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Appreciation

International Journal of Architecture, Art and Design (IJAD) was firstly launched in January 2023 in line with a current vision of the Faculty of Architecture, Art and Design (Naresuan University) in Thailand. This journal aims to disseminate academic, research, creative works to the public. A wide range of art and design disciplines are welcome to publish which is not limited to creative products (crafts, textiles, ceramic, media art, digital art, creative works); creative spaces (architecture, interior, landscape, built-environment, urban planning & design); creative processes (design thinking, design solution, and innovation). This first volume (No.2) was issued between July to December 2023 focusing mainly on traditional architecture in the Northern Region of Thailand including (Tai Lue Temples in Nan Province) and crafts in Phrae, and Sukhothai province including fashion design in Bangkok.

Thanks to all contributions from authors for sharing their creative works. On behalf of the editorial board, I wish this second issue of the first volume of IJAD 2023 will inspire all readers with insightful knowledge and good practices.

Witiya Pittungnapoo
Editor-in-Chief



Uniqueness of Lue Temples in Nan Province

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Abstract

This paper aims to explore traditional architectures in type of Lue temples which are spiritual centers of the Lue as one of the ethnic groups living in Nan province located in the Northern Region of Thailand. The current study aims to explore the location of the Lue people living in Nan Province so as to guide the search for distinctive features of Lue architecture as the spiritual center of the Lue group that maintain their culture inheriting the Lue identity for later generations to learn about. The paper presents distinctive features and spiritual spaces of the Lue group and how they maintain cultural identity from generation to generation. The Lue temples in 72 villages across 7 districts in and around Nan were investigated to reflect unique characteristics of the Lue temples which are located in 7 districts, predominantly in Pua District (6 Sub-districts: 25 villages) followed by Tha Wang Pha District (6 Sub-districts: 14 villages), Santisuk District (1 Sub-district: 10 villages), Song Kuae District (3 Sub-districts: 10 villages), Thung Chang District (2 Sub-districts: 7 villages), Chiang Klang District (2 Sub-districts: 5 villages), and a village in Chaloem Phra Kiat District. The paper presents distinctive characteristics of Lue temples includes Nong Bua temple and Anumoon temple in Tha Wang Pha District; Hia temple, Ton Laeng temple, Rong Ngae temple, Nawong temple, and Beng Sakat temple in Pua District; Nong Daeng temple in Chiang Klang District; and Huay Khon temple in Chaloem Phra Kiat District. The analysis of roof reveals 2 and possible more than 3 tiers with certain building ornaments; for example, gable apex of viharns in Lue temples installed with the statues of Hasadilink birds, swans, and peacocks with their bodies running along the roof ridges, and the tails in the shape of Naga head at the top corner of the roof. At the front stairs are round-relief statues of Singha and Naga before the entrance of Lue temples. These features remain Lue temples unique.

Keywords: Wisdom heritage, Lue architecture, Nan province

Introduction

Lue is a group of people living in the Sipsong panna region, in the People's Republic of China. In former times, their immigration to Thailand was a result of wars, and being forced to work as labourers, and the lack of labour in many areas so they were forcibly pushed into more powerful countries. The Lue ethnic group was one of those impacted, as can be observed in the northern provinces of Thailand particularly in the Phayao, Chiang Rai, Lamphun, Lampang, Chiang Mai, Phrae, and Nan provinces. Nan is situated in a mostly mountainous land area consisting of the Phi Pan Nam range and the Luang Prabang range. Its terrain is partly lowland with the Nan, Sa, Wa, Samun, Haeng, Lae, and the Pua Rivers. In the past, agriculture was the main occupation as it was fed by these and other rivers. Nan has its territorial connection in many directions including Phrae Province and Uttaradit Province in the south, Phayao Province in the west, and the Lao People's Democratic Republic in the north and east. Its territorial connection to neighbouring territories allows for the exchange of cultures, peoples, as well as diverse knowledge arising out of trade, the



escaping war, immigration, including forced removals as a result of previous wars. Nan province is home to a diversity of ethnic including Hmong, Mien, and Khmer. Mumlabri, Muser, Tai Lue, Tai Phuan, and Tai Yuan or indigenous people living together in large numbers making it become popular tourist destinations in Thailand (Nan National Museum, 1987, pp. 39-40). After immigration to Nan province, the Lue people have continued to live along the river valley mostly in Pua, Tha Wang Pha, Song Khwae, Chiang Klang, Thung Chang, and Chaloem Phra Kiat Districts.

The distinctive culture of the Lue ethnic group in Nan includes language, clothing, temples, and residential architecture. Lue people has well adapted their ways of living and livelihood in many ways. Initially, the houses they built were similar to those original ones adhering to the art and cultural inheritance, but now changed to suit more modern times. Their art and architecture are a prominent cultural heritage of the wisdom being embraced all along since the past and had been exchanged with neighbouring cultures and adopted as part of their own identity (Wanida Phuengsunthorn, 2021, p. 9). The preservation of their own local arts and crafts for future generations to learn and carry on is difficult since the search of records are rare in terms of local characteristics.

Literature Review

The Dai or the Tai Lue ethnicity (Zhu Liangwen, translation by Ngamphan Vejjajiva, 1994, p 1) is one among 56 ethnic groups in China with a long history and its own customs and traditions that have been inherited and preserved until now. The Tai Lue people live in dense groups in many areas of Yunnan province. The word Lue (Encyclopaedia of Northern Thai Culture, Volume 12(1999, p 6019)) refers to a Tai-speaking ethnic group known as the "Dai Lue" or "Tai Lue" who originally settled in Sipsong panna province. The Tai Lue preferred to set up their homes along river valleys with the Mekong River as an important river. This river was called "Nam Khong" by the Tai Lue, while the Chinese called it the Lanchang River and referred to the Tai Lue as "Li" or "Sui Pai Yi". The culture, traditions, beliefs and way of life of the Tai Lue are similar to the Thai people in Lanna and Lao people in Lan Xang who also consume sticky rice as their main food and practice Theravada Buddhism. In anthropology, the term 'ethnic group' (Yos Santasombat 2013, p 153) refers to a group of people who speak the same language, share the same socio-political unit and the same kinship system, go through common historical experiences, and has similar cultural patterns. For this reason, the history of language thus means we are describing the history of a group or groups of people who spoke that language. The territory of Sipsong panna (Bunchuay Shrisawat, 2014, p 1) is located in southern Yunnan and it is home to Thai people who called themselves "Lue" and sometimes "Tai", Tai in many towns were under Simao district or Muang Laho. The word Lue (Songsak Prangwattanakul, 2008, p Introduction) is still a mystery that no one can answer. In the Tai Lue language, the word used to refer to its tribe is "Khon Lue" or "Khon Tai Lue", while the city in general was called "Muang Lue" and the language spoken was called "Lue language".

Research Methodology

The investigation on the context of the Lue in Nan province was divided into 2 parts. The first part explored relevant documents, books, journals, and research studies pertaining to the Lue. The second part studied among the Lue community leaders of Tai Lue association in Nan province, including the abbots of important Lue temples comprising Nong Bu a temple and Don Mun temple in Tha Wang Pha district, Hia temple, Ton Laeng temple, Rong



Ngae temple, Nawong temple, and Beng Sakat temple in Pua district, Nong Daeng temple in Chiang Klang district, and Huay Kon temple in Chaloem Phra Kiat district, altogether 11 people recruited by purposive sampling and snowball technique from the Tai Lue association of Nan province.

The collection of field data as information for further design involves the followings.

1) Primary data was collected directly from the data sources as community leaders to acquire basic information and from inquiry and interview with experts. The data obtained was analysed, classified, and stored in categories.

2) Secondary data was collected by means of a documentary study which includes pamphlets, books, research work, or record papers, and brought to the synthesis for assumed information based on the concept of community leaders.

Research instruments for data collection consisted of 1) interview, 2) inquiry, and 3) observation. Regarding the instrument construction methods, list of question items, and analysis of data for the investigation of Tai Lue culture, the researchers employed a qualitative research method and collected documentary data and field data. Content analysis was performed using organizing techniques for the concept, description, categorization, classification of groups and issues to be investigated, including data triangulation.

Results

For the investigation of basic information about Tai Lue in Nan province, our students administered the research instrument (interview form) on the research samples by purposively interviewing with the leader of the Tai Lue association in each district of Nan province in order to capture historical information about Lue culture in Nan province. The guidelines for questions were about the distinct nature of Lue culture at present, the guidelines for the search for written evidence in ancient sites with what remained of the original identity of the Lue, and the guideline for creating products that signify the Lue identity in Nan.

Stage 1 Our students performed interviews with the president of Lue association in Nan province (Vitoon Inya, 2021, Interview) to capture information about Lue villages in Nan province, suggesting that there were 72 villages in 7 districts as follows:

1) Thung Chang district had 7 Lue villages in 2 sub-districts: 1) Ngop sub-district included 6 villages i.e. Ban Ngop Nuea, Ban Ngop Sala, Ban Ngop Klang, Ban Ngop Tai, Ban Tai Rom Pho Thong, and Ban Thung Sun, and 2) Pon Sub-district included 1 village i.e. Hlai Thung.

2) Chiang Klang district had 5 Lue villages in 2 sub-districts: 1) Chiang Klang sub-district included 3 villages i.e. Ban Sri Udom, Ban Chiang Khom, and Ban Ngiu; and 2) Phra Phutthabat sub-district included 2 villages i.e. Ban Lao and Ban Khwaeng.

3) Pua district had 25 Lue villages in 6 sub-districts: 1) Pua sub-district includes 2 villages i.e. Ban Khon and Ban Pa Lan, 2) Sila Laeng sub-district includes 6 village i.e. Ban Hia, Ban Don Chai, Ban Tin Tok, Ban Hua Nam, Ban Fai, and Ban Hua Doi, 3) Sila Phet sub-district includes 8 villages including Ban Na Kham, Ban Thung Si Bunyuen, Ban Patong, Ban Don Kaew, Ban Don Chai, Ban Thung Rattana, Ban Patong Don Sai Thong, and Ban Patong Phatthana, 4) Woranakhon sub-district includes 4 villages i.e. Ban Ket, Ban Mon, Ban Rong Naeng, and Ban Don Kaeo, 5) Sathan sub-district includes 2 villages i.e. Ban Na Pan and Ban Santisuk, and 6) Chedi Chai sub-district includes 3 villages i.e. Ban Sop Pua, Ban Sala, and Ban Wang Muang.

4) Tha Wang Pha District: 14 Lue villages in 6 Sub-districts, namely, Pa Kha Sub-district consists of two villages (Ban Nong Bua and Ban Ton Hang); Si Phum Sub-district consist of Don Mun village; Yom Sub-district includes three villages (Ban Thung Kong, Ban

Siao, and Ban Nong); Saen Thong Sub-district includes two villages (Ban Huak and Ban Hae); Chom Phra Sub-district includes five villages (Ban Thon Moo 1, Ban Thon Moo 9, Ban Yu Moo 5, Ban Yu Moo 10, and Ban Yu Moo 11); and Tha Wang Pha Sub-district consists of Don Chai village.

5) Song Khwae District: 10 Lue villages in 3 Sub-districts, namely, Na Rai Luang Sub-district includes five villages (Ban Pang Puk, Ban Hang Thung, Ban Mai, Ban Song Kwai, and Ban Pang Hai); Chon Daen Sub-district includes Pang Kom village; and Yod Sub-district includes 4 villages (Ban Pha Lak, Ban Pang San, Ban Pha Sing, and Ban Yod).

6) Chaloem Phra Kiat District has 1 Lue village in 1 sub-district which is Ban Huai Kon in Huai Kon Sub-district.

