

EXTENDING THE WISDOM OF TAI LUE WEAVING TO CREATE THE VALUES OF HANDCRAFT AND TRADITIONAL WISDOM FOR COMMUNITY FURNITURE AT WAT YUAN, THAILAND

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ABSTRACT

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Received: 18 January 2024
Revised: 14 April 2024
Accepted: 15 April 2024
Published: 5 August 2024

Citation:
Sremoon, B., & Aunsuchat, C. (2024). Extending the wisdom of Tai Lue weaving to create the values of handcraft and traditional wisdom for community furniture at Wat Yuan, Thailand. *Humanities, Arts and Social Sciences Studies*, 24(2), 380–390.

This work aims to study consumer demand for newly designed Tai Lue fabric patterns for decorating bar stools; to investigate consumer demand for the materials, colour, and design requirements of bar stools; and to produce prototype bar stools decorated by Tai Lue weaves based on customer preferences. Data were collected from interviews and a literature review was conducted to design a bar stool that incorporates Tai Lue weaving. A questionnaire was distributed to better understand the desires of customers, such as newly designed patterns, materials, colours, and design requirements of bar stools. Then a prototype bar stool was produced and customer preferences and satisfaction were identified and analysed. It was found that the most popular Tai Lue woven pattern is the Dok Sor pattern mixed with the Saeng pattern. This is suitable for producing cushions and backrests because it is tightly woven, flexible and adds to the furniture's appealing feeling. Furthermore, a prototype was produced using a D-style chair made with wood of a natural colour, which is simple and can be produced in the community. This prototype bar stool is suitable for use in coffee shops. Customer satisfaction was measured in terms of its Tai Lue weaving appreciation, acceptance, ease of use, comfort, satisfaction, and durability. The customer demand scored the highest at 4,000 baht (110 USD). Finally, this study can encourage the use of traditional Tai Lue weaving patterns, thereby creating additional value and income for the Tai Lue community at Wat Yuan, in Chiang Khan district, Phayao province, Thailand.

Keywords: Tai Lue; wisdom; weaving; handcraft; bar stools

1. INTRODUCTION

The trend of using cultural capital is likely to increase with the policy of the Creative Economy as a guideline to drive strategies to promote balanced and sustainable production. Under the 10th National Economic and Social Development Plan (2007–2011), there has been a focus on increasing the value of products and services (value creation) by using knowledge and innovation, combined with the diversity of natural resources, culture, and Thai lifestyle. The plan emphasizes creative thinking by taking inspiration from

Thai culture and accumulated wisdom to convert economic value into social value (Office of the National Economic and Social Development Board, 2009).

Wisdom is the knowledge gained through experience. The Tai Lue weaving community at Wat Yuan in Chiang Kham district, Phayao province, is one of the communities with wisdom that should be preserved, and its ethnic wisdom fostered as the community has accumulated a great deal of traditional knowledge over the years. Tai Lue woven textiles can be used for costumes, sarongs, pants, shawls, and pillowcases, and the development of these woven textiles helps to encourage recognition and many applications of Tai Lue weaving patterns. By sustaining the Tai Lue woven pattern, additional jobs are created, and the community's residents can earn additional income.

Nowadays, the popularity of drinking coffee is growing. As a result, coffee shop décor is increasingly important as it is a component of each shop's unique appeal. An integral part of such décor is the furniture selection. Coffee businesses must design their spaces to have unique characteristics that engage clients in their own distinct environment.

For coffee shops, countertops are required. These counters should have an optimum bar height of 100–110 cm, while the stool height should be 75–85 cm (Panero & Zelnik, 1979). Additionally, the design of bar stools utilized in coffee shops must be functional and/or appropriate for their intended purpose. Materials are chosen based on their suitability, durability, and affordability. Therefore, effective stool design is accomplished through the selection of suitable and long-lasting materials that are readily available in the region. The aesthetics of a piece of furniture are directly related to the product's appropriate appearance and size, as well as its ability to satisfy consumer needs. One limitation for coffee shop owners is that the options in bar stools are limited, with the choices being mostly similar with almost no variation.

