Overtains the traditional craftsmanship of seediq tribe’s fashion design with sustainable engineering and educational technology

Li-Hsun PENG¹, Pei-Shan Chung² and Tran Thi Minh Kieu³

¹Department of Creative Design, National Yunlin University of Science and Technology. 123 University Road, Section 3, Douliou, Yunlin 64002. (Taiwan)
²Department of Creative Design, National Yunlin University of Science and Technology. 123 University Road, Section 3, Douliou, Yunlin 64002. (Taiwan)
³School of Textile-Leather and Fashion, Hanoi University of Science and Technology. 01 Dai Co Viet, Hai Ba Trung District, Hanoi. (Vietnam)

E-mail: penglh@gemail.yuntech.edu.tw, m10936004@gemail.yuntech.edu.tw, kieu.tranthiminh@hust.edu.vn

Abstract. The Seediq, who possessed superb weaving skills, was forced to move to Chuanzhong Island (Qingliu tribe) after the Wushe incident in the 1930s. The Japanese banned weaving, coupled with the rapid development of the textile industry at that time, leading to the ramie weaving culture disappearing in the tribe for nearly 50 years. Therefore, this research will combine the weaving patterns of the Seediq tribe with fashion design through design, a fusion of traditional and modern design elements, and give the work unique cultural creativity and fashion flavor. In the hope that through design education, we will learn about tribal products and permanent Continue the value of the business and circular economy, create a tribal fashion culture, complete a series of innovative design works of the Seediq, and achieve the research purpose of sustainable engineering and technology.

1. Introduction

1.1. Research Motivation

Since ancient times, every place has developed and belongs to the culture of that ethnic group. Sun, Yeqi mentioned that "weaving' has been one of the shared cultures of humanity since ancient times" [1]. Various plant fiber materials and regional cultures are produced in multiple natural environments, influenced by the types of plant fibers and regional cultures. Influence, condensed the diversity of craft materials and local culture rich in local colors. The Seediq ethnic group is a good example; they use ramie to draw silk into threads. After dyeing plants, they are weaving into cloth. They have unique traditional crafts like this in Totem [2]. The Wushe incident and the changes of the times, the development of science and technology, and mass manufacturing have caused the machinery to replace the value of handicrafts.

This research has felt the desolation of traditional craftsmanship, combining innovative traditional craftsmanship with fashion design and applying them to fashion products such as bags, shoes, and boots. We hope that they will be able to distribute through sustainable ways and educate people with ecological thought through the advanced technology of social media such as Facebook and Instagram. The weaving process of the Seediq is quite sophisticated, which is also a patent of women. If a girl doesn’t know how
to weave, she cannot get a tattoo or marry. Therefore, when a girl is a teenager, she must start to learn to knit. From the basics to incorporate intricate patterns, she can increase her worth, thus creating the excellent weaving skills of this ethnic group and shaping the local cultural identity and characteristics [3]. Given this, this research intends to challenge the creation of products made of cloth woven by the tribe, incorporating the spirit of sustainable engineering and technological education, and highlighting the traditional style of the tribe.

1.2. Research Purposes
Based on the research as mentioned above, background and motivation, the purpose of this study are as follows:
(1) Explore the structural theory of Seediq ethnicity weaving.
(2) Analyse the meaning of the Seediq ethnic group's weaving pattern and design and produce products with fashion elements.
(3) Incorporate the spirit of sustainable engineering and educational technology, complete a series of works that reverse traditional craftsmanship and fashion design, and summarize its design features and production suggestions.

2. Literature Review

2.1. Seediq
According to the legend, the Seediq people's ancestors were born from the root of a tree, and it grew on the Baishi Mountain in the Central Mountain Range, so it is considered the birthplace of the ethnic group. The three Seediq tribe groups, Tgdaya, Toda, and Truku, respectively, are in the south of Lushan Hot Springs, the valleys north of Lushan Hot Springs, the west of Jingguan District. The origin of the descending develops nearby or outwards. In addition to the Wushe area and the upper source of the Meixi River, the Dektaya group also expanded to the west, and even one crossed the Central Mountain Range to live in the Papaya Creek Basin in Hualien County. However, the Taroko group had long been there before they came. Hualien had already migrated to live in the Liwu River Basin before. Due to the lack of arable land, the Taroko group expanded south, invading the Dektaya group's territory, forcing the tribe to go south to find newly cultivated land. Most of the group's settlement in Hualien is in Wanrong County [4].

2.2. Qingliu tribe
The Tgdaya group of Seediq people live near the Wushe in the southwest of the Dektaya group of the Saidiq people. The Japanese call it the "fog community". The Wushe incident in the 1930s was the most influential ethnic group of the Seediq. The following year after the incident, the seven tribes that participated in the anti-Japanese war did not die. The surviving tribes moved to the banks of the middle reaches of the Beigang River. The Japanese called it Chuanzhongdao Society. It is also the Qingliu community of Huzhu Village, Renai Township, and women prohibited from weaving.

2.3. Weaving process
The Seediq ethnic group's clothing is similar to that of the Atayal ethnic group. However, due to the geographical environment, there are some differences in the dress in different regions. According to the academic circles' classification during the Japanese occupation period, the Seediq people in the Wu community use female clothing. It is more prosperous, in addition to tops and aprons, leggings, and a large piece of square cloth added, which are practical and warm. For men, this large square scarf will be draped diagonally on the body to form a diamond shape, keeping warm.

