

A Study for Taiwan's Popular Weaving Techniques and Cultural Development

Cao A. Yu-Han*, Huang B. Yu-Che, and Tseng C. Yung-Ling

Abstract—This thesis focuses on the recent popular weaving techniques in Taiwan, in order to assist novices of learning in weaving technology and to understand the connection and development of weaving techniques in Taiwan.

The method of research is based on a literature survey, which investigates the historical development of each weaving technique in Taiwan. The basic steps of each weaving technique are analyzed using diagrams, and listed the points to note when making them. Finally, the materials and tools required for each weaving technique are compared and contrasted, examples of actual applications are collected and analyzed.

In the conclusion section, this study compile an analysis of the difficulties when weaving and the limits of creations. Also sorted the findings and recommendations of this study, which not only provides a detailed reference for novices to learn, but also adds humanistic and historical knowledge of teaching skills, which can enhance the technological learning of various weaving educations.

Index Terms—Weaving techniques instruction, historical developments, Taiwan

I. INTRODUCTION

Nowadays, most of the popular weaving techniques in Taiwan are imported from abroad, such as Crochet, Western knots, and Macrame. It is a pity that most of the weaving teaching information comes from online videos or translated books, but there is no information about the origin of the techniques or any information related to the history and culture of Taiwan. Therefore, this study unifies the background of the development of the above three weaving techniques in Taiwan and presents the basic teaching steps with illustrations.

II. WEAVING TECHNIQUE SUMMARY

A. Crochet

Crochet is a weaving technique which uses a hook-shaped tool, weave with a single thread. This technique requires one hand to hold the crochet hook, the other hand to adjust the tension and fix the threads, and then the threads are repeatedly crocheted, looped and knotted together, and then added one by one in rows. From weak single threads, we create a single elemental pattern, and with a lot of repetitive weaving, we eventually form a faceted totem. Crochet is also widely used for warmth, clothing, ornaments and home furnishings.

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B. Macrame

It is an ancient weaving technique that does not require any tools, but simply uses the hands to knit by repeatedly tying "knots", and uses the versatility of knots to make various kinds of weaving products. The knots are used to make a variety of woven products such as wall hangings, home furnishings, bags, etc.

The knotting techniques used in Macrame are roughly the same as those used in Western knots, but nowadays, Western knotting techniques are developed in a style different from that of Macrame, so they are introduced in a separate section..

A. Western Knotting

Western knotting are often contrasted with Chinese knotting. The Chinese knotting has a variety of knot patterns and can be knotted individually, and the finished product is mainly made of abstract knots to express auspicious and blessed meanings. The production of the tuning line needs to have a high degree of mastery of skills, the results of the preparation of refined three-dimensional, mainly for decoration and ornaments. The basic types of knots in the Western knot are fewer than those in the Chinese knot, but the method of operation is simple and practical, and although they cannot be formed individually, they can be knotted for everyday use, and the length can be increased or decreased at will depending on the needs of the finished product, making them quite flexible [1].

III. THE RESEARCH METHOD

The research method is a literature analysis method, in which a large amount of relevant literature is collected and then summarized according to the content and topic of the research, and then used as the material for analysis.

In this study, the background information of Crochet, Western knotting and Macrame will be investigated using the literature analysis method. Included items are as follows.

- 1) The historical development of weaving techniques in Taiwan
- 2) Materials and tools required for weaving techniques
- 3) Basic weaving instruction

IV. CROCHET

A. The Historical Development of Weaving Techniques in Taiwan

Crochet in Taiwan was first introduced by the Japanese during the Japanese colonial rule and has been developed in Taiwan for nearly a century. According to literature, crochet was mostly taught by the Japanese in the early days of Taiwan, but later the technique was incorporated into the women's labor curriculum and became a way for Taiwanese

women to showcase their crafts, which continued until the end of the Japanese colonial rule. The women would use the crochet hooks to knit tablecloths, clothing and other daily items, which were not only practical, but also provided a way to show others the craftsmanship of the women in the family. However, as the social structure and women's values have changed, the work done with hooks is becoming more and more simplified, such as a practical work that can be done quickly in response to the busy lives of modern people [2, 3].

