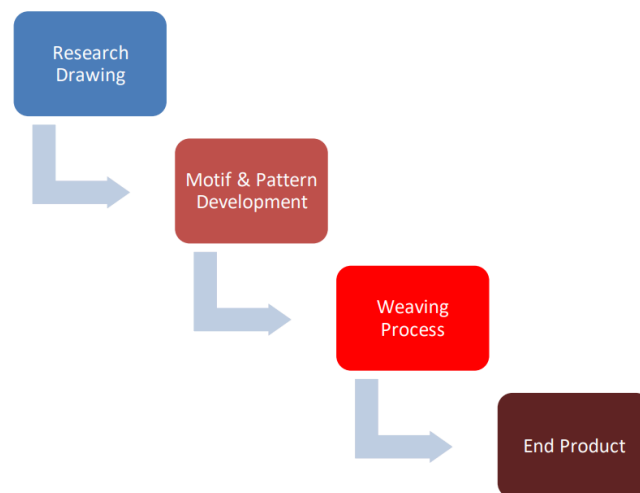


Figure 1. Conceptual Framework
(Source: Zainab et al., 2022)

The Process: Research Drawing

Before making some designs, the new textile designer or weavers needs to start the design with research and drawing on the theme and the subject matter to study. “If textile designers do not embark on and utilise textile research we will be left in a ‘sole less’ vacuum...”, this is supported by Montgomery (2010) that textile designers can benefit from more knowledge in textile production if they start with design research. The creative textile designer or artist should have good skill in drawing to make the textile art either in decorative or technical elements. In addition, the textile designer or artist tends to know every single part of the subject matter we studied. The observation and the sketches of the subject matter are one of the right ways to make our textile design accepted and well-used later. Both observation and sketches drawing developed to form the element of textile motifs and also patterns (Gürçüm, 2017).

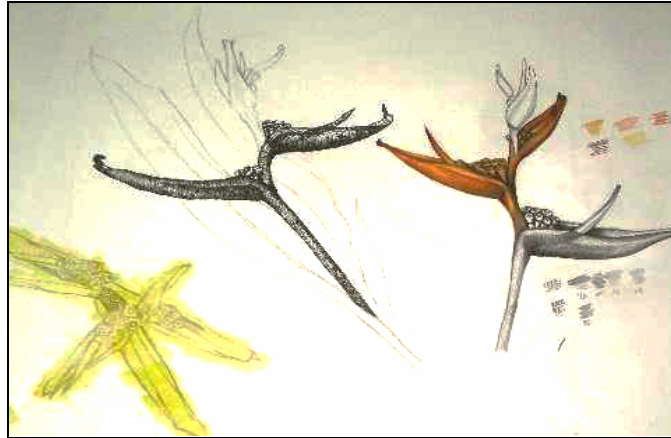


Figure 2. Exploration Drawing on Heliconias Species, Mixed Media Techniques
(Source: Author's personal collection)

The interpretation of the subject matter can be different based on the artist or designer's background. Through the subject matter, the creativity of the artist or designer can be examined. This statement can relate to McKinley (2021) who wrote about lessons of subject matter, when more than two artists study the same subject matter, it will make the painting more interesting because all the artists have their perspectives and views. The new textile designers or weavers can inspire the subject matter either from nature or man-made. Examples of subject matter from nature are the plant motif, flowers motif, and animal motif, meanwhile the man-made motif can be inspired by things, buildings, transportation, etc. Ideas are sought after at the start of most motifs. It is amazing how they can select, refine, and shape a perception into something concrete, appealing, and different. Denaturalization and styling are methods used by the weavers to demonstrate their inventiveness and maturity in selecting the source of patterns (Arba'iyah, 2019).

Figure 2 above shows the example of research drawing study on a natural plant motif which is Heliconia Flower. Before we deal with customers or produce artwork, new textile designers or weavers need to begin the design with research and drawing or sketches and presentations about the concept of design they want to bring up. Both sketches and designs will help the new textile designer or weavers to make any textile surface design later. After the process of sketches has been done, next to be done are the motif and pattern development, then followed by the weaving process.

