

INKLE-WEAVING TECHNIQUE: AN EXPLORATIVE STUDY

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Abstract: Weaving is a part of Indonesian rich culture. The most well-known Indonesian traditional weaving technique is the one using a tool called *gedhogan*. Nowadays, the tool is still used in some regions, particularly where traditional culture is richly maintained. From technical side, the use of *gedhogan* requires a considerable amount of time due to its complexity. On the other hand, weaving tools also evolve over time, in accordance to advancement in technology. One of the tools considered efficient, portable, and having high ability to produce various weaving patterns and characters is by using inkle-loom. With inkle-loom technique, it is expected that the textile sheet can be produced more efficiency. This study was conducted using qualitative method, of which the data were collected by literature study and field observation. It was then followed by textile exploration, covering techniques and materials of the weaving product to deliver more diverse weaving patterns and characters. There are three part of inkle-loom exploration at this research, (1) exploring the threads (material), (2) exploring the patterns, and (3) combining the technique with another structure textile technique, such as knotting and tapestry. The results of the study are detailed description of character and texture of the pattern and the character of the fabric itself, the one produced using inkle-weaving technique with varied thread. By knowing the character from the result of exploration, it is expected that the study can contribute to be references for fashion designer or textile designer to create textiles for any application for artwork and fashion utilities.

Keywords: *Exploration, Inkle-weaving, Textile, Woven.*

1. INTRODUCTION

Weaving is a part of Indonesian heritage. Various regions in Indonesia are known for their unique weaving product, such as West Sumatera with its gold *songket*, Lombok with its woven fabric, and also some products from Papua, the eastern part of Indonesia. Most of the products are weaved using simple tools known as ATBM. The tools have their own character and name in their respective areas, for example in West Sumatera, it is called *panta* and the product is *balapak* or *bacatua* fabric, primarily used in wedding ceremony.

In the international scale, weaving is also well-known and is a part of tradition in several countries. One of popular weaving technique in Europe, mainly England and Scotland, is inkle-weaving. The name was derived from the tool used: inkle-loom. It is a relatively modest weaving tool used for more than 300 years in the area. Due to its small size and flexible portability, inkle-weaving is popular. The products are mostly small in size, ranging from 5-15 cm in width and 10-200 cm in length. The example of product use are belt, band, and rims on bags and cloth. The specific sizing of inkle-weaving offers an advantage over other weaving techniques.

In Europe, the development of inkle-weaving is considered rapid. On the other side, inkle-weaving in Indonesia has yet to make its optimum usage and development. Most craftsmen and general population have yet to consider inkle-weaving as the main option. Hence inkle-weaving products are limited in pattern since not many local craftsmen work on it.

Inkle-weaving has a great potential to produce a variety of weaving fabric. The method has several advantages: compact in size, portable, and its wide array of relatively small-sized products. These characteristics can make inkle-weaving an alternative to current weaving methods. By combining inkle-weaving and a long list of Indonesia traditional patterns, it is expected that a novel product can be created, which will be a new addition to Indonesian heritage.

2. THEORETICAL BACKGROUND

2.1 Inkle-loom weaving



Figure 1 *inkle-loom*
Source: www.inkleweave.com

Inkle-loom is one of simple weaving methods belonging to ATBM. Similar to other weaving methods, inkle-loom also uses two types of yarn: warp and weft threads. Lusi is the yarn binding the product to the tool (vertical yarn), while pakan is the one creating the structure (horizontal yarn). Inkle-loom has a special characteristic. It employs a manual hand-step, an up-down movement. The product is also specific in size: a maximum width of 15 cm and a maximum length of 2 m. The tools can be used on a table or on the ground, making it easier to work on different places. Its compact size is also an advantage.

2.2 The Structure of The Tool

As mentioned previously, inkle-loom is a weaving tool board with a compact size, making it easy to bring along. Typically, inkle-loom is made of strong wood. The strength of the wood is important to support its working system. The structure of an inkle-loom is displayed in figure 2.