7) Santisuk District: 10 Lue villages in 1 sub-district), namely Pa Lao Luang Sub-district includes 10 villages (Ban Pa Lao Luang, Ban Aphai Khiri, Ban Don Aphai, Ban Pa Oy, Ban Sop Yang, Ban Don Chai, Ban Nan Mankong, Ban Kaeng Sopha, Ban Luang Charoenrat, and Ban Phana Phrai).

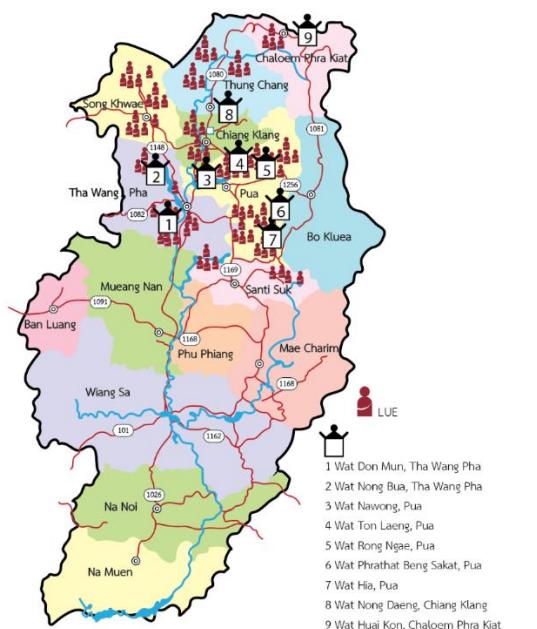


Figure 1 Location of Lue people in Nan province
(Adapted from a tourist map of Nan Province. 2020, Online)

The administration of the interview form on Lue leaders in Nan province was to investigate the guideline for searching historical information about the Lue, using a structured interview form with predetermined questions to interview Lue leaders in each district of Nan province. The list of questions was to seek cultural information which contained Part 1: general information about respondents; Part 2 opinions about Lue historical information including Lue language, Lue traditions, dress style, written evidence, historic sites remaining original identity of the Lue, and antiques remaining of the original identity of the Lue; and Part 3 opinions on other issues pertaining to the Lue people. The interview results suggest that every district in Nan province continues to preserve the Lue language by passing it down from generation to generation, however due to the influence of local or international culture, its accent has been gradually altered and some vocabulary has not been passed down as time change which is normal as same as accent changes in other languages. The written evidence is still preserved in village temples and houses which included Khoi notebooks, book palm, foreign records, as well as murals. The ancient remains that maintain

the original Lue identity appear inside temples, with integrated original and renovated forms using modern technology due to their deterioration over time. Others include the models of ancient houses, viharns, ancient city walls, and pagodas to preserve and carry on their traditions. The antiques that maintain their original identity of the Lue appeared in the temples which include the principal Buddha image, and constructed small wooden Buddha images and other sacred objects. The utensils were found only in the museums of each village and their actual uses were modified to suit the modern times. Jewellery cannot be located since they were sold to interested people both within and outside the area. Making silver jewellery in the past required special skills and those who wore them must be persons of a certain rank. The context of the Song Kuae district, Santisuk district, and the Chiang Klang district that had been assimilated into the local culture, alongside a revival of traditional clothing, art and culture. The rest remains as part of their architecture, customs and traditions as described below.

1) Tha Wang Pha district has viharns at Don Mun temple and Nong Bua temple that embrace a unique identity of Lue passed down for a long time. There is a ritual of worshiping Chao Luang Mueang La (Kam Mueang) who has been long respected since before the Lue migrated to their current location. The ritual is held every 3 years by the gathering of 3 villages; Ban Don Mun, Ban Nong Bua, and Ban Ton Hang. The monument of Chao Luang Mueang La in Tha Wang Pha district constructed for the worship is located at Ban Don Mun and Ban Nong Bua.

Regarding the traditional dressing style, men did not wear shirts. They wore Yantra tattoos on the body, including ink tattoos over the upper legs looking superficially like wearing pants. They wore pants made from woven fabric. Women in earlier times did not wear blouses but woven clothes around their shoulders, and wore sarongs, including a white cloth strapped around their heads. Later, they wore jackets and still wore a woven cloth, or strapped white cloth around their heads, and in some areas covered their shoulders with cloth and carried a shoulder bag. It was assumed from the interview that this might due to the duties assigned to the governor, indicating the rank orders in the past. In addition, body decorations were usually found only among those who were descendants of former rulers. For written evidence, Pubsa (record books) were still preserved in the village temples. Mural paintings were appeared at the viharn of Nong Bua temple. The paintings were appeared on the wall of the Don Mun village meeting hall telling stories from the past to the present. The houses have deteriorated over time but there are model ancient houses located at Nong Bua temple and Don Mun temple.



Figure 2 Viharn of Don Mun temple in Tha Wang Pha District, Nan province

The viharn of Don Mun temple in Tha Wang Pha District of Nan Province was characterized by 2 overlapping roof tiers sloping downwards and covered with wooden tiles. The gable apex was installed with statues of Naga heads each at the front on the east and at the back on the west of the viharn, with their bodies leaning along the roof ridge, and their tails in the middle of the ridge. On each side of the lower roof tier are statues of the Kinnon, Hasadeelink bird, and the swan. There are 2 Naga statues each on the left and the right sides of the front entrance.



Figure 3 Viharn of Nong Nua temple in Tha Wang Pha District, Nan province

Nong Bua temple in Tha Wang Pha District is divided into two parts. The first part is viharn and the second part is a building covering upstairs of both entrances (the front entrance is typically larger than the side entrance). The roof is characterized by the two overlapping tiers with a low slope. At the top shows a Naga-like statue with Garuda-like mouth and swan-like body appearance. Its body runs along the roof ridge. On the gable apex is a statue of Hasadeelink bird. At the front entrance, there are two guarding Singha statues, one on each side of the leading-upstairs; however, there are no statues on the sides of viharn.

2) Pua district is also home to another group of people descended from the Lue that is believed to be forcibly herded into Nan city. They now still preserve the original traditions with some change in lifestyle to suit the current era. Men wear shirts, pants, and carry shoulder bags, while women wear jackets, strap white cloth around their heads, cover shoulders with white woven cloth, wear sarongs, and carry shoulder bags. After that they initiated the use of patterned stripes to decorate their jacket edges, still strap white cloth around their heads, cover shoulders with white woven cloth, and wear woven fabric clothing. Later development was the use of silver jewellery for body decoration. The traditions that have long been passed down include, for example, the rituals for worshiping Phaya Kaew Shrine, worshiping Thao Saenhan, and worshiping Thao Saen Mun. Most of their traditions are organized according to local customs. Written evidence appeared on Khoi books and inscriptions on ancient objects that are preserved inside the temple, with the records in the Lue scripts similar to the ancient Lanna letters. The district of Pua is the largest number of Lue ethnic population living there, hence allowing their culture to carry on consistently. Their temples remain the uniqueness of Lue as seen in those viharns of Nawong temple, Rong Ngae temple, Bengsat temple, Hia temple, and Ton Laeng temple.

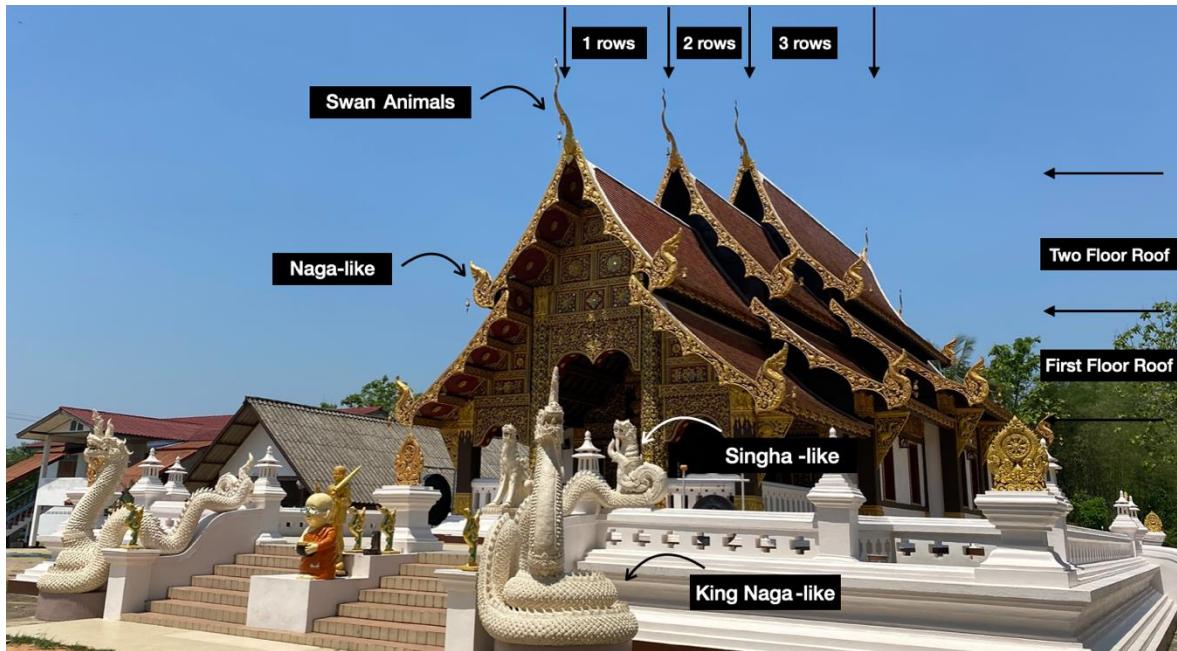


Figure 4 Viharn of Nawong temple in the Pua istrict, Nan province

The viharn of Nawong temple is characterized by its 3 overlapping roof tiers decorated with the statues of swans, one at each top corner of the gable apex. Their Naga-like bodies are lying down along the roof edge on both the left and the right sides, and the tails are statues of Naga with their heads attached to every corner of the roof. The first step at each side of the front stairway is decorated with a statue of King Naga. On both sides of the entrance, are statues of Singha.



Figure 5 Viharn of Ton Laeng temple in the Pua District, Nan province.

The features of the viharn at Ton Laeng temple include 3 overlapping roof tiers; the gable apex having a statue of swans with a Naga-like body lying along the roof ridge and the tail of woodcut in the Naga head; the statues of the Naga heads, one at each corner of the upper tier, two at each corner of the middle and the lower tiers; There are 2 statues of Singha, one on each side of the front entrance. There are none at the left and the right entrances where there are side side raises along the same level of the stairs.

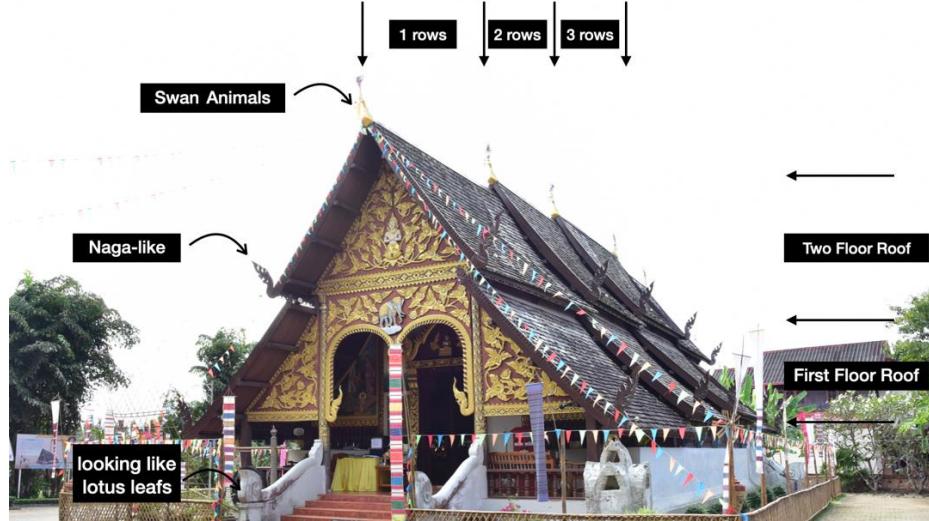


Figure 6 Viharn at Rong Ngae temple in the Pua District, Nan province

The viharn at Rong Ngae temple in the Pua district of Nan province is characterized by its 2 roof tiers in 3 rows, a swan statue on top of each gable apex with the body running downward and the tail of woodcut in Naga head at each corner of the roof, the entrance of the 3 sides of viharn looking like lotus leaves with stems running along in length of the stairway.



