NEW VALUE OF LOCAL MATERIAL “ERI SILK”: ARTISTIC EXPRESSION IN TEXTILE ART AND CRAFT

By
Miss Supawinee CHARUNGKIATTIKUL

A Thesis Submitted in Partial Fulfillment of the Requirements
for Doctor of Philosophy DESIGN ARTS (INTERNATIONAL PROGRAM)
Graduate School, Silpakorn University
Academic Year 2020

NEW VALUE OF LOCAL MATERIAL “ERI SILK”: ARTISTIC EXPRESSION IN TEXTILE ART AND CRAFT

โดย
MissSupawinee Charungkiattikul

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปรัชญาดุษฎีบัณฑิต
สาขาวิชาศิลปะการออกแบบ แบบ 1.1 ปรัชญาดุษฎีบัณฑิต(หลักสูตรนานาชาติ)
บัณฑิตวิทยาลัย มหาวิทยาลัยศิลปากร
ปีการศึกษา 2563

NEW VALUE OF LOCAL MATERIAL “ERI SILK”: ARTISTIC EXPRESSION IN TEXTILE ART AND CRAFT

By
Miss Supawinee CHARUNGKIATTIKUL

A Thesis Submitted in Partial Fulfillment of the Requirements
for Doctor of Philosophy DESIGN ARTS (INTERNATIONAL PROGRAM)
Graduate School, Silpakorn University
Academic Year 2020

Title	NEW VALUE OF LOCAL MATERIAL “ERI SILK”: ARTISTIC EXPRESSION IN TEXTILE ART AND CRAFT
By	Supawinee CHARUNGKIATTIKUL
Field of Study	DESIGN ARTS (INTERNATIONAL PROGRAM)
Advisor	Professor Eakachat Joneurairatana

Graduate School Silpakorn University in Partial Fulfillment of the Requirements for the Doctor of Philosophy

.....Dean of graduate school
(Associate Professor Jurairat Nunthanid, Ph.D.)

Approved by

.....Chair person
(Assistant Professor Jirawat Vongphantuset , Ph.D.)

.....Advisor
(Professor Eakachat Joneurairatana)

.....Co advisor
(Assistant Professor Vitawan Chunthone , Ph.D.)

.....External Examiner
(Professor Lesley Millar)

59155909 : Major DESIGN ARTS (INTERNATIONAL PROGRAM)
Keyword : THAILAND, TEXTILE ART, LOCAL MATERIALS, ERI SILK, ART PRACTICE, ARTISTIC EXPRESSION AND CRAFT

MISS SUPAWINEE CHARUNGKIATTIKUL : NEW VALUE OF LOCAL MATERIAL “ERI SILK”:ARTISTIC EXPRESSION IN TEXTILE ART AND CRAFT THESIS ADVISOR : PROFESSOR EAKACHAT JONEURAIRATANA

Textile art is a creative field involving the making of textiles. For many years, textile art has been developed dramatically in terms of process-methods, translating ideas and creative expression. In Thailand, textile art seems to refer only to ethnic textiles, it does not include contemporary textile art practice. However, the significance of a material beyond the surface of the physical textile art object it constructs has hardly been described. Thailand still lacks knowledge on the development of local materials through artistic expression. This study undertakes to examine a material in textile art. The role of a material in textile art has remained unexpressed, and thus should be elucidated. The research recognizes the importance of “Eri silk”, a local material in Thailand. It has the unique fibrous properties that has an environmentally friendly production process and aesthetics. Eri silk has high potential to be an important material to carry on the art of Thai textile. Eri silk is a new kind of silk that can be a textile material of the future.

The purpose of this research is to study traditional textile knowledge and hand making skill in contemporary art practice in order to enhance new value of local material “Eri silk” through art practice and artistic expression. To create a new perspective of textile art and craft using local material “Eri silk” through art practice and artistic expression. To propose new value of Thai local material “Eri silk” integrating aesthetic knowledge of art and craft using artistic expression in textile art and craft. The outcome of this research study is the textile art and craft carpet from local material “Eri Silk” this towards the opportunity to emphasize the meaning of the quality of natural material that exists in the community.

This research is a practice-based research combined with applied research. In this research, note taking, tape recording, in-depth interviews with field experts, literature reviews, research studies, photographing applied to primarily identify the concept of “Artistic Expression in Textile Art Craft”. The result of this research is to create textile art that represents the relationship between local material “Eri silk” and artistic expression through art practice, focusing on experimental knowledge of craft processes. Technical knowledge and hands-on experience lead to a deep understanding of the art of weaving. The experiments’ results were able to merge traditional processes with the textile elements, construction and concept. This sheds light on ways of enhancing the value of local material “Eri silk” in physical realization of an artist’s idea into tangible forms of meaningful artwork.

Knowledge integration, artistic ability, aesthetics, philosophy, and local wisdom based on the "Circular Economy" concept, along with the environment-oriented developmental approach of the 21st-century world, fuel the growth of the “Green economy” and support sustainable development. These ideas are the answers to the development of “Eri silk” in the future, under a broad framework of national development according to the Sufficiency Economy Philosophy. Therefore, this could become a model and reference point for other communities - those who share the same values - to contribute to the propagation of craft culture and material knowledge through textile disciplines.

ACKNOWLEDGEMENTS

With the utmost gratitude, I am particularly grateful for the professional guidance and valuable support given by Professor Eakachat Joneurairatana, who is my research supervisor and also a chairman of PhD. Design Arts (International Program), Department of Decorative Arts at Silpakorn University. Special thanks should also be given to Professor Lesley Millar, Director of the International Textile Research Centre, Professor of Textile Culture, School of Crafts and Design at the University for the Creative Arts (UCA), Farnham campus, United Kingdom, for her insightful comments on this study. I would like to deeply thank my second supervisor, Assistant Professor Dr. Vitawan Chunthone, Faculty of Fine and Applied Arts, Thammasat University, for her helpful and constructive recommendations on this project and thank you Associate Professor Dr. Pairoj Jamuni, who give me knowledge about aesthetic theory of art work.

I would like to express my great appreciation to the Royal Golden Jubilee Ph.D. Scholarship, the National Research Council of Thailand under the Ministry of Higher Education, Science, Research and Innovation, for the valuable research funds (Grant No. PHD/0195/2561).

I wish to thank Thonglert Sornchun, for their contribution to this project, Phon Phek Natural Colour Mudmee Silk Group, Nong Ya Plong Village, Mancha Khiri district, Khon Kaen province is a community that has intellectual capital of woven Eri Silk fabric and also thanks for all local weavers in community villages in the Northeast of Thailand form Surin, Sakon Nakhon and Nakhon Ratchasima province. I would like to express my special thanks of gratitude to The Carpet Maker (Thailand) Co., Ltd. for their support and contribution toward my final project. And many thanks for Jakkai Siributr and Ploenchan Vinyaratn who both inspired me to delve into the world of contemporary Thai textile art.

Finally, sincere thanks to my family and friends for valuable support and encouragement throughout my study, especially my lovely sister, Assistant Professor Dr. Suwithida Charungkiattikul, Faculty of Education, Chulalongkorn University, Thailand.

Supawinee CHARUNGKIATTIKUL

TABLE OF CONTENTS

Page

List of Figures

Page

Chapter 1
INTRODUCTION AND BACKGROUND

1. The Current Situation

Textiles have been introduced to audiences in a variety of different aspects of creativity in today's world. The textile industry has developed a lot through the years. Textiles are also related to other art and fashion industries. For instance, fashion designers commonly rely on textile designs to set their fashion collections apart from others. More so today than ever before, textiles are receiving a wide range of developments. According to Professor Lesley Millar, textiles have played a huge important role within the emerging craft economy of the later 20th century, in that as a discipline move between fashion, interior design and art (Millar, 2004, P. 42). Textiles provide fundamentals such as warmth and protection. They help us identify with one another and can signal social status and role. In the very broadest interpretations of our culture, histories, and institutions, it can be seen that textiles have influenced the fundamental features of our modern life. This may be because of the various natures of personal attachment to the subject area. There are perhaps a wide range of approaches for contemporary textile artists to create contemporary textiles. Some art practitioners are satisfied to present their personal identities into their textile works through styles and contexts. While others may prefer to engage in the process, identifying very strongly with the subject through technical skills on the work and adopt an experimental approach to techniques through contemporary visual arts practices.

Regarding the role of contemporary textiles in today's world, where textiles are amongst a broad variety of technological developments, such as digital print and jacquard loom assets in textile manufacturing, this research considers the value of the craft movement in industrial societies and its role in enhancing the development of Thai textiles, its people and the society as a whole. There is currently a lack of development in hand woven designs and patterns in Thailand. Most local Thai weavers are accustomed to only using the traditional hand loom with mostly two shafts to create a woven cloth and producing traditional textiles such as Jok textiles and Tapestry weaving. And as a result, developments of new patterns and designs are

hindered by an arbitrary technical limitation. It might be beneficial for researchers to discover how traditional processes and technical skills of hand-woven textiles in Thailand can be developed in contemporary textiles through creative visual practice. That weaving process and technical skill could have a profound impact on the ways in which visual practitioners develop and to show ideas and working processes.

Popular silkworms for woven fibers are *Bombyx meri* L., a silkworm in the family Bombycidae, which belongs to the same family as the mulberry silk. There are both native silk and hybrid silk. China was the first nation to grow and harvest mulberry silk. For more than 5,000 years, silk has been a special product of China. Techniques had been kept secret for more than 2,000 years, before silk was widespread in Europe through the Silk Road. Later, the Japanese learned techniques of growing mulberry silk, drawing the silk fibers, dyeing, and weaving silk from Korea for about 1,700 years. Japan has developed and used modern technology and modern patterns allowing Japan to develop silk with complex patterns while keeping its graceful, glossy, smooth and gentle characteristics.

Mulberry silk plantations are largely found in China, Japan, Russia, Iran, Italy, France, and South America. In addition to the popular mulberry silkworm that is farmed for its fiber, there have been technological developments to raise other types of silkworms for their fibers, especially in the Saturniidae family, such as Tarsar wild silkworm, Muka wild silkworm, Erie forest silkworm, wild silkworm, Gusan Silkworm, Tensan Forest silkworm, Taiwanese Teguzan, Japanese Kusu Silkworm, and the Japanese Shinjusan silkworm. These wild silkworms will not eat mulberry leaves but will eat different plants and provide different fibers.

The Eri wild silkworm (Samia ricini) was originally found in India. A similar species of wild silk in Thailand is found in Yala, Chiang Mai, Nakhon Ratchasima, and Nakhon Nayok. Various research has been conducted to raise Eri silkworms in Thailand. The researcher who brought wild Eri silk from India to experiment in Thailand is Somnuk Wongthong in 1976 at the Royal Agricultural Station, Angkhang, Chiang Mai, feeding with cassava leaves and castor leaves. Unfortunately, it was unsuccessful due to bacterial infections, with only a 46% survival rate. (Viroj, not specified) Later in 1991, Prof. Dr. Sutham Areekul, former president of Kasetsart University and Prof. Dr. Thipwadee Attham, Department of Entomology Kasetsart

University have tried raising Eri silk for the reason that Isan has a lot of silk farms; it seemed to be a good source of research and development. The more researches conducted; the more interesting special features of the silkworms were found. The unique characteristics and many benefits are: the Eri silkworm is easily cultivated, can be raised throughout the year, even in the summer, they are resistant to disease and insects, and only feed once a day. The Eri silkworms can eat both young leaves and old leaves of many kinds of plants, such as papaya, castor, cassava, sugarcane, wild cat, wild gooseberry, etc.

Biological Characteristics of Eri silk

The scientific name of the Eri silkworm is Samia Ricini. It is an insect in the Lepidoptera order, Saturniidae Family, the same group of wild silk butterflies which are moths. It has a life cycle of 45-60 days. There are 4 stages of growth, namely the Egg, Larva, Pupa, and Butterfly.

Egg Stage: Moth butterflies lay white eggs in groups of about 100 - 300 eggs. The eggs hatch within 8 - 10 days.

Larva Stage: The growth of the larva is divided into 5 phases, namely larva stages 1 to 5, molting 4 times, in order to increase its body size.

Pupa stage: When the silkworms grow fully, they enter the silkworm maturity stage. The silkworms will find nesting areas, spit white fibers from their mouths, wave their heads back and forth from the head to the end of the trunk, build cocoons covering themselves, transforming into brown pupae. The cocoons are built within 3 days and the silkworms will enter their cocoons within 10-14 days.

Butterfly Stage: When the pupa develops completely into a butterfly, it will penetrate from the pupa stains. An Eri butterfly is a large, gray, black night moth. Its wings are 4 - 5 inches wide. Within 3 days, the butterflies will mate and lay their eggs. Moths live for 10 days, after which they die naturally.

Eri Silk Fiber: The Eri cocoon is slender with 4-5 centimeters in length, with a diameter of 1-1.5 centimeters. One end of the cocoon is an open hole. The fibers are woven together more loosely than the mulberry cocoon silk. The traditional Eri cocoons are yellow, brown, or brick-red (Motoi et al., 1987), but the cocoons from Eri silkworms fed with cassava leaves and castor leaves are white.