Motif and Pattern Development

Zaity (2019) defined a motif in art as a repeating idea, pattern, image, or subject that designers should explore since it influences people's emotions. In any kind of art and design, motifs are commonly developed and will become the pattern (Zamrudin et al., 2019). Motif is a single thing produced to form a pattern by applying stylization and repetition. Designers may be inspired by floral and plant, abstract, geometric or organic, sometimes the production of motifs can relate to culture or style or area of study. The uniqueness of the motif can be seen through its detailing and also the beauty of the pattern created. Each element of the motif created sometimes brings its implied meaning such as symbolic, and philosophical, and also can relate to socio-cultural, aspects, religious, beliefs, customs, norms, values, taboos, and people's outlooks on life (Irwan Sharfizan, 2022).

Motif development can be produced by hand-drawn manually or in computer-generated imagery. This paper had shown the motif and pattern created manually which is hand drawn. Before starting the

new design, the new textile designer or weavers should start with motifs development and the other methods to complete the design making (Mohd Azhar, 2012). Nani Hartina et al. (2019) divided the steps of the weaving process for her studies about Kain Punca Potong (KPP) into two routes such as design process and technical process. The development of motifs was one of the important steps to complete the textile design (Sharma et al., 2016). A research paper mentioned that the motifs, the design, and the textile product were the key element in the production of the Malay Peninsula traditional textile (Mohd Azhar, 2012).

The process of motif selection depends on the theme or concept we planned and also started with the search for ideas (Arba'iyah, 2019). The motifs may be inspired by the culture, religion, environment, and history of textiles. The motifs can be in any kind of shape or composition, different sizes and the motifs can be a larger work if the combining and repetition technique of pattern and design were applied. The example of motifs studied by the Malaysian normally inspired by nature where the motifs were related to life and surroundings such as, plants, vegetation and domestic animals (Mohd Jamil & Arba'iyah, 2019).

In this study on heliconia species, the researcher created a woven product that was influenced by flora. The chosen themes are influenced by other Malaysian woven fabrics, which are frequently inspired by nature. The majority of motifs are created utilising realistic drawing, which is the researcher's preferred approach. This design's colour study was inspired by the variety of colours found in heliconias. Eight distinct pattern ideas with various styles and strokes were developed by the researcher (refer to Figure 3). Most of the pattern designs look like a painting and then will turn into woven textile art. After the designs are ready, the researcher produces 3 series of woven textile art by 3 selected designs.



Figure 3. The Proposal of Pattern Ideas 1 to 8.
(Source: Author's personal collection)

Weaving Process

The process of creating fabric or cloth is called weaving. This weaving art structurally and procedurally will involve the interlacing of the complex set of yarn which is warp and weft yarn (Morabito, 2022). These procedures followed similar steps to the *Tenun Pahang Diraja and Songket*

weaving processes used in Malaysia. The difference is that the item is a conceptual art piece. In order to create imagery weaving, a few steps of material, method, and colour research will be required. The steps of the weaving process are started with pattern drafting, yarn calculation, warping process, colouring process (warp-paint, dressing loom (drawing in and denting) and weaving process.

The mix of woven structure, such as plain weave and variety of twill weave, is the design criterion for this woven textile art. To highlight the design using the twill weave 3/1 and warp paint colouring approach, the researcher created the warp-faced weave. In order to create a relief design on the woven surface, the researcher mixes various weaving techniques, including open-warp and open-weft weaving, hand embroidery with a machine, and inlay weaving (see Figures 4 to 9) as a decorative method to produce images on woven surfaces. The inlay technique used in the *songket* process involves using gold and silver threads from the weft (*pakan*) side of the weaving to create a design (Azizi et al., 2015). The research of various thread types gave the woven textile art a more intriguing appearance and increased aesthetic value. Stossel (2015) created an inlay technique to get the textured textile surface by integrating the ribbon, colourful threads and textured yarns. (Technique, 2018) stated that Moorman inlay is similar to painting with yarn while weaving a backdrop cloth underneath. Using a tie-down system of warp yarns, the Moorman Technique inlays additional weft threads. The inlay weft is layered over the plain weave ground; the inlay threads are not visible on the reverse side of the cloth.