Figure 7 Viharn of Ben Sakut temple in the Pua District, Nan province

The viharn at Ben Sakut temple in Pua District of Nan province has two roof tiers in two rows; a swan statue on the top of each gable apex on both tiers with its Naga-like body lying downward to every corner and the tail of woodcut in Naga head; the front stairs having an angel-like statue on top of the post at both sides of the stairway, the left and right entrances looking like lotus leaves with stems running along in length by the size of stairway.

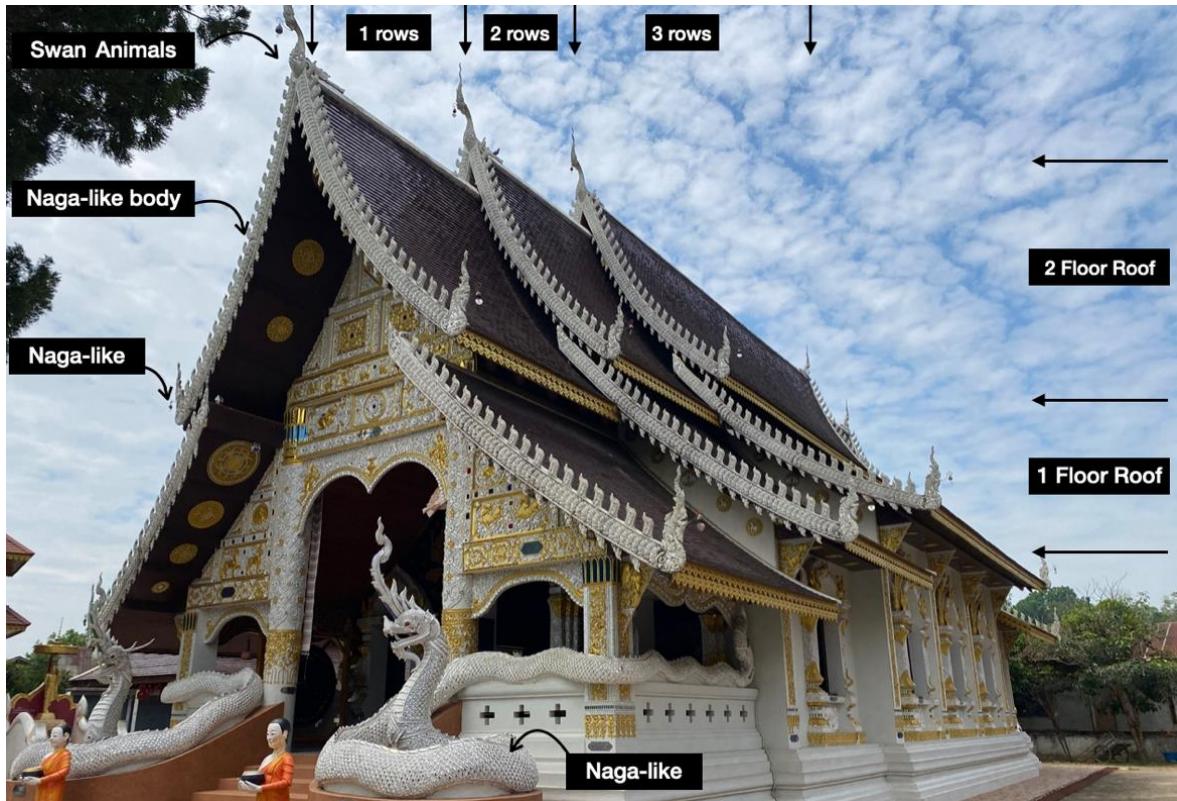


Figure 8 Viharn of Hia temple in the Pua District, Nan province

The features of the viharn at Hia temple in the Pua district of Nan province include 3 roof tiers each with a swan statue on the top of gable apex lying its Naga-like body down to every roof corner with the tail in the shape of Naga head for all the 3 tiers; and one Naga-like statue on each side of the front stairs running its body up to the second level in front of the entrance.

3) In Ban Huai Kon, Chaloem Phra Kiat district, the Tai Lue here originally lived in Sipsong Panna and immigrated to settle down in Muang Ngern of the Lao People's Democratic Republic. Their spoken accent and written language are slightly different from those in other areas. The inheritance of written language is of ancient writing, making it difficult to pass down, and only spoken language that carries on, in modern times, though with slight variance. The characteristics of dress among Lue people at Ban Huai Kon might be different and with highlights in the use of prominent colours to decorate for beauty, wearing silver accessories, and carrying shoulder bags, with the styles changed according to fashion. The traditions of the Tai Lue are obviously different as may be seen in funeral ceremonies that take 3 nights and 3 days. A small model house is offered for dedicating merits to the deceased. A sermon may be delivered on the first and second days, and 13 chapters of the Mahajati is delivered on the third day. The Lue community at Ban Huai Kon has worshipped Chao Por Makhao as their deity for a very long time and perform regular sacrifices and other aspects of worship. Regarding Lue antiques, most of them are preserved at Huai Kon temple and because of travelling difficulties in the past, the Lue people thus brought with them only the items necessary to make a living. Ban Huai Kon has a temple of Lue identity with its construction started in 2017. The interior of the temple is decorated with woven fabrics. There is a woven fabric learning centre at Ban Huai Kon to teach the next generation traditional Lue crafts. Ancient Khoi books are also preserved there.

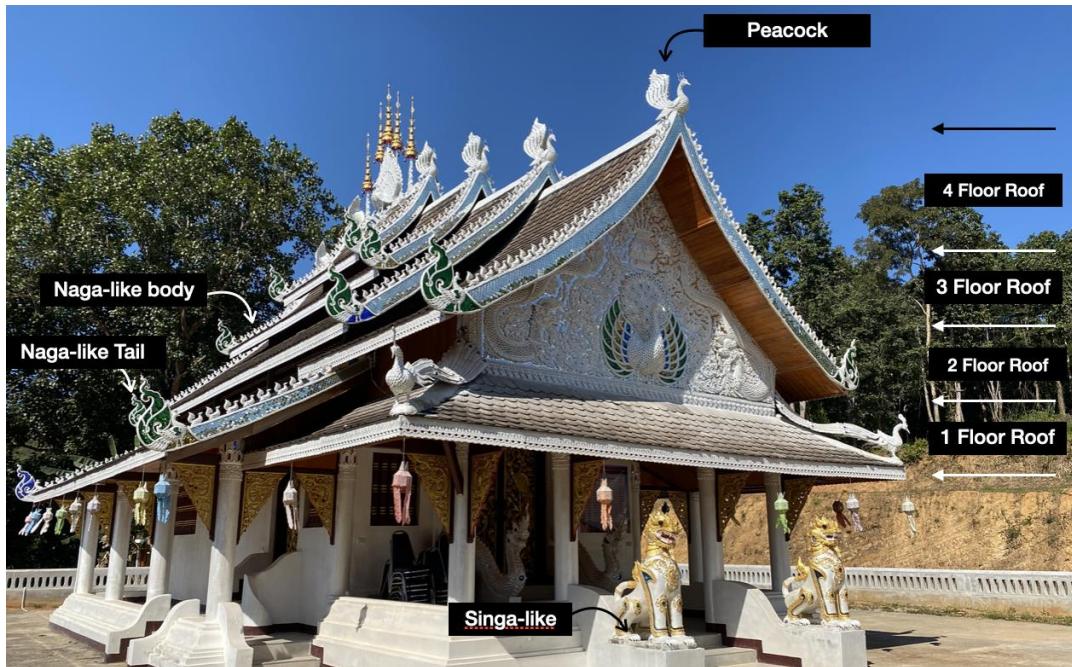


Figure 9 Viharn of Huai Kon temple in Chalerm phra kiat District, Nan province

The viharn at Huai Kon temple in Chalermphrakiat district of Nan province is characterized by 4 descending roof tiers. It is a mixed open and closed temple. On each gable apex of every tier is a statue of a peacock with Naga-like body and the tail with a peacock spreading its wings broader than its body at the corner of every tier. At the top are two peacock statues in back-to-back position lying along the length of roof. The lowest tier serves to cover the passageways around the viharn. On each corner of the front roof is a statue of peacock laying its tail along the roof ridge. There are 2 Singa-like statues on both sides of the front of the stairway. At the left and the right side of the front entrance are 2 guarding Naga-like statues with their bodies running in length to the entrance. The left and the right doors both have tall platforms in length of the stairs size.

5) Ngop sub-district in Thung Chang district of Nan province also has another group of Lue descendant as the very first group who immigrated from Sipsong Panna. It is believed they were forcibly herded into Nan city. Up to the present, they continue to preserve their original customs and traditions though with some changes to prevent conflict with the laws of the country. They however retain the ritual to worship the spirit of Phi Luang. Lue traditions are mostly performed upon the local traditions in general but with a slight difference in detail depending on the original culture of where they migrated from. They keep respecting their ancestors as a spiritual anchor. Regarding their clothing, men wear shirts and pants and carry shoulder bags, while women wear jackets, strap white cloth around their heads, cover their shoulders with white woven cloth, wear sarongs, and carry shoulder bags. Later they began to use patterned stripes to decorate their jacket edges and still strap white cloth around their heads, cover shoulders with white woven cloth, and wear clothes of woven fabric. For body accessories, tree branches are commonly used to make bracelets for body decoration. A later development is the use of silver jewellery. Now their dress is increasingly influenced by modern trends at the level that the leader of Lue community has worn against it and showed them evidence in the form of pictures of dress styles from the past to remind them so that the later generations will not be misled about wearing clothes too different from their traditional patterns and styles. Written evidence was found in Khoi books, inscribed on ancient artefacts, and preserved inside the temple, with the record written in the Lue script similar to the ancient Lanna letters.