B. Materials and Tools Required

The selection of crochet hook depends on the needle number or diameter (mm). In crochet, the diameter refers to the diameter of the hook. The thickness of the thread used should correspond to the needle size or diameter of the tool. (Fig.1) [4].

- 1) Crochet hook set with shank.
- 2) Traditional metal crochet hook set.
- 3) Large crochet hook set.
- 4) Small pin marker ring.

It is used as a marker when weaving scarves and sweaters, and is fixed to the number of stitches, rows, and the position of the increase and decrease stitches, so that it is easy to check and mark the position.

- 1) Various sizes of sewing needles
- 2) Scissors
- 3) Measuring tape
- 4) Yarn set.

It is recommended for beginners to choose 2~4mm thread for knitting. (Fig. 1).



Fig. 1. Materials and tools required [4].

A. Basic Instruction

1) Casting on straight stitches

The basic learning of crochet. after the stitches are finished, you can use different techniques to create various patterns. (Fig. 2).

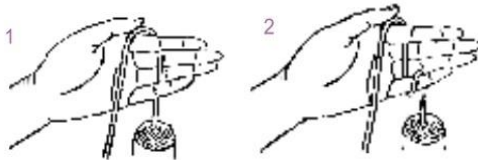


Fig. 2. Hanging thread with the left hand [4].

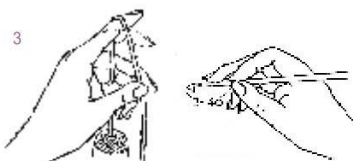


Fig. 3. Holding a crochet hook in the right hand [4].

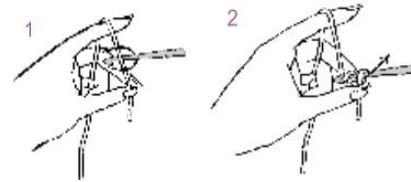


Fig. 4. Casting on chain stitches is to hook a chain stitches from inside the loop [4].



Fig. 5. According to the size of the knitting, outline the number of chain stitches needed [4].

2) Casting on round stitches

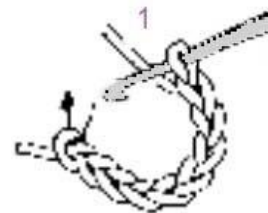


Fig. 6. First hook the number of chain stitches of the desired loop size [4].

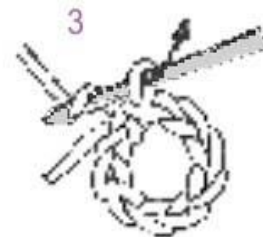
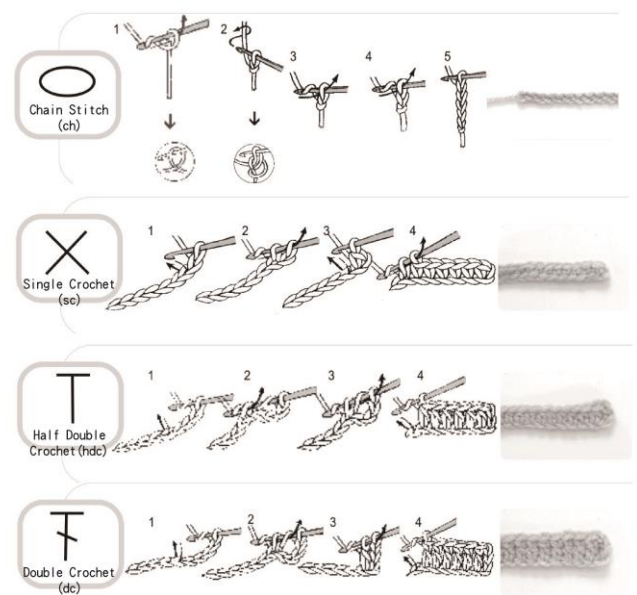


Fig. 7. Insert the crochet hook back into the first needle and make a slip stitch to fix the loop size [4].

