

Preserving Mojiang Hani Hand Weaving Techniques: Understanding Complexity for Culture and Sustainable Development

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ABSTRACT

Mojiang, located in the southern region of Yunnan Province, China, serves as the historical abode of the industrious and intellectually rich Hani community, boasting a heritage spanning thousands of years. The traditional costumes of the Mojiang Hani people stand as integral bearers of their national culture, adorned with intricately handwoven elements. However, the advent of modern technology and shifts in the social environment have precipitated a marked decline in the prevalence of handwoven techniques within the decorative aspects of traditional costumes. This jeopardizes the continuity of a craft that is deeply woven into the fabric of their cultural identity. This research employs a methodical combination of observation and interviews to purposefully collect data on Mojiang Hani hand weaving techniques. The findings illuminate that the gradual disappearance of these techniques is intricately linked to their inherent complexity, manifesting across five dimensions: classification, materials, process, patterns, and forms. In response to these complexities, the research proposes judicious recommendations aimed at the effective preservation and transmission of Mojiang Hani hand weaving techniques and, by extension, their traditional culture. Beyond immediate preservation efforts, these suggestions form a solid foundation for future research endeavors and the sustainable development of Mojiang Hani hand weaving techniques, fostering a continuum of cultural heritage in the face of contemporary challenges.

KEYWORDS: Mojiang Hani hand weaving techniques, Complexity, Preservation, Cultural heritage, Sustainable development

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1. INTRODUCTION

As the first comprehensive work in the world to record agricultural and handicraft production, "Tiangong Kaiwu" also made categories of traditional crafts, including "Naifu (textile), Zhangshi (dyeing), Taoyan (ceramics), Yewujin (metallurgy), Jiabing (weapon), Danqing, Zhu Mo, Zhuyu", etc. (Wang, 2016). It can be seen from the classification that the weaving technique is a traditional handicraft with a long history. Hand weaving technique is a form of creation that can be traced back to primitive society (Boudot & Buckley, 2022), and its history may be older than words. Urton (2023) states how Indians kept records by tying knots on a rope with all kinds of shells and pearls. According to Urton (2008), people recall the past by checking the knots that they tied when specific events happened, this is evidence of recording by tying knots, too. Then, People learned to place items in meshed weaving implements and gradually realized the importance of weaving techniques as this brings convenience to their daily lives.

Along with the appearance of the word "WEAVING", tying knots faded away, however, the technique of tying knots was preserved. The weaving techniques were also preserved even with the development of science and technology. In different periods, the materials, techniques, and functions of weaving have improved to varying degrees until they are fully integrated into people's lives and further beautify and enrich people's daily lives. In the long process of civilization, it has always existed in the process of people's production and life. It has gradually formed reasonable ways and characteristics through the accumulation of experience of creators and the practice test of users so that it can be widely used among people. At present, there are still many ethnic groups in the world still using traditional weaving, and in China, there are some ethnic minority areas also using it. Traditional hand weaving techniques have very precious historical and cultural value.

Hani is an ancient ethnic group. According to the China Statistical Yearbook 2021, over 1.7 million Hani

people are living in the People's Republic of China, all residing in Yunnan Province, making them the most populous among the 15 unique minorities in the province (National Bureau of Statistics of China, 2021). Mojiang Hani means Hani people living in Mojiang County, Yunnan Province. Mojiang County was established on 28 November 1979, as the only Hani Autonomous County, that is the most concentrated area of Hani people in China. It is called the "Home of Hani" due to the nine different branches of Hani people in this county including, Kaduo, Biyue, Kabie, Baihong, Lami, Ximoluo, Haoni, Amu, and Qiedi. The nine branches are distributed in different villages in Mojiang County, and some of them live together at the same time. The nine branches are different in language and customs, which are caused by the complex migration history of Hani's ancestors. This also just created the diversity of Hani costume culture and hand weaving techniques in Mojiang. Mao (1998) stated that Hani costumes are diverse, with each branch having its characteristics and many traces of mutual influence and intersection. Hand weaving techniques of the Hani in Mojiang are not only an indispensable part of Hani costumes but also the main activities of the Hani cottage industry. It has high artistic aesthetic value and unique cultural significance.

The research on the Mojiang Hani ethnic group emerged in the early 21st century due to the great height of the mountains and the immense depth of the valleys in Mojiang Hani communities, which made researchers unable to go deep. Therefore, to obtain more data and information about the Mojiang Hani hand weaving techniques, a field investigation was carried out in the early stage, and it was found that the Mojiang Hani hand weaving techniques can be divided into three types: treadle loom weaving, loom weaving, and finger weaving. In Mojiang County, the Hani people still use hand weaving items in their daily lives. However, it is still a rare stage to record and study the hand weaving techniques of the Hani nationality in Mojiang. Therefore, at present, people's understanding of Mojiang Hani's hand weaving techniques is not complete, which will lead to the complete neglect of this traditional handicraft and the value behind it. It is imperative to protect and revitalize the Hani weaving tradition in Mojiang.