The Prevalence of Eri Silkworm Farming

Eri silk is very popular in India; and, the development of silk farming technology and production has made great progress. The main food crops for raising the silkworms are Bharend or Castor. The secondary food crops are Kessera, Simul-alu, Papita Pyam, and Maharukh. An experiment found that, when using castor and cassava leaves, Eri silk could be harvested throughout the silkworms' full life cycle. Other food crops that can be used are papaya leaves, sugarcane, Lan Thom and wild gooseberry. In addition, new food crops have also been reported that can easily grow in Thailand, namely Mun Ton and Mun Lai (Sirimungkararat, 2005). From the report of Prof. Sivilai Sirimungkararat, a lecturer at the Department of Entomology Faculty of Agriculture Khon Kaen University, has mentioned the ways of raising Eri silkworms at an industrial level in Thailand. Since, Eri silkworms are easy to raise, highly resistant to disease, resistant to pests, feeding only once per day, in contrast with local silkworms that must be fed up to 3 times per day, thus raising Eri silkworms could save a lot on labor and feeding costs. The traditional way of raising and feeding local silkworms is also found to be effective for raising Eri silkworms.

Eri silk can be cultivated throughout the year, even in the summer. This is because Erie silkworms can eat many kinds of food plants such as castor, cassava leaves, sugarcane, etc., while local silkworms feed solely on mulberry leaves, which are often lacking in the summer. The promotion of Eri silk farming to farmers in the northeastern region of Thailand, especially cassava farmers, is the most suitable because the northeast region is the country's largest cassava plantation. From the study, it was found that harvesting no more than 30% of the leaves of cassava trees that are over 6 months old, causes the tree to produce more cassava roots. This, in turn, increases crop yields which is an additional income on top of the sale of silk threads, pupae and larvae.

In addition, the government has promoted cassava as an alternative energy crops for ethanol production plants. At this time, there is one factory located in the King Sila District, Khon Kaen Province; and, it intends to have more factories in the future. Therefore, in the northeast there is abundant food source for the Eri silkworm. Apart from the outstanding properties of the fibers and larvae of Eri silkworm, preliminary studies have also found that the cocoon contains amino acids that can be used to make cosmetics as well as dietary supplements. Currently, researchers are interested in studying these outstanding features as well.

The benefits of Eri silk yarn

The fiber from Eri's cocoon, when it is spun and woven, is unique, beautiful, classic, wool-liked, and lightweight. It adds an exotic feel, when woven with other types of fiber. It is easy to maintain and can be washed and ironed. Fabric made from Eri silk is also characteristically soft and beautiful, suitable for high-end products under the current market demands. The entire process from raising to weaving is chemical free, making it a green product. With its position as a natural product, the Eri silk can be positioned in markets that value environmentally friendly products such as the Japanese, German and the European Union markets. An additional feature of the Eri silk lies in its open cocoon. The Eri silkworm pupae are not harmed in the harvest as they can penetrate and leave their cocoons once they become butterflies. This provides a cruety-free incentive to supporting the product.

2. Purpose of the Study

The purposes of this research are:

1. To study the traditional textile knowledge and hand making skills in contemporary art practice in order to understand Thai local textile wisdom.

2. To develop a new perspective to textile art and craft using local material “Eri Silk” through art practice and artistic expression.

3. To propose new value of Thai local material “Eri Silk” integrating aesthetic knowledge aesthetic knowledge of art and crafts through contemporary textile art in Thailand.

3. Hypothesis of the Research

1. Technical knowledge and hands-on experience lead to a deeper understanding in the art of weaving, its history, its material, techniques and tools, and its implications for modern design.

2. To create textile art that represents the relationship between local material "Eri silk" and artistic expression through art practice, focusing on experiment knowledge in craft processes. This sheds light on ways of enhancing the value of local material "Eri silk" in physical realization of an artist's idea into tangible forms of meaningful artwork

3. To enhance the new value of local material "Eri silk" in physicalizing the idea of an artist into the tangible form of meaningful artwork. The opportunity to augment the existing local wisdom, textile knowledge and the value of textile art that emphasizes the meaning of the quality of natural material that exists in the community.

To preserve tradition means to continuously develop it. Craft is not all fond of artifacts. Crafts as objects should have the fundamental components of material, technique, tools, structure, and utility, which are continuously transformed in the production of new objects.

4. Areas of Research

This research has focused on the expressivity of Eri silk yarn as a material in textile art. It aims to explore the relationship between Eri silk and artistic expression. The role of materials in textile art has remain unexpressed, and thus should be elucidated. According to this area, the traditional weaving techniques will be applied to the process of experimentation, which has focused on the ancient art of weaving techniques of Tapestry called 'Kho Luang' in Thailand. It is a unique textile weaving technique of Tai Lue ethnic group in Northern Thailand. The study focuses on both traditional and contemporary aspects. In addition, the study will explore the techniques of Ikat, also known as 'Matmi' in Thailand, which is the best-known and most widespread techniques of patterning cloth in South-East Asia. The historical movements of each group of Tai people can be traced through the individual styles of their weaving work.

The study is divided into three parts:

1. Focus on Eri silk and other Local materials used in Thailand

   Eri silk

   Silk

   Cotton

   Hemp

2. The study of the history of traditional textiles knowledge and hand making skill in global context and in Thailand. The field research focuses on the North-Eastern region of Thailand. It examines the changes in the visual appearance of their textiles and explores the traditional weaving areas: Khon Kaen province, Surin province, Sakon Nakhon province and Nakhon Ratchasima province. The traditional hand-woven techniques can be supported to continually develop novel patterns for different style textiles.

Geographical areas covered are:

Sakon Nakhon is a City for Natural Indigo Dyeing

- Bandonyayan Sub-District, Muang, Sakon Nakhon Province

Khon Kaen

- Ban Nong Yaplong District, Khon Kaen Province

Surin

- Ban Sai, Jaraphat Sub-District, Sikhoraphum district, Surin Province

Nakhon Ratchasima

- Pak Thong Chai district, Nakhon Ratchasima Province

The list of museums, galleries and private collections:

- The Support Arts and Crafts International Centre of Thailand (SACIC), Bangprain, Ayuthaya
- Queen Sirikit Museum of Textiles, Bangkok
- Jipathaphan Sathan Bann Ku Bua, Muang, Ratchaburi

3. The study also focuses on the art of textile in a global context of international contemporary textile artists and designers from western-eastern countries. Research field trips and exhibition visiting. Geographical areas covered are:

The list of Conference, visit museums, galleries and private collections:

Sweden

- Conference: CROSSOVER BORAS 12-19 Sept, 2017, Sweden
- The Swedish Museum of Textiles 6-20 Sept, Boras, Sweden
- Fashion Gallery, Boras, Sweden
- Textile Fashion Centre, Boras, Sweden
- Boras Museum, Boras, Sweden
- Abecita Art Museum, Boras
- Flamenska Gallery, Boras, Sweden

Portugal

- Conference: CONTEXTILE 2018, Guimaras, Portugal
- Exhibition work at CONTEXTILE 2018, Guimaras, Portugal
- CCVF Centro Cultural Vila Flor, Guimaras, Portugal
- CAAA Centro for Art and Architecture Affairs, Guimaras, Portugal
- Design Institute of Guimaras, Portugal

France

- Fair: Masion & Object Paris 8-12 Sept, French
- Fair: Paris Design Week 8-16 Sept, Paris, French

India

- NIFT: National Institute of Fashion Technology, India
- NID: National Institute of Design, India

United Kingdom

- The Crafts Study Centre at UCA, Farnham, Surrey, United Kingdom
- New Ashgate Gallery, Farnham, Surrey, United Kingdom
- Victoria and Albert Museum (V&A), London, United Kingdom
- Fashion and Textile Museum, London, United Kingdom
- National History Museum, London, United Kingdom
- Art gallery at White cube, London, United Kingdom
- Art gallery at Tate Modern, London, United Kingdom
- Art gallery at Turner Contemporary, Margate, Kent, United Kingdom

4. Creating methods are focused on through experimentation with Dobby - handloom, a frame-loom and other tools. The combination of Tapestry weave and Ikat techniques with various types of woven textiles are applied by creating small samples to study the possibility and viability of the practice.

5. This research will be presented as works of contemporary textile art pieces.

The audience who will gain benefit from my research study, can be divided into three main groups

- **Individual level**: Craftsmen, textile artists, textile designers and producers, students who may wish to further their studies in textile design as well as people interested in contemporary textiles.
- **Group level**: Organizations, Textile Industrial and communities: local weavers and crafts groups in Thailand
- **Social level**: Country and culture

5. Research Process

1. Literature review

The review of the literature related to the production of traditional Tapestry weave and Ikat techniques by Tai people in Thailand.

2. Field research

This was divided into three parts; Thailand, Portugal and England. Data collection was carried out through note taking, tape recording, interviews, observation, photography and video recordings.

Part 1: Thailand

The areas with produce local material “Eri silk” are in the Northeast of Thailand. Phon Phek Natural Color Mudmee Silk Group, Nong Ya Plong village, Mancha Khiri district, Khon Kaen province is a community that has intellectual capital of woven fabric with raw materials that may comprehensively solve the problems of Eri silk. Textile museum and community villages were also visited. Local weavers in Nong Ya Plong village was interviewed. The popularity and material properties of “Eri silk” in the past, present and future were discussed. Traditional textile techniques, hand making skill and local wisdom were investigated.

Part 2: Sweden, Portugal, France, India, England

The investigation focused on global textile context. Participating international textile conference, interview contemporary textile artists. The fieldwork also included visits to textile museums, art galleries and the crafts study center at University for the Creative Arts (Farnham campus), UK.

3. Data Analysis

The information from the field research were evaluated in order to formulate guidelines for the development of contemporary textile art towards an international audience.

4. Data summary and consultation

Data from the literature review, related researches and field researches were summarized, and analyzed through design practices. The use of creative processes will generate further development and modification of the contemporary textile art pieces. Experts were consulted regarding new styles and designs that would enhance the knowledge on an international level.

5. Computer simulation

Computer programs (Word, Photoshop and Illustrator), were used to assist with creative designs.

6. Experiments on weaving methods

Sample textiles were created using Dobby handloom with traditional hand weaving techniques and others handmade skills. Various types of natural materials were tested on appropriate design works. Observations were made and the results were recorded.

7. Conclusions

The creation of contemporary textiles art and craft, maintaining a balance between the traditional methods and new designs through artist expression on the work, will present the ancient art of weaving to a new generation and will enhance the value of the arts, crafts and design in Textiles.

6. Research Methodology

The research is a practice-based research, the integration of research in the art of contemporary textiles and pure practice. The first focuses on reviewing the knowledge of traditional textile processes and hand skills required in producing hand woven textiles in Thailand as well as abroad. The second focuses on the use of experimental methods to create contemporary hand-weaved fabric under five key elements: material, techniques, structures, patterns, and colours to create a variety of hand-woven fabric. This research experimented with a wide range of natural materials, explored technical processes of incorporating them into the woven structure of experimental textile works by using traditional handlooms.

The research instruments for data collection were note-taking, interviews, observation, photography and experimentation. Data collection methods included interviews and on-site visits. The participants included local weavers, community leaders, and other stakeholders. The questions related to the knowledge and practical experience on the techniques, materials, structures, patterns, colours involved in the traditional process, and specifically, the hand skills necessary - all within the context of contemporary textile practices.

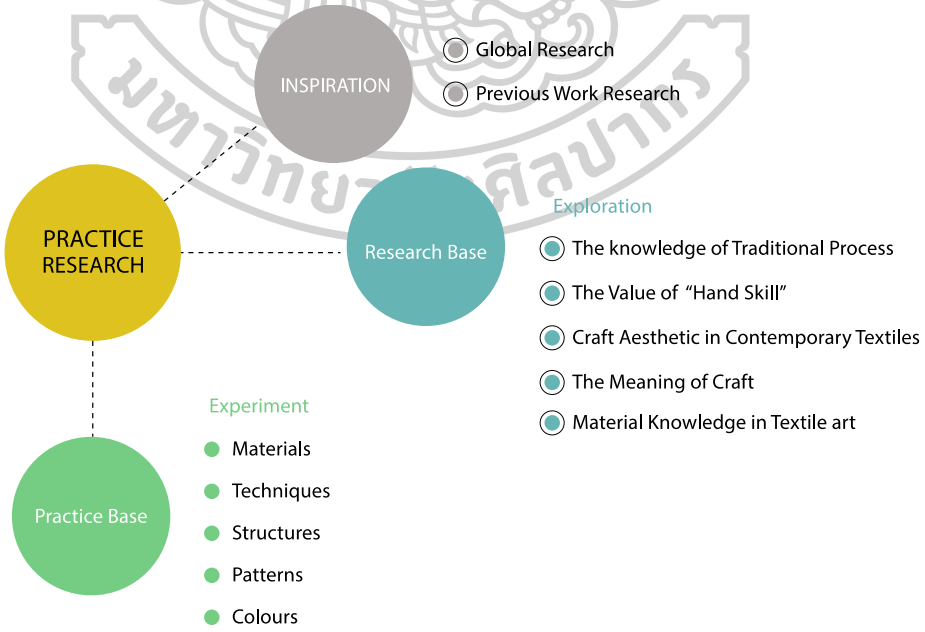

Figure 1 Diagram showing the research methodology process

7. Definition of Research

Textile art is the process of creating something using fibers from sources such as plants, animals, insects like silkworms, or synthetic materials. Making textiles is an art form. The researcher is focused on the field of textile art both in Thailand and on a global level. In Thailand, textile art seems to refer only to ethnic textiles and their creation, it does not include contemporary textiles.

Craft is the use of plant animal fibers to construct practical or decorative objects. That is involving skill in making thing by hand.

Artistic Expression is the use of inspiration and imagination in the production of objects intended to be contemplate or appreciated as beautiful. The creation of a work of art from artistic expression is the bringing about of a new combination of elements into the art work.

Local material is the resources of natural fiber that can found in local community. It could also be referred to as materials that can be produced and cultivated in the village.