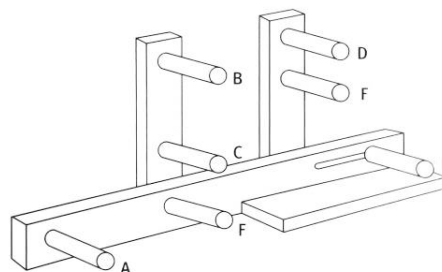


Figure 2 *the structure of inkle-loom*
Source: Dixon, 2012

According to Dixon (2012), inkle-loom is divided into 6 parts:

- A. Strating peg. The front part of the tool acts as a thread hook to produce the weave sheet. Occasionally, the hook also has sliding properties to tighten the thread (or act as tensioning peg).
- B. Top peg.
- C. Heddle peg.
- D. Joining peg.
- E. Tensioning device
- F. Other pegs.

Inkle-loom has a variety of forms. Picture 2 is only one of them and is considered a standard form. There are 7 sections of the loom, of which seven are cylinders. The 8th part is the tension bar, located on the left side of the tool. The tension bar has a sliding system. All of the sections play important roles for weaving process. The number of section affect the length of weave fabric produced.

2.3 The shape, pattern, and function of woven fabric

In general, weaving fabrics produced using inkle-loom technique serve various functions. They can be used as a belt, due to its long size coupled with narrow width. Other than that, the fabric also can act as a lining and material to make vest. Several patterns of fabric produced using inkle-loom are illustrated in Figure 3.

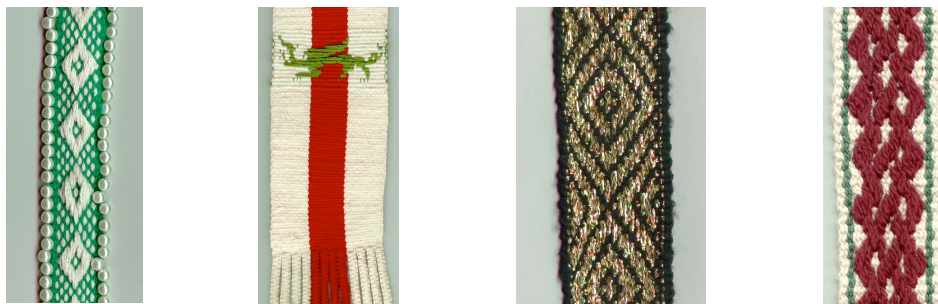


Figure 3 patterns of fabric produced using *inkle-loom*

Source: <http://inkleweaving.com>

According to *The Textile Arts* (Verla Birrel, 1973: 104-105), inkle-loom can produce 5 designs. They are:

1. *Chain designs*
Chain designs, single or double chains, are formed with a specific combination of warp-threads. For single chain design, the typical arrangement is using three warp-threads with the same color over a contrasting background. For double chains design, two pairs of warp-threads are combined with one warp-threads with contrasting color.
2. *Stripes Designs*
Stripes designs are categorized into two: vertical design and horizontal design. Vertical design is made by combining four or more warp-threads with the same color, then change to different color for the next four or more threads, and so on. The result is similar to those of *lurik* patterns on batik cloth. For horizontal design, the pattern is produced by combining threads with different color with one thread interval.
3. *Pick-up Design*
Pick-up design is considered versatile, because it can create a large number of patterns. The patterns are created by a method called “angkat lusi”. By regularly lifting warp-threads, it is possible to form a variety of different patterns.

4. *Brocade Weaving*
Brocade weaving is the opposite of pick-up process. Benang pakan is lifted over warp-threads, creating patterns.
5. Combined design
 All four aforementioned designs can be combined into new design and it can be developed into numerous possibilities of pattern.

3. RESEARCH METHOD

This research was conducted using qualitative and quantitative method. Qualitative method was performed as follows:

- a. Literature study on books, theses, dissertations, journals, newspaper articles, magazines, and other media to obtain data on inkle-loom, pattern, and texture of textile fabric.
- b. Field observation to several production house and marketing place.
- c. Exploration on product design based on data obtained from literature study.