Mojiang Hani's traditional hand weaving technique is facing the threat of disappearance, and it is necessary to find out the reasons for its decline to continue this traditional handicraft and its inherent national culture. Therefore, this study will systematically collect and analyze the complexity of Mojiang Hani hand weaving techniques, determine the internal reasons for their disappearance, and put forward suggestions for the effective preservation and dissemination of these techniques and their cultural significance.

2. LITERATURE REVIEW

This section primarily delves into an examination of two facets: the current situation of Mojiang Hani hand weaving techniques and the protection of traditional handicrafts.

2.1 Incomplete Research on Mojiang Hani Hand Weaving Techniques

Mojiang County is the most concentrated area of Hani nationality in China (Zhang, 2019). Mojiang Hani women are responsible for the hand weaving technique, which has been passed down from generation to generation. A woman's weaving skills are considered a measure of her social status, reflecting her intelligence and ability to manage her family (Mao, 1991). Liu (2009) pointed out that the Mojiang Hani weaving technique is a set of products accumulated by human beings for thousands of years to adapt to the environment, which not only reflects the development degree and situation of national society but also reflects people's cultural concepts and value orientations. To a certain extent, it embodies the national characteristics, which directly constitute the national differences, and at the same time shows the regional characteristics. However, his research content is not a comprehensive study of the Mojiang Hani hand weaving techniques. His content pays more attention to the treadle loom weaving technique and the dyeing technology of "TuBu", which is a piece of fabric woven from cotton fibers but does not mention the hand weaving techniques of other forms, materials, or processes. Some researchers have explored the types and cultural connotations of Mojiang Hani traditional costumes (Zhao, 2013; Li, 2016; Tang, 2022), and introduced the woven items made by loom weaving and finger weaving in decorations, but did not study the techniques itself in depth. The current research on Mojiang Hani hand weaving techniques is still left far behind, which forms a very big contradiction with the complexity of the techniques. This situation is potentially hazardous, and it is also very urgent to protect the Mojiang Hani hand weaving techniques.

2.2 How to Effectively Deal with Threats to Traditional Technologies?

At the same time, how to deal with these threats to traditional handicrafts in a targeted way is more important. It is very necessary to analyze the causes accurately before solving problems. There are many studies have pointed out the reasons for the limitations of the development of traditional handicrafts. The main issues that have been discussed are the lack of people's awareness of inheritance, the lack of younger generation of practitioners, the single way of inheritance, the impact of industrialization, insufficient government support, lack of financial support, and lack of innovative technologies (Yang et al., 2018). Lu (2018) has classified these into three types in his research: external causes, internal causes and changes of the

times. When it comes to the analysis of the internal causes of the process itself, researchers often pay more attention to common problems, such as limited access to raw materials, high time cost and lack of innovative technology (Ghouse, 2012). However, it is difficult to effectively protect different types of handicrafts only by pointing out common problems and suggestions. This requires researchers in related professional fields to analyze the inherent characteristics of the techniques in detail and put forward reasonable suggestions for the threats existing in the process.

3. METHODS

Currently, there is a lack of comprehensive and in-depth research on the Mojiang Hani hand weaving techniques. Investigating the complete spectrum of hand weaving skills possessed by Mojiang Hani women in the nine branches which include Kaduo, Biyue, Kabie, Baihong, Lami, Ximoluo, Haoni, Amu, and Qiedi, presents a significant challenge in this research endeavor. This study will extensively explore the hand weaving techniques of the Hani ethnic group in Mojiang through on-site investigations. It will employ a two-stage, integrated Collection Stage and classified Collection Stage, to collect data on purpose, utilizing both observation and interviews to gather comprehensive data. The study made a total of eight participants, whose traditional culture inheritors from Mojiang. They are Cai Fengying, Yang Ping, and Li Baitai from the Biyue branch; Peng Yingmei from the Kaduo branch; Li Zuniang from the Ximoluo branch; Zhou Li and Zhou Fangzhi from the Amu branch; and Wang Ling from the Haoni branch.

The fundamental concept of qualitative research involves the intentional selection of participants or sites that offer optimal insights into the research questions and issues (Creswell & Creswell, 2018). In the integrated Collection Stage, commencing with the endorsement of local government entities, this research opted for the Hani Culture Exhibition Room within the Ethnic and Religious Affairs Bureau, Mojiang Hani Autonomous County as the subject of observational research. The exhibition room displays the traditional costumes of the nine branches of the Hani ethnic group in Mojiang. As previously mentioned, the correlation between costumes and hand weaving techniques is integral. Therefore, this research launched a meticulous examination of the costumes enabling the identification of various hand weaving techniques existing in different costume types across branches, which makes the aim becomes more explicit in the subsequent investigation of diverse branches.