Eri Silk is an open cocoon that has shorter fiber than the other types of silk cocoon. It is referred to Thai “Eri silk”, a new kind of organic silk that is a green agriculture in both the farming and production processes in the Northeast or Isan region in Thailand. Nong Ya Plong Village, Mancha Khiri distric, Khon Kaen province is a community that has intellectual capital of woven fabric with Eri Silk. It is also a new cassava feeding silkworm that can be dyed both synthetic and natural dyes.

New value is referred to the goodness, merit, usefulness in order to improve local material “Eri Silk” through art practice and artistic expression in textile art and craft.

8. Research Outcome

The benefits expected are as follows:

1. The knowledge obtained through this research journey can effectively enhance the role of contemporary textile art and craft in Thailand. To have a comprehensive understanding of local wisdom and to place more emphasis on traditional knowledge base leading to a deeper understanding of the art of weaving.

2. Textile art and craft objects from using local material “Eri Silk” through artistic expression and art practice undertaken in this research will aim to develop a new concept of textile creation in modern day Thailand. This should be beneficial for local communities and the textile industry as a whole.

3. A new value of local material “Eri Silk” integrated aesthetic knowledge of textile art and craft through contemporary practice in Thailand. To be a great inspiration for local weavers, textile designers, and creative people to further develop their own work, based on the outcomes of this study.

Chapter 2
LITERATURE REVIEW AND RELATED STUDIES

1. The Cultural Context of Textiles

Article of clothing is the most expression of textiles. One or more lengths of cloth may be draped around the body, or tailored to make gowns, tunics, trousers , and so on. Despite the definition of clothing given by an individual and its protection property against weather, clothing has a subtle message behind it. Particular colors, decorative embellishments, or shapes of a garment may have prestige value representing the wearer's social or financial status. Therefore, a relatively financial-challenged man may possess one costly gown which he could use on important occasions.

Particular colors, decorations, or shapes of garments may also have significance in a political or ritual context. The tribal affiliation of a Moroccan Berber woman, for example, can read the pattern of stripes of her cloak. In Benin, Nigeria, chiefs wear red cloth as part of their ceremonial court dress; and red, by its association with anger, blood, war, and fire is regarded as threatening. By wearing such cloth, a chief protects himself and his king from the evil that is to say from witchcraft and the magical forces employed by their enemies (Paula Ben-Amos, 1977). However, some chiefs wear 'pangolin skin', a scalloped red skirt. There is a belief in the skin's protection property against evil. The pangolin is considered the leopard (a metaphor of kingship) which is unkillable. Wearing this costume can, additionally to the protection against evil, be interpreted as a press release of the potential opposition between the king and his chiefs, the resolution of which is so important a component of the standard political process in Benin. In this particular case, the red cloth is of European manufacture, although it has been imported into Benin since the late fifteenth century. (As we shall see, we cannot ignore the use of European products in textile design and manufacture in Africa.) The basic colors spectrum of America, red, black, and white, is, of course, rarely without some level of meaning although the precise nature of this meaning will vary from one person to another. Elsewhere in Nigeria, as among the Igbirra as an example, red may well be a color associated not

with danger and war however with success and accomplishment with overlap however do not coincide; and in Madagascar, the term 'red', 'mena', is applied to burial cloths that these days is not even incorporate the color red; the term is preserved merely to underline their specific ritual importance.

Textiles are not only used to clothe the living, obviously, but also the dead (as in the above Malagasy example), as well as providing clothing for the manifestations of the world of the dead, or of some other mode of existence, in masquerade form. Here too, color is likely to be of significance and certain kinds of the textile may be produced specifically for such purpose. Finally, textiles may be used to dress neither person, corpse nor spirit, but a house, to mark an event of some significance, or, similarly, a shrine.

In the absence of woven cloth, people may use bark cloth or skin, and in a few places, almost the only form of bodily attire is paint. Frequently used textiles are from worms in combination with non-textile fabrics, animal skin, or paint. The simplest form of West African man's dress, for example, is a triangular leather apron, worn around the waist and sometimes tucked between the legs, together with a length of cloth thrown over one shoulder. Although this research is about textiles rather than about costume, since bark cloth, skins, and body decoration are analogous to textiles in some areas and combined with them in others, they cannot be left altogether out of any consideration of the subject.

Textiles also have an obvious economic value. Clothing is a marketable commodity and has been the subject of extensive trade within and beyond the continent of Africa. In some places, one range of cloths is woven for local consumption and another, quite different, for trade with other peoples. In the sixteenth century, cloths woven in Benin were purchased by Europeans for trade in the Gold Coast. At a later period, Yoruba clothes were purchased for trade in Brazil. Cloths have also been woven specifically for use as currency, as in Zaire; and in Sierra Leone at one time, cloths of a particular size could be used for paying court fines.

1.1 What is a Textile?

This is perhaps, the point at which to define our terms: words such as ‘fabric’, ‘cloth’ and ‘textile’ have been loosely used as if they are interchangeable. The standard work of reference relevant here is Irene Emery’s the Primary Structures of Fabrics published in 1966 by the Textile Museum, Washington D.C., and the next few paragraphs are very largely drawn from it.

The terms 'fabric' and 'textile' can be distinguished according to their literal meanings and Latin derivations: fabric, from 'fabricare', means to make, to build, to 'fabricate', is the generic term for all fibrous construction; while textile, from textile, means to weave, refers specifically to woven fabrics. Fabric structures are made directly from fibers by simply pressing and matting them into coherence. Felted materials, such as bark cloth, should not be confused with fabric structures made by organized interworking of previously prepared elements (the components of an interworked fabric). We must also distinguish two systems of interworking: first, the interworking of a single element with itself employing looping, knitting, knotting, netting, braiding, plaiting, etc.; and secondly, the interworking of one set of parallel elements by another set crossing them more or less at right angles. These two sets are essential to the structure of the woven fabric, or textile; and it is, of course, with the woven fabrics of Africa that we are here concerned.

Cloth, a term which is in everyday use, is rather more difficult to define. All textiles are cloths, but not all cloths are textiles, for they need not be woven; and all cloths are fabrics, but, again, not all fabrics are cloths. Thus, to give the obvious example, basketry depends on the ordered interworking of previously prepared elements and it is usual to assume a distinction between cloth and basketry. But, as Emery shows in a lengthy discussion, although both words are widely used as generic terms for large groups of fabrics, they are ‘variable composition’. The most that can be said is that basketry generally comprises of fabrics which, due to the inherent inflexibility of some or all of their components, have little or no pliability; whereas cloth is composed of no inherently inflexible or rigid elements. In different words, there's no laborious and quick distinction between artefact and craft (or, for that matter, between either of them and 'matting', a term that has solely aggravated the confusion: a number of the looms delineated here, as an example, are delineated as

mat looms despite the fact that their merchandise ar worn round the body instead of trampled underfoot).

Weaving is, therefore, the technique of interworking two sets of elements; and although it can be affected by manipulating the two sets with one's fingers. It is made easier if one set can be stretched out in some way. This, at its simplest, is what a loom does; and the set of elements thus held in tension is called the warp. The set which is then interlaced with the warp is called the weft.

Interlacing is the most straightforward kind of interworking as each element simply passes under or over the elements that cross its path. Each weft element may simply pass under and then over each successive warp element, and the textile is held together simply by reversing the order of passing under and over for each successive weft element.

However, compared with some kinds of knotted and knitted fabrics, the uncomplicated nature of the relationship between warp and weft makes the interlacing process easily adaptable to mechanization. It is attainable to separate the warp elements into two groups, the over and the under a passage of the weft, and, after passing the weft through the opening between these two groups, either reversing or otherwise altering the grouping of the warps for the next passage, or pick, of the weft. This opening between the two groups of warp elements is called a shed and the device for making it called 'shedding device'. The reversal of the shed for the next pick of the weft is usually called the 'countershed'. In addition to giving tension to the warp elements, most looms, therefore, also provide some kind of simple machinery that affects a simultaneous separation of the two groups of warp elements and the reversal of their position after each pick of the weft.

1.2 The Art of Textile

Textile art is the art and craft that use fibers from various sources like plants, animals, insects (like silkworms), or synthetic materials to construct practical or decorative objects. Textiles have been a fundamental part of human life since the beginning of civilization. The methods and materials used to make them have expanded enormously, while the functions of textiles have remained the same. People developed textiles to keep warm, to protect surfaces, and to insulate dwellings.

Examples of such textiles include tapestries, rugs, quilts, and of course clothing. People also use textiles to make objects signaling statuses or commemorated important events including things like flags, military uniforms, or ceremonial banners. Many cultures around the world have distinct methods of making textiles by using materials available to them, and some have become famous over the centuries like Chinese silks or Turkish rugs. Today, many contemporary artists work with fibers and textiles in new and exciting ways. Let's look at a few methods of making textile art.

Traditionally, the term *art* was used to refer to any skill or mastery, a concept which altered during the Romantic period of the nineteenth century, when art came to be seen as "a special faculty of the human mind to be classified with religion and science". This distinction between *craft* and fiber art is applied to the textile arts as well. The term fiber art or *textile art* is now used to describe textile-based decorative objects which are not intended for practical use.

The art of textiles rests in contradiction. On the one hand, the signals projected by textiles are determined by a particular selection from the never-ending possibilities offered by fibs, colors, constructions, and patterns; on the other hand, their reception is tempered by every person's intimate - and often unconscious - knowledge of their textures, sounds, smells, and appearance. The contradictions occur when this intuitive understanding (which generally overlooks the complexity of textiles) is confronted by a form or image that prompts a reconsideration of these assumptions. When only the richest wore and owned bright and intricately figured textiles, they easily commanded awe and projected prestige. While the further power-driven industrialization of textile processes between the 1820s and the 1860s did not debase tastes, as has often been claimed, it did render the personal experience of an array of decorative textiles more commonplace. Since that time, only certain textiles have been just 'visible', becoming 'seen' by questioning accepted aesthetic concepts, challenging entrenched social attitudes, re-examining techniques, or being used in unexpected ways. While both makers and consumers have participated in such deliberate confrontations, their wider impact generally arose out of various forms of collective action, whether formal or informal in composition, and these are the focus of this chapter.

Many of these confrontations reflect the issues raised by successive well-known movements in Western art, craft, and design. (The shifting connotations of these words are an interesting but separate subject. Here they represent the traditional boundaries created by price, audience, media, and end-use.) Britain, with its powerful textile industry and the world's richest consumer market in the mid-19th century, provided the first of these: Arts and Crafts movement. It was named after the Arts and Crafts Exhibition Society, initiated in 1887 in opposition to the annual exhibitions of London's Royal Acade*my* (which had come almost exclusively to contain easel-paintings and had ceased entirely to exhibit the work of architect*s).* The movement's basic principle - that the fine and applied arts were equals – had been formulated mid-century by such disparate supporters of rationalism and authenticity as John Ruskin and A. W. N. Pugin. London's Great Exhibition of 1851 (the first of a series of international exhibitions showcasing manufactured goods) had galvanized the emerging debate about who ought to be initiating designs, which in turn propelled numerous architects into designing for what was then termed the 'manufacturing arts'. As a result, by the 1870s textile design was already a substantial aspect of the foremost British architectural practices, and was included in the work of the several guilds, businesses (such as Morris & Company, 1861-1940), a*nd* small enterprises and cooperatives created in response to the same issues. Most, however, designed patterned textiles to be manufactured by established firms, albeit often using hand techniques such as block-printing or hand-Jacquard weaving.

As much a social movement as one concerned with aesthetics, by the 1890s there were several distinct expressions of the Arts and Crafts ethos. A repudiation of the separation of design from making and an emphasis on the moral and spiritual values of handwork underpinned the guiding concept of 'noble simplicity'. This was exercised in the three textile crafts - weaving, spinning, and dyeing - by individuals running workshops and, occasionally, firms. In the cloths that resulted from this ethos, fibers, dyes, and texture were everything, and natural irregularities were celebrated. The pattern held little interest except when expressive of yarn or constructional qualities made in response to the cloth through embroidery or appliqué. As the movement's influence spread, 'noble simplicity' gained notable proponents such as the American Gustav Stickley (whose mixed flax and jute yarn Craftsman Canvases of 1901-16 were machine-spun and -woven in Scotland by Donald Brothers), the

Frenchman Paul Rodier, and several later weavers at the German Bauhaus (1919–33). In Britain, the progress of 'noble simplicity' in the three crafts was stimulated by Ethel Mairet through her publications and workshop, Gospels, from 1914 until she died in 1952. She trained native and continental weavers and, as an ardent and successful advocate for cooperation between individuals and industry, was by about 1930 positioning one with the other to initiate design developments for both yarns and cloths, launching, most notably, the English career of Swiss-born Marianne Straub. Gospels also had strong links with several Scandinavian studio-workshops. With little textile industrialization, these drew upon an uninterrupted craft tradition to develop their emerging mass production. In the United States, the influence of Scandinavian weavers was most pronounced at Cranbrook Academy of Art from 1930 until the early 1960s, although ex-Bauhaus weavers, others from elsewhere in Europe, and a seemingly independent western American movement were all articulating the subtle beauty of the woven cloth. Everywhere during the same period modernist interiors, furniture and couture exploited its rugged materiality.

Figure 2 The influence of Ethel Mairet (which extended even to Mahatma Gandhi) is here indicated by two vivid hand-dyed, -spun and -woven samples of the 1930s (the plaid particularly typical of her workshop). Both were woven by Marianne Straub (1909-94), whose own exploration of weave structures included the distorted-warp sample of about 1983, inspired by Peruvian techniques.

Figure 3 The Japanese-influenced Aesthetic Movement both preceded and contributed to the styles associated with the Arts and Crafts movement. These silk tissues were designed in 1870-75 by Bruce Talbert (1838-81), a British architect who also designed furniture, carpets and wallpapers. They were hand woven on Jacquard looms by Daniel Walters & Sons, Essex, England.