4. RESULTS AND DISCUSSION

In this research, the exploration of weaving technique is the main focus. The exploration was conducted in order to increase added value to the weaving technique, both for its function or its aesthetic side.



4.1 Technique Exploration





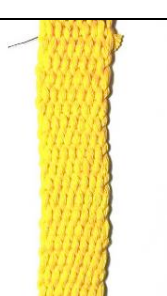
Exploration of weaving technique was performed by combining existing techniques, as described in Section 2.3. Trial and error process was conducted based on author's knowledge and experience.

4.2 Material Exploration

Exploration on material was conducted by processing different threads and yarns materials and designing them based on conformity principle. It creates a product with unique characteristics. The example is by combining nylon and cotton thread, weaving fabric with harmonious sheen characteristic could be produced. Thread elasticity play a role as well. Cotton with low elasticity combined with natural fiber with rough texture can yield weaving fabric with "pores", making the product interesting and unique. The exploration performed in this study is depicted in Table 1.

Table 1 Exploration on material uses in inkle-loom method

No	Exploration	Result	Analysis
1	Exploration 1 Materials used for warp-threads and pakan were the same: nylon polyester, with different colors.		The resulting fabric has a regularity on its surface. It has orderly and consistent texture, hence the distinct stripes pattern.
2	Exploration 2 Materials used as lusi and pakan were polyester with different types. Clear nylon acted as lusi, while for pakan, yellow and red ribbon thread were used. The technique employed was brocade weaving.		Weaving fabric resulted from this exploratory technique is unique. The clear nylon used as lusi made it invisible, highlighting the yellow and red ribbon thread which acted as pakan. The pattern resulted from this technique is a geometrical chain-like line.

3	Exploration 3 Two different materials were employed in this technique: cotton for lusi and natural fiber (<i>rami</i>) as pakan.		The resulting fabric was considered less attractive due to the delicate properties of cotton. The rough texture of rami affected the regularity of lusi, making it less uniform. However, the pattern resulted, dominated by <i>rami</i> , is quite unique. It is a vertical pattern.
4	Exploration 4 Materials used were nylon polyester with clear color for lusi and feather for pakan (staple).		The weaving fabric appears to have a rough texture. The soft feature of the feather is no longer evident in the product. Pakan is clearly visible since material used for lusi is clear in color.
5	Exploration 5 Materials used were cotton for lusi and shoelaces for pakan.		The shape of the weaving fabric is affected by the use of shoelaces as pakan. Shoelaces have a considerable width, hence a triangle-like shape was formed in the weaving process. The pattern is a result of lusi braid.
6	Exploration 6 Materials used were polyester-cotton mix as lusi and cotton as pakan. For lusi, both threads have different diameter (thickness). Material for pakan used thread with normal thickness.		This exploratory technique results in a significantly diverse texture, due to different thread thicknesses.
7	Exploration 7 Materials used were both cotton for lusi and pakan, with the same color.		Visually, the weaving fabric is a typical inkle-loom product. It has similar characteristic with plain weaving fabric such as <i>gedhogan</i> . Pakan is not visible, covered by lusi.





Source : Personal Documentation


4.3 Inkle-loom Pattern Exploration

After a preliminary exploratory work, further exploratory experiment was focused on pattern. It was performed by selecting contrasting color for lusi and pakan, which were of the same material. The results are displayed in Table 2.

Tabel 2 Further Exploratory Work on Inkle-loom

No	Exploration	Result	Analysis
1	Exploration 7.1 The base for this exploration is Exploration 7, of which the thread used is cotton.		The weaving fabric has a contrast horizontal pattern.