In the classified collection stage, meticulously selected participants from the eight Hani branches of Mojiang, specifically targeting individuals with considerable

expertise in hand weaving techniques. The selection criteria focused on proven skill, recognition by the community as cultural inheritors, and a readiness to actively participate in the study. In the end, eight inheritors were chosen: Cai Fengying, Yang Ping, and Li Baitai from the Biyue branch; Peng Yingmei from the Kaduo branch; Li Zuniang from the Ximoluo branch; Zhou Li and Zhou Fangzhi from the Amu branch; and Wang Ling from the Haoni branch. These inheritors participated in unstructured and semi-structured interviews, during which we observed and documented the distinctive characteristics of Hani's costume skills. This research aims to explore the underlying reasons for the decline in Mojiang Hani hand weaving technology and offers practical recommendations for its revitalization.

4. DATA COLLECTION

It will employ a two-stage purposive data collection approach characterized by a two-stage integration, encompassing an initial stage of comprehensive data collection and a subsequent classified collection stage, utilizing both observation and interviews to gather data.

4.1 Integrated Collection Stage

The primary focus of data collection at this stage is centered on the Hani Culture Exhibition Room within the Ethnic and Religious Affairs Bureau of Mojiang Hani Autonomous County. This exhibition room assembles representative traditional artifacts of the Hani nationality across various branches of Mojiang County, with a particular emphasis on traditional Hani costumes in Mojiang, embodying a distinct and prominent national cultural character. Thorough observation of the Mojiang Hani costumes and interviews with the exhibition room's responsible individual, it confirmed the existence of three distinct Mojiang Hani hand weaving techniques: treadle loom weaving, loin loom weaving, and finger weaving. Most hand weaving fabrics serve as embellishments for clothing or household items, with variations in hand weaving techniques mastered by the nine branches. All branches employ the "TuBu", which was produced through the treadle loom weaving process, subsequently transforming it into garments. Nevertheless, notable variations emerge among the nine branches of the Hani nationality in Mojiang concerning expertise in loin loom weaving techniques and finger weaving techniques. While hand weaving embellishments adorn the costumes of Biyue, Kaduo, Amu, and Ximoluo, such elements are conspicuously absent from the clothing of branches Baihong, Haoni, Lami, Qiedi, and Kabie.

This revelation underscores the intricate nature of classifying the hand weaving techniques among the Hani people in Mojiang, revealing a deficiency in people's awareness and attention towards it. The investigation reveals that individuals tend to overlook

hand weaving products, considering them as "ordinary" due to a lack of understanding of their inherent process value.

4.2 Classified Collection Stage

During the classified collection stage, Hu Binjie, the director of Mojiang County Cultural Center, recommended eight proficient weavers with expertise in hand weaving techniques. These individuals are Cai Fengying, Yang Ping, and Li Baitai from the Biyue Branch, Peng Yingmei from the Kaduo Branch, Li Zuniang from the Ximoluo Branch, Zhou Li and Zhou Fangzhi from the Amu Branch, and Wang Ling from the Haoni Branch—a skilled inheritor managing her clothing store. Given that each branch is situated in different settlements along the Mojiang River, visits were conducted sequentially in Lianzhu Town, Sinanjiang Town, and Yayi Town. Relevant data was systematically collected, focusing on five aspects: category, material, process, form, and pattern of each process, guided by the classification cues obtained from the preceding investigation.

4.2.1 Treadle Loom Weaving Technique

In the Hani community of Mojiang County, the clothes worn by the Hani people are all sewn with "TuBu" which is made of cotton. Hani people grow cotton by themselves, planting it around March and picking it around June. After picking, the raw materials are spun into cotton threads through cotton textile processing, and then the cotton threads are woven into cotton fabric by treadle loom weaving techniques. Finally, the cotton fabric is dyed with indigo through the dyeing process to make "TuBu". Among them, the treadle loom weaving technique is a traditional process passed down by Hani women from generation to generation, which has a long history (Liu, 2009). The detailed process is complex, including the processing of raw materials (example **Figure 1**).

The inheritor of Hani costumes, Wang Ling of the Haoni Branch, was interviewed. She operates a shop that processes and sells Hani costumes. According to the interview, most of the Hani people are more willing to buy "real" clothes, which are sewn with "TuBu" made by the Mojiang Hani treadle loom weaving techniques and dyeing process. These buyers can distinguish the "real" or "fake" from the false by the touch and smell of the clothes. Because the factory uses mechanized mass production of "fake" clothes, the fabric and printing process it uses is different from that of "TuBu", the inheritor Wang Ling must find people who still use traditional methods to make "TuBu" in the village and buy "TuBu" from them. Generally, the undyed one foot is 10 yuan, and the dyed one foot is 15 yuan (one foot about 30cm).