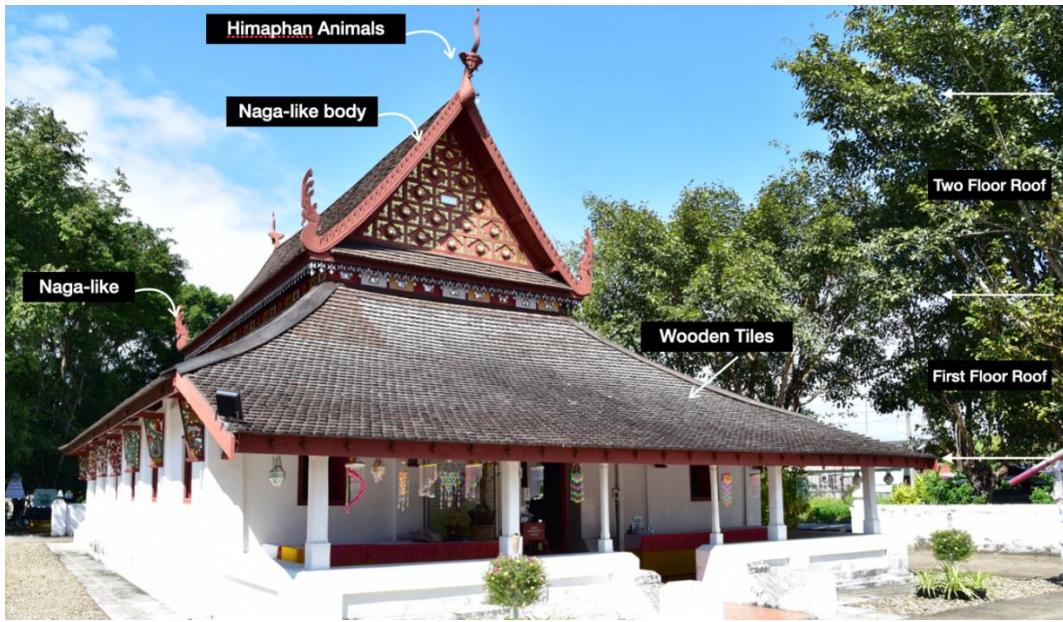


Figure 10 Viharn of Nong Daeng temple in Chieng Klang District, Nan province

The viharn at Nong Daeng temple in the Chieng Klang District is characterized by its two descending roof tiers, the gable apex at the front and the back having statues of Hasadikink birds with Naga-like bodies lying along and the tails as woodcuts in Naga heads at the four corners, the lower roof covering the front hall, without any animals of traditional belief at the front entrance.

Conclusion and Suggestions

The researchers explored the location of the Lue people who live in Nan province and also explored Lue uniqueness from viharns or the chambers at the temples across 7 districts in and around Nan province, namely: Pua, Tha Wang Pha, Santisuk, Song Khwae, Thung Chang, Chiang Klang, and Chaloem Phrakiat Districts. Results of the investigation show unique characteristics of viharns at the Lue temples as described briefly here. *Don Mun temple*: the interior of viharn presents paintings on the pillars, doors, and ceiling. *Nong Bua temple*: the interior of the viharn contains paintings depicting the stories of the Lord Buddha, the stories of Chankad Jataka, including paintings on the pillars, doors, and ceilings. *Nawong temple*: the interior of the viharn there are paintings with renewing paints restored on the pillars, doors, and the ceiling. *Ton Laeng temple*: the viharn presents paintings on the pillars, doors, and ceiling. *Rong Ngae temple*: the interior of viharn shows original paintings on the pillars, doors, and ceiling, with painting restoration on the walls telling stories of the Lord Buddha and community way of life. *Beng Sakat temple*: Inside the viharn presents paintings on the pillars, doors, and ceiling. *Hia temple*: Inside the viharn displays paintings on the pillars, doors, and ceiling with painting restoration. *Nong Daeng temple*: inside the viharn there are paintings on the pillars, doors, and ceiling depicting the stories of the Lord Buddha and morals. *Huai Kon temple* is newly constructed based on the identity and culture of the Lue from Muang Ngoen, and the appearance according to the beliefs of the Lue people in the community.

Regarding viharns' roofs at Lue temples in Nan Province are mostly decorated with the statues of Hasadilink birds, swans, and peacocks on the top of gable apex, with their bodies running along the length of the roof ridge and their tails in the shape of the Naga head at the corner of the roof. Round-relief figures of Singha usually stand at the front stairway,



and Naga at the front entrance of Lue temples. There are two types of roof tiers: typically, 2 roof tiers created in a similar style to the original temples before migration, and roofs with more than 3 tiers influenced by local culture and adapted to local geographical features. This paper agrees with Sirodom Sueklai's comparative study of development of Dai-Lue viharn in Nan, Thailand and Xixuangbanna, Yunnan, China (2015). The study noted that the viharns of Lue temples in Nan province has 2 distinctive features: one is a group of viharns with improvements and developments in unique characteristics as influenced by the cultural of original ethnic group.

According to the investigation of the Lue cultural heritage in Nan province, it was found that technology plays an important part in maintaining the original appearances. It is possible to find materials that function in similar to the original materials, including higher quality materials that are more resistant to sunlight and rain than roof shingles. Renovation with the use of reinforced concrete in the part of the ground structure to replace the original wooden structure can prevent subsidence. As a result, the Lue cultural heritage remains for future generations to study for preserving legacy of the Lue in more sustainable future.

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Development of Graphic Patterns for Contemporary Moa-Hoam Fabric from Tai Phuan Tin-Jok Sinh Patterns of Phrae Province

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ABSTRACT

This study aims to 1) explore the wisdom of Moa-Hoam fabrics and Tai-Phuan Tin-Jok Sinh patterns of the Phrae province; 2) develop graphic patterns for contemporary Moa-Hoam fabric from Tin-Jok Sinh; and 3) assess the level of satisfaction garnered by the development of graphic patterns for contemporary tastes regarding Moa-Hoam fabric from Tai-Phuan Tin-Jok Sinh of Phrae province. Moa-Hoam fabric was developed in contemporary styles with patterns that can be used to create contemporary clothing. They are intended to be practically wearable in everyday life and respond to the needs of the target groups. Satisfaction evaluation was performed among a sample group of 50 persons, including general consumers, manufacturers, and product designers who are interested in contemporary Moa-Hoam fabric based on Tai-Phuan Tin-Jok patterns. Thirty Moa Hoam patterns were inspected and evaluated by three textile experts. Then the three aspects of satisfaction were evaluated. The three aspects are 1) Material suitable for functionality, 2) Functional benefits, and 3) Beauty. The satisfaction evaluation of the three aspects reported a mean value of 4.20, suggesting a high level of satisfaction/propriet.

Keywords: Development, Pattern, Moa-Hoam fabric, Tin-Jok Sinh woven fabric, contemporary

Introduction

In this era of social and technological development and change, western artistic and cultural values have played a crucial role in people's lives in terms of lifestyle, occupation, society, ideas, values, and ways of practice which have changed enormously compared to what they were, even in the recent past.

Society and culture change constantly because human needs are indefinite and changes could be fast or slow depending on factors involved, such as, the educational levels of people, communications, and transport, including aspects of creativity, such as genre of writing, fine arts, music, design, etc. Changes in culture and society commonly take place in parallel and adjacent due to interrelated effects. Factors such as discoveries, inventions, conflicts, and competitions cause social and cultural changes which bring about the alteration both materially and non-materially of the social system and patterns as well as the human way of life (Chanoknun Panya-apirakkul, 2016).

Changes without attention and timely rectifying, may have a negative impact on society, art and culture, customs and traditions that were passed down from one generation to another. These mores are important to the community and society at large as they define who people are and give a sense of community and belonging. The difficulty, at present, is that, with globalisation and the dominance of western social and cultural mores, these traditions may eventually disappear. Culture determines human behaviour in society and



their behaviour present show certain ways of living based on social mores and community. For example, Thai people greet by saying *Sawasdi* while western people may greet by shaking hands. Culture also controls society by maintaining its order since culture is composed of faith, beliefs, values, and norms, etc., including rewards for compliance and punishments for violations (Suthasinee Wangwirot, 2014).

Phrae province is located in the upper Northern Region of Thailand, formerly a small independent city-state. It is an old city with a rich history since its establishment; however insufficient information was officially recorded, therefore, the investigation into the story of Phrae; relies on the evidence of other cities including the Yonok chronicles, the myths and legends of the Northern cities, the legend of Phra That Lampang Luang, and the stone inscriptions of King Ramkhamhaeng the Great. Phrae is surrounded by a landscape of valleys and mountains that were rich in forests. The Yom River is the main stream flowing through the province. Phrae is adjacent to Phayao province (North) Nan province (North and East), Lampang province (West), and Uttaradit and Sukhothai provinces (South). Phrae is famous for the manufacture of teak furniture, and Moa Hoam products. Moa Hoam is important local fabric of Phrae particularly in the Thung Hong sub-district. People in Phrae wear Moa Hoam in their daily life presenting their uniqueness. Moa Hoam fabric is made of cotton dyed with indigo from the Hom or Indigo plants until yielding an even colour all through the fabric. Moa Hoam fabric reflects the cultural beauty of the clothing identity of the Phrae people. It indicates an historical ethnicity inherited from Tai Phuan ancestors at Ban Thung Hong for a long period of time. Besides, their Tin-Jok Sin that has long been a tradition of the Phrae people, they were influenced by the Tai Yuan culture that shares a long history with the Phrae people. The Long district is well-known for its best and beauty Tin-Jok Sin for over 200 years. Formerly, the Long district belonged to Tai Yuan or Tai Yonok people. Tai Yuan people possess the art of weaving of their own, with the Long's Tin-Jok Sinh fabric as a handicraft of exquisite beauty and unique identity.

Thai wisdom refers to the folk knowledge and things that are bought about by villagers from their own intellect, knowledge, and abilities to be used for solving problems or living a life compatible with the times, and it requires a long process of accumulation, cultural and intellectual inheritance, and refinement (Nataya Sinthornphan, 2016).

Local wisdom refers to the knowledge and processes that enable the community's ongoing movement. Local wisdom is thus important for artisans to develop and apply their knowledge and wisdom corresponding to the background of a particular area which is likely to be successful. In the past, villagers relied on local wisdom as a core in their livelihood, which differs from the present where technology become the main factor in people's lives. Hence, villagers might have ignored local wisdom that has been handed down from their ancestors (Arunnet Chantasri, 2012).

Moa Hoam fabric as local wisdom was invented in many provinces in the northern region of Thailand. This local fabric is made from cotton through an ancient dyeing process to yield colours of dark blue, navy blue, or indigo blue. The colour is obtained by extracting colour from the Hom plant which gives a beautiful natural colour (Wandee Phattanachokchai, 2014). According to Rapee Wangkarun (2016), the word of Moa Hoam refers to fabric that originated from the local wisdom in the northern region of Thailand. It came from 2 words i.e. "Mor (pot)" which means a container for boiling, holding liquids or water, and the word "Hom" meaning a kind of herbaceous plant in the indigo family which is called the Hom plant. The language currently used to refer to it may be slightly different from the original as can be seen in these words "Mo Hom, Mor Hom, Mor Hoam or Moa Hom, Mor Hom" which refer to the same thing as Moa Hoam.

Pornphan Sujaritwongsarote (2016) stated that Moa Hoam fabric in the past has a process of making it with white cotton woven on a loom, and when there is sufficient woven



fabric, it is made into clothes for everyday wear. In the dyeing process, the woven cotton fabric is dyed with natural colourants from the fermented Hom plant. Today, with less use of cotton fabric woven on a traditional loom, hand woven fabric has become more expensive. Instead, calico is used to make Moa Hoam clothes and dyed with the natural liquid Hom dye or chemical Moa Hoam colourants. This is to reduce production cost and make it affordable to local people at a lower price, while continuing to preserve local traditions.

The uniqueness of Moa Hoam fabric of Phrae is generally well-known and widely used for the durability of the cotton. The fabric is lightweight and comfortable to wear without feeling too warm. The dyeing process provides a dark colour that camouflages stains and dirt when worn to work in the fields. In addition, the colour does not wash out or fade. The cut and styles are simple and inexpensive, making such garments suitable for men and women, and for all ages, and can be worn on special occasions such as merit events, New Year celebrations, Songkran, etc. (Rangsan Chansri, 2016). The value of the local costume of the Phrae people have changed over time; as many people think that wearing local clothes seems outdated which has resulted in them becoming unpopular. It is therefore important to encourage people to understand the importance of preserving local outfits to suit to their daily chores in order to express their cultural identity.