	<p>Two different colors of lusi were chosen.</p>		
2	<p>Exploration 7.2 The base for this exploration is Exploration 7, of which the thread used is cotton.</p> <p>Two different colors of lusi were chosen.</p> <p>The pattern was formed using pick-up design.</p>		<p>The weaving fabric has a square-like geometrical pattern with contrasting colors.</p> <p>The square-like pattern was a result of card-loom.</p> <p>The character of this product is similar to that of Sumateran <i>songket</i>.</p>
3	<p>Exploration 7.3 The base for this exploration is Exploration 7, of which the thread used is cotton.</p> <p>Two different colors of lusi were chosen.</p> <p>The pattern was formed using pick-up design.</p>		<p>The weaving fabric has an H-like pattern inverted with contrasting colors.</p> <p>The H-like pattern was a result of card-loom.</p> <p>The character of this product is similar to that of Sumateran <i>songket</i>.</p>
4	<p>Exploration 7.4 The base for this exploration is Exploration 7, of which the thread used is cotton.</p> <p>Two different colors of lusi were chosen.</p> <p>The colors of the thread were chosen selectively in order to make a harmonious tone.</p>		<p>The weaving fabric has a continuous inverted rail-like pattern.</p> <p>The pattern was a result of modification on lusi when it was installed on inkle-loom and card-loom.</p> <p>This method shows a potential to be developed, forming letter-like pattern.</p>

5	<p>Exploration 7.5 The base for this exploration is Exploration 7, of which the thread used is cotton.</p> <p>Two different colors of lusi were chosen.</p> <p>The colors of the thread were chosen selectively in order to make a harmonious tone.</p> <p>The pattern was formed using pick-up design. Exploration 7.5. was a further exploratory work on Exploration 7.4., digging the potential to create letter-like pattern.</p>		<p>The weaving fabric has the patten of letter H and A. It was a result of circle movement modification on the card-loom.</p>
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Source : personal documentation

On this exploratory work, the thread used was one type: cotton. It was intended as so to focus on pattern modification. The results show a variety of patterns: geometrical and letter-like. It is concluded that by using the same thread material with different colors, the weaving products are a variety of geometrical patterns.

4.4 Combining *Inkle-weaving* with other textile structure techniques

Another exploratory work performed in this study was combining inkle-weaving with other textile structure techniques. The techniques chosen were manipulating threads, tapestry, and knotting. The results are depicted in Table 3.

Tabel 3 Exploratory Work by Combining Inkle-weaving with Other Textile Structure Techniques

No	Exploration	Result	Analysis
1	<p>In this exploration, modification was focused on the thread used. Three types of thread were combined using helical technique. The resulting thread was than weaved.</p> <p>Inkle-weaving was the technique employed. On the middle part, tapestry technique was used.</p>		<p>The weaving product has a wavy texture. It is caused by different surface and diameter of the thread used for lusi. A stand-out texture is visible on the middle part of the product, resulted from tapestry technique.</p>
2	<p>In this exploration, inkle-weaving was combined with tufting technique. Tufting was applied in the middle of weaving process.</p>		<p>The weaving product has a prominent texture due to the tufting technique. It has a thorn-like texture with soft characteristic.</p>

3	In this exploration, inkle-weaving was combined with knotting technique. Knotting was applied in the middle of weaving process.		The weaving product has a prominent texture, of which the knots produced on the cloth appear to soften the impression of the product.
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Source : personal documentation

The aforementioned products show that inkle-weaving has the potential to be combined with other textile structure technique, particularly tapestry and knotting. The results are fabrics with a unique, wavy, and prominent texture. This exploratory work supports the assumption that inkle weaving can result in a diverse products when combined with other techniques.

5. CONCLUSION

Inkle-weaving is a textile structure technique which results in a product with compact size: no more than 15 cm in width and a maximum length of 2 m. Its compact size makes it unique compared to other weaving techniques. The use of inkle-weaving technique has the potential to be combined with other techniques. It is also able to employ different materials for its lusi and pakan, contributing to diverse products. The use of different types of thread on lusi and pakan resulted in a wide variety of patterns. Common material used for lusi and pakan is cotton, and using different materials for both can yield different textures on the product. Modification on textile structure can be performed by combining inkle-weaving with tapestry, knotting, and tufting. The combination contribute to the products' added value, such as to its aesthetic side. Inkle-weaving technique has the potential to be developed further and to be combined with other materials and techniques. It is expected that products with diverse patterns and textures can enrich Indonesian weaving heritage.

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