Figure 4: Inlay Technique and Machine Embroidery on Warp-paint Woven
(Source: Author's personal collection)

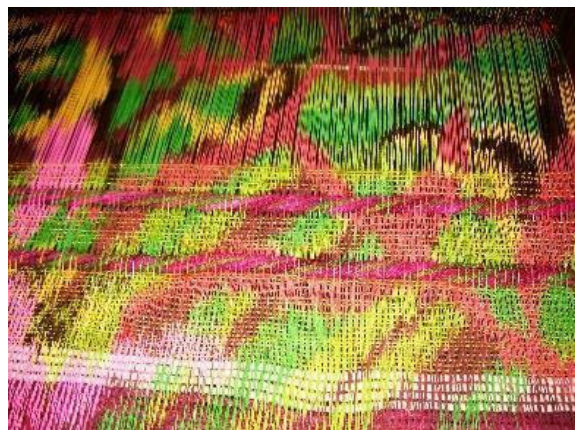


Figure 5. Inlay Technique on Warp-paint Woven
(Source: Author's personal collection)



Figure 6. Inlay Technique on tie and dye woven
(Source: Student's collection, Nur Insyirah Isa, 2024)



Figure 7: Tepus Tanah motif as Inlay Technique on Warp-paint Woven
(Source: Student's collection, Muhammad Danish Suhardi, 2024)



Figure 8: Cucumber Seed Motif as Inlay Technique on Warp-paint Woven
(Source: Student's collection, Nur Qistina Aiya' Hishamudin, 2024)



Figure 9. Cucumber Slice and Seed Motif as Inlay Technique on Warp-paint Woven
(Source: Student's Collection, Nur Qistina Aiya' Hishamudin, 2024)

The researcher decides to use a table loom to explore woven textile art for the final product (jack loom). The procedure began with determining the size of the woven fabric using yarn calculations, pattern drafting for the product's surface and structure, materials, the warping process, and also the investigation of colour. Weaving documents is the process of pattern drafting (Piroch, 2004). When all of these components are available, weaving can be completed quickly. The weaving process is illustrated in Table 1 until Table 5 listed below, which also includes the yarn calculation, pattern drafting, material type, warping process, colouring process, and weaving process.

Table 1. Yarn Calculation and Pattern Drafting

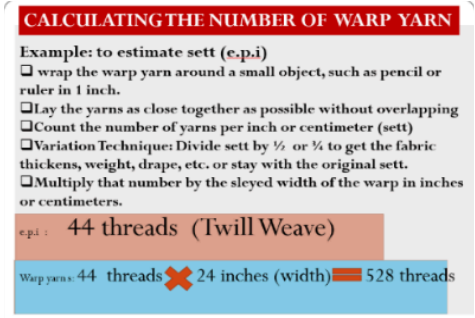
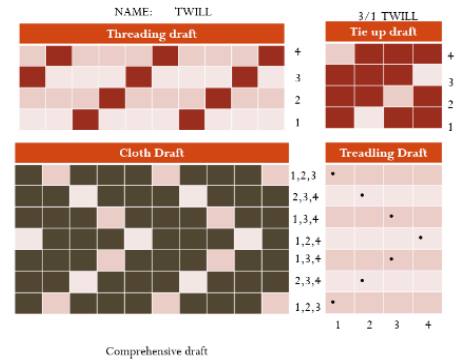
No.	Description	Images
1	<p>Design Criteria: Woven Textile Art Length: 3.6 metres Width: 24 inches Material: Cotton Yarn size 02 (Brand: Anchor)</p> <p>Before the product is made, the design criteria listed above should be planned. To ensure that the weaver receives the precise size, thickness, and style of the finished product, yarn calculation is a crucial stage that should be started. In order to set up the length and width of the finished product, the weaver should figure out how many yarns will make up the warp. Moreover, the extra allowances may be added as accessories and shrinkage. The material can also affect a product's thickness and dimension. The process of creating a pattern involves creativity; the finished product will be visible. This pattern might serve as a guide for the weaver to later decorate the loom.</p>	 <p>(Source: Author's personal collection)</p>  <p>(Source: Author's personal collection)</p>