To improve the value of handcrafts and community products, previous research has attempted to use wisdom and knowledge of local communities to enhance the value of their products. For example, Saelee (2020) developed local wisdom by designing reed mats with geometric shapes to represent the community's identity as Ban Phaeng Agricultural Housewives Rehabilitation Group (BPG), Phaeng sub-district, Kosum Phisai district. The final aim was to assess the satisfaction of the distributors and consumers with the products made from the reed mat material. Chanhom (2016) developed textile products based on traditional knowledge from Thai Song Dam, a region in western Thailand. The study included 40 patterns with expert quality selection, and 20 patterns with marketing trials to make sure they matched consumer needs, could generate revenue, and support the local economy. Purwoko et al. (2017) investigated the potential of Indonesian Lurik weaving fabrics as an artistic component in furniture and interior product design. Sremoon (2021) designed and developed a coffee shop stool using Tai-Lue's hand-woven fabric design with the original pattern of Nam Lai Pak Waen. Preservation and commercialization of Tai Lue woven textiles are important because, currently, hand-woven fabric is increasingly being replaced by machine weaving technology. However, machines cannot weave fabric with the unique Nam Lai Pak Waen pattern due to the limitations of automation, leading to a lack of variety, and inability to provide specific patterns to meet customer demand. Moreover, since 2019, Thailand's national policy has emphasized the promotion of creative and cultural tourism, which encompasses tourism associated with history, arts and culture, local customs, and a location's distinctiveness. Therefore, it is necessary to identify and promote the cultural capital of an area by developing product value that facilitates the generation of income from creative and cultural tourism. This is a primary reason for considering the worth of locally made Tai Lue woven textiles used to decorate furniture.

The purpose of this project is to research consumer demand for newly created Tai Lue fabric patterns for bar stool decoration, as well as consumer demand and specific requirements for bar stools regarding materials, colours, and design. Additionally, prototype Tai Lue-woven bar stool decorations were produced in response to customer feedback. Moreover, we propose to develop a new pattern of Tai Lue woven fabric such as Nam Lai, Dok Sor mixed with Saeng, Check or Ta Saeng, Khor, and Ngu Loy to decorate the bar stools. The advantage of our bar stool prototype is that the overall shape is not complicated. This makes it easy for local carpenters to produce according to the designs and increases employment opportunities for local carpenters and furniture makers.

2. RESEARCH OBJECTIVES

This study has three main objectives:

1. To research consumer demand for newly designed Tai Lue fabric patterns for decorating bar stools;
2. To investigate consumer demand for the materials, colours, and design requirements of bar stools;
3. To produce prototype bar stools decorated by Tai Lue weaving, and to assess customer satisfaction.

3. RESEARCH METHODOLOGY

The steps of the conceptual framework are illustrated in Figure 1:

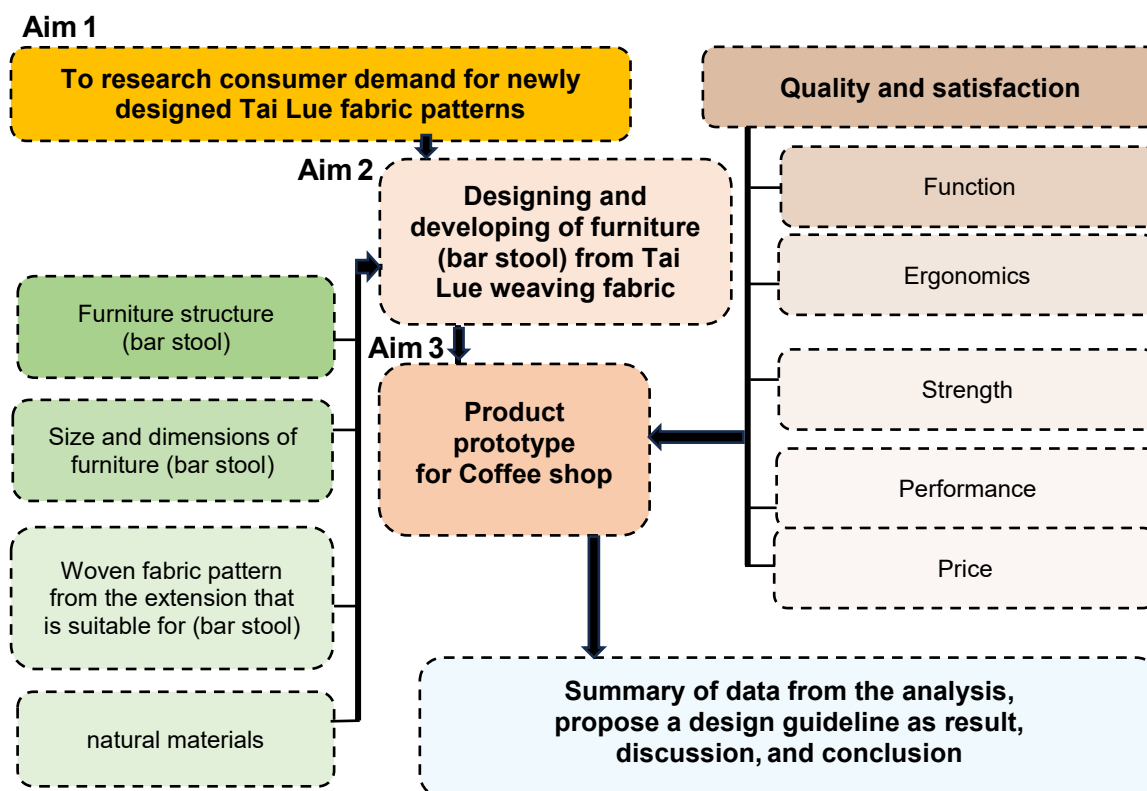


Figure 1: The steps of the conceptual framework

Step 1:

1.1 Primary data and field data were collected from observations and interviews. Related research studies on furniture design were reviewed, including those related to consumer demand for newly designed Tai Lue fabric patterns. The concept of community product production was then studied as follows:

1.2 Study of relevant research studies,

1.3 Visits to specific communities to study the history of those communities, and

1.4 Study of the concept of community product production.

Step 2:

Interview sessions were conducted, and questionnaires were distributed to collect information pertaining to Tai Lue weaving wisdom. The scope of the interviews and questionnaires was as follows:

2.1 Designing appropriate patterns of Tai Lue weaving for bar stools in coffee shops,

2.2 Designing suitable structure, size, and dimensions of bar stools for coffee shops,

2.3 Integrating Tai Lue weaving wisdom into bar stools for coffee shops to create added value for community furniture, and

2.4 Analysing and data synthesising data obtained from preliminary data, separated by certain factors of design, and by utilising Tai Lue weaving wisdom in elements of furniture (bar stools for coffee shops). The results were then summarised.

Step 3: Design, develop, and integrate Tai Lue weaving wisdom into specific pieces of furniture (bar stools in coffee shops) based on the specific requirements and preferences of both manufacturers and consumers, in collaboration with the community.

Step 4: Survey the design preferences, and integration of Tai Lue weaving wisdom into specific pieces of furniture (bar stools for coffee shop).

Step 5: Create furniture products (bar stools for coffee shops) as community products in collaboration with the community (production of bar-stool prototypes for use in coffee shops).

Step 6: Conduct a satisfaction survey on the integration of Tai Lue weaving wisdom into specified pieces of furniture (bar stools for coffee shop).

Step 7: Analyse and synthesise the integration of Tai Lue weaving wisdom in specific furniture products (bar stools for coffee shops) and summarise data from the analysis on the proposed design guideline in the results, discussion, and conclusion.

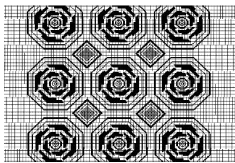
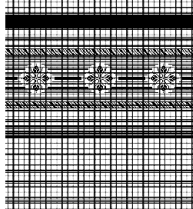
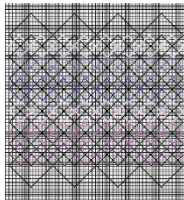
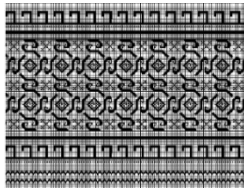
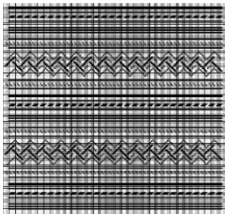
4. RESEARCH RESULTS

This study's results can be divided into three categories: 1) newly designed Tai Lue fabric patterns for decorating bar stools 2) materials, colours, and design requirements, and 3) production of prototype bar stools decorated by Tai Lue weave. All are demonstrated below:

4.1 Investigation of consumer demand for newly designed Tai Lue fabric patterns for decorating bar stools

Firstly, newly designed Tai Lue fabric patterns were developed, Nam Lai, Dok Sor mixed with Saeng, Check or Ta Saeng, Khor, and Ngu Loy, as illustrated in Table 1.