According to the Seediq ethnic group's traditional customs, the daughter must weave many fabrics and cloth covers as a dowry before being married to be recognized by the parents and men, and at the same time, establish the status of the girl in the ethnic group. Therefore, a well-known woman must follow her husband to work in the mountains during the day, go home at night to deal with household chores, and light up the firewood to continue weaving until late at night.
There are five weaving patterns of Seediq people [5]:

(1) Tinun bale (plain weave):
Plain weaving is the simplest weaving method, adjusted with various colors and patterns, and the designs are quite regular. A large piece of cloth of two stripes, woven on both sides of the fabric, without a central system.

(2) Cnuru (twill weave):
Twill weave and its warping method are very complicated. Twill weave fabrics were used for quilts because twill weave fabrics were thicker than plain weave fabrics.

(3) Pacang doriq (diamond weave):
The principle and production method of the diamond weave is the same as that of twill weave. The diamond-shaped texture looks like an eye. Seediq uses doriq to refer to this diamond-shaped pattern that looks like an eye.

(4) Miri rice (grain weave or float weave)
The method of picking or floating weaving is the same as that of plain weaving. The manufacturing method of choosing and floating weaving is quite similar, but the thread used for picking is relatively thick because the pattern must be picked out with a flower picking stick when making it. Pick weave and float weave use more dividers. The above five kinds of weaving patterns of Seediq are summarized, as shown in Table 1 [6].

### Table 1. Seediq ethnicity weaving pattern.

| Texture | Diamond Weave (Doriq) | Yamagata Pattern (<> or <>) | Straight cross pattern (X) | Straight stripes or diagonal stripes (Ulin) |
|---------|------------------------|-----------------------------|-----------------------------|------------------------------------------|
| Meaning | In the eyes of the ancestors, some weavers interpret the diamond pattern as "heart." | Ancestral migration | Mortar and pestle for pounding rice | The rainbow bridge leading to the ancestral land also has patterns used to describe the surface. |

2.4. Weaving culture
Analyzing from a sustainable engineering perspective, the Seediq used ramie, a native species, as the leading textile material for weaving and weaving into cloth raincoat materials for daily life. However, the first task is how women start with ramie cultivation. From management to harvesting, go through the processing procedures of stripping, scraping, spinning, spinning, boiling, dyeing, and processing. It is possible to make ramie fibers into threads, use wood ash, tubers of potato palms, leaves of Jiou-qiong trees, and black mud to make dyeing pigments. After dyeing them into white, tea-brown, and black threads, the process followed. The traditional horizontal loom with shoulder straps shows the exquisite craftsmanship of the tribe on the woven fabric. The standard colors are green, red, yellow, black, and white [7].

3. Research method

This research is divided into three stages, and we hope that the integration and promotion of science will achieve the cost research purpose. The literature analysis method is qualitative research to explore the development history of the Seediq ethnic group's weaving and pattern design. Then analyzes its style with Seediq ethnic characteristics. The second stage uses experimental methods to screen the used pattern, and experiments simulate system; the third stage is to design fashion products based on the Seediq pattern's meaning and summarize the creative concept and practice of applying bag design.

4. Research and analysis

4.1. Subject: Seediq

Fashion is a person’s attitude towards life. In the Seediq language, Seediq means "people", so the design reflects on people and the Seediq totem as the design principle, and the diamond is the ancestor. The spirit's eyes are like the supervision and protection of the ancestor spirit, and the straight or horizontal lines symbolize the spiritual bridge leading to the ancestral spirit. In combining the fashion design concept to create a tribal fashion's attitude, the research goal is that the tribe's traditional values and culture do not harm environmental sustainability. To integrate with science and educational technology [8]. So that the next generation can fully understand the importance of ethnic culture [9].

4.2. Design Diagram

The first work is the tote bag design, highlighting the weaving craftsmanship of the Seediq tribe with a simple tailoring design. Work 2: Design inspired by ancestors' eyes, so a backpack is designed with a round shape. Work 3: It is a bucket bag, which is designed with a traditional rattan bag. The design drawings of the above three works are summarized, as shown in Table 2.

| Work 1, size: (W:31cm x D:9.5cm x H: 22.5cm), adjustable shoulder strap length: length: 60cm. Work 2, size: (W:30cm x D:10cm x H: 30cm), strap length: 120cm. Work 3, size: (W:20cm x D:20cm x H: 30cm), handle length: 40cm. |

4.3. Color Positioning

4.3.1. Main color
In this study, the primary color of the Seediq tribe's favorite color is red. Red represents blood and power in the Seediq. Moreover, to match the 2020/2021 fall/winter popular color selection Samba red, its color ticket number PANTONE 19-1662 Samba [10].

4.3.2. Color matching

(1) White: The Saidiq people like to use white as the base, embellished with diamond-shaped fabrics. In line with the popular colors of autumn and winter 2020/2021, choose Jet Stream White, the future color ticket number PANTONE 11-0605 Jet Stream, as its color.

(2) Black: The Seediq ethnic pattern is black, a sign of "life" and a representative of reason and wisdom. In line with the popular color scheme of autumn and winter 2020/2021, choose Pirate Black, with the future color ticket number PANTONE 19-4305 Pirate Black, as the work's color scheme. The detailed color plan data summarized in Table 3.

Table 3. "Seediq" creative color plan.

| Color ticket | Swatch number |
|--------------|---------------|
| PANTONE 19-1662 Samba |
| PANTONE 11-0605 Jet Stream |
| PANTONE 19-4305 Pirate Black |

5. Conclusion

This study analyzes the meanings of the Seediq patterns. It combines modern popular elements to create tribal fashion and create a series of Seediq products, strengthening the ethnic people's weaving patterns. The spirit of producing unique products. This creation is based on the cloth woven by the tribe, as a creative creation, and should be applied to the bag design to create the Seediq fashion style.

Acknowledgments

This research funding by the Ministry of Science and Technology of Taiwan, the grant number is MOST 109-2420-H-224-002-MY3.

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