Among those behind the Arts and Crafts Exhibition Society were many members of the Art Workers' Guild, founded in London in 1884 and soon absorbing two earlier influential groups. The same source, then and for decades thereafter, provided the majority of Principals and staff at the Central School of Arts and Crafts in London, which was founded in 1896. It aimed to preserve dyeing crafts and at the same time find new applications for these skills. All staff members were active practitioners, teaching only part-time. May Morris, the daughter of William Morris, established embroidery classes in 1898, and the tapestry was later taught by staff from Morris & Company's Mortlake tapestry works. Luther Hooper, who developed the 'craftsman drawloom', was instrumental in the weaving department, and the prolific designer Lindsay Butterfield taught surface design.

Contemporary Textile Arts

Ever since the 1980s, textile arts have been developing new forms and language involving many creatives along the way. Influenced by postmodernist ideas, textile and fiber work has become more and more conceptual. Various creatives are now experimenting with techniques, materials, and concepts, completely pushing the limits of the medium. These re-born practices such as embroidery art, weaving, quilting, crochet, and many others, have placed a new focus on the work that confronted social and political issues such as gender feminism, domesticity, women's work, and identity politics.

For thousands of years, people have been practicing the craft of designing or creating textiles. First emerging from a necessity to fill basic needs, different cultures around the world took it to another level by developing methods of making artistic, creative, and beautiful cloth that laid the basis for what we call textile art. The practice that involves weaving, knitting, pressing, or knotting together individual pieces of natural or artificial fibers, textile making tradition spans global cultures as one of the earliest human technologies. Apart from providing shelter and warmth or holding goods, textiles also served decorative purposes and held an important place in the arts and crafts of various cultures around the world.

Before the 19th century, all yarn, thread, and cloth were made by hand and it took a great deal of time and effort to gather fibers from plants or animals to make into yarn. The Industrial Revolution brought a revolution of textiles technology and the methods and materials used to make them expanded enormously. In the 20th century, artists began to use textiles in new contexts and fabric and string as a medium have provided almost infinite possibilities in modern and contemporary artistic practices.

Textile Arts and Crafts

Textiles have been a fundamental part of human life since the beginning of civilization. They played a significant role in society. With highly sophisticated manufacture, complex designs, and materials such as silk and gold- and silver-wrapped thread, textiles were treated as luxury goods in the Byzantine and Sasanian traditions. In the 17th century, the Persian aristocracy used rich textiles for clothing, as well as for decorating walls, floors, and furniture in their magnificent palaces. Their woven silk textiles inspired by poems and miniature paintings have served as a

great inspiration for contemporary designs. Focused mainly on kilims and different wall hangings, Turkish textiles produced during the Ottoman Empire were among the world's finest ones. Turkish fabric-weaving also provided a medium for the arts of embroidery, hand-painting, and block printing. The silk tradition in China dates back to around 3639 BCE, and it involves elaborately patterned jin brocades, complex gauze weaves, and intricately embroidered textiles. With artistry and technical accomplishment that still amaze modern viewers, the demand for Chinese silk textiles was very high in many distant lands of the time. Japanese textile was a badge of social status and they signified one's age, rank, gender, social, political, and religious affiliation through motifs, color, and garment shapes. The history of textile is also interwoven with the history of international trade, as items such as the Tyrian purple dye, Chinese silk, and other luxury fabrics were important trade goods among countries. The history of textile is very rich and complex and traditions such as weaving, tapestry making, fabric dyeing, embroidery, or quilting are ancient. Today, artists are using these methods to create new and exciting works.

1.3 Thailand's Textile Traditions

Textile production is considered a foundation industry in Thailand, the seventh largest industrial sector. However, since 2017-18, the overall export of textiles and garments declined continuously along with a global economic slowdown. In 2016, textile exporters, based on previous experience, were confident that exports of textiles and garments should recover by at least 2%, because the export situation should not deteriorate any further. This has not happened and has now become a crisis affecting the Thai textile industry. While Thailand is recognized as a complete-cycle producer: from spinning yarn to garment, being a center for production in South-East Asia (ASEAN bloc), the country is faced with ever-higher production costs. Some manufacturers have begun to move production bases to nearby countries, who have grown production capacity to become serious competitors. This is one of the challenges that the textile industry has to meet. Retooling the textile sector from a solely industrial product to one where creative and design excellence is celebrated, is seen as an important step. As a result of this change in approach, academics and artists have been discussing how this creative capital can be released within the field of textile arts.

In today's Thailand there is a trend to place increased policy significance on the development of the 'Knowledge Economy', a strategy that is expected to add greatly to the country's wealth. This is of great importance for those makers, designers and manufacturers working in the creative sector, as there is high-level government support to upgrade the value of Thai goods and services, both for domestic consumption as well as export. In order to achieve an authentic and lasting value, the knowledge-base and IP (intellectual property) that resonates within Thailand's cultural heritage must be co-opted to the equal rise of technological advances and innovation in manufacturing processes and services, for tangible socio-economic growth to occur.

It is apparent that the development of the Thai economy, following outmoded industrial policies, cannot be sustained in such a globalized industry as textile production, so it is especially necessary to develop alternatives. In order to meet the challenges faced, the textile industry has been led through these introspections to some key emerging outcomes:

(1) Harness the various forms of the creative industries that have knowledge/wisdom and competence/skill at their heart, as well as traditional crafts/makers for their knowledge and skill and designers/artists for their technical and creative innovation;

(2) Seek to optimize the value of products in industrial production in a people-centered 21st-century, where value accrues through sustainable means and with well-being at its heart;

(3) Promote intellectual capital, intangible and hard to measure as it is, to make the textile industry more resilient and durable in a fast-changing world.

Sustainable development is best secured when economic and social development goals and ecosystems move together and when the risks to balanced natural systems essential to human existence in these and future generations are weighed. The policy for the 'Sufficiency Economy' is one that responds very well to sustainable development. It is a philosophy through which HM King Bhumibol Adulyadej [Rama IX] has guided the Thai people and their way of life for over 30 years: to live beyond the narrow focus on consumption and materialism. People can be self-reliant in a modern society even as Thai culture assimilates westernized values in the development of the nation's art and culture

Figure 4 A Model of Thai Sufficiency Economy Philosophy.
Source: Photographs of Supawinee Charungkiattikul

2. Materials Knowledge in Textiles

Materials can hold meaning and value as a form of communication between artists and their audiences. It is similar to other communication forms such as speech, touch and gestures. A work of art, for example, can transfer a message from the artist to viewers and share an image, a feeling, or an experience. This means that materials can contain memories and mutual experiences across time and influence thoughts and feelings. This research has undertaken to examine the role of materials in textile art. As implicitly known among textile artists, a material is an important component in any textile artwork. The role of materials in textile art remains unexpressed, and thus should be interpreted. The researcher questions whether a material is only important because of its practical qualities, which help an artist shape a visually pleasing object, or also because of its expressivity, which guides the artist to conceptualise and produce their artistic expression. How do materials of the past and present hold the keys to textile art? Through the lens of artistic expression, it presents creative efforts that focus on the elements, while also showing how this element can be transformed into entirely new knowledge of materials.

Textiles are made from many materials, with four main sources:

1. Animals (wool, silk)
2. Plants (Cotton, flax, jute, bamboo)
3. Minerals (glass fiber)
4. Synthetics (nylon, polyester, acrylic, rayon)

There are unique materials and a number of artists and designers make these threads the focus of their work. Working with such threads brings their own unique challenges. How do you keep them in place? In fact, in the case of large-scale installations, how do you even get them into place? Examples discussed in this aspect are made by artists who choose to work alone, preferring control over efficiency, as well as those who work with teams of either studio assistants or volunteers. Some invite mistakes into their working process, while others plan for perfection. All have had to develop their own systems to map and plan the execution of work that often does not want to stay put. In many cases, it is human hands that wind countless threads back and forth in what have to be admired as feats of great patience. For others, purpose-built tools are imagined and constructed to aid in the creation process. Nothing more than a quick snip from a pair of scissors de-installs some of these works, but not before viewers have been shown how the most modest of materials can make us reconsider the foundation of woven cloth. There are contemporary textile artists who expression their idea by using materials or fibers as a medium to convey the massage to audiences.

British textile artist Susie MacMurray shows her work in Ball-Nogues Studio that she ‘was not thinking about weaving’ when she responded to a commission by the National Trust to create an installation for Kedleston Hall, England in 2010. MacMurray worked to a project brief that asked specifically for an installation that spoke to visitors about the original purpose of the house. Her response was to explain the owner's original intentions for the property. Kedleston Hall was inherited by Sir Nathaniel Curzon in 1758, who immediately knocked down the original building and began anew. The resulting Hall, designed by the architect Robert Adam, was intended to be a place where, in MacMurray's words 'you go to see and to be seen. It is about looking'.

Figure 5 Susie MacMurray, Promenade, 2010. Cotton thread installation, Kedleston Hall, Derby, England.

Source: Photographs of Susie MacMurray

British textile artist Sue Lawty is well-known for her work as a tapestry weaver. But in recent years, her work had found prominent focus on using materials such as stones and lead. Lawty explains, 'I have always been interested in the intrinsic visual language that emerges from working with the specific qualities of a material and structure (Jessica Hemmings, 2012, pp.20). Lawty builds up dimension when weaving lead and then beats the material away, constructing and then breaking down structure.

Figure 6 Sue Lawty, Lead Weave 1 (detail), 2008. Lead warp and weft, hand interlacing.

Source: Photographs of Jerry Hardman-Jones

2.1 Physical Material: Natural fibers

The art of weaving silk and cotton fibers into textiles has long been known to mankind. The most popular materials for fabric in the region of Thailand have been cotton and silk fibers and including wool and hemp. In Thailand the product of silk and cotton was the work of women in the villages who cultivated cotton and gathered silk moths from the wild to use as breeding stock for sericulture. They harvested materials from local plants and trees which they used to make dyes, and mordanting the yarn using river mud, plant extracts and local clays.

Figure 7 Silk yarn with natural dyed colour.
Source: Photographs of Supawinee Charungkiattikul

Silk

Silk comes from the secretions of the larva of the mulberry silkworm, bombyx mori, when it is spinning its cocoon. One of eighty types of moth which produce silk, the bombyx mori alone lives on mulberry leaves. Wild Silkworms feed on oak leaves, castor oil plants, etc., and produce Tussah and Eri Silk, but bombyx mori can be more easily controlled. Today many women in north-eastern Thailand cultivate mulberry trees in their home gardens and keep regular breeding stocks of silkworms. As the young trees are pruned and fertilized before the monsoon season, growth is rapid. The silkworm indigenous to Thailand is Bombyx mori Linnaeus: the cocoons are a golden yellow and produce thread with a rich slub and sheen which give Thai silk is unique appearance; so far nineteen have been collected by Thailand Department of Agriculture. Silk is the longest and the most lustrous of the natural

fibers. It is also the finest, and the strongest in relation to its cross section. It has great beauty, both to the eye and touch. Silk require dyes to create colours and patterns in textile making.

Cotton

Cotton has always been popular in the Northern of Thailand. With new inspiration and expanding profit potential, weaver of the North of Thailand had quickly supplied the markets with tasteful warp Ikats and colourful supplementary weaves. Hilltribe motifs and embroidery added exotica to rough cottons, bringing out rustic homemade handspun cloths.

Cotton is an essential basic raw material, it is a soft fibrous substance surrounding the seeds of the plant *Gossypium,* is the predominant textile yarn of South-East Asia. In Thailand cotton plant has been widely cultivated throughout the North of Thailand such as Sukhothai, Kanchanaburi, Loei, and Phetchabun. Cotton takes approximately seven months from planting to harvesting so yarns for clothing and bedding can be produced in a relatively shot-time. Cotton is planted at the beginning of the monsoon season and harvested between December and February when the bolls are ready for picking. Indigenous cotton comes in two colours, cream and light brown.

Figure 8 The cotton plant (Gossypium herbaceum) which is widely grown throughout South-East Asia.

Source: Photographs of Supawinee Charungkiattikul

Figure 9 Indigenous cotton comes in two colours, cream and light brown. Sakon Nakhon, Thailand.

Source: Photographs of Supawinee Charungkiattikul

Hemp

Hemp, silk, and cotton are the traditional fibers used to weave cloth in Thailand. Today, the use of hemp is largely confined to the hill tribes, both cotton and silk are produced in the North-east. Domestic production is not sufficient in terms of both quantity and quality, so some yarns are imported. In recent years, the use of synthetic fibers has become more widespread. With the exception of the hill tribes, most weaving in Thailand is done on a frame loom with two or more heddles.

Figure 10 Natural Local Material Hemp fiber. Source: Accessed August 1, 2020. Retrieved from www.simple.wikipedia.org/wiki/Hemp

2.2 Materials Language in Textile Art: Fiber Art

Textile art is a creative field involving the making of textile, which encompasses weavings, embroideries, tapestries and fiber arts. It has undergone continuous developments over the past century, as artists have pushed the boundaries of what can be considered a textile, as well as how a textile can be considered art. The term “textile art” implies that any creation in the field places emphasis on the use of textile materials as physical medium. Almost anything from linen fibers to found objects from a village can be used as material for contemporary textile art.

Traditionally, the term “textile art” was used to refer to any skill or mastery, a concept which altered during the romantic period of the nineteenth century, when art came to be seen as “a special faculty of the human mind to be classified with religion and science” (Gombrich, 2008). This distinction between craft and fine art is applied to the textile arts as well, where the term fiber art or textile art is now used to describe textile-based decorative objects which are not intended for practical use (Lunin, 1990, pp. 697-698). The term “fiber arts” refers to fine art whose material consists of natural or synthetic fiber and other components, such as fabric or yarn. It focuses on materials and techniques.