3) The crochet stitch is illustrated as shown in Fig. 8



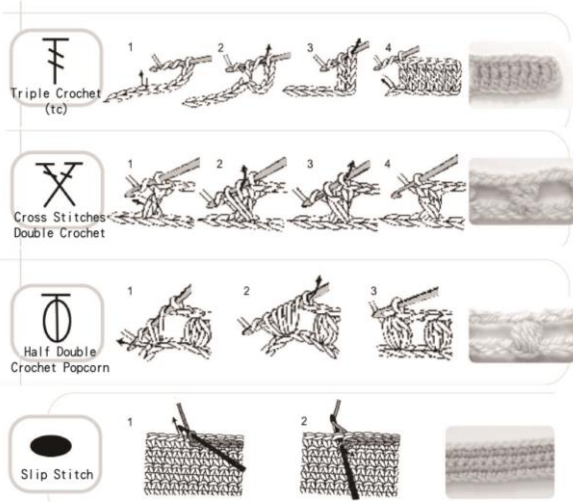


Fig. 8. Crochet stitch skills [4].

V. WESTERN KNOTTING AND MACRAME

A. The Historical Development in Taiwan — Western Knotting

Both Macrame and Western knotting are weaving techniques based on "knotting", where the accumulation of individual knots is repeated to produce a continuous pattern. In early Taiwan, Western knottings were often used in conjunction with Chinese knottings. (Fig. 9) Although they are both knotting techniques, the two types of knots are very different. The progress and changes of the times have reduced the demand for Chinese knottings in Taiwan, and the time-consuming and labor-intensive production process has led to the gradual decline of this technique in Taiwan. In contrast, the Western knotting technique, because of its ease of operation and versatility, has led to the development of many ornamental creations in Taiwan [5], (Fig. 10).



Fig. 9. Example of Chinese knotting [6].



Fig. 10. Example of Western knotting.

B. The Historical Development in Taiwan — Macrame

In recent years, the "Scandi style" has become popular in Taiwan's home style.

The term "Scandi style" refers to the use of a lot of white color with wooden tones in the space, and most of the products of Macrame are home decorations and hangings, and are made of wood with beige cotton ropes, and the finished woven totems have a strong ethnic flavor, which fits

the color tone of the Scandinavian style, and also gives decorative details and exotic atmosphere. Due to the development of the Internet, instructional videos on Macrame are available on audio-visual platforms, and many creators in Taiwan have begun to devote themselves to this technique.

C. Materials and tools required — Western Knotting

1) Thread

Most of the threads used are waxed, you can choose the threads according to the desired effect.

2) Scissors

3) Lighter

Used to melt and glue the waxed threads at the end.

4) Decorative accessories

5) Paper clip

It is used to fix the thread so that the knot will be even and nice when weaving (Fig. 11).



Fig. 9. Paper clip to stable while knotting.

D. Materials and Tools Required — Macrame

1) Cotton rope

2) Large scissors

3) Twig and wood

Must be processed and coated with protective lacquer or wax oil.

4) Decorative accessories

E. Basic Instruction

1) Single knot

It can be used as the starting pattern of the knotting (Fig. 12)

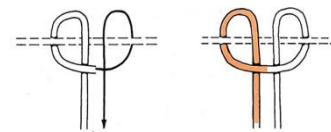


Fig. 10. Single knot [1].

2) Lark's head knot

A single knot is formed by knotting a single left or right strand (Fig. 13).