Table 2. Warping Process

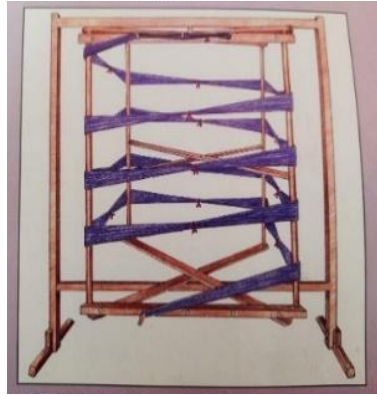
No.	Description	Images
1	<p>The purpose of this method is to determine how many yarns should be used for the warp and to obtain the weaver's cross. 528 yarns are required to warp on the warping board (refer Table 1 process). Before placing the threads on the loom, the weaver's cross is used to determine the direction of the vertical yarns. Depending on their comfort level, the weaver can also utilise various warping mills, such as those shown in the right side. The weaver should warp the strands with the same motion in order to maintain the yarn's tension.</p>	 <p>Warping Mild (Source: Piroch, 2004)</p>

Table 3. Colouring Process- Warp Paint



No.	Description	Images
1	<p>Lay the threads down on a surface, such as a table or floor, and use the drawn pattern as a reference point at the bottom of the threads. To maintain the tension of the yarns, the lease sticks on both sides should be fastened to a fixed object. The dyestuff employed by the researcher were fabric dye and printing paste. It takes between one and two days for the colouring procedure to dry, at which point flat brushes must be used. If the colour does not penetrate well into the strands, colouring can be applied to both sides.</p>	 <p>(Source: Author's personal collection)</p>  <p>(Source: Author's personal collection)</p>

Table 4. Dressing loom- Drawing in and Denting


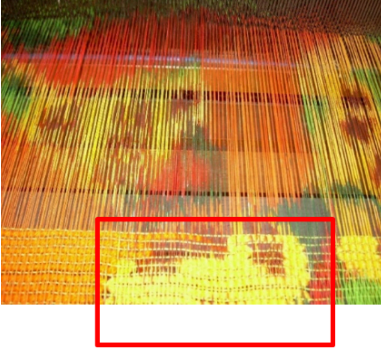
No.	Description	Images
1	<p>Pattern drafting determines how the threads are arranged on the loom. The design to be inserted into the heddle's eye was chosen by the researcher as the Twill Pattern (refer Comprehensive draft on Table 1). The Reed's balance and desired weave thickness determine how many yarns are used.</p>	 <p>(Source: Author's personal collection)</p>

Table 5. Weaving

No.	Description	Images
1	The researcher combined the techniques of plain weave (1/1) and twill weave (3/1). In order to provide additional tone to the blurred motif in this weaving, the inlay technique (on the red box) has been used. Using complementary colours in the weft yarn helps further emphasise how the colours are integrated in the motif.	 <p data-bbox="915 667 1325 699"><i>(Source: Author's personal collection)</i></p>

FINDINGS

The finished products were completed in two to three months, finishing included. Because of the techniques used, such as the warp-paint colouring technique, the warp-face weaving structure (twill 3/1), inlay, and embroidery technique, the motif was very easy to perceive. The researcher's handling of the threads during the preprocessing of colouring and preparing the loom was another important factor to consider for a successful outcome. Several techniques require at least one helper to achieve the finest results, particularly while dressing the loom. Table 6 until Table 8 listed below shown the finished products.

Table 6. Final Product of Imagery Weaving Craft


No.	Description	Images
1	Material: Cotton Thread size 02 & Nylon Thread Technique: Warp-paint, twill weave (3/1), plain weave (1/1), inlay and embroidery. On the right side is the design idea while on the left side is the final product	 <p data-bbox="980 1717 1390 1749"><i>(Source: Author's personal collection)</i></p>

Table 7. Final Product of Imagery Weaving Craft



No.	Description	Images
1	<p>Material: Cotton Thread size 02 & Parcel Rope (size 03), Technique: Warp-paint, twill weave (3/1), inlay. On the right side is the design idea while on the left side is the final product.</p>	 <p><i>(Source: Author's personal collection)</i></p>

Table 8: Final Product of Imagery Weaving Craft

No.	Description	Images
1	<p>Material: Cotton Thread size 02 and Fancy yarn Technique: Warp-paint, twill weave (3/1), open-weft and open-warp. On the right side is the design idea while on the left side is the final product.</p>	 <p><i>(Source: Author's personal collection)</i></p>

CONCLUSION

In conclusion, in order to make the intended picture more clearly apparent on the weave's surface, this approach necessitates an understanding of weaving techniques as well as weaving handling expertise. Accentuating the pattern image on the woven surface is the main goal of the warp-paint process. The new weaver or student can use this documentation of work as a resource to create textile artwork made specifically for imagery weaving.