There is evidence that a number of weavers began binding fibers into nonfunctional forms as a work of art in the 1950s (Lunin, 1990, pp. 697-716). During this period the studio artist revolutionized the creative concept of the object. In the late 1950s, Lenore Tawney, a weaver, moved into three dimensional forms with “constructions evoking the power and spatial relationships of sculpture” (Nordness, 1970, pp. 13), who became an influential figure in the development of fiber arts.

Tawey created her large, free-hanging works using ‘open-warp’ weaving techniques. This leaves some of the warp threads uncovered creating vertical slits. The finished work is not densely woven like traditional textiles. It is see-through and hangs away from the wall. These woven forms are really the basis of her reputation. Primarily, they are sculptures hanging in free space, and by manipulating the material with a loom in such a way that warp threads could actually shift from side to side, she has broken vertical axis of traditional weaving and moved out of its rectilinearity. This has allowed her to create these diagonal swelling movements in the sculpture.

Figure 11 Lenore Tawey 1907-2007, The Queen 1962 Linen and Bamboo.
Source: Photographs of Supawinee Charungkiattikul

Since the 1980s, fiber work has become more and more conceptual, influenced by postmodernist ideas. For textile artists, in addition to experimentation with materials and techniques, this brought "a new focus on creating work which confronted cultural issues such as: gender; feminism; domesticity and the repetitive task related to women's work; politics; social and behavioral sciences; material specific concepts related to fibers' softness, permeability, drapability, and more to be mentioned (Marcus, 2004, pp. 2-3). Beyond weaving, fiber structures were created through knotting, twining, plaiting, coiling, pleating, lashing and interlacing. Artists in the United States and Europe explore the qualities of fabric to develop artworks that could be hung or free standing, i.e. two or three dimensional, flat or volumetric, many stories high or miniature, non-objective or figurative, and representational or fantasy.

"Fiber R/Evolution," a landmark exhibition in 1986 developed by the Milwaukee Art Museum, contained two parts: the revolution part of the show displayed works by the creators of the new movement such as Sheila Hicks, Ed Rossbach, and Claire Zeigler (Lunin, 1990).

Figure 12 Ed Rossbach 1914-2002, World Egg 1969 Knotted sisal, jute, and polyvinylchloride tubing.

Source: Photographs of Museum of Fine Arts Boston

Ed Rossbach was an innovative fiber artist working with exploring materials and the experimental use of ancient techniques. In his work "World Egg 1969" he used knotted techniques to present a unique texture and structure. In his art practices, textiles are different from fine art in terms of their aesthetic contents and techniques in construction. In many other way textile arts serve the sensation of touch in the design and communication of the products. The main content of textiles is in the physical senses such as touch, handling, textures and surfaces (Gale and Kaur, 2002). All of these elements of the design, including textures and surfaces are becoming a significant part of the creative skills repertoire for a number of contemporary artists to visually engage the audiences. Many processes employed in producing fiber works rely on material knowledge. Some of these techniques date back to prehistoric times. Weaving, for example, is one of the earliest techniques but

many non-loom procedures, such as twining, knotting, warping, sewing, and felting (all earlier than weaving), were also employed in ancient periods.

A passion for a type of material can lead a textile artist to unceasingly experiment with the material, formulating and discovering various ideas and artistic means for expressing them in a tangible art form. Many textile artists have used materials in several approaches and contexts of their textile artworks to present their personal identities, characters, and inspire creative souls toward their textile artworks. Others may like engaging in the process, appearing to identify very strongly with the various technical skills to create their work and may take an experimental approach to techniques through contemporary visual practice. While some textile artists might experiment all the time with disparate materials, interestingly, most textile artists tend to use only a single kind of material or an assemblage of varied materials in the creation of their works. Persistence in using and experimenting with a particular material can progressively develop artistic quality and the skill of the artist, so that they are able to create high quality artworks. With its potential to help an artist execute an artwork, the material in consideration may be crucial for the success of the creative process. Although textile artists implicitly understand the importance of physical material they choose to work with in their art practice, they rarely explain how a material is important for their creative processes and artworks.

3. Local Material: Thai Eri Silk

When talking about silk, contemporary designers and the younger generation may feel that they are incompatible for application in today's lifestyle. But today, there is no longer only one type of silk and it does not need to be reserved only for seniors who like to dress traditionally. There are new species of silk such as "Eri Silk" which is an important raw material. This silk has been developed by young designers who have combined their understanding and knowledge of contemporary design with traditional local weaving skill passed down through generations. This, ultimately, may create huge economic value for Thailand.

Silk is a natural fiber that possesses a glossy shine. The Chinese have employed silk raising to make fibers for clothing for over 4,000 years. The Europeans considered silk as a special fabric used only by the royal family and noblemen. The differences of silk of each nation are often found in the fabrics, embroidery, and the art of weaving, creating pieces of silk with different characteristics as a national identity.

The silk that has high economic value, and is most well-known, is Mulberry silk, which is obtained from silkworms that eat mulberry leaves. "Eri Silk", on the other hand, is the only wild silkworm that can be harvested throughout its life cycle for its fiber and does not require mulberry leaves as food. Instead, castor and cassava leaves are often used as feed.

In Thailand, Eri Silk farms have existed since 1974 by the Department of Agriculture, Ministry of Agriculture and Cooperatives, who have researched and preserved the species at the Chanthaburi Horticultural Research Center. Later, the highland agricultural research project brought Eri silk to Doi Ang Khang and Doi Pui in Chiang Mai, in order to find supplementary careers for the hill tribes and replace opium cultivation. However, the silkworms could not be raised year-round due to the extreme cold of the province. In 1990, with the support of Kasetsart University, Eri Silk raising was promoted for farmers in the Northeast, where a lot of cassava trees were planted. Previously, discarded leaves could be used to feed silkworms. Furthermore, appropriate pruning of the leaves also helps to produce more cassavas.

Currently, there are many cassava farmers interested in raising Eri silkworms as a supplementary career. Groups of farmers are trained in Eri Silk farming, boiling, dyeing and spinning fibers, as well as using their experience and wisdom in each locality to improve farming methods for better production. Each group of silk weavers are also creating their own unique patterns and various products from Eri silk based on different bodies of knowledge in their respective areas.

3.1 Life Cycle of the Eri Silk Moth

Eri silk, *Philosamia ricini* is a Lepidoptera in the Saturniidae family. It is a Polyvoltine that has a life cycle of 45-60 days, consisting of the egg phase, the larvae phase, the pupa phase, and the imago phase. The moths lay white eggs in groups. A healthy female moth can lay an average of 300 eggs in one summer. The eggs will hatch within 7 days, but if the weather is cold, the eggs will remain for up to 24 days after they are laid. Erie silkworms will begin to eat food immediately and grow rapidly. They will molt 4 times before entering the pupa phase. The head of the first stage and second stage silkworm is black. It will turn yellow with a black area on the cheeks when reaching stages four and five. The worm is white. There are 4-6 spines in a row in each segment of the chest and stomach. At stage five, silkworms will eat a lot of food and grow quickly. A fully grown-larvae will be 90-100 mm long; and, the body will change from white to yellow when it is ready to cocoon.

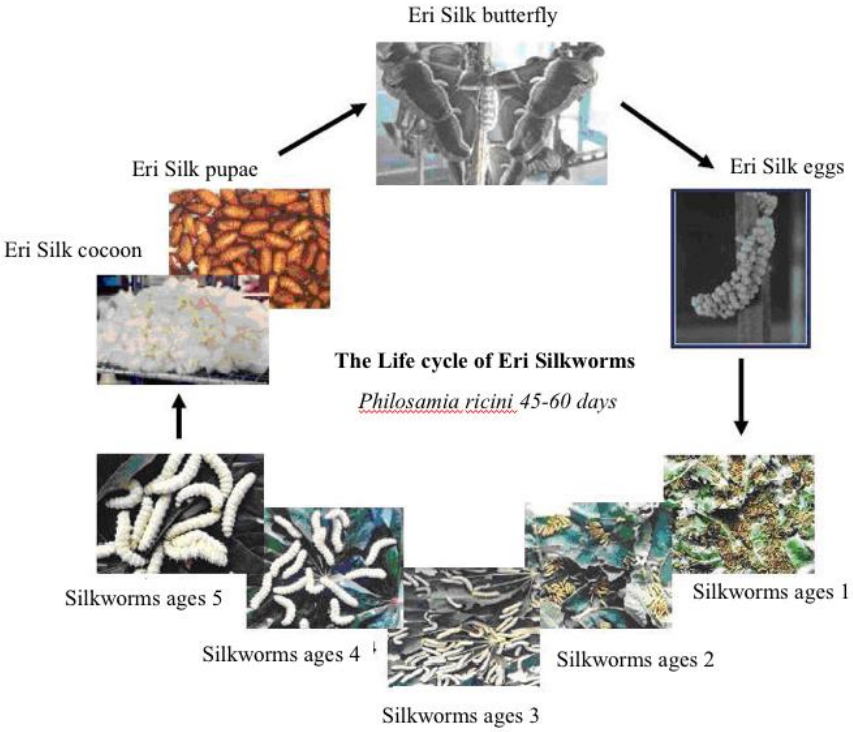

Figure 13 The Eri Silkworm Life Cycle.

Source: www.simple.wikipedia.org/wiki/Hemp

Before entering the pupa phase, the silkworms will stop eating and empty their stomachs. Then, the worms will start to walk around to find a suitable place to morph. They often hide in the corners and then begin to cocoon. They start by releasing a substance from the silk gland. This substance, when exposed to air, will harden into fibers. Silkworms will finish building their cocoons within 3 days. The worms will stay in the nest and begin to pupate. After 10-14 days, the moths will leave the cocoons. Eri silk moths are large. When fully extended, the wings are 4-5 inches long. The wings are beautiful brown-black with a white diagonal line. In the center of each wing, there is a white-yellow half-moon shape with black borders. The male's belly is smaller than the females. Mating begins shortly after the moths leave the pupa. Females lay eggs at night and may continue laying eggs for 2-3 nights. Egg-laying moths do not fly and do not eat food.

Figure 14 The silkworms are fed using cassava leaves

Figure 15 Cassava Leaf, one of Thailand's top agricultural products. Cassava is the largest source of food carbohydrates in the tropical countries, after rice and maize.
Source: https://www.africanfarming.com/news/philafrica-foods-expands-into-cassava-processing/

Eri silk can be raised for 4-5 generations throughout the year, depending on the climate in each area. They can be raised both in the highlands and on plains at temperatures between 25°C and 45°C (Sarkar, 1988). There were experiments on Eri silkworms using various plant leaves such as castor, cassava, papaya, sugarcane, jatropha, wild gooseberry, etc. It was found that silkworms fed with castor plants yielded the biggest cocoon size and the largest amount of silk fiber, followed by cassava leaves. While other plants may be used as substitutes, they cannot be used to feed the worms through their entire life cycle (Sengupta and Singh, 1974; Thangavelu and Phuko, 1983). Therefore, the main food plants of Eri silkworms are castor leaves and cassava leaves which can be used interchangeably (Joshi and Misra, 1982). White stripe cassava and frangipani leaves can be used to feed Eri silk as well.

Cassava **(**also called tapioca), one of Thailand's top agricultural products, is the third largest source of food carbohydrates in the tropical countries, after rice and maize. Cassava is a major staple food in the developing world, providing a basic diet for over half a billion people. It is one of the most drought-tolerant crops, capable for growing on marginal soils. Cassava is currently planted over 3.2 million acres in 48 provinces of Thailand with total output over 30 million tons of fresh roots each year.

Thailand is currently the largest exporter of cassava products in the world. It generates a great amount of revenue for the country.

3.2 Characteristics of Eri Silk Cocoon and Fiber

Eri silk cocoons have the same composition as mulberry silk cocoons, which are fibers that contain Fibroin surrounded by sericin, a sticky substance that holds the fibers together in a cocoon. Eri cocoon is white, slender, and long. Its fibers are woven together more loosely than the mulberry silk. One end is quite pointed. The other end has a small opening to let the moths leave the cocoon, unlike the mulberry cocoons, which the end is closed on both sides. Eri silk thread is not a long line like mulberry silk. Therefore, the fibers must be pulled from the cocoons using the same spun method as cotton spinning, instead of using reels as with mulberry silk. There is no need to boil the nest while the pupae are inside the cocoons. The cocoons can either be cut, or farmers can wait for the moths to leave before boiling the empty nests to dissolve the sticky substance coating the silk threads before being spun. This is an advantage of Eri silk – Farmers do not feel guilty boiling pupae alive. It is possible to use traditional mulberry silk, but it requires special expertise. Eri silk is therefore considered to be a spun silk, which is very much needed by the spinning industry because the silk threads are tough, long, shiny, beautiful, and has higher market value than cotton fibers. At present, the spun silk industry requires raw materials from the unused broken mulberry silk cocoons which are not enough to feed the spinning silk factories (Areekul,1991, p.1-3), therefore, Eri silk fibers could fix this supply shortage.

Figure 16 Eri Silk's cocoon in a silk farm in Khon Kaen Province.

Figure 17 Eri Silk's pupae, silkworms build their cocoons within 3 days and enter the cocoons within 10-14 days.