Table 1: The five newly designed patterns of Tai Lue weaving for the use in coffee shops bar stools

Number	Patterns of Tai Lue weaving	Names of weaving patterns
1		Nam Lai
2		Dok Sor mixed with Saeng
3		Check or Ta Saeng
4		Khor
5		Ngu Loy

Using questionnaires, information was gathered from a sample group of 90 individuals. They were asked to indicate their preferences from among five designs of newly devised Tai Lue weaving patterns for bar stools to determine their popularity. The criteria for matching the newly designed patterns and the barstools

were chosen based on the results of the questionnaire. Table 2 displays the scores for the five newly designed Tai Lue weaving patterns, indicating the anticipated demand for coffee shop bar stools using these patterns. Participants in this community enterprise rated all five designs at moderate to high ($\bar{x} = 3.66$, S.D. = 0.32). Participants preferred the Dok Sor pattern combined with the Sang pattern, which achieved the highest average score ($\bar{x} = 4.46$, S.D. = 0.65), followed by the Nam Lai pattern ($\bar{x} = 4.34$, S.D. = 0.75). On average, the check pattern, or Ta Saeng pattern, achieved a medium result ($\bar{x} = 3.31$, S.D. = 0.74), as did the Khor pattern ($\bar{x} = 3.11$, S.D. = 0.81) and the Ngu Loy pattern ($\bar{x} = 3.09$, S.D. = 0.84). In our evaluations, the patrons of the Tai Lue weaving community at Wat Yuan expressed a preference for naturally dyed fabrics. Pink, green, yellow, purple, blue, and white were the six colours used in the tested fabrics.

Table 2: Preferences for Tai Lue weaving patterns and indicated customer demand for bar stools in coffee shops

Number	Ethnic Tai Lue weaving fabric patterns	Customer Demand		
		\bar{x}	S.D.	Result
1	Nam Lai	4.34	0.75	high
2	Dok Sor mixed with Saeng	4.46	0.65	high
3	Check or Ta Saeng	3.31	0.74	medium
4	Khor	3.11	0.81	medium
5	Ngu Loy	3.09	0.84	medium
Total average		3.66	0.32	high

Therefore, the Dok Sor pattern combined with Sang pattern was determined to be the most suitable pattern for bar stools in coffee shops and was chosen due to it having achieved the highest score on the questionnaires (see Table 2). Typically, the Dok Sor pattern combined with the Sang pattern employs both Jok and Khid weaving techniques. This fabric was extremely densely woven, making it exceptionally durable when used for seating. Combining the Saeng pattern, which is a distinctive Tai Lue weaving pattern, with the more contemporary Dok Sor pattern resulted in a contemporary and appealing ethnic pattern that represents the modern style of bar stools while preserving the unique characteristics of the original Tai Lue fabric.

4.2 Investigation of consumer demand for the materials, colours, and design requirements of bar stools

The most desirable characteristics of bar stool design were identified, as shown in Table 3. It was found that a bar stool must be durable, aesthetically appealing, and provide comfortable seating. Additionally, the seats should be adorned with naturally dyed woven fabric. In collaboration with the Tai Lue weaving community at Wat Yuan, our Tai Lue weaving patterns were devised. The four designs for the proposed bar chairs were chosen and the evaluation questionnaire was completed by the study participants. The results are summarised in Table 3.