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REFERENCES

- Anggadwita, G., Indarti, N., & Ratten, V. (2023). Women entrepreneurs in the craft industry: a case study of the batik industry during the COVID-19 pandemic. *International Journal of Sociology and Social Policy*, 43(11–12), 1029–1046. <https://doi.org/10.1108/IJSSP-12-2022-0305>
- Arba'iyah Ab. Aziz. (2019). Malay songket motif: a design and acumen of weavers. *International Journal of INTI*, 23(2), 91–98. <https://ir.uitm.edu.my/id/eprint/53337/>
- Azizi Bahauddin, Safial Aqbar Zakaria, & Aldrin Abdullah. (2015). Songket and "Light": From Philosophy to Practice. *Procedia - Social and Behavioral Sciences*, 208, 68-73. <https://doi.org/10.1016/j.sbspro.2015.11.181>
- Chan, C. C. W., Li, K. S., & Ngan, H. Y. T. (2017). Weaving pattern recognition of ancient Chinese textiles by regular bands analysis. *IS and T International Symposium on Electronic Imaging Science and Technology*, February 2017, 31–36. <https://doi.org/10.2352/ISSN.2470-1173.2017.9.IRIACV-263>
- Gürçüm, B. H. (2017). Conceptual Design Method and Creativity in Textile Design. *Journal of Textile Engineering & Fashion Technology*, 3(1). <https://doi.org/10.15406/jteft.2017.03.00086>
- Hemström. (2020). *The Metamorphosis of Weaving- Pattern and space through dimensional hand weaving*.
- Inocian, R. B., Cuestas, N. J. P., Carin, J. K. L., & Canoy, J. D. E. (2019). Unveiling the indigenous art and craft of bakat and its economic significations. *Journal of Cultural Heritage Management and Sustainable Development*, 9(4), 445–467. <https://doi.org/10.1108/JCHMSD-09-2018-0064>
- Irwan Shafrizan Ismail. I.S. (2022). Keunikan seni tekstil - UiTM Kelantan, Retrieved on 13 March 2023 from <https://kelantan.uitm.edu.my/images/INFO/info/22-07/MY0048933392.pdf>
- James, D., Marschner, S., Xiaoji Zhang, J., Wu, R., Leaf, J., Hua, X., Qu, A., Harvey, C., Holtzman, E., Ko, J., Hagan, B., & Guimbretière, F. (2020). Weavecraft: An Interactive Design and Simulation Tool for 3D Weaving. *ACM Trans. Graph*, 39(6), 16. <https://doi.org/10.1145/3414685.3417865>
- Kovačević, S., Brnada, S., Šabarić, I., & Karin, F. (2021). Limitations of the CAD-CAM System in the Process of Weaving. *Autex Research Journal*, 21(3), 225–233. <https://doi.org/10.2478/aut-2019-0077>
- Mathur, K., & Seyam, A.F. (2011). Color and Weave Relationship in Woven Fabrics. *Advances in Modern Woven Fabrics Technology*, May. <https://doi.org/10.5772/20856>
- McKinley, R. (2021). Retrieved on 8 October 2022 from <https://www.artistsnetwork.com/art-mediums/pastel/the-lessons-of-subject-matter/>