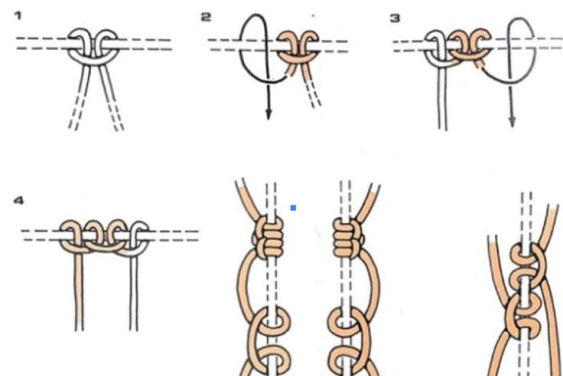


Fig. 11. Lark's head knot [1].

3) Clove hitch

The direction of the pulling line axis can form a v-shaped or oblique effect (Fig. 14).



Fig. 12. Clove hitch [1]

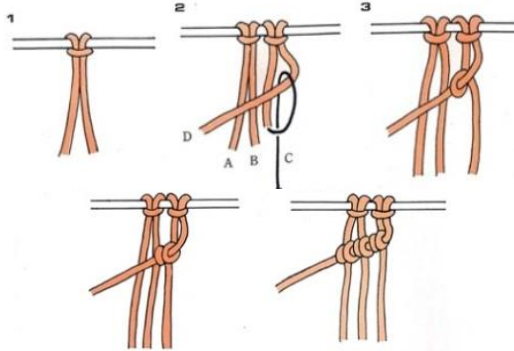


Fig. 13. Clove hitch applied to single knot [1].

4) Reefknot

Repeating the knot in the same direction only, it will become a unidirectional reef knot with a spiral effect (Fig. 16).

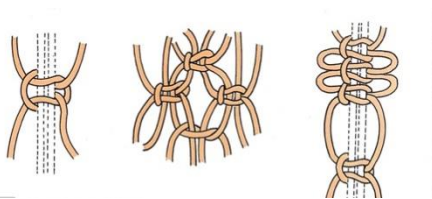


Fig. 14. Reef knots [1].

5) Braid knot

If the braid is woven with three threads, it is called a three-strand braid. (Fig. 17).

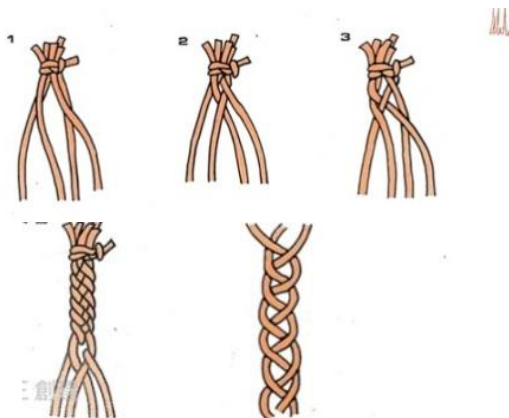


Fig. 15. Braid knots [1].

6) Rolling hitch

If A is the axis and B is wrapped around it, it is called the left rolling hitch.

The opposite is the right rolling hitch. (Fig. 18).

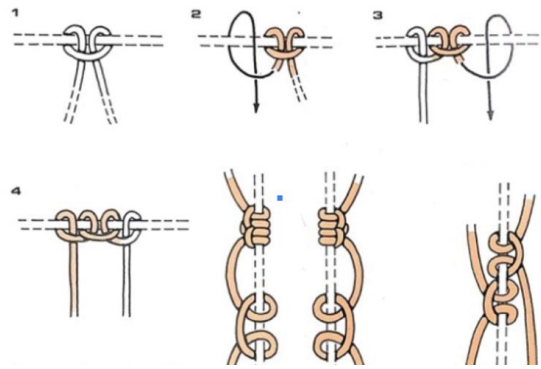


Fig. 16. Braid knots [1].

VI. RESULTS

The material and tools required for the above three weaving techniques are organized and contrasted, the examples of actual applications are collected and analyzed (see Table I).