In conclusion, the utilization of pedal loom knitting techniques persists as a current and necessary practice. Employing this technology serves as a means for Hani women to augment their family income. Based on the findings from the investigation, it is evident that the materials employed in the foot loom weaving and the resulting fabric's structure are relatively uncomplicated. The knitted fabric called 'TuBu' typically constitutes a basic plain weave devoid of any discernible patterns. Furthermore, the foot loom knitting process is intricate, encompassing multiple and intricate steps.

4.2.2 Loin Loom Weaving Technique

According to the existing situation of Mojiang Hani hand weaving techniques in **Table 1**, it can be determined that the four branches of Biyue, Kaduo, Ximoluo, and Amu are still using loin loom to weave ribbons. In the process of visiting and investigating the inheritors of these four branches. Differences were observed in the loin loom weaving techniques across various branches. This part will discuss and summarize the loin loom weaving technique from the similarities and differences between these branches.



Figure 1: Treadle loom weaving technique flow

This research indicates that although loom weaving techniques are uniformly employed across four branches, the tools, materials, technique principles, and functions exhibit basic similarities. The loom, recognized as one of the oldest and simplest looms, features no external devices and is conveniently portable. Variations in securing the warp beam include ground stake style, foot-pedal style, and hanging style, as noted by Li (2016). Observations of Hani individuals in Mojiang reveal that the fixing methods predominantly consist of the foot-pedal type utilized by the Biyue and Amu branches and the ground stake type used by the Kaduo and Ximoluo branches. The common point of these loom types is that they need to straighten the warp through the traction of a fixed point, and the warp's length determines the position of the fixed point. Therefore, in this study, the loom types used by the Hani people in Mojiang can be summarized as Mojiang Hani traction loom types. The traction loom is mainly composed of six parts: warp, warp beam, lease rod, heald, beating-up knife, and weft ball (example: **Table 1**).


Although it looks simple in structure, it embodies the basic principle of weaving and is the foundation of modern textile production. The technique principle of the Mojiang Hani traction loom can be described as follows: Hani women fix one end of the traction loom and the other end on a fixed warp beam or other objects to keep the warp tension. At this time, the lease rod forms a natural shed, the weft ball is put in, the heald is lifted, and the heddle shed is formed, and then beating up completes a weaving process. In the process of weaving, the natural shed needs to borrow the strength of the waist to support the warp straight and make the shed clear. When carrying the heddle shed, it is necessary to use the strength of the waist to

relax the warp slightly, so that a clear heddle shed can be produced after carrying the heald. In the weaving process, if it is not fixed at the waist, it is difficult to form a heddle shed. It is the key to the Mojiang Hani traction loom weaving techniques that weavers flexibly use the tension produced by the waist to warp.

Ribbon is the output craft product of Mojiang Hani traction loom, and its material selection is made of cotton thread or wool thread, most of which is purchased then spun by the factory machine. The length and width of the ribbon can also be adjusted by itself when weaving as needed. On the heads of Biyue and Amu, we can see the use of ribbon to fix "BaoTou" (a piece of fabric encloses their hair), on Ximoluo's body, we can see the use of ribbon as the strap of the satchel, and on Kaduo's waist, we can see the use of ribbon as the belt to fix the apron. For Hani people, ribbon often integrates practical and decorative functions, not only playing a role in fixing and decorating costumes but also appearing on musical instruments and other instruments.

After further observation and interview, it is found that the ribbons of different branches is different. There are two kinds of weave structures in the ribbon made by Mojiang Hani traction loom weaving technique, one is plain weave, and the other is plain jacquard weave. Plain weave is the most common woven structure, which can be obtained by weaving according to the principle mentioned above. The ribbon woven by Biyue, Amu, and Ximoluo is a plain weave. If the plain weave is woven with warp and weft threads of the same colour, a monochrome ribbon will be obtained. If warp threads are regularly replaced with different colours, a coloured ribbon will appear, and a strip pattern can appear on the ribbon.

Table 1: Mojiang Hani traction loom



1. warp beam	Made of 20-30cm wooden sticks. It is a tool for winding and taking off warp.
2. lease rod	Grind the gourd into a sheet rectangle, and punch holes on both sides of the longer one with long needles according to the number of warps. It is a tool for making warp lines form the upper and lower layers of a natural shed.
3. heald	It is a heald composed of wooden sticks with a length of about 5cm which is made of disposable chopsticks and cotton threads. It is a tool to help warp rise and fall to form a new heddle shed.
4. beating-up knife	It is a small beating-up knife with a length of about 20cm and a width of about 5cm which is made of bamboo. It is a tool for tightening the shed after the weft is introduced.
5. warp	They often use cotton yarn spun by themselves, or machine-spun cotton yarn or wool
6. weft ball	they bought.