Table 3: Preference for furniture decorated with Tai Lue woven textiles (bar stools for coffee shops) according to both manufacturers and consumers in this community enterprise





Type	Preference of furniture design (bar stools)	Customer demand		
		\bar{x}	S.D.	Outcome
A		4.06	.812	high
B		4.48	.707	highest
C		3.62	.758	high

Table 3: Preference for furniture decorated with Tai Lue woven textiles (bar stools for coffee shops) according to both manufacturers and consumers in this community enterprise (continued)

Type	Preference of furniture design (bar stools)	Customer demand		
		\bar{x}	S.D.	Outcome
D		4.71	.525	highest
Total average		4.21	.288	high

According to Table 3, the results obtained from a sample group of 90 people indicate a preference for furniture decorated with Tai Lue woven textiles to create added value for community products produced at Wat Yuan. The average aggregate score for the four designs was high ($\bar{x} = 4.21$, S.D. = 0.288). The consumers preferred design D, which achieved the highest score ($\bar{x} = 4.71$, S.D. = 0.525), followed by design B ($\bar{x} = 4.48$, S.D. = 0.707), and design A ($\bar{x} = 4.06$ S.D. = 0.812). The score for design C was lowest ($\bar{x} = 3.62$, S.D. = 0.758).

Table 4: Colour preferences of contributors to this enterprise; samples are categorised by sex and the frequency of the colours chosen (N = 90)

Sex	Colours				Total
	Red	Pink	Blue	Natural colour	
Male	3	3	1	28	35
Female	0	6	0	49	55
Total	3	9	1	77	90

$$\chi^2 = 6.609, p = .085$$

According to Table 4, 77 males and females preferred natural colours the most, followed by pink (nine individuals) and red (three individuals). Blue was the least desired colour (one individual). For data analysis, the Chi-Square Test of Independence was used. The customer demand for furniture among participants in this community enterprise was found to be significantly related to furniture colour ($\chi^2 = 6.609$, $p = 0.085$) despite the fact that some participants in this community effort did not believe that the colour of the furniture influenced their preferences. While some participants in this community enterprise chose furniture based on colour, others did not.

In addition, wood was determined to be the material of choice for bar stools, as shown in Table 5. Information was added to the questionnaire regarding the selection of chair construction materials, such as wood, steel, plastic, and stainless steel. Wood was found to be the preferred material. A primary advantage of wood is that it can be easily found in the local area, with lower transportation costs compared to importing alternate materials from other sources. In addition, in the Tai Lue community, there are skilled carpenters who can create work as designed by the researchers. This makes it possible to produce prototype bar stools in the community, resulting in lower production costs and helping to increase income for people in the Tai Lue community.

Table 5: Preference for material among contributors to this community enterprise; samples are categorised by sex and frequency of the chosen furniture materials (N = 90)

Sex	Materials				Total
	Steel	Wood	Plastic	Stainless steel	
Male	7	22	4	2	35
Female	11	42	1	1	55
Total	18	64	5	3	90

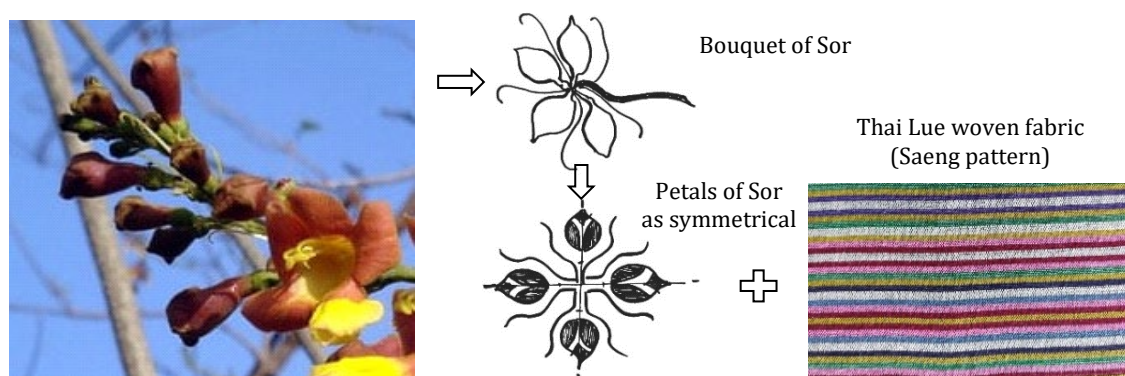
$$\chi^2 = 5.079, p = .166$$

According to Table 5, 64 males and females preferred wooden furniture, followed by steel (18 individuals) and plastic (five individuals). Stainless steel was the least preferred material for furniture (three individuals). The Chi-square test of independence revealed that the customer demand of the participants

in this community enterprise significantly correlated with their preference for the furniture's structure ($\chi^2 = 5.079$, $p = 0.166$) despite the fact that some participants in this community effort did not believe that the furniture's construction material influenced their preference. However, other participants in this community project felt that the furniture's material did influence their preferences.