The conservation, promotion, and continuation of the wisdom of making traditional Moa Hoam fabric by the locals has begun to fade as later generations may not appreciate their own traditional rather than to make their way in modern world. In addition, the increased price of Hom or indigo plant as natural raw material for dye fermentation affects lower profits or returns from the production and sale, making it hard to bear the high costs of producing Moa Hoam in traditional and natural way. Besides, the indigo and Hom are smelly and leave stains on the hands during the dye process. New generations prefer to work on other jobs with better compensation and working conditions. Other factors are advanced and modern technology changing their preferences in clothing based on their working environments either in the professions which are often required to wear suits or organisation uniforms provided by their employers. This is a reason why each new generation is more likely to turn to other occupations and less likely to pay attention to, or carry-on making Moa Hoam fabric. Consequently, the folk wisdom of Moa Hoam fabric has gradually become neglected and undervalued.

Weaving is a handicraft and art that has existed since the ancient times as a part of the human way of life because clothing is an essential factor for humans. Weaving is regarded a form of fine-arts that an individual ethnic group has created in different patterns and designs. Such patterns and designs representing stories and events happening long time ago and also signify the identity, culture, beliefs, and history of that particular ethnic group. The name of some patterns and symbols had been called and passed down for many generations, some in the local language. With observation and comparison, one will be able understand more about the patterns and symbols in traditional Thai fabrics and even realizes their profound value (Thai Encyclopaedia for Youth, 2016). European examples are the Scottish and Irish tartans as local wears on special occasions and at cultural events. At present, weaving the folk and local fabrics remains the traditional patterns especially in the communities where certain ethnic groups scattered into different regions of Thailand. In the lower northern region (Phrae, Uttaradit, Sukhothai, etc.), Tai Yuan and Tai Lao ethnic groups migrated to settle there during different periods of Thai history. Many Tai Phuan still preserve their textile fabric and pattern compared to other ethnics in Thailand.

The development of Moa Hoam fabric patterns at present has not yet become very widespread because most of those groups who have local wisdom about Moa Hoam lack experience in exploring the marketing needs related to the target groups. In particular, the upcoming generations as teenagers and youth are not much interested in wearing Moa Hoam



clothes, and it is the usual target groups like working people and the elderly who like dressing in Moa Hoam on important occasions rather than in everyday life, such as in merit events, important ceremonies, and work places (Kwanchai Chaiphan, 2017). The patterns of Moa Hoam fabric found today are inspired by natural themes, such as leaf and floral patterns as well as animal patterns drawn from literature. However, the patterns with a more modern look are still not used much. Many formal western styles such as suits for ladies and gentlemen have been around right through the 20th century and are still with us today. The basic designs have still not changed much but have been updated thus making them distinct from earlier equivalents. Taking this idea, a little further, it may be possible to use the cloth and patterns in more updated styles and garments, thus preserving the traditions in more modern garments. Today, most people in the community prefer to wear T-shirts and jeans with modern and fashionable graphic designs that are wearable in anywhere and on any occasions, and also convenient to choose and purchase because they are readily available in a variety of types and styles in the markets (Hasdin Somphiphat, 2016). As mentioned by Sompong Churungroj (2017), people choose to wear clothes that look modern with varied and beautiful patterns whereas the patterns on Moa Hoam fail to satisfy the needs of the target groups or consumers of a new generation. Those traditional Thai patterns might make them look old and outdated, so they pay less attention. In the future, without concrete support to promote the conservation of Phrea Moa Hoam, it might possibly disappear.

The background and significance of Phrae's Moa Hoam fabric as an inheritance of local wisdom and culture handed down from the past to the present showed that the new generation today is not particularly aware of, or concerned about, the importance and value of this ancient wisdom, with some reason pertaining to the fabric patterns that do not satisfy their needs and preferences of modern people. Realizing this problem, the researcher therefore conducted this study on "Development of graphic patterns for contemporary Moa Hoam fabric from Tai Phuan Tin-Jok Sinh patterns of Phrae province". It aims to explore the patterns on Tai-Phuan Tin-Jok Sinh so as to guide the development of graphic patterns for contemporary Moa Hoam fabric. It moreover promotes the conservation of local wisdom for the new generation to realize, cherish, and take part in continuing this precious local tradition.

Objectives

1. Study Area

The study area was located in Phrae province. This study explored the wisdom of Moa Hoam fabric and Tai-Phuan Tin-Jok Sinh patterns of Phrae province by means of information research and designing 30 patterns adapted from Tai-Phuan Tin-Jok Sinh patterns. A collection of Moa Hoam products was created including long-sleeve, Chinese-collar shirts and long trousers for men and women, short pants, ribbon-tied collar shirts, gowns, shawls, and bags.

2. Sample group

2.1 Three design experts were purposively selected based on their knowledge, expertise, and work experience.

2.2 Satisfaction evaluators include general consumers, manufacturers, and product designers who are interested in contemporary Moa Hoam fabric adapted from Tai Phuan Tin-Jok Sinh patterns, 50 persons were selected.



Contributions

The contributions of this research are;

1. Knowledge of the design were filed through developing graphic patterns adapted from Tai Phuan Tin-Jok Sinh patterns,
2. Potential design solutions for the participants and participating communities, and
3. Research dissemination of the satisfaction result of the sample group based on the contemporary Moa Hoam clothing with patterns adapted from Tai Phuan Tin-Jok Sinh patterns of Phrae province.

Research Methodology

The research methodology was mixed method approach that consisted of literature reviews, participatory observations, interviews, and survey of satisfaction of the sample groups. These research methods were utilized for data collection and the analysis of the satisfaction of the sample group towards the graphic patterns adapted from Tai Phuan Tin-Jok Sinh patterns. The research methods are described below;

1. In this study, the research method focused on integrative reviews based on a bibliographic search and experience of the researcher when performing an integrative review Souza, M. T., Silva, M. D., & Carvalho, R.D (2010). The researcher used this method to investigate relevant documents and related research comprising academic documents, research reports, articles, journals, related theses, and internet resources; and investigating pattern characteristics and statistics.

2. Participatory observation was the second research method. The researcher gathered information during field studies. Field visits took place in places where Moa Hoam fabric in Phrae province originated. The investigation sites are located in the Thung Hong sub-district including 1) "Pa Ngiam" learning centre for Mor Hom fabric dyeing, and 2) Moa Hoam at Ban Pa Luang. The data collected was about Moa Hoam fabric and Tin-Jok Sinh patterns of the Tai Phuan's concept. An investigation was also undertaken at the sites of origin in the Long district of Phrae province including: 1) The Long district's ancient Tin-Jok Sinh by Ms. Pranom Tapaeng, and 2) Long district's "Komol Museum" of ancient clothes. The investigation concerned the ancient costume of the Long district at the Komol Museum and Tin-Jok Sinh of the Tai Phuan.

3. Interviews with design experts constituted the third method which helped the researchers to develop graphic patterns adapted from Tai Phuan Tin-Jok Sinh patterns effectively. In this study, thirty patterns were developed from the original patterns but with a more modern design to suit the functionality of the present. Three experts evaluated the graphic patterns for their fashionable designs and propriety for modern use. After the interviews, the development of new patterns to match contemporary Moa Hoam clothing took place. Tin-Jok Sinh patterns have been adapted to suit more modern styles. The clothing included long-sleeves, Chinese-collar shirts and long trousers for men and women, short pants, ribbon-tied collar shirts, gowns, shawls, and bags.

4. Survey was another method where the researchers designed a set of questionnaires to explore satisfaction with the contemporary Moa Hoam fabric with applied Tai Phuan Tin-Jok Sinh patterns. There were 50 questionnaire respondents. The data was analysed, summarized, and presented using descriptive analysis with statistical tests including the mean and standard deviation, followed by discussion, and the preparation of reports concerning the research results.



Results

The results of this study are presented in line with conducted process through the outputs of this study.

Field visits took place at the sites of the origin of Moa Hoam making in Phrae province. The study sites were in Thung Hong sub-district including 1) "Pa Ngiam" learning centre for Moa Hoam dyeing, and 2) Moa Hoam at Ban Pa Luang, as important sources of Moa Hoam exports and considered as a distinctive identifying symbol of the Moa Hoam in Phrae province. The planning and actual field visits were carried out to collect evidence of Moa Hoam production and to study Moa Hoam fabric colours using indigo from the Hoam plant, Hoam dyeing methods, and the designs of Moa Hoam clothing. The information obtained was applied and adapted to making products by designing contemporary Moa Hoam clothing styles adapted from Tai Phuan Tin-Jok Sinh patterns.



Figure 1 Information collected at the sites of Moa Hoam fabric production in Phrae

The study of Tin-Jok Sinh patterns

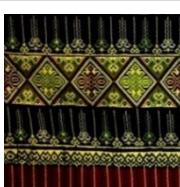
This study of Tin-Jok Sinh patterns adopted the idea of Tai Phuan Tin-Jok Sinh with a variety of patterns to be applied to research products in contemporary styles of Moa Hoam clothing with Tai Phuan Tin-Jok Sinh patterns. The field study took place at in the Long district of Phrae province including 1) the Pranorm Tapaeng house of ancient Long Tin-Jok Sinh, and 2) the "Komol Museum" of ancient Long fabric, to learn about the various patterns of Tai Phuan Tin Jok Sinh.



Figure 2 Information was collected on the Tai Phuan Tin-Jok Sinh Patterns

The graphic design model employed information gathered that pertained to the Tai Phuan Tin-Jok Sinh patterns. A total of 30 patterns were developed as adapted from those original patterns in the process of designing of more fashionable clothes that are suitable for modern wear. These graphic designs were evaluated by experts in terms of their modernity and functionality.



1.Karbmark Nokkhum pattern	2. Kalae pattern	3.Kalae Nokkhum pattern
 	 	 
4. Korkunjae pattern	5.Korhugyai Keawmah pattern	6.Kandok pattern
 	 	 
7.Kamoddaeng pattern	8.Kamoddaeng Karbmark pattern	9.Kamoddaeng Nguhoysaow pattern
 	 	 
10.Komchaunoy Tungchai pattern	11.Nguhoysauw pattern	12.Chiengsaen Hongdum pattern
 	 	 
13.Dokchanpaedklip Lek pattern	14.Dokchanpaedklip Yai pattern	15.Tomkrue pattern
 	 	 
16.Nokkinnumruamtone Kagumbung pattern	17. Nokkinnumruamtone Huanaga pattern	18.Nokkhum pattern

 	 	 
19.Noknorn pattern  	20.Phakkude pattern  	21.Phakwaen pattern  
22.Funluey pattern  	23.Funluey Nguhoysaow pattern  	24.Sroykarbmark pattern  
25.Sumpaow Loynum pattern  	26.Sumpaow Loynum Kagumbung pattern  	27. Sumpaow Loynum Huanaga pattern  
28.Hongkoo Karbmark pattern  	29.Hongkoo Kinnumruamtone pattern  	30.Huajai Nguhoysaow pattern  

Figure 3 Graphic design model based on the collection of data on
Tai Phuan Tin-Jok Sinh patterns

The study of Tai Phuan Tin-Jok Sinh patterns was brought to design patterns on Moa Hoam clothing by adapting those original patterns to match the contemporary style. The Tin-Jok Sinh patterns adapted for modern look can also be used with other types of products.



Figure 4 Contemporary Moa Hoam clothing, accessories and other items with patterns adapted from Tai Phuan Tin-Jok Sinh patterns

The results of evaluation on satisfaction towards the development of contemporary Moa Hoam fabric from Tai Phuan Tin-Jok Sinh patterns of Phrae province were summarized in the following tables.

Table 1 General information of respondents by frequency distribution and mean (n=50)

Topic	Category	No. (person)	%
Sex	Male	33	66
	Female	17	34
	Total	50	100
Age	< 20 yrs.	2	4
	20-25 yrs.	28	56
	26-40 yrs.	10	20
	≥40 yrs.	10	20
Level of Education	Total	50	100
	Secondary	7	14
	Bachelor's degree	36	72
	Higher than bachelor's degree	7	14
	Total	50	100



Table 1 shows general information of the respondents, suggesting that the majority are men (66%), aged between 20-25 years (56%), and attained bachelor degree level education (72%).