Plain jacquard weave is an added step in the weaving process, which is based on plain weave, stirring up the local warp to form a jacquard layer floating on the plain weave layer. This process adds patterns to the ribbon and improves its artistic effect (example **Figure 2**). This technique is only in the hands of women in the Kaduo branch, who can weave ribbons with rich patterns through different warp changes. The patterns of ribbon are mainly geometric patterns, as well as plant patterns. Because the ribbon needs to show clear patterns, the ribbon width of the Kaduo branch is usually 3-4cm, while the ribbon width of the other three branches is 1-1.5 cm. At present, the number of people who use the traction loom weaving techniques to make ribbons is gradually decreasing, and the skill inheritors are mostly elderly aunts and grandmothers. Furthermore, it was revealed through discussions with Peng Yingmei, a skill inheritor of the Kaduo branch, that the intricate jacquard process demands precision and attention to detail, posing significant challenges for individuals with deteriorating eyesight. While they hold a preference for and endorse hand weaving, they find themselves incapable of practicing it, lamenting that it's a regrettable circumstance.

In summary, the Mojiang Hani traction loom weaving technique is widely used, and the ribbon woven by it shows diversified specifications in the four branches of Biyue, Amu, Kaduo, and Ximoluo. Among them, the ribbon of the Kaduo branch is plain jacquard weave, while the ribbon of the other three branches is a plain weave. Because of the different weave structures, there are also differences in process and pattern. This difference enriches the Mojiang Hani traction loom weaving techniques and fully reflects the aesthetic sensibility of Hani women.

4.2.3 Finger Weaving Technique

Finger weaving is an ancient traditional handicraft in China. It is not only an early attempt and use of natural materials and a product of the application of knowledge and wisdom through long-term labor but also one kind of intangible cultural heritage. The finger weaving technique is a movement of the fingers, which is usually the conventional weaving of overlapping and winding on linear materials such as cotton thread, plant

stem or silk, and then the structure and texture tend to be clear. Finally, we can obtain a plane or stereoscopic form, which is commonly known as the finger weaving technique. In the costumes of various Hani nationality branches in Mojiang, numerous decorations featuring knots and ropes were observed. It was found that Mojiang Hani weavers excel in using diverse combinations and variations of knots and ropes to decorate the ends of warp yarns. These techniques involve weaving loose threads into unique decorative elements. Continuing along this line of inquiry, subsequent interviews reveal a diversity of finger-weaving techniques among the Hani people in Mojiang.

Prominent examples include Hani knots and Hani ropes integrated into clothing and household items, as well as straw belts and shell belts adorned by Hani women. Additionally, straw bracelets, are now replaced by silver alternatives. Women engage in weaving using various materials, resulting in intricate and creative forms that vividly demonstrate the distinctive allure of decorative arts and highlight the remarkable innovation capabilities of the weavers.

Through investigation, there are many kinds of knots woven by Mojiang Hani weavers. These decorative techniques are collectively referred to as Hani knots, characterized by a weaver using their fingers to guide the line through specific, regular interspersed, and wound patterns before tightening to form the structure. Notable types of Hani knots include "CangYingTou," "PuTao," "PangHai," "DanBaoTai," and "ShuangBaoTai." "These knots are named according to the local Hani women's experiences and customs in Mojiang. For example, "CangYingTou", "PuTao", and "PangHai" all have very clear pictographic meanings and come from common things in their lives, while "DanBaoTai" and "ShuangBaoTai" are more like a metaphor. "ShuangBaoTai" is composed of "DanBaoTai" in two different directions. The reason why Mojiang Hani weavers can compare them to "ShuangBaoTai" is precisely because the birth rate of twins in Mojiang County is very high, which is 25% higher than that in other parts of the world (de Wilde & Kurzen, 2020). Table 2 is a summary of the above kinds of Hani knots, including the process flow (example: **Table 2**).



(a) Plain weave monochrome ribbon

(b) Plain weave colored ribbon

(c) Plain jacquard weave ribbon

Figure 2: The types of Mojiang Hani loom woven ribbon

Table 2: Summary of Hani knots

	Name	Meaning
	CangYingTou	The head of a fly
	Finger weaving technique flow	
Hani knots (a)		
	Name	Meaning
	PuTao	Grapes
	Finger weaving technique flow	
Hani knots (b)		
	Name	Meaning
	PangHai	Crab
	Finger weaving technique flow	
Hani knots (c)		
	Name	Meaning
	ShuangBaoTai, DanBaoTai	Twins, Singles
	Finger weaving technique flow	
Hani knots (d)		
	<p>These two diagrams are two "DanBaoTai" with different weaving directions.</p>	

At the same time, some ropes use finger weaving techniques. It is summarized as Hani ropes. Hani ropes on Mojiang Hani costumes are twill woven ropes that use finger weaving techniques. These elements are collectively termed Hani ropes. On Mojiang Hani costumes, Hani ropes are twill woven using finger weaving techniques. Twill woven is a method of weaving by crossing two groups of warp threads in the weaving process. Hani rope can be divided into single strands and double strands, and there is only one difference in the operation of these two. In the weaving process, the warp can be divided into left and right groups, and the weaving is carried out through the cross-transformation of the left and right warp. When people weaving, need two weavers to cooperate, one of whom controls the position change of warp threads on her fingers, and the other is responsible for sorting warp threads opposite the collaborator, and she acts more like a beating-

up knife. The number of warp groups is singular, and usually 3 groups, 5 groups, or 7 groups of warps can be used. This finger weaving technique of Hani rope brings the dexterity of fingers to the extreme, and the process is very interesting (example: **Table 3**). During the investigation, it is often seen that weavers sit around and weave Hani rope while chatting.