4.3 Production of prototype bar stools decorated by Tai Lue woven along with customer satisfaction

After all information was received, including preferences for Ethnic Tai Lue weaving fabric patterns, and furniture design, colours, materials, factors of influence, and price, the new pattern of Tai Lue weaving was developed and designed using the Dok Sor pattern combined with Saeng pattern, as displayed in Figure 6.



Source: Nikharge et al. (2020)

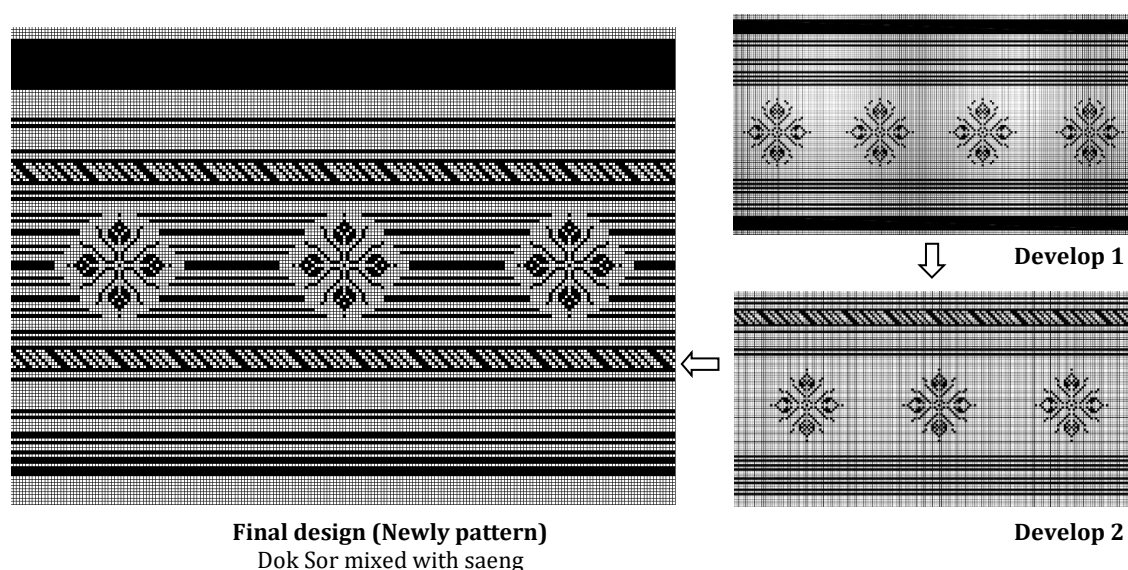


Figure 6: Development of design of Tai Lue weaving (Dok Sor pattern combined with Saeng pattern)

The researchers and the Tai Lue weaving community of Wat Yuan collaborated on this study. The integration of Tai Lue weaving wisdom into the production of this community's goods took into account furniture design and material selection. The Wat Yuan's Tai Lue weaving community was presented with three-dimensional images, as shown in Figure 7. Then, Wat Yuan's Tai Lue weaving community and researchers collaborated on integrating the wisdom of Tai Lue weaving into the development of the furniture, as shown in Figure 8.



Figure 7: Three-dimensional image of a bar stool that was developed based on Tai Lue weaving wisdom



Figure 8: Collaboration between researchers and members of the Tai Lue weaving community at Wat Yuan to integrate Tai Lue weaving wisdom into furniture production

A bar stool prototype was made, as illustrated in Figure 9. To aid in the assembly, a product sketch was created. Using a scale in centimetres, a model of the bar stool was designed, while a scale of inches was used to create the legs of the stool. The bar stool's extremities were framed with hardwood. The design called for the middle limb to be 2 inches by 1 inch. To assemble the structure, holes were drilled to facilitate dowel joints, and screws were used to secure the parts. After holes were drilled, they were filled with sawdust combined with latex glue and smoothed with sandpaper after drying. Polyurethane was then applied to the wood to make it more durable.