Source : http://www3.rdi.ku.ac.th/exhibition/53/group06/silk_center/silk.html

Figure 18 Eri Silk's butterfly.
Source : https://www.royalparkrajapruek.org/news/news_detail?newsid=151

Eri Silk fiber can be dyed well with both synthetic and natural colours. Nowadays, people pay more attention to local fabrics dyed with natural colours because the colour tones are harmonious with nature, not too flashy, soothing to the eyes, and classic. The important thing is that natural colours are biodegradable causing no residual pollutants. It is safer for users and the environment. Local materials, such as plants, give different colours, creating a variety of beautiful dyes. Eri Silk fiber can be dyed with natural colours such as coconut fiber, Pradu bark, raw ebony, cassia leaf, turmeric, Malabar leaf, Blume leaf, cashew bark, wild mango bark, Brezel wood, myrobalan leaf, and shellac leaf.

Figure 19 Eri Silk fiber.

Figure 20 Eri Silk fiber can be dyed well both synthetic and natural colours.

3.3 The Current Status of Eri Silk in Thailand

The Eri Silkworm is a caterpillar found in many parts of Thailand. It is the only completely domesticated silkworm. It spins open-ended cocoons as it morphs into a beautiful moth. The Eri Silkworm is fed using cassava leaves, and has a small spinneret on its lip, through which the silk emerges.

Eri Silk: A New Cassava Feeding Silkworm

Silk is a natural fiber obtained from the cocoon that encapsulates silkworms. Silk fiber has a distinctive shine, unlike other natural fibers. The Chinese have employed silk raising to make fibers for clothing for over 4000 years and it is considered a valuable resource of the land. Europeans have known this for a long time as well. They considered silk as a special fabric used only by kings, queens, and noblemen. Silk is a symbol of national culture inherited from ancestors to descendants that each nation is proud of, such as Thailand, China, India, Japan, and European countries. There are differences in both the texture, pattern, embroidery on the fabric and the art of weaving in each country resulting in fabrics which embody characteristics that express their national identities. The beautiful silk has high economic value. Mulberry silkworm (Bombyx mori), which produces is one of the well-known silks, eats only mulberry leaves; and has been completely domesticated. However, there are 8 wild silkworms' species that are used to make clothing and they do not need mulberry leaves as food (wild silkworm or non-mulberry silk) i.e. Antheraea pernyi, A. yamamai, A. proylei, A. assamensis, A. mylitta, A. paphia, Philosamia ricini, and P. cynthia., but there are only 3 types of silkworms namely the Tasar silkworm (A. mylitta and A. proylei), the Muga silk (A. assamensis), and the Eri Silk (Philosamia ricini) that are raised commercially in the countries such as China, Japan, India, and Korea (Sengupta, 1987). The Eri silkworm is the only wild silk that humans can raise throughout its life cycle. The Muka and Tasar silkworms, for example, must be released on food plants during their reproductive stages, otherwise, the butterflies will not breed.

Eri Silk Raising Industry

Eri Silk has unique qualities: it is thick and soft like wool, but it absorbs sweat and is well ventilated which makes us feel warm in the winter, and cool in the summer. Its durability is better than mulberry silk. It is washable by normal methods, there is no need for dry cleaning. When touching the fiber, there will be knots-ish on the thread. Eri silk has a slight glossy shine which is beautiful and unique. Currently, India and China are promoting the practice of raising Eri silkworms, but due to unfavorable climate and the lack of suitable and abundant food sources, the silkworms

cannot be fed throughout the year. In Thailand, the raising of Eri silkworms began in 1974 by the Department of Agriculture, the Ministry of Agriculture and Cooperatives who have researched and maintained the species at Chanthaburi Horticultural Research Center (Phisit and Warnchit, 1977). Later, the highland agricultural research project brought Eri Silk to Doi Ang Khang and Doi Pui in Chiang Mai, in order to find supplementary careers for the hill tribes and replace opium cultivation. However, the silkworms could not be raised year-round due to the extreme cold of the province. In 1990, with the support of Kasetsart University, Eri Silk raising was promoted for farmers in the Northeast, where a lot of cassava trees were planted. Previously, discarded leaves could be used to feed silkworms. Furthermore, appropriate pruning of the leaves also helps to produce more cassavas. (Thipwadee et. al., 1992)

Figure 21 Eri Silk farming, Khon Kaen province

Currently, there are many cassava farmers interested in raising Eri silk as a supplementary job for their families. Farmers' groups are gathering to be trained in Eri silk-raising, boiling, dyeing, and spinning fibers. Furthermore, they have used their experience and wisdom in each locality to improve farming methods for better productivity. Each locality has created unique weaving patterns and products from Eri

Silk based on their various local knowledge. The groups of farmers interested in participating in various activities related to Eri Silk are farmers in Chiang Mai, Lamphun, Phayao, Lampang, Tak, Phrae, Uttaradit, Kamphaeng Phet, Nakhon Sawan, Uthai Thani, Chon Buri, Nakhon Ratchasima, Khon Kaen, Roi Et, Amnat Charoen, Chaiyaphum, etc. Most farmers can grow Eri silkworms well. Some households can spin fibers and weave them into cloths for sale.

Figure 22 Woven fabric from Eri Silk. Weft Ikat patterns woven in plain weave.

Figure 23 Eri Silk hand woven fabric, Khon Kaen province

The Utilizations of Eri Silk

In Thailand, research and promotion of Eri Silk farming are at a certain level, but it has not yet been commercially made into an industry. There are many guidelines for utilizing Eri Silk, such as:

1. Silk fibers are woven into beautiful clothing and are different from other woven fibers. It is also suitable for curtains, bed linens, tablecloths, carpets, artificial flowers, and other beautiful materials. Moreover, it can be spun by machines in a factory mixed with cotton fibers.

2. Silkworms and pupae can be food for humans. The level of cyanide residue is safe for consumption. They have high nutritional value. It was found that the pupa contains up to 54% protein, 26% fatty acid, which is good fat (Jintasataporn et.al., 2001). Besides, it was found to be oily and tasty, satisfying for farmers and the general public.

3. For a zero-waste production process, stage 3 and stage 4 silkworms, which are usually discarded, are made into animal feed. Due to its high nutritional value, silkworms and pupae can be fed to ducks, chickens, pigs, and fish. Eri silkworms can also be developed as food for fish for other purposes, such as accelerating colour in ornamental fish.

4. Some valuable substances can be extracted from pupa and silk butterfly including semi-pure lecithin, which has very high antioxidizing properties and is a good emulsifier, with high emulsion stability. Protein hydrolysate can be extracted from the pupa and cocoon as well. It is the raw material for making cosmetics. In addition, the cocoon can be grounded into a fine powder with luster and used as a coating of various materials, rendering various beautiful crafts from the wisdom of the inventor.

3.4 The Importance of Eri Silk Research and Development

From the information and guidelines to improve Eri Silk utilization, various activities related to the silk can be developed into new alternative careers that can generate income for farmers and entrepreneurs. Research and development of Eri Silk is, therefore, important for both the economy and society as a whole. These can be summarized as follows:

3.4.1 The advantage of Eri Silk is that silkworms eat cassava leaves and castor leaves as food, so farmers can be encouraged to grow castor and cassava as their main occupation and raise Eri silkworms as a supplementary career without having to invest in other food crops. Farmers will benefit both from castor seeds, cassava, and silk cocoons, as well as silk pupae resulting in extra income. This could increase local jobs, so they do not have to leave their families and communities to find work elsewhere during the off-season.

3. 4.2 Thailand is one of the countries that export the most textile products, mainly relying on raw materials from cotton fibers. Nowadays, the cotton plantation is facing the problems of diseases and pests resulting in an inability to produce enough fibers to meet the demand. Eri Silk is a spun silk just like cotton; therefore, it may be used as a substitute for cotton. Development and promotion of Eri Silk farming in Thailand will supplement the spun silk industry. Formerly, the material in spun silk was limited due to the limited amount of mulberry silk cocoon residuals. This will enable Thailand to monopolize international spun silk markets in the future.

3.4.3 The promotion of Eri Silk farming and product development will improve the lives of farmers in the local area. It helps create jobs in the countryside which could be expanded into a small industry, so they can produce exports and bring income and reputation to the country. In addition, silk farming also helps to promote joint activities and create unity in households and communities. Eri silkworms are easy to raise, stronger and more resistant to disease than mulberry silk (Attathom, 1987). Silkworm raising allows both children and the elderly to work together. It is the quality time for the family, and can promote the strengthening of familial bonds as well.

3.4.4 Eri Silkworms can be utilized to support research and development in other fields of sciences, such as in research experiments that require insects as experimental animals; because Eri silkworms are easy to raise at a relatively low cost. In addition, it is also useful for research related to biological pest control because silkworms can be used to feed predators and parasites.

3.5 Problems, Solutions and the Future of Eri Silk

It can be said that raising Eri Silk is a novelty in Thailand and there are still problems that need attention and solutions. This type of silk farming is still limited to only a group of farmers that are supported by the government and/or are under the supervision of government agencies. The support is not yet widespread; so, locals are hesitant to adopt this career. In addition, it lacks the right technology for spinning fibers, weaving, creating fiber products as well as developing products to add value. This will help farmers become interested in this alternative profession. Private organizations are still hesitant to adopt this technology, because they want to be certain of the production volume as well as the quality of the cocoons and fibers for conducting commercial operations which requires a tangible profit from the investment. Specifically, there is currently no definite market to support cocoons, silk fibers, and other Eri Silk products.

The initial step must be to find various methods to make the best use of Eri silk, in order to first create jobs and income for farmers. Only with precedents, will farmers have confidence in choosing this career path. Eri Silk raising is not just for the production of fibers to make clothing, but other uses must also consider, such as home textile products, tablecloths, duvets, curtains, etc., which must be developed and designed to be different from other fibers to increase the value of the product. There is also the extraction of high-value substances from pupae and silk cocoons for cosmetic use, health supplementary foods, and uses in the medical field. Otherwise, it can also be used as human food. Eri silk products can be used as animal feed due to the high nutritional value of the silkworms and pupae. If we can make these happen, then Eri Silk will have a bright future, and can be developed on the industrial level. What is necessary for encouraging Eri Silk farming is that it should be promoted as a supplementary career or an alternative career for farmers who have cultivated cassava or castor. Since farmers already grow these plants, they can use the leaves to feed Eri Silk, allowing farmers to earn both cassava and castor-based products as well as products from Eri Silk. Especially, in the initial stages, while the Eri Silk market still has problems and limitations.

Eri Silk has high potential to be an important economic insect. However, the future of Eri Silk in Thailand depends on the continuation of development from its current status of small household industries, to community or large-scale national level industries, which requires significant actions. The study of Eri Silk, which is still relatively uncharted, must be supported. There must be a boost in the development of various related technologies, especially, product line extensions and designs that meet the needs of consumers. In order to make Eri Silk related operations efficient and cost-effective, both the public and private sectors must cooperate in research and development. This includes the analysis of market demand and market procurement. Eri silk raising is, therefore, both a good career choice for farmers and an opportunity for private investors. Eri Silk's future will be bright if the government, the private sector, and farmers value and cooperate in pursuing its development, working together to develop its industrial ecosystem.

4. Weaving Techniques

4.1 The Art of Tapestry Textiles

Tapestry weaving, a form of weaving that reaches back to the earliest beginnings of thread interlacing, is still with us today, and may have a noteworthy future in its promise. Taken in its broadest meaning, the term encompasses the various techniques that can be used to mark off different areas of colour and surface treatment from each other in the woven plane. In a narrower sense, the term refers to a technique of weaving, or variations of it, where a weft thread, covering the warp completely, passes only over the surface of those sections of the weaving that are to be built of it. The thread then interlocks at the borderlines, either with neighboring weft threads that meet it or with a warp thread, before turning back, after a change of shed, into its own field. Tapestry is one of the oldest forms of woven textile. As a technique, tapestry has been used to create everything from tunics and purses to table covers and chair backs, as well as some of the world's largest and most beautiful pieces of textile art.

In Europe, the great period of tapestry weaving ran from the second half of the 14th century to the end of the 18th century. This period is best known for the production of wall-hangings woven in this technique, which we generally refer to as tapestries. Tapestries were owned by the elite and used to decorate both private and public spaces. Henry VIII is recorded as having 2,000 tapestries hanging in his various palaces. Large tapestries added vibrant colour to a room. They kept out draughts and provided both entertainment and food for thought through their dramatic depiction of stories from the Bible, mythology and the classics, or their revealing portrayal of fashionable life. They were extremely costly to produce and so served to demonstrate their owner's wealth. Unlike today, tapestries were not simply static objects, but were often rolled up and moved between residences. In the 1540s, King Francis I of France even commissioned a set of tapestries which reproduced the wall decoration of his newly renovated Great Gallery at Fontainebleau Palace in woven form. This set could be rolled up and transported to his other residences.

Figure 24 Boar and Bear Hunt, from the Devonshire Hunting Tapestries, tapestry woven in wool, unknown, 1425 – 30, Netherlands. Museum no. T.204-1957.
Source: Photographs of © Victoria and Albert Museum, London.

Wool is the material that has been most widely used for tapestry weaving, traditionally used for both the warp and weft threads. As well as being readily available and easy to dye, its natural strength and flexibility lend themselves well to tapestry weaving. Silk threads are sometimes used in the weft, in addition to wool, to help create intricate details and add depth to the design. Metal threads can also be

used to add detail, although due to their high cost, they are more commonly found in small examples of tapestry, such as bible covers and purses rather than in large hangings.

Figure 25 Front (left) and back (right) bible cover, tapestry woven in silk, metal & gilt-metal thread, Sheldon Tapestry Workshops, about 1615, England. Museum no. T.45-1954.

Source: Photographs of© Victoria and Albert Museum, London.