More than that, these Hani knots and Hani ropes often appear in a combination way. There are two most common combinations. One is the Hani combination knot A, which is used to treat warp yarns at both ends of the ribbon. This combination firstly is to weave cotton threads into double ropes, then weave "CangYingTou", "PuTao", and "PangHai" from top to bottom, and the last weave "CangYingTou" and "PuTao" after leaving a length of double rope.

Table 3: Finger Cross Weaving Process in Hani Twill Woven Rope with 7 Warp Groups

Starting warps position		<p>There are 7 groups of warps, among which 4 groups are hooked on the index finger, middle finger, ring finger, and little finger of the left hand respectively; The remaining 3 groups were hooked on the index, middle, and ring fingers of the right hand.</p>
Cross weaving		<p>The little finger of the right hand passes through the middle of the wraps on the little, ring and middle finger of the left hand in turn and hook the red wraps of the left index finger (when hook is single strand from the top of a and double strands from the top of b), so that the red warps are on the little finger of the right hand.</p>
Moving warp group		<p>The warps of the middle, ring, and little finger of the left hand move forward in turn, that is, the warps of the middle of the left hand are placed on the index, the warps of the ring of the left hand are placed on the middle, and the warps of the little of the left hand are moved to the ring so that the little finger of the left hand is empty and there is no warp.</p>
Cross weaving		<p>Then use the warp of the left little finger to pass through the warp of the right little, ring, and middle finger according to the above steps, hook the blue warp of the right index finger, hook it up with one strand, and hook it down with two strands.</p>
Moving warp group		<p>The warps of the middle, ring, and little finger of the right hand move forward in turn, that is, the warps of the middle of the right hand are placed on the index, the warps of the ring of the right hand are placed on the middle, and the warps of the little of the right hand are moved to the ring so that the little finger of the right hand is empty and there is no warp.</p>
<p>Repeat the above steps to complete the Hani rope.</p>		

This vertical combination replaces the traditional tassel in a more exquisite way, which shows the vivid imagination, creativity, and practical ability of Mojiang Hani weaver; The other is Hani combination knot B, which is used to deal with the warp yarns at the end of "TuBu". The weaving direction of "DanBaoTai" is changed regularly and rhythmically, and different light reflection effects are produced by using the different directions of "DanBaoTai", forming geometric subtle patterns, which are arranged in two sides continual. And each row of subtle patterns is separated by "ShuangBaoTai", finally matched with twisting ropes. The combination of "DanBaoTai" and "ShuangBaoTai" will change many patterns, most of which are named pictographically, such as windows, rainbows, bracken leaves, and so on. This Finger weaving technique makes the "TuBu" glow with new vitality, which is different from the embroidery decoration with a stronger visual impact. This finger weaving technique decoration way increases the texture of the fabric, and brings out the reserved and simple character of Mojiang Hani women. It also shows the aesthetic style of Mojiang Hani's ethnic characteristics.

Apart from the presence of Hani knots and Hani ropes, costumes worn by the elderly members of the Biyue branch also feature belts woven from grass or shells. Historically, numerous young Hani individuals in Mojiang utilized straw bracelets as tokens of affection (example **Figure 3**), adorning their hands with these bracelets as decorative elements. However, the contemporary trend involves the substitution of straw bracelets with silver alternatives.

The term "Zhuo Tou" is the local Hani designation for a bracelet. The grass utilized for weaving both belts and bracelets is derived from *Sporobolus Fertilis* of Poaceae Barnhart referred to by locals as "bracelet head grass," typically reaching maturity in the summer and autumn seasons. However, when weaving belts and bracelets, the grass stems are usually selected several weeks post-maturity to ensure the required toughness for

effective weaving, preventing breakage during the process. Typically, the stems of the bracelet head grass are twisted and interwoven, resulting in a distinctive upward-spiraling pattern.

The specific form of weaving is contingent upon the tightness of the weaving technique. Loose weaving leads to a relaxed appearance in the woven section, while tighter weaving intensifies the structure. It's worth noting that the weaving rules differ slightly between belts and bracelets (example: **Table 4**), yielding distinct visual lines. Belts are commonly woven with 9 strands of grass, while bracelets typically involve 8 strands. Adjustments in the grass quantity can be made based on requirements, and this may give rise to various regular strip geometric patterns. Additionally, some weavers opt to dye the finished products to enhance durability.