Figure 9: Sketched model and the production of the bar stool (prototype)

Figure 10 shows that the seat of the bar stool was composed of a hardwood frame that was upholstered with a sponge using an all-purpose rubber adhesive. The interior layer of the seat was covered with plain fabric, while the outer layer was covered with the Tai Lue weaving pattern selected for this study (a Dok Sor pattern combined with a Saeng pattern). The seat and backrest can be separated for transportability, as shown in Figure 11. Figure 12 shows the prototype details, including shape (Type D), colour (natural colour), and material (wood) of the coffee shop bar stools from multiple angles. This prototype has a potential to promote the use of traditional Tai Lue weaving patterns and generate additional value and income for the Tai Lue of the Yuan community.



Figure 10: Upholstery and sewing for bar stools



Figure 11: New design of Tai Lue weaving (Dok Sor pattern combined with Saeng pattern)



Figure 12: Prototype of coffee shop bar stools decorated with the Tai Lue woven textiles of Wat Yuan

Table 6: Satisfaction scores for community products manufactured at Wat Yuan (bar stools for coffee shops) that incorporate Tai Lue weaving

Number	Factors of influence	Satisfaction scores		
		\bar{x}	S.D.	Result
1	Appreciation and acceptance of Tai Lue weaving	4.81	.421	highest
2	Use	4.79	.486	highest
3	Comfort	4.74	.439	highest
4	Durability	4.44	.543	high
5	Satisfaction of use	4.83	.431	highest
Total average		4.72	0.318	highest

Result level of satisfaction by Likert Rating Scale: 1.00 –1.50 least, 1.51–2.50 little, 2.51–3.50 medium, 3.51–4.50 high, 4.51–5.00 highest.

Table 6 displays the overall satisfaction scores and levels of admiration for the Tai Lue weaving (for bar stools in coffee shops) among consumers and contributors of the Wat Yuan-based Tai Lue weaving community. Data were collected from a sample of 90 people. The overall average satisfaction score was at the highest level ($\bar{x} = 4.72$ SD = 0.318). The highest score was recorded for appreciation and acceptability of Tai Lue weaving ($\bar{x} = 4.81$, S.D. = 0.421). Also, at the highest level ($\bar{x} = 4.79$ S.D. = 0.486) was the use of Tai Lue woven textiles on bar stools. In addition, the perceived score of comfort of the bar stools adorned with Tai Lue woven textiles was at the highest level ($\bar{x} = 4.74$, S.D. = 0.439). The durability of bar stools embellished with Tai Lue woven textiles was determined to be high ($\bar{x} = 4.44$, S.D. = 0.543). Using bar stools decorated with Tai Lue woven textiles was also associated with the highest score of satisfaction ($\bar{x} = 4.83$, S.D. = 0.431).

Therefore, it can be concluded that consumers and participants of the community enterprise of the Wat Yuan-based Tai Lue weaving community were pleased with the incorporation of Tai Lue weaving expertise into specific furniture pieces, which increased the value of the products produced by Wat Yuan, Chiang Kham district, Phayao province, while achieving the highest score of customer satisfaction ($\bar{x} = 4.72$, S.D. = 0.33).

Table 7: Frequency of consumer and contributor responses to questions pertaining to the prices of Tai Lue furniture (bar stools in coffee shops); the sample is categorised by sex (N = 90)

Number	Sex	Price (Thai baht)				Other Please specify	Total
		4,500	4,000	3,800	3,500		
1	Male	7	27	1	0	-	35
2	Female	5	45	5	0	-	55
Total		12	72	6	0	-	90

$\chi^2 = 3.214$, Sig = .200

In a sample of 90 people, 72 subjects preferred a furniture price of 4,000 Thai baht (110 USD), followed by a price of 4,500 baht (124 USD) by 12 people. The price of 3,800 Thai baht (104 USD) was the least desired (6 people) of the given prices (see Table 7). Therefore, 4,000 baht (110 USD) was determined, among consumers and contributors of this community enterprise located in the Tai Lue weaving community at Wat Yuan, to be the most agreeable sales price.

5. DISCUSSION

This study demonstrates the value of cooperation in preserving Tai Lue weaving's wisdom. According to this study of the demand for bar stool furniture design, consumers' demand for the four styles of coffee bar stools is high because of the use of Tai Lue woven fabric in natural colours. For the bar stool structure, the preferred material is wood, which has the added value of being a locally accessible material, helping to reduce transportation costs. Most were satisfied with the prototype bar stool at the highest level and recommended a price of 4,000 baht (110 USD).