Table 2 Satisfaction towards the development of contemporary Moa Hoam fabric from Tai Phuan Tin-Jok Sinh patterns of Phrae province (n=50)

Evaluation List	Level of Opinion		
	\bar{x}	S.D.	Interpretation
1. Materials used suitable for functionality			
1.1 Moa Hoam fabric suitable for creating contemporary products	4.32	0.96	High Propriety
1.2 Materials suitable for creating patterns on Moa Hoam fabric	4.16	1.09	High Propriety
Total	4.25	1.02	High Propriety
2. Functional Benefits			
2.1 Suitability for the use by the target groups	3.92	1.09	High Propriety
2.2 Suitability as contemporary clothing, accessories and other goods	4.02	0.82	High Propriety
Total	3.98	0.99	High Propriety
3. Beauty			
3.1 The arrangement of pattern component with fineness and beauty	3.92	0.89	High Propriety
3.2 Designs of Moa Hoam clothing with distinct and uniqueness	4.38	0.87	High Propriety
3.3 Designs of Moa Hoam clothing with perfect coherence	3.88	1.09	High Propriety
3.4 Arrangement of the color component in the designs with suitability and beauty	4.20	0.78	High Propriety
3.5 Patterns suitable for the style of contemporary clothing	4.72	0.56	Highest Propriety
3.6 Patterns on Moa Hoam fabric suitable for the target groups	4.32	0.68	High Propriety
Total	4.25	0.80	High Propriety
Total of 3 Aspects	4.20	0.88	High Propriety

Table 2 reports the mean and standard deviation of evaluation result on satisfaction towards the development of contemporary Moa Hoam fabric from the Tai Phuan Tin-Jok Sinh patterns of Phrae province, by the rank of mean value, as described below.

Materials suitable for functionality: Moa Hoam fabric is suitable for creating contemporary work as reported at the most satisfied with mean of 4.32 as a high level of propriety, followed by materials suitable for creating patterns on Moa Hoam fabric reported satisfaction with a mean of 4.16 as a high level of propriety.

Functionality: Suitability as contemporary clothing goods was reported as most satisfied with a mean of 4.02, a high level of propriety, followed by suitability for use by the target groups who reported to be satisfied with a mean of 3.92, a high level of propriety.

Beauty: Patterns and style of contemporary clothing was reported as most satisfied with a mean of 4.72, the highest level of propriety, followed by the designs of Moa Hoam fabric with distinction and uniqueness reported satisfaction with a mean of 4.38 as a high level of propriety; and the designs of Moa Hoam clothing with perfect coherence reported at the lowest satisfied with a mean of 3.88, a high level of propriety.



In all, respondents rated their satisfaction towards the development of contemporary Moa Hoam fabric from Tai Phuan Tin-Jok Sinh patterns of Phrae province for all 3 aspects at a high level of propriety with a total mean of 4.20.

Discussion

The analysis provided results on the development of contemporary Moa Hoam fabric based on Tai Phuan Tin-Jok Sinh patterns of Phrae province, with data collected from relevant documents and related research, which has been summarized, and analysed to guide the development of contemporary Moa Hoam fabric as adapted from Tai Phuan Tin-Jok Sinh patterns of Phrae province. The designs being developed were evaluated by the three experts, and a range of products were developed using Moa Hoam fabric as the main material. According to Tirachai Suksod (2001), the concept of product design is to create new things from the original designs. In the current research, the researchers applied Tai Phuan Tin-Jok Sinh patterns to develop 30 patterns as simple and uncomplicated; while conveying expression through simple lined patterns based on the originals. As noted by Kittichai Wangwatanaphan (2017), a good product design in this era requires simplicity and reflects on emotions conveyed through the lined patterns expressing the feelings of the creator to respond to the desires of the target groups. Each pattern of lines communicates and expresses emotion to each target group in different ways. Therefore, designers must learn to develop goods and services to match targeted customer needs. The development of Moa Hoam fabric from Tai Phuan Tin-Jok Sinh patterns based on original patterns with a contemporary look to attract the attention and interest of up-coming generations should be promoted in creative ways. For example, embroidery with silk threads of natural Hom dyes together with trendy fashion. Moa Hoam is a kind of plain fabric in a dark blue colour that can be developed in fashionable styles and shapes to go well with the current age and raise both the price and psychological value. Narudol Jitsakul (2018) consistently explained that the design of Moa Hoam fabric patterns need to focus on functioning in a variety of occasions, and be suitable for different ages, and target groups. The design should be simple, easy and comfortable to wear thus suitable for modern daily life. Moa Hoam clothing products could also be designed with appropriate styles to be suitable for formal and semi-formal occasions. Modern and contemporary designs should be simple, good looking, and uniquely stylish with a combination of Moa Hoam patterns and colours, but designed according to modern clothing needs.

Satisfaction evaluation among the sample group of 50 persons who were interested in contemporary Moa Hoam fabric based on Tai Phuan Tin-Jok Sinh patterns report that most of the respondents were men, aged between 20 - 25 years and attained a bachelor degree level of education. Moa Hoam fabric was developed in contemporary styles with the designed patterns. It can be created as contemporary clothing which are practically wearable in everyday life and responding to the needs of the target groups. Ruenkwan Runreungjai (2017) pointed out that the weaving process and methods of the Tai Phuan allow for the development of skills to create new and unique patterns. The woven fabric can be transformed into different types of products without reducing the value and worth of Tai Phuan Tin-Jok Sinh fabric. The evaluation on 1) Materials suitable for functionality, 2) Functional benefit, and 3) Beauty, show the overall satisfaction in these three aspects with a mean of 4.20, which suggested a high level of propriety.



Recommendations

Based on the study to develop graphic patterns for contemporary Moa Hoam fabric adapted from Tai Phuan Tin-Jok Sinh patterns of Phrae province, the researchers recommended that a range of styles of Moa Hoam clothing and patterns need to be created so that Moa Hoam clothing may be worn in many different ways. Moreover, it should focus on specific target groups such as teenagers, working people, and the elderly to offer a greater variety of Moa Hoam contemporary products.

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Digital Print Textile Pattern Designs for Fashion Products

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Abstract

The aim of this research has twofold 1) to design digital print textile patterns for fashion works; and 2) to evaluate the satisfaction on digital print textile. This research includes a sample group of academics, professors, entrepreneurs, manufacturers, and consumers, who have relevant experiences in the fields of textile product design, textile industry, product design, and graphic design. Research instrument consists of questionnaire on personal information of respondents, questionnaire on design analysis and conclusion, and satisfaction evaluation form. Statistics used in the research are percentage, mean (\bar{X}), and standard deviation (S.D.). Research result reveals that the woven fabric made from mixed cotton-Nypa palm fibers being developed was ideal for making textile works as they provided value, value added, and functionality for further extension of textile works. The analysis was performed on the data acquired from the investigation using interview form on the design of fashion textile products to collect field data from textiles companies, garment factories, department stores, markets, digital printing houses, and related design schools. The data was used to develop designs with the steps of designing digital print textile patterns to fashion products. Analysis results from the questionnaire on the opinion of experts and the survey of consumers aged between 20 – 30 years, 31 – 40 years, and 41 years and over pertaining to their opinion towards the sketch designs of clothing and bags being developed. Results found that product functionality ranked first followed by beauty to use, and designs to regard environment conservation, respectively. Satisfaction on the design of digital textile patterns show the highest mean on fine proportion of patterns, followed by proper scale of patterns, and continuity of pattern that affect print patterns. The result of the print pattern fabrics causes no skin irritation when wearing and offered colour fastness despite several times of washes.

Keywords: Textile printing, Woven fabrics, Digital system, Fashion design

Introduction

Today, products made from woven fabrics have gained a broad popularity for their distinctive features of wearing comfort and unique beauty. Fibers or materials both natural and man-made can be formed into fabrics. Advances in printing technology have brought many changes in this business. The trend of print production involves technologies widely developed to meet the demand of consumers. These include the improved quality of work pieces along with printing speed, colour, number, and size or even large size of print material. Moreover, the rise and expansion of digital printing has led to the demand for textile printing extensively. Research and development serve to extend the digital printing knowledge by means of developing techniques or methods that are applied and experimented until yielding satisfied results to be further disseminated and used extendedly for improving



efficiency. Fashion design is a type of human's creative process with visual elements and their characteristics as components, and theories adopted as guideline. Designers work on many steps in the creative process to produce design works to satisfy the needs for daily living, more convenient to use, or resolving functional physical problems, improving the human way of life to enable people to have a better quality of life. Graphic works were termed using different Thai words such as Lekasil, Rekanasil, Lekasil. A type of graphic work of the researcher's interest was called fabric graphics like textile graphics, patterns, and designs as a combination of the production technique and creativity to match the preference of consumers. Digital print textile patterns and fashion designs in each step require respective specialists to work together even in the distribution of products that experts need to be present to ensure that consumer desires are met. Each type of fabric varies in functionality for consumers to choose from by their intended use. They make a choice considering fabric quality, beauty, functional suitability, and purchasing power. In the design and digital textile printing pattern design, the use of colours to print patterns on fabric even with white colour on white fabric can produce vivid patterns. This type of pattern is called a decorative design created by printing in different forms and look of patterns such as lines, shapes, and colours that are well-arranged and suitable for the materials used.

With the charm of fabric patterns, the new generation of designers are interested in designing clothes with different styles of both the design of the woven fabric patterns and the decoration on fabrics with new techniques to go along with the era and making the products look different and more contemporary, while still being practical and modern. Fabrics printed in a range of patterns are cut and decorated to match contemporary clothing like shorts, T-shirts, suits or jackets wearable by both women and men, and matching the clothes popular among those who love to dress up in fashionable outfits. They accompany the current preference for trendy clothing in both the outfits such as shirts, pants, skirts as well as accessories and bags. The current styles of fashion among Thai people are mostly influenced by those countries in East Asia, for example, fashion culture from China, Japan, and South Korea, including technological trends. Moreover, unisex fashion has been growing worldwide until 202 wearing skirts and dresses have become common in everyday life, including fashion products as seen on social media.

The investigation of woven fabrics, tests of their physical properties, the process of pattern design and technology for textile pattern printing, and the designs of fashion products were undertaken to seek for the efficiency and quality of digital print textiles to fashion design and added value to products.

Objectives

1. To design textile patterns for digital printing in fashion works.
2. To evaluate the satisfaction on digital print textiles.

Research Methodology

To acquire information according to the research objectives on digital print textiles and fashion design, the following procedures are used: Analysis was performed on data obtained from the study and interviews using a structured interview form on digital print textiles and fashion design, to gain information regarding the designs forwarded. Field visits were conducted to textile companies, fabric selling places, fashion garment factories, department stores, digital textile patterns printing works, and related design schools. The data was analysed for later designs and development. The analysis steps included the analysis of the questionnaires to find the mean and standard deviation, with interpretation criteria to classify the level of the mean and, in particular, the range.



Results

Data analysis prior to creating designs was performed in different parts. Satisfaction to choose and purchase digital print textile products was evaluated among consumers aged between 20 – 30 years, 31 – 40 years, and 41 years and over. Respondents aged 20 - 41 years and over reported the top rank for choosing the clothes wearable by both men and women from digital print pattern textile.