- Mohd Azhar Samin. (2012). The Traditional Pelangi Cloth of Malay Peninsula - A Study of Design and Identity -. *The Research Journal of the Costume Culture*, 20(2), 263–271. <https://doi.org/10.7741/rjcc.2012.20.2.263>
- Mohd Jamil Muhamad Amin & Arba'iyah Ab. Aziz. (2019). Kain Telepuk: The Selangor Malay Royal Textile. *International Conference on Design Industries and Creative Culture*, 198–214.
- Montgomery, B.(2010). The benefit of textile design research to the textile designer. *Duck: Journal for Research in Textiles and Textile Design*, 1. ISSN 2024-0854
- Morabito, J. P. (2022). Weaving Beyond the Binary Weaving Beyond the Binary. *TEXTILE*, 20(4), 424–438. <https://doi.org/10.1080/14759756.2022.2046365>
- Nani Hartina Ahmad, Nazlina Shaari, Noor Azizi, Mohd Ali, Muhammad Pauzi & Abd Latif. (2019). Design Examination through Pattern Characteristic Identification: A New Kain Punca Potong (KPP) Weaving Design. *International Journal of Innovative Technology and Exploring Engineering*, 8(12S2), 648–651. <https://doi.org/10.35940/ijitee.11113.10812s219>
- Norazlina Subani, Umi Huda Mohd Abdullah, & Faezah Baridah Zulfikri. (2022). *The Concept of Transformation on Pandan Mat Weaving Art*. 73–77.
- Permatasari, A., Dhewanto, W., & Dellyana, D. (2023). The role of traditional knowledge-based dynamic capabilities to improve the sustainable performance of weaving craft in Indonesia. *Journal of Enterprising Communities*, 17(3), 664–683. <https://doi.org/10.1108/JEC-11-2021-0156>
- Piroch, S. (2004). Tradition in the Making: *The Magic of Handweaving, The Basic and Beyond*, Published by Krause Publication, ISBN 0-87349-384-2
- Qureshi, M. A., Butt, R. A., Arfeen, M. Z., & Akram, N. (2022). Fully Automatic Weave Identification in Woven Fabrics Using Digital Image Processing †. *Engineering Proceedings*, 20(1). <https://doi.org/10.3390/engproc2022020001>
- Redmore, N. (2011). *University of Huddersfield Repository Textile design : principles , advances and applications*.
- Steel, M. E. A. (2014). Application of warp painting technique to produce "ikat" effects (Bachelor of Applied Arts with Honors thesis). Universiti Malaysia Sarawak.
- Stossel, E. (2015). Warp Painting: Turned Taqueté & Plain Weave, Retrieved on August 1, 2023 from <https://evasweaving.wordpress.com/category/warp-painting/>
- Sharma, A., Singh, S. S. J., & Rose, N. M. (2016). Development of Motifs : Traditional to Contemporary for Saris. *International Journal of Advanced Research and Development*, 5(7), 44–46.
- Suprianto, A. P., Martono, & Wijaksono, P. (2020). *A Cultural Study on the Weaving Craft Tembe Nggoli in the Social Life of the Dompu People* . 491(Ijcah), 658–662. <https://doi.org/10.2991/assehr.k.201201.113>
- Technique, T. M. (2018). *Moorman Technique is a method of inlaying supplemental weft yarns using a tie-down system of warp yarns. A four-shaft loom is required* (. April, 1–5.

- British Tapestry Group. (2020, March 27). Weaving Tapestries to Express Contemporary Concerns. Tapestry Weaver. Retrieved from <https://www.burns-studio.com/weaving-tapestries-to-express-contemporary-concerns/>
- Tien, C. (2017) How to show off the colors in your painted warp, Retrieved on August 1, 2023 from <https://warpandweave.com/show-off-colors-in-painted-warp/>
- Zainab Anuar, Nani Hartina Ahmad, & Mat Redhuan Samsudin. (n.d.). *Ideation of Woven Textile Art : A Conceptual Framework Abstract : X(X)*, 1–5.
- Zaity Musa. (2019). *The Impact of Motifs and Patterns on Surface Design in Fashion and Textile Design on People's Emotions. The Impact of Motifs and Patterns on Surface Design in Fashion and Textile Design on People's Emotions. Zaity Binti Musa Maicadp Malaysia. June 2019.* <https://doi.org/10.13140/RG.2.2.15654.88649>
- Zamrudin Abdullah, Sabzali Musa Khan, Siti Rohaya Yahya, & Mohammad Radzi Manap. (2019). Ciri-Ciri Keindahan Dalam Penghasilan Rekaan Batik Kontemporari Berinspirasi Motif Abstrak. *Jurnal Pengajian Melayu*, 30(1), 236–269. <https://doi.org/10.22452/jomas.vol30no1.11>