The shell belt discovered in the Biyue branch is a versatile and removable belt crafted through the processes of stringing, weaving, and winding cotton thread. Given that Mojiang County is situated inland, lacking access to marine life and seashells, the presence of seashells in the region is noteworthy. Yu (2020) highlighted the historical use of seashells as currency in Yunnan, a province characterized by a concentration of diverse ethnic minorities. Yunnan's socio-economic development exhibits significant disparities among ethnic groups, with a relatively conservative and underdeveloped natural environment contributing to the preservation of traditional customs over millennia. Like the ancient Egyptian belief in reincarnation, the various ethnic groups in Yunnan share a belief in an afterlife. Seashells, considered valuable assets, are utilized as funerary objects buried in the ground for the posthumous journey (Qi & Li, 2022). This aligns with the information provided by Li Baitai from the Biyue branch during the interview, where she mentioned that all the shells used in weaving were unearthed, specifically shell coins cut by snails (example **Figure 4**). Resourceful weavers ingeniously integrate these scattered shell coins into a belt, adorning themselves with a distinctive aesthetic flair.





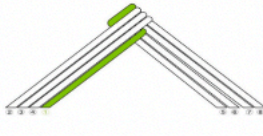

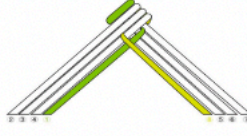

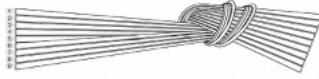
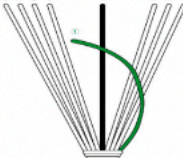
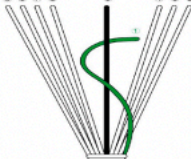
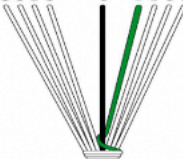
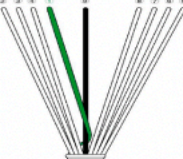
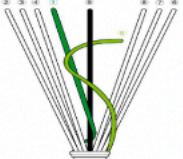
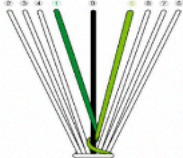
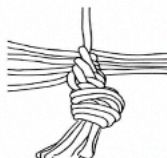
(a) Biyue Woman of Hani in Mojiang wears a straw belt and a shell belt around their waist



(b) The weavers of Biyue Branch woven a bracelet on the spot during field investigation

Figure 3: Shell belt and grass bracelet

Table 4: Weaving Process of Grass Weaving Belt and Bracelet

		
	<p>Take the middle point, tie and fix it</p>	<p>Bypass 1 from behind 234 and go out between 67</p>
<p>Grass weaving Belt</p>		
	<p>Tighten 1 and stick to 4</p>	<p>Bypass 8 from behind 567 and go out between 34</p>
		
	<p>Tighten 8 and stick to 5</p>	<p>Repeat the above rules to form cross-ribbon patterns</p>
		
	<p>Select one side to cross knot</p>	<p>Select Axis 9 and press 1 on 2349</p>
<p>Grass weaving Bracelet</p>		
	<p>Bypass 1 from behind 9</p>	<p>Tighten 1 and stick to 4</p>
		
	<p>Flip to the left as a whole</p>	<p>Bypass 5 from behind 9</p>
		
	<p>Tighten 5 and stick to 8</p>	<p>Repeat the above rules to form parallel ribbon patterns</p>

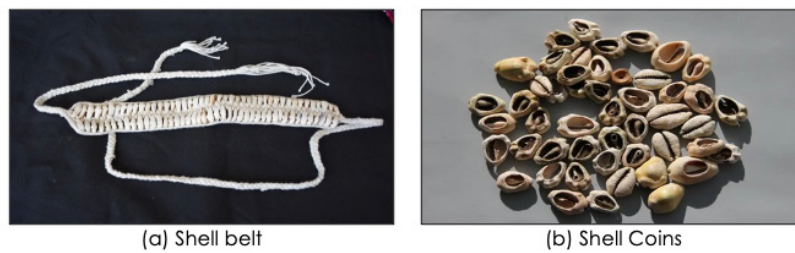


Figure 4: Shell coins and shell belt

While the use of shells as decoration is not exclusive to the Hani people in Mojiang, the shell belt stands out for its advanced finger weaving technology and the unique aesthetic preferences of Hani women in Mojiang, surpassing the relatively simpler decorative methods employed by other communities. This includes direct sewing onto clothes or wearing shells on a string around the neck. It is found that the rich process structure, various materials and novel forms of expression of Mojiang Hani hand weaving techniques reflect the wisdom and aesthetic taste of Mojiang Hani women, and also prove the cultural value of Mojiang Hani hand weaving techniques.