These results are consistent with Na Thalang et al. (2003), who said that local wisdom in creating works arises from knowledge, creativity, and ability that the group gained from their accumulated experiences, including culture that has been developed and continued. They are also consistent with Saelee (2020), who said that designing to show the identity of the community must ultimately assess the satisfaction of distributors and consumers with the product. The findings further align with Chanhong, (1999), who said that people's experience is accumulated and inherited according to their way of life, customs, traditions, and culture, and that they bring that knowledge to solve problems or apply it to suit the times. They are also in line with Sremoon's (2021) assertion that the unique value of Tai Lue woven fabric must be weighed against the value of handmade Tai Lue woven fabric. There is currently a growing trend of replacing hand-woven fabric with automated loom technology, which is unable to weave fabric with the required unique pattern due to the machine's limitations. The results of this study are also consistent with Saribut (2007), who said that when designing a product, designers must consider five aspects: 1) Usability: the design is suitable for use, 2) Materials: materials must be chosen that are appropriate for the job — ones that are durable and economical, 3) the product's structure must be suitable for the job, durable, economical, and made from appropriate materials, 4) Convenience of use must be considered, including the appropriate proportions for use, size, and height, and 5) Beauty in shape, appropriate size, and consistency must align with consumer needs. This study also agrees with Rattanasoontrakul (2011), who identified that furniture products such as upholstered chairs have undergone a change, but that only the upholstery fabric has changed over various periods of time. The production technology ensures that the original structure remains unchanged to accommodate changing trends and fashions in furniture covers, among other things. This is in accordance with Julius Panero and Martin Zelnik (1979), who said that a suitable counter height is between 100 and 110 cm, while the stool height should be in the range of 75 to 85 cm. In addition, the design of bar stools used in coffee shops must be practical and suitable for the intended purpose. Materials were selected based on their suitability, durability, and affordability, on the conviction that existing structures should use suitable and long-lasting materials that are easily available in the region. The beauty of the furniture is directly related to the appearance and appropriate size of the product, which truly meet the needs of consumers; however, coffee shops in general are not able to select unique bar stools due to the similarity of available options.

However, Tai Lue woven fabric has the uniqueness of local wisdom and creativity on the fabric as patterns, shapes, colours, etc. as well as flexibility to incorporate various components that need to be added, such as embroidery, leather, and rope fibers from nature or other materials. This woven fabric can be applied to new or contemporary furniture, adding value and enhancing uniqueness.

6. CONCLUSION

It can be concluded that the newly designed Tai Lue fabric using the Dok Sor mixed with Saeng pattern, which has never been produced before, has the highest demand from customers for decorating bar stools. In addition, consumers demand for the materials, colour, and design requirements of bar stools have been explored. The results indicate that shape (Type D), colour (natural colour), and material (wood) are important. A prototype of the coffee shop bar stools decorated with the Dok Sor pattern combined with the Saeng pattern was constructed. The designed bar stool had a simple stool shape with a structure made entirely from wooden materials and featuring four wooden legs. Sponge cushions were added and covered with Tai Lue fabric according to our design pattern. The integration of Tai Lue weaving knowledge into furniture pieces pleased the customers and members of the community enterprise of the Wat Yuan-based Tai Lue weaving community, who identified the most reasonable sales price for these coffee shop bar stools in coffee shops to be 4,000 baht (110 USD).

This study offers several recommendations: 1) In order to increase product variety, the developed weaving pattern should be applied to other natural colour tones or other products. 2) trends or furniture design styles should be included in a thorough analysis of the coffee shop industry, and 3) local communities should be educated on how they can generate income while raising awareness and appreciation for traditional heritage handicrafts.

ACKNOWLEDGEMENT

We would like to acknowledge the Wat Yuan community in Chiang Kham district, Phayao province. We also are grateful to the University of Phayao's School of Architecture and Fine Art and the Unit of Excellence 2024 on Biodiversity and Natural Resources Management, University of Phayao and Thailand Science Research and Innovation Fund (Fundamental Fund 2024) for providing research funding. The University of Phayao Human Ethics Committee is also thanked for issuing the research project number UP-HEC 2.1/072/65 with a certification date of 20 October 2022.

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