Table 1 Analysis result on personal information of respondents

	Frequency	Percentage
1. Sex		
1.1 Male	47	47
1.2 Female	53	53
Total	100	100
2. Age		
2.1 20 - 30 yrs.	27	27
2.2 31 - 40 yrs.	38	38
2.3 ≥ 41 yrs.	35	35
Total	100	100
3. Education		
3.1 Lower secondary	4	4
3.2 Higher secondary	12	12
3.3 Bachelor's degree	44	44
3.4 Higher than bachelor's degree	40	40
Total	100	100
4. Position/Occupation		
4.1 Student	24	24
4.2 Employee of private company	35	35
4.3 Private business/Trade/Freelance	20	20
4.4 Academics/Public servant/State enterprise	11	11
4.5 Others	10	10
Total	100	100
5. Income/month		
5.1 5,000-10,000 baht	10	10
5.2 10,001-20,000 baht	14	14
5.3 20,001-30,000 baht	25	25
5.4 30,001-40,000 baht	40	40
5.5 $\geq 40,001$ baht	11	11

The patterns were inspired by palm trees, with three forms of the same proportion and continuation of the patterns for printing on fabrics.


Figure 1 Pattern 1

Figure 2 Pattern 2

Figure 3 Pattern 3

Table 3 Analysis result of draft digital print textile patterns

No.	List	\bar{x}	S.D.	Interpretation	Rank
1	Pattern 1 Horizontal Nypa palm leaves	3.45	0.90	Moderate	3
2	Pattern 2 Graphic Nypa palm leaves	4.80	1.00	Highest	1
3	Pattern 3 Vertical Nypa palm leaves	3.50	0.95	High	2

Analysis result on the opinions towards digital print textile patterns suggests that pattern 2 was rated with highest total mean, followed by pattern 3 and pattern 1, respectively.


Figure 4 Ideal patterns for making products

Table 4 Satisfaction towards the designs of digital print textile pattern

No.	List	\bar{x}	S.D.	Interpretation
1	Fine proportion of textile patterns	4.80	1.07	Highest
2	Proper scale of patterns	4.77	1.00	Highest
3	Balances of pattern elements	4.54	0.95	High
4	Rhythm, pattern, repetition	4.50	0.91	High
5	Harmony of patterns	4.55	0.96	High
6	Emphasis, dominance, and hierarchy	4.35	0.85	High
7	Differences making distinctive patterns	4.35	0.85	High
8	Perceived stories of textile patterns	4.30	0.86	High
9	Continuity of patterns	4.61	0.80	Highest
10	Overall satisfaction on textile patterns	4.52	0.95	Highest

Result of evaluation on satisfaction towards the designs of digital print textile patterns showed that for individual aspect, fine proportion of patterns was reported with the highest mean, followed by proper scale of patterns, and continuity of patterns, respectively.

Synthesis of result found a number of issues in common or preferably use as criteria pertaining to the principles of graphic design, and they were applied as criteria for digital print textile to fashion design. The standard criteria mostly used for evaluating by the principles of graphic design were employed to evaluate the following aspects: 1) Balance, 2) Rhythm, pattern, repetition, 3) Unity, 4) Emphasis, dominance, hierarchy, and 5) Fine proportion.

Based on the analysis of evaluation result, the sketch patterns rated highest by experts and consumers were taken by the researchers to develop and improve as digital print product designs into fashion design as shown below.

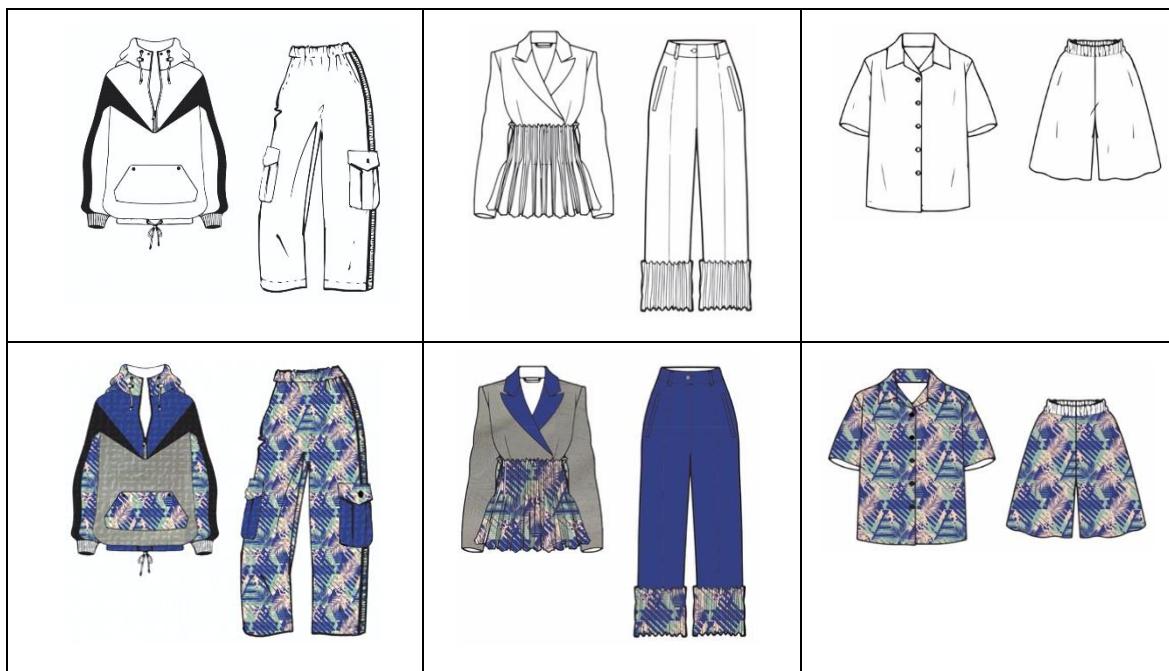


Figure 5 Designs of digital print textile patterns in different types of clothing



Figure 6 Design of digital print textile patterns in 3 types of bags



Figure 7 Design works of digital print patterns on woven fabrics of cotton-Nypa palm fibers before making into fashion products of different types of clothing.



Figure 8 Design works of digital print patterns on woven fabrics of cotton-Nypa palm fibres before making into different types of bags



Table 2 Sketch designs of clothing and bags

No.	List	\bar{x}	S.D.	Interpretation
1	Functionality	4.70	0.97	Highest
2	Beauty to use	4.67	0.96	Highest
3	Sturdiness	4.53	0.94	Highest
4	Material	4.50	0.90	Highest
5	Production process	4.56	0.95	Highest
6	Safety	4.35	0.88	High
7	Price	4.30	0.85	High
8	Maintenance	4.32	0.86	High
9	Delivery	4.01	0.80	High
10	Environmental conservation	4.59	0.95	Highest

Analysis result on the opinion towards the sketch designs of clothing and bags for individual aspects suggests that functionality ranked first, followed by beauty to use, and environmental conservation, respectively.

Synthesis of result found a number of common issues or preferably use as criteria pertaining to the principles of graphic design, and they were taken as criteria for digital print textile to fashion design. The standard criteria mostly used for evaluating by the principles of graphic design were employed to evaluate the following aspects: 1) Functionality, 2) Beauty to use, 3) Material, and 4) Production process.

Discussion

Based on the study result of the digital print textile and fashion design; there are certain aspects for further discussion which are;

Issue 1: Digital print textile to fashion design. Amarin Srisupornvanich (2021) provided an overview of Thailand textile and garment industry in 2022 with an opportunity to grow by 10-15% due to the recovery and the turn of purchasing power. This group of products is considered indispensable especially for the Thai weaving or textile industry as the upstream of garment industry. It thus requires the development to add value and create new opportunities following the theory of making good use of natural resources and promoting sustainability, including sustainable design. The fabric texture needs to be different from those on the market and can be further developed in pattern printing process.

Issue 2 Satisfaction towards digital print textile to fashion design. Evaluation of consumers' satisfaction towards product development reported that consumers rated highest score of satisfaction on fashion clothing products. Male and female consumers aged between 20 – 41 years and over gave their opinion on proper functional style as well as beauty. According to a research conducted by Jittapon Chumkate (2017, pp.10-11), product designs should satisfy the need and demand of consumers and offer product diversity, quality, designs, styles, beauty, sturdiness, and services; for example, to be more advantage than the products of competitive others. Consistently, Rewat Suksikarn (2013) suggested about the components of products which included affordable and inexpensive price, less decision time, instant purchase on preference without thinking too hard, a range of prices to choose from as suitable, beauty and attraction, novel and eye-catching styles, and signifying local uniqueness. In similar, development of commercial products from Napa palm fibers should offer not only beauty and uniqueness but also proper sizes, all that meets the requirement and win the heart of consumers in the present and future time, and allow for further development commercially (Nirat Soodsang, 2016).



Recommendations

1. The production method can be further developed with the production process technique attuned to the new and diverse technologies for comparative value and beauty.
2. The production process can be further applied to textile printing for weaving works or combined into digital print process so as to offer a wide range of textile production and construction of business.
3. Print pattern textiles, other than their use for clothing production, are also suitable for producing many other products to generate their worthiness and value.

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Design and Craftsmanship: Insights from the “Born in Thailand Project”

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Abstract

This article examines the "Born in Thailand Project," focusing on the collaboration between modern design and traditional Thai craftsmanship. It highlights the project's journey, spearheaded by Monica Marconi Martinez and Mattia Bonavolontà, and its exploration into ceramics, textiles, and jewellery in Sukhothai province. The paper discusses the methodology of hands-on engagement with artisans and the iterative development of products, reflecting on the unique challenges and innovations of each craft. Key outcomes, like the Thai Puan Mini Loom and Thai Puan Creative Hub, illustrate the successful amalgamation of traditional techniques with contemporary design. The project showcases the potential of such collaborations in revitalizing traditional crafts and adapting them to modern markets, emphasizing the importance of cultural sensitivity and sustainable design practices.

Keywords: Collaboration, Traditional Craftsmanship, Contemporary Design, Cultural Sensitivity, Innovation

Introduction

This paper explores the intricate synergy between contemporary design and traditional craftsmanship within the context of the "Born in Thailand Project." This unique initiative, a collaborative effort spearheaded by Colombian designer Monica Marconi Martinez and Italian designer Mattia Bonavolontà, embarked on a 9-month journey of cultural and creative fusion with Thai artisans during almost all the 2018. It reflects on the profound impact of integrating modern design principles with the age-old techniques of Thai craftsmanship, exemplifying how such collaborations can rejuvenate traditional arts while adhering to contemporary design aesthetics. The project, spanning various regions of Sukhothai province, ventured into an array of crafts including ceramics, textiles, and jewellery, each presenting its own set of challenges and innovations. This study delves deep into how these collaborations transcended cultural boundaries, fostering a unique dialogue between modernity and tradition, paving the way for new interpretations of Thai artisanal heritage in the global design landscape.



Figure 1 Mattia Bonavolontà working on the loom chair prototype with the local carpenter



Figure 2 Sukhothai Map of the artisans' workshop location
1: USA Sangkhalok, 2: Suntree, and 3: Mai Ngern



Research Methodology

The "Born in Thailand Project" methodology was comprehensive and dynamic, tailored to adapt to the unique characteristics of each craft. The processes of the project were iterative and involved several key stages:

1. Research and Understanding:

The initial stage involved an in-depth exploration of the local crafts, history, and traditions. This phase was crucial for gaining insights into the artistic and cultural contexts of the crafts.

2. Hands-on Engagement and Skill Development:

The designers immersed themselves in the actual craft techniques, working alongside the artisans. This hands-on approach was vital for understanding the nuances of each craft and for fostering a genuine connection with the artisans.

3. Conceptual Development:

In this phase, ideas were brainstormed and conceptualized, considering insights gained from previous stages. This involved a creative synthesis of traditional techniques with contemporary design principles.