5. ANALYSIS AND DISCUSSION

5.1 Complexity of Categories

In the Hani community of Mojiang, treadle loom weaving techniques, loin loom weaving techniques, and finger weaving techniques coexist, reflecting the diversity of hand weaving techniques with rich technological, aesthetic, and cultural values (Dalferro, 2021). However, the mastery of these hand weaving techniques varies among different Hani branches. According to Zhang (2020), the Mojiang Hani people inhabit a mountainous region marked by high mountains, deep valleys, and restricted transportation. The distribution characteristic of "large group in mixed residence, small group in settlement" among the branches in the Mojiang area compromises the overall integrity of Hani hand weaving techniques. The techniques mastered by each branch lack integration, preventing a comprehensive, systematic, and professionally recorded understanding of Mojiang Hani hand weaving techniques. This absence poses a risk of traditional skills loss, incomplete information, and limited development. Therefore, government initiatives are needed to raise awareness among hand weavers, encourage collaboration within the Mojiang Hani hand weaving community, and ensure the sharing and exchange of records for various weaving processes.

5.2 Complexity of Materials

Mojiang Hani hand weaving techniques primarily utilize natural materials, such as cotton yarn, wool, palm plants, *Sporobolus* plants, and other animals including shells. The diverse range of materials imparts

different textures and characteristics to braided fabrics, particularly highlighting the natural texture and luster through the use of plant and animal materials. This aligns with the principles of sustainable development by reducing the consumption of natural resources (Patti & Acierno, 2022). However, challenges have emerged, such as the diminished cultivation of palms in Mojiang County leading to restricted access to palm silk, the limited availability of "bracelet head grass" for a short duration and with a long production cycle, and the aging and fading of straw bracelets over time, impacting their appearance and durability. To address these challenges arising from the complexity of materials, alternative composite materials can be explored, and new technologies for processing natural materials can be developed.

5.3 Complexity of Process, Pattern, and Form

The complexity of craft, pattern, and form are three interwoven factors in handicraft production. Together, they determine the uniqueness, aesthetic feeling, and artistic value of handicrafts (Zhang, 2023). The process principle of Mojiang Hani hand weaving techniques can be divided into two types: one is the flat fabric formed by interlacing warp yarns and weft yarns with textile tools, which is used by treadle loom weaving techniques and loin loom weaving techniques, and the other is used by finger weaving techniques, which forms flat or three-dimensional woven fabric by interspersing, winding and interlacing braiding materials.

Among them, the weaving process of the loin loom can also be divided into plain weaving process and plain jacquard weaving process, and different jacquard patterns will be formed according to different jacquard rules. In the finger weaving process, different braids have different weaving processes. The patterns and forms formed by this change with the change of process. Mojiang Hani hand weaving techniques have the characteristics of regularity, interest, flexibility and plasticity, and can be combined and integrated. However, the problems caused by the complexity of the process have directly affected the inheritance of the process itself. Nowadays, the aging problem of inheritors is serious. Many processes cannot be completed due to their vision degradation, and the oral transmission

efficiency is not high, which leads to the inability of young people to learn effectively (Szczesio-Wlodarczyk et al., 2020). At present, characteristic education courses are being carried out in primary and secondary schools, and these interactive and interesting hand weaving techniques can be added to the courses to expand the scope of learning (Liu, 2022).

6. CONCLUSION

This research thoroughly explores the hand weaving techniques of Mojiang Hani traditional costumes, demonstrating how these methods encapsulate the unique national style and traditional culture of ethnic minorities. Hani hand weavers in Mojiang are all women. Their exquisite hands are good at weaving simple materials into exquisite woven items, which not only shows their exquisite skills but also shows their natural and simple quality, good imagination, and creativity. However, the combination of social change and modern technology has faded these complicated skills, and many of them even remain in the memory of the elderly.

It is concluded that the fundamental reason for this phenomenon is the intrinsic complexity of the Mojiang Hani hand weaving technique itself, which is mainly manifested in five aspects: classification, materials, process, patterns, and forms. Given these complex problems, the government, experts, and weavers can carry out a series of protection measures. For example, we should strengthen the record of Mojiang Hani hand weaving techniques, build a communication platform, promote new technologies, carry out handicraft education, and encourage innovation and modernization.

Our exploration not only reveals the subtle details of the Mojiang Hani hand weaving technique but also emphasizes the urgency of preserving these cultural treasures. The recording of written materials in this study is an important step in protecting endangered art forms. This not only helps to record this unique cultural heritage, but also provides a reliable foundation for future research, inheritance, and innovation, such as exploring the potential of integrating modern technologies, delve deeper into the cultural significance and symbolism embedded in the patterns and forms of Mojiang Hani weaving, and investigate the economic aspects of Mojiang Hani hand weaving, including its potential for generating income among local communities and its role in the broader market. Lastly, the objective is to ensure the sustainable development of Mojiang Hani hand weaving techniques over the course of time.

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