A. Material and Tooling

TABLE I: MATERIAL AND TOOLING

Crochet	Macrame	Western Knitting
Scissor	Large scissor	Scissor
Crochet hook set	Cotton rope	Thread
Small pin marker ring	Twig and wood	Lighter
Measuring tape	Decorative accessories	Decorative accessories
Various size of sewing needles.		Paper clip

VII. WEAVING CASES

A. Crochet

1) Shell pattern scarf

It is necessary to be familiar with the skill of crocheting shell pattern, and the thread should be properly tightened (Fig. 19).



Fig. 17. Shell pattern scarf [4].

2) Tissue paper pack

The tension of the threads should be properly controlled. It is recommended to draw an develop drawing before production to understand more clearly how to crochet (Fig. 20).



Fig. 18. Using single crochet [4].

B. Macrame

1) Weave wooden diamond-shaped tassel decoration

The ideal pattern and overall composition should be well thought out, which can help to start the production quickly. When making the knot, you need to apply even force with both hands and make sure it is tightened. (Fig. 21).



Fig. 19. Diamond-shaped pattern [7].

2) Knotted handbag

It is necessary to confirm the size in order to prevent the assembly of different parts from fitting together (Fig. 22).



Fig. 20. Using reef knots and single knots [8].

C. Western Knitting

1) Necklace creation

It can be made with a variety of accessories and different knots to add layers to the finished product (Fig. 23).



Fig. 21. Necklace creation made with mineral and wooden accessories.

VIII. CONCLUSION

A. Findings of This Study

In contrast to other studies or published books that only

describe the technical aspects of a single weaving technique which can only learned little part of the weaving skills, this study focuses on integrating the basic teaching information of multiple weaving techniques, analyzing the difficulties of getting started in weaving and creative restrictions, while introducing its historical connection and cultural developments in Taiwan.

by adding the background knowledge in the process of learning weaving techniques, we can enhance the depth of leaning when educating techniques, not only can increase the understanding of technology development of Taiwan region, but also use it as a basis learning reference for creative ideas and teaching textbook.

Overall, this study will provide the information and suggestions learned during the process of weaving techniques, and compile the following three topics for reference, so that not only the historical background, but also the potential problems and difficulties in the operation process can be understood before or while learning the techniques. as follows.

- 1) Difficulty analysis of beginner's level
- 2) Limitations of the technique

F. Difficulty Analysis of Beginner's Level

This table was compiled to analyze the three weaving techniques. After the test subjects experienced the basic techniques, they were given a difficulty rating for each of them and listed the difficulties of making them (see Table II).

TABLE II. DIFFICULTY RATING AND DIFFICULTIES

	Crochet	Macrame	Western Knitting
Difficulty Rating	7/10	5/10	4/10
Difficulties	1) The control of the tension of the threadwhen hooking needs to be practiced several times. 2) Poor control may lead to uneven pattern size and deformation of the finished product.	1) When making the knot, you need to apply even force with both hands, so that the pattern is more beautiful and the finished product is less likely to be skewed.	
		2)Hanging decorations should be composed and made with patterns, and the maker should have a good sense of aesthetic proportion.	

G. Limitations of the Technique

Different knitting techniques will produce different results and patterns. In particular, we would like to highlight some of the limitations of the production method (see Table III).

TABLE III: LIMITATIONS OF THE TECHNIQUES

	Crochet	Macrame	Western Knitting
Limitations	The single crochet technique has a single pattern and no creativity.	All knotted, easier to make line shape, and relatively difficult to make complete surface quickly. If you want to make a large surface area, it is time consuming and complicated to make by too many threads.	
	It is necessary to learn multiple knitting techniques and apply them together in order	Most of the finished products are two-dimensional, so it is difficult to develop a three-dimensional form, and the solid works are	

to have variations and highlight the characteristics of the work.	easily hollowed out or have insufficient support
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CONFLICT OF INTEREST

In terms of financial relations, this paper can be submitted to the Chaoyang University for a full allowance of the application fee.

AUTHOR CONTRIBUTIONS

Author A. Cao, yu-han completed the overall paper independently, Author B. Huang yu-che and Author C. Tseng, Yung-Ling acted as a thesis advisor for Author A.

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