A tapestry is created by weaving coloured weft threads through plain warp threads. The warp threads are stretched on a loom and act as a grid for weavers to create a pattern with the coloured weft threads. The key feature of tapestry weaving is that most of the weft threads do not run all the way across the warp. Instead the weft runs back and forth across a specific segment of the warp to create a small block of colour. This is known as a discontinuous weft. Weavers build up blocks of colour to create a pattern or picture. During weaving the weft threads are beaten down hiding the warp to create a weft-faced textile so the design is visible on the front and the back. In older tapestries, the original colours are often more intense on the back, which would have been protected from exposure to light.

Tapestries are woven on a loom. At its simplest, a loom is formed of two rollers, between which the warp threads are strung. The loom serves to keep the warp tensioned, so the wefts may be passed back and forth easily to build up a design. In European tapestry weaving, there are two main types of looms which can be used,

a low-warp loom and a high-warp loom. On low-warp looms, the rollers are on the same level and the warp is stretched horizontally between them. On a high-warp loom the warp threads are stretched vertically between a top roller and a bottom roller.

Figure 26 Miniature tapestry loom used by William Morris, late 19th-century, England. Museum no. 156-1893.

Source : Photographs of © Victoria and Albert Museum, London.

Tapestry weaving is an extremely labour-intensive process. Weaving just one square meter of coarse tapestry could be a month's work for one person. High-quality tapestries are produced with finer warp and weft threads and take longer to make. On a large loom, several weavers can work sitting side by side to speed up production. Nevertheless, a set of large tapestries, created by multiple weavers, could easily take over a year.

Figure 27 Venus admonishing Cupid, tapestry woven in wool and silk on a wool warp, designed by Giovanni Battista Castello, 1555 – 65, probably Brussels. Museum no. T.770-1950.

Source : Photographs © Victoria and Albert Museum, London.

Weavers traditionally work from a design known as a cartoon. This is painted on cloth or paper at full scale and either attached to the loom or hung behind it. Historically, on a low-warp loom, the cartoon was placed underneath the warps and the weaver had to move these aside to follow the design in detail. As tapestries were woven from the back, if the weaver copied the cartoon exactly, the finished tapestry, when viewed from the front, was the reverse of the cartoon. High-warp looms enabled weavers to produce a design the right way around. The cartoon was hung behind the weaver who used a mirror to view a reflection of the cartoon. By working from the reflection, the finished tapestry was the correct way around.

Once a tapestry was finished the cartoon could be re-used. A tapestry workshop that had a popular set of designs, which they could weave and sell several times, was assured of financial success. Many of the busiest companies employed professional artists to produce the full-size designs that the weavers reproduced. The Raphael Cartoons are examples of 16th-century tapestry designs. Commissioned by Pope Leo X, they were designed by the artist Raphael on the theme of the Acts of the Apostles. Once the tapestries were woven the cartoons were sold on to other workshops. In 1623, they were bought by the future King Charles I for use at the tapestry workshop in Mortlake and later came to the V&A, on loan from HM Queen Elizabeth II.

Figure 28 Raphael Cartoon, The Miraculous Draught of Fishes: Luke Chapter 5: Verses 1–11, body colour on paper laid on to canvas, Raphael, 1515 – 16, Italy. Museum no. ROYAL LOANS.2. On loan from HM Queen Elizabeth II.

Source : Photographs © Victoria and Albert Museum.

Contemporary tapestry weavers continue to explore and re-define the process of tapestry, utilising new materials and forms. While technological advances mean that tapestries can now be woven mechanically, many contemporary weavers still use traditional hand-weaving methods. Fiona Rutherford's work 'Go-Shoaki Shimasu' (Let me introduce you) is an example of contemporary tapestry in which the weaver has played with form to create a unique kimono-shaped piece.

Figure 29 Go-Shokai Shimasu (Let me introduce you), tapestry woven in cotton and linen, Fiona Rutherford, 2002, England. Museum no. T.82-2003.
Source : Photographs © Victoria and Albert Museum, London.

Tapestry weaving is a form of weaving that reaches back to the earliest beginnings of thread interlacing, is still with us today, and may have a future noteworthy in its promise. Taken in its broadest meaning, the term encompasses the various techniques that can be used to mark off different areas of colour and surface treatment from each other in the woven plane. In a narrower sense, the term refers to a technique of weaving, or variations of it, where a weft thread, covering the warp completely, passes only over the surface of those sections of the weaving that are to be built of it. The thread then interlocks at the borderlines, either with neighboring weft threads that meet it or with a warp thread, before turning back, after a change of shed, into its own field.

It is a form of weaving that is pictorial in character, in contrast to pattern weaving, which deals with repeats of contrasting areas. The works are meaningful both within themselves and through their relatedness within their pictorial organization. The variform elements and their free replacement within the limits of a given design demand the greatest possible freed structural scheme; in fact, they demand such independence from mechanization of the weaving process that hardly any of the time-saving of the past hundreds of thousands of years of textile history can be utilized in this work. It is artwork, and, as in other plastic arts, it demands the most

direct - that is, the least impeded-response of material and technique to the hand of the maker, the one who here transforms matter into meaning.

If we think of a tapestry as an articulation in terms of forms made of threads, examples of such work go back to the earliest experiments in cloth construction. In fact, it seems as if the emerging awareness of a fabric's usefulness, when linked with the increased ease of its fabrication, tended to dilute its magic potentiality as an art medium. Throughout the centuries, the use of threads in the language of form has given way more and more to their use in service of the practical. The utilitarian side of a fabric's character so powerfully dominates our estimates of it today that we easily appraise even a tapestry, a woven picture, in terms of its possible practical advantages before recognizing its merit as a formulation in pictorial terms - that is, as a work dealing with form.

Since we know already that only the most versatile principle of fabric construction can be used to build varied forms in varied placements in varied colours and surface treatments, we must look for the most basic technique. For, with every time-saving device that helped toward faster, and therefore increased, production, the necessary mechanization of a specific operation limited the range of the process in general. The most fundamental thread construction, of course, is the plain weave: the alternate interlacing of warp and weft threads. But whereas this construction is based on a balanced distribution of warp and weft and serves today to produce our basic utilitarian fabric-namely, our millions of yards of muslin-tapestry weaving is based on an off-balance distribution-that is, a widely spaced warp covered by the weft. As noted earlier, it has the added distinction that the weft does not travel from selvage to selvage but moves only within the specific areas of colour or surface treatment to which it belongs. It is the manner of the interlocking of the wefts at the turning points or at their turn around a warp thread that differentiates the various tapestry techniques from each other and thereby affects the formal structure of the design.

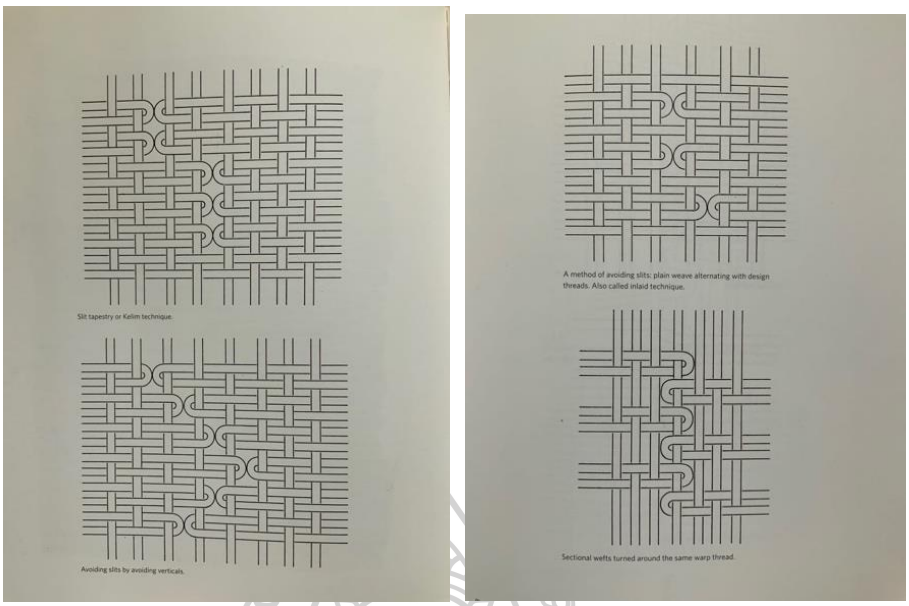

Figure 30 Tapestry constructions. (Anni Albers, On weaving, 2017, Plate 64,65)

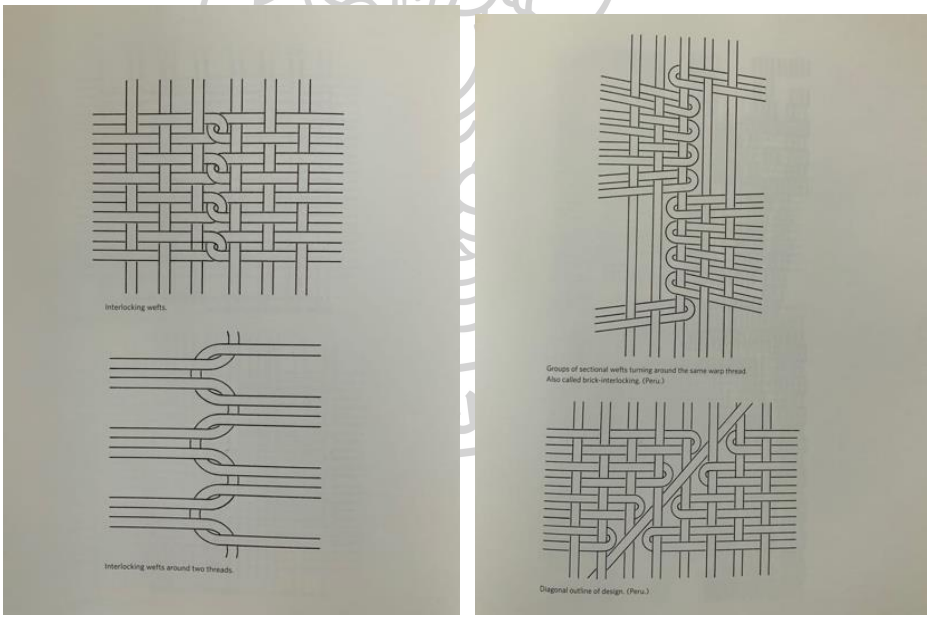

Figure 31 Tapestry constructions. (Anni Albers, On weaving, 2017, Plate 66,67)

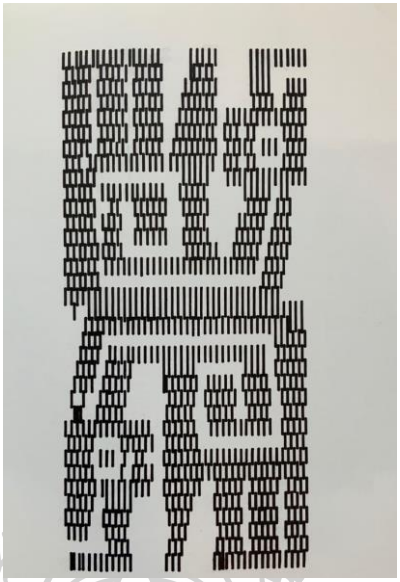

Figure 32 Diagram of warp position in a fabric oc ca. 1600 B.C., showing double image of a bird with upraised head and neck. Huaca Prieta, Chicama Valley, Peru. (Anni Albers, On weaving, 2017, Plate 69)

One of the earliest pictorial works made of threads is a weaving in which floating warp threads set in a plain-weave field form the design. It was excavated in 1946 by Junius Bird, Curator of Archaeology of the American Museum of Natural History, New York, at a site in north Peru where he found textiles dating back to 2500 B.C. It shows a bird that is thought out in regard to form and structure with superior intelligence. We easily forget the amazing discipline of thinking that man had already achieved four thousand years ago. Wherever meaning has to be conveyed by means of form alone, where, for instance, no written language exists to impart descriptively such meaning, we find a vigor in this direct, formative communication often surpassing that of cultures that have other, additional methods of transmitting information. Today, words generally carry by far the greatest load of our expressive manifestations.

Along with cave paintings, threads were among the earliest transmitter of meaning. In Peru, where no written language in the generally understood sense had developed even by the time of the Conquest in the sixteenth century, we find - to my mind not in spite of this, but because of it - one of the highest textile cultures we have

come to know. Other periods in other parts of the world have achieved highly developed textiles, perhaps even technically more intricate ones, but none has preserved the expressive directness throughout its own history by this specific means. In this light, we may reevaluate what we have been made to think of as the high points of the art of weaving: the famous great tapestries of the Gothic, the Renaissance, and the Baroque; the precious brocades and damasks from the Far East; the Renaissance fabrics. Tremendous achievements in textile art that they are, they play first of all the role of monumental illustrations or have decorative supporting parts to play. They are responsible, I think, for textiles being relegated to the place of a minor art. But regardless of scale, small fragment or wall-size piece, a fabric can be great art if it retains directness of communication in its specific medium.

Figure 33 Looped weaving, Head, Coptic. (Anni Albers, On weaving, 2017, Plate 78)

This directness of communication presupposes the closest interaction of medium and design. A painted face obeys other laws of formation than a woven face, and the more clearly the process relates to the form, the stronger the resultant impact will be. Much of the potency of textile art has been lost during centuries of efforts to produce woven versions of paintings, often based on cartoons of the great painters of the past - on Raphael's, for instance. But trespassing into another art form, however

great that form may be, does not necessarily bring forth great art works. On the contrary, the original concept as well as the transposition suffers by the very fact of indirectness. This does not mean that no great tapestries have been created in the Gothic or later periods. The Unicorn Tapestries surely are great works of art, and they are truly weaverly in their components. But many of the large wall-size hangings in our museums are not as great as their size or their placement may encourage us to believe. And a number of present-day efforts on the part of those trying to revive a declining tradition are misdirected because, again, they turn to those outside the field to excite new vitality where work has grown dull. Examples are the works of the famous French tapestry workshops that today are producing technically expert pieces that are often, however, of mainly decorative value. Only in exceptional cases, for instance, in the examples illustrated here, where artists worked mainly with flat areas, are they works of art.