4. Product Development and Prototyping:

The team engaged in the iterative development of product prototypes, integrating feedback from artisans and refining designs to align with both aesthetic and practical considerations.

5. Finalization and Optimization:

The final stage involved refining the prototypes, ensuring that they met the desired standards of quality and design. This stage was crucial for achieving a balance between artistic integrity and commercial viability.

Throughout the project, there was a continuous exchange of ideas and techniques between the designers and artisans, creating a rich environment for innovation and co-creation. The methodology was applied across different craft forms, including ceramics, textiles, and jewellery, each with its own set of challenges and opportunities.

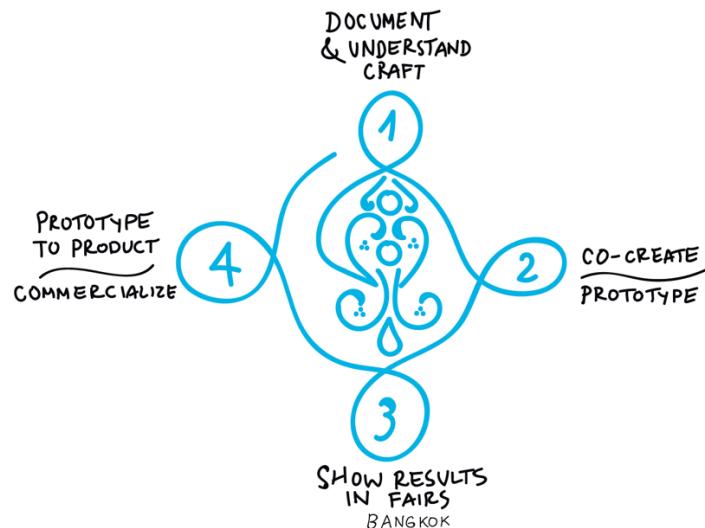


Figure 3 Method scheme used with each craft workshop during the project



Results

Key outcomes include innovative product lines like the Thai Puan Mini Loom and the Thai Puan Creative Hub. These results exemplify the successful amalgamation of traditional techniques with contemporary design, yielding culturally significant and commercially viable products.



Figure 4 Monica Marconi Martines presenting new Suntree Concepts

Each collaboration offered unique insights:

1. Ceramics Collaboration with Usa Sangkhalok:

Focused on modernizing traditional Sangkhalok ceramics. The team faced challenges in engaging artisans with new concepts and experienced slow prototyping. They created innovative designs like modular lamps and lotus-themed bathroom ceramics, reflecting the local environment and culture.

- **Pros:** Innovative product designs, like modular lamps.
- **Cons:** Resistance to new ideas; health concerns.
- **Artisan Feedback:** Appreciation for new design perspectives, but initial hesitancy in adapting to new techniques.

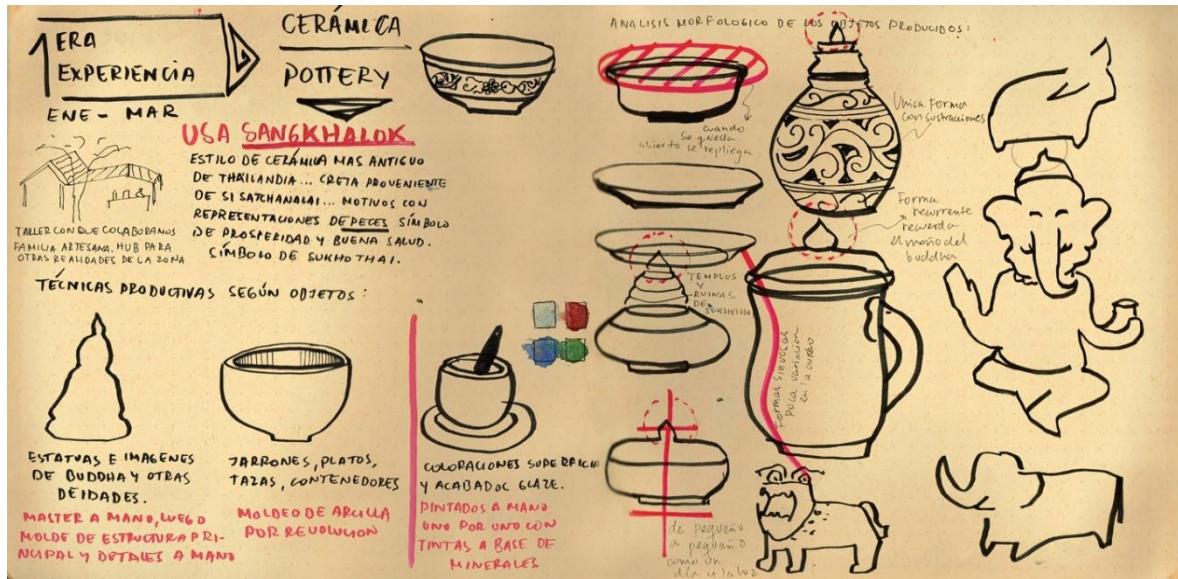


Figure 5 Sangkhalok preliminary study scheme from our diary

2. Textile Collaboration with Suntree Weaving Center:

This collaboration successfully integrated traditional Thai Puan fabrics into contemporary furniture and home decor, like the Loom Armchair and Threads Lamp. The project's success was largely due to the committed team at Suntree and their openness to innovation.

- **Pros:** Successful fusion of Thai Puan fabrics in modern design.
- **Cons:** Balancing innovation while preserving traditional essence.
- **Artisan Feedback:** Positive response to the innovative use of fabrics, enhancing market appeal.

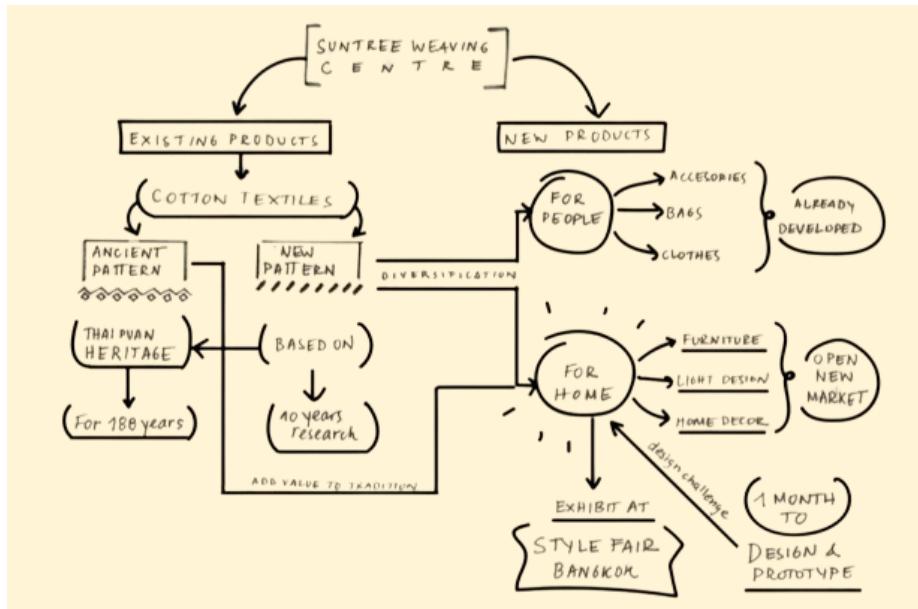


Figure 6 Suntree developed a map and study scheme from our diary



Figure 7 Loom chair final prototype with rug prototypes underneath

3. Jewellery Collaboration with Mai Ngern Silver Jewellery:

Focused on creating contemporary jewellery designs with traditional techniques. This collaboration, though challenging due to language barriers and the team's unfamiliarity with jewellery design, resulted in unique creations inspired by local nature and culture, like the Sukhothai rice & fish and Banana jewellery collections.

- **Pros:** Unique jewellery designs appealing to a broader audience.
- **Cons:** Language barriers; unfamiliarity with specific craft nuances.
- **Artisan Feedback:** Enthusiasm for new design ideas, though challenges in communication and design execution were noted.

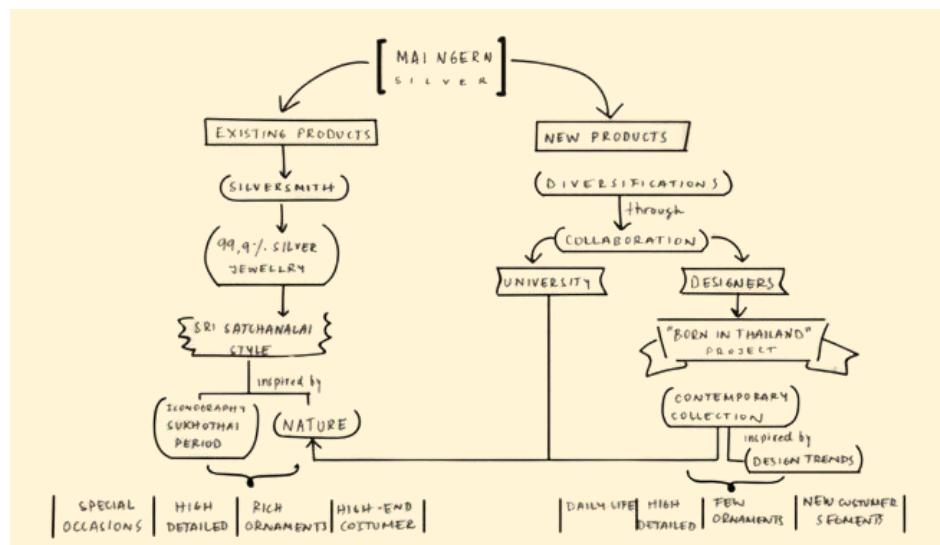


Figure 8 Jewellery preliminary study scheme from our diary



Figure 9 Prototype Rice Field Pendant (Left) Prototype Rice Filed Cycle Pendant (Right)

Discussion

Each collaboration highlights the importance of understanding and respecting cultural heritage while introducing contemporary concepts. Challenges like language barriers, resistance to change, and balancing innovation with tradition were significant. Yet, the project demonstrated that such collaborations could lead to innovative and culturally significant products, bridging the gap between old and new. The success of this initiative serves as a testament to the potential of collaborative efforts in revitalizing traditional crafts with modern characteristics.

The project's challenges and successes reflect theories and findings in the fields of cross-cultural collaboration and design innovation. For instance, Krippendorff's (2006) theory of product semantics aligns with the project's focus on integrating cultural meaning into design. The dynamics of cross-cultural collaboration, explored by a study by Hall (1976) of high-context and low-context cultures, shed light on the challenges of communication faced. Further, Manzini's (2015) work on sustainable design reflects the commitment of the project to preserving traditional crafts through modern design. These references provide a theoretical framework to understand and analyse project outcomes.

Conclusions and Suggestions

The project underscores the potential for harmonious collaboration between modern design and traditional craftsmanship. It suggests that future endeavours should focus on the respectful integration of contemporary design with artisanal heritage. This approach can aid in preserving cultural practices while evolving them to suit modern aesthetics and functionalities. By fostering such collaborations, there's an opportunity to create a sustainable, culturally resilient future for craftsmanship, as advocated in studies by Krippendorff and Manzini on design innovation and sustainability. The outcomes of the project reinforce these theories, demonstrating the practical feasibility and benefits of such integrative efforts.



In conclusion, the "Born in Thailand Project" illustrates the rich potential of blending traditional craftsmanship with modern design. It suggests that future projects should place a strong emphasis on cultural sensitivity, embrace ecological sustainability, and foster open dialogue for continuous learning and adaptation. These strategies are crucial for maintaining the integrity and relevance of traditional arts in the contemporary design landscape. This approach not only preserves heritage; it also enhances unique identities with appropriate innovation towards sustainability in the contemporary world.

Acknowledgements

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