Works of art, to my mind, are the ancient Peruvian pieces, preserved by an arid climate and excavated after hundreds and even thousands of years. There are those, large or small, of the Tiahuanaco period, for instance, tapestries in the pictorial as well as the technical sense, showing the deities of their Pantheon, or works from other periods, full of the life of their world. There are also the highly intelligent and often intricate inventions of lines or interlocking forms. Their personages, animals, plants, step-forms, zigzags, whatever it is they show, are all conceived within the weaver's idiom. Where clear outlines are wanted, the threads are maneuvered into position to do this, sometimes in surprising and ingenious ways varying in inventiveness from piece to piece. A unique method, for instance, is that of interlocking not only the weft but the warp itself. Where relief effects are believed to strengthen the presentation, they are added and worked out imaginatively and skillfully, as are other desirable supports of infinite phantasy within the world of threads, conveying strength or playfulness, mystery or the reality of their surroundings, endlessly varied in presentation and construction, even though bound to a code of basic concepts, these textiles set a standard of achievement that is unsurpassed.

Figure 34 Peruvian sample. (Anni Albers, On weaving, 2017, Plate 86)

Coptic weavings, of course, also belong among inspired works in textiles, and by some they are considered to head the list. They are developed from the basic weaving structures, and thus the Figure preserve the essential weaving formation. There is often in them a truly textile juxtaposition of flat and Fuzzy areas. However highly developed they are, though, their more limited scope becomes apparent when they are compared with the more adventurous use of threads in the ancient American pieces.

Figure 35 Wool slit tapestry, Fragment of a Head, Coptic, Egypt, 5^{th}-7^{th} century. (Anni Albers, On weaving, 2017, Plate 72)

Figure 36 Tapestry, Fragment of a Woman's Head, Coptic, Egyptian School, 2nd-5th century. (Anni Albers, On weaving, 2017, Plate 83)

A technique that has been used in the Near East and Far East is Soumak. By wrapping a weft thread around one or two warp threads, possibly changing colours as it crosses from selvage to selvage and reversing the direction of wrapping on the return trip, a flat, ribbed, close, heavy fabric can be produced, suited for pictorial textiles.

Figure 37 Soumak technique, work of Ainu, Japan.(Anni Albers, On weaving, 2017, Plate 72)

There are, of course, many high points in the art of weaving, in many periods and many places that could be cited as examples of the successful interaction of medium and form. I will be accused of crass one-sidedness in my feeling of awe for the textile products of Peru, which I advance as most outstanding examples of textile art. But it is here, I believe, that we can learn most. It is here we can learn that playful invention can be coupled with the inherent discipline of a craft. Our playfulness today often loses its sense of direction and becomes no more than a bid for attention, rather than a convincing innovation. Limitlessness leads to nothing but formlessness, a melting into nowhere. But it is form, whatever form it may be, I feel our salvation.

At present we are still groping. The efforts of weavers in the direction of pictorial work have only, in isolated instances, reached the point necessary to hold our interest in the persuasive manner of art. Experimental - that is, searching for new ways of conveying meaning, these attempts to conquer new territory even trespass at times into that of sculpture. In our time, though, and for some time to come, threads can, I believe, serve as an expressive medium. And the practical aspect of the nomadic character of things made of threads supports that belief. We move more often and always faster from place to place, and we will turn to those things that will least hinder us in moving. Just as our clothes are getting lighter and are increasingly geared to movement, so also will it be with other things that are to accompany us. And if these include a work of art that is to sustain our spirits, it may be that we will take along a woven picture as a portable mural, something that can be rolled up for transport. The Far East, of course, had this idea already long ago in the form of scrolls. Perhaps we can find for it our own form.

Characteristics of 'Tapestry weave or 'Koh Luang' in Thailand

In the tapestry weave textile, weft yarns are not woven all the way across the width of the fabric, instead, they are placed in the warp by hand in specific areas of colour to create a pattern. The decorative colour patterns appear similar to those of the discontinuous supplementary weaving but structurally are quite different. The weft threads are not taken from selvage to selvage, but isolated as colour patches of the pattern design. Each colour yarn behaves like ordinary weft thread in plain weave, but hooked and dovetailed with the next colour yarn around the warp threads to ensure a strong bond in the fabric. The technique creates diagonal lines to the warp

yarns making wave-like designs bringing about the name in the Thai language *lai nam lye* or 'water flow ripple'.

This tapestry weave is found popular among Tai Lue ethnic textiles especially in the main body of their *pha sin* .Standard warp threads are of black colour and the interlocking weft yarns are of bright colour. Usually each colourful weft yarn is placed on an individual spindle to avoid confusion with the colour threads. The weaver must pay more attention and be patient with this time-consuming process to achieve beautiful works of textile art. Very elaborate tapestry weaves similar to this manner are also found popular in the court textiles of Burma since ancient times, known as *luntaya acheik*, or 'silk of a hundred spindles'.

The word ’Koh Luang’ comes from an English word ‘Tapestry weaving Techniques’. It is a unique textile weaving technique of Tai Lue ethnic group who are capable of performing various kinds of weaving techniques. The woven cloth has been the intangible cultural heritage in each region. There have been many weaving techniques commonly found in the northern part of Thailand. One of the most talked about techniques is tapestry weaving techniques (Koh-Luang). This is the fabric with its unique identity and colour of Tai Lue ethnic group who have settled down around the northern part of Thailand. Tai Lue people who weave this tapestry fabric can be found in many provinces in Northern Thailand. The weaving knowledge has also been passed down from their ancestors.

Figure 38 Tai Lue people who weave this tapestry fabric can be found in many provinces in Northern Thailand.

Source : http://tailueckw.blogspot.com/2014/06/blog-post.html

Techniques Tapestry weave, called ‘Koh-Luang’ in Thailand, is a plain weave of discontinuous weft. It employs the weaving of the normal weft in various colours back and forth at intervals, by hooking and tying as a ring according to the pattern that has been designed. This is different from weaving the wefts that are inserted from one edge of the cloth to the other side of the cloth, which is their common way of weaving. The weaver keeps a quantity of small shuttles of yarn in front of her and weaves isolated motifs of contrasting colours which together form the cloth structure. In some regions, the technique is used together with supplementary-weft patterns for women's phasin. These patterns are clearly discernible in the temple mural paintings of Wat Phumin and Wat Nong Bua, Nan, an area where tapestry weave is common. Tai Lue people who weave this tapestry fabric can be found in many provinces in Northern Thailand. The weaving knowledge has also been passed down from their ancestors.

Figure 39 19th-Century mural painting, Wat Phumin, Nan province, depicting a group of young people in Lanna costume.
Source : http://northnfetest.blogspot.com/2018/06/blog-post_5.html

Pattern Design The unique feature of textiles from Tai Lue ethnic group is the use of tapestry techniques. It is a plain weft-face weave having weft yarns of different colours worked over portions of the warp to form designs or patterns. Patterns are created from normal weft yarns interlacing with normal warp yarns

without using special weft yarns. Characteristically, normal weft yarns are interlaced in special intervals and colours according to the required patterns, using bare fingers without the assistance of shuttles or spindles.

Figure 40 ‘Koh-Luang’ traditional weaving techniques in Nan province, Thailand in the Thai language Lai nam lye or ‘Water flow ripple’.

Source : https://tis.dasta.or.th/dastatravel/nanlocaltexttiles/

4.2 Traditional Ikat Techniques

The best known and most widespread technique of patterning cloth in South-East Asia is that of *Ikat*, which is called *matmi* in Thailand, a process by which designs are dyed onto the threads prior to being woven. The word *‘Ikat’* comes from the Malay word *mengIkat*, which means ‘to bind tie, or wind around’. In this process, the parts of the yarn which are to remain undyed are reserved by binding them with a material that resists the penetration of the dye. Traditionally, banana-tree twine was used for the ties, but today it has been replaced by nylon string. To create weft *matmi* the of a woman’s phasin a wooden device called a *lakmee* is used. This consists of two wooden dowels set apart at opposite ends of a rectangular board to the same width as a phasin. The yarn is tensioned backwards and forwards across the width of the *lakmee*, and a woman then sits and ties the weft in the pattern required.

Figure 41 The weft threads are wound from a rack of bobbins onto a revolving frame, Thailand.

Figure 42 Tying in a traditional weft Ikat resist pattern using plastic strings, Sakon Nakhon.

To produce a pattern of more than two colours the yarn is tied and dyed, then retied and re-dyed or has extra ties added for each colour. Impregnation of the principle colours takes places in a dye bath, but for small areas of colour the dye may be added with a brush when the weft threads are tensioned back on to the *lakmee.* When the dyeing processes are completed the patterned weft is wound on to a bamboo frame ready for reeling. After reeling, the bobbins are used in strict sequence in order to weave the pattern correctly. To keep them in order, the bobbins are often strung on to

a length of twine. The dyeing of complex weft *matmi* patterns for ceremonial dresses is undertaken by skilled weavers and involves intricate tie patterns and numerous dye baths.

Figure 43 A woman tying matmi pattern into silk yarn, tensioned on a lakmee frame, Khon Kaen province.

Source : Photographs of Susan Conway,2001, pp 79

Figure 44 Silk yarn tied into matmi patterns is seen hanging to dry. Before the advent of nylon banana stems were used to make twine for ties. Chonnabot, Khon Kaen province.

Source : Photographs of Susan Conway,2001, pp 78

The *Ikat* technique may be applied to either the warp or the weft threads; more rarely, it is applied to both warp and weft yarns. Patterns of staggering complexity in colour, design, and ingenuity may be created by the skilled use of this technique. Today the majority of weavers make the pattern ties in the weft, but there is a tradition of warp *matmi* among a minority group, the Lawa, who wove warp *matmi* for their phasin. Normally weft *matmi* is woven with two shafts in a plain-weave construction. However, occasionally three shafts are used creating a 1.2 twill, the pattern on the weft-faced side giving a beautifully clear and bright impression. Due to a slight bleeding of the dyes around the resist bindings, patterns created by this method are characterized by a softness or blurriness which blends in well with texture of the fabric.

Matmi is a form of weaving process that is complicated, relying on yarn dyeing before weaving. There are both dyed weft threads and dyed warp threads so that when weaving into pieces of fabric, the patterns and colours are as desired. To start with, putting thread or silk into the latched frame called the *Hong Mee*, tying with a rope or jute to form patterns, dyeing, washing thoroughly, then untying the rope to reveal the patterns, before finally drying and spinning into a shuttle to be used as a weft. Old patterns that are difficult to weave have almost completely disappeared, such as the Naga pattern, lotus pattern, gamecock pattern, and peacock pattern (Chonthira Satya Watana, 1999), which were originally popular with silk threads. But nowadays, dyeing is found in silk threads, cotton threads, and synthetic fiber.

The word "*Matmi*" comes from the process of "Mud" (Tie) the yarn into groups before the dye. The *"Mee"* means the yarn. The *Matmi* process is complicated, starting from the preparation of the yarn and tying it into nodes for dyeing, usually several times, until the desired colour is achieved. In the North, it is popularly called *"Mudtarn"*. In foreign countries, it is well known as *"Ikat"*, which is the Indonesian-Malay language. There may be confusion between the words *"Matmi"* and *"Mudyom"* which is very common today. *"Matmi"* is a tie of yarn for use in weaving in various colours and with detailed patterns. While *"Mudyom"* is the tying and dyeing of finished fabrics, usually once and with only one colour, creating large patterns relatively less emphasis on the patterns themselves. Matmi weaving is a traditional weaving art that has been popular for a long time in almost every province in Thailand, especially the Northern and North-eastern regions and some provinces in

the Central region. Matmi fabrics in Thailand are mostly found in the northeastern region. The patterns are naga pattern, lanterns pattern, animal pattern, and flowers and leaves pattern, etc., especially dyeing on the weft. However, among weavers in the Southeastern provinces such as Surin, there are weaves that are dyed in both the warp and weft threads, forming a checkered or cross - patterns.

5. New Value and Local Wisdom

The words wisdom, Thai wisdom, local wisdom, and folk wisdom are used in many ways, and their interpretations and definitions are just as varied, from the definitions provided by The Royal Society, which can be studied from the Royal Institute's Dictionary, to the accepted notions among many experts in the field. From the research of Wannee Chantarasiri (1996, p. 134-171), some similarities and differences have been identified. The main characteristics that can be discerned by their definitions or meanings are:

1. Wisdom is a show the knowledge and abilities of the people, location, or society that have thought, experimented, and put into practice until such wisdom has been accepted and applied.

2. Wisdom emphasizes the knowledge that has been accumulated from ancestors and people who have knowledge in the community for a long time. And it is knowledge that may be acquired from another society or another country.

3. Wisdom inheritance, must be revised, applied, and changed until new knowledge or alternatives may be formed according to the social, cultural, and environmental conditions. This is for the benefit of life.

4. There are two characteristics of wisdom: abstract and concrete.

5. The wisdom of each locality and each country is not the same due to the differences in terrain and climatic conditions that forces the people in those areas to think and find ways to adapt accordingly.

6. Wisdom may be invented both by highly educated people and by ordinary people.

7. The terms local wisdom, folk wisdom, and rural wisdom have a similar meaning, but the term rural wisdom is not as widely used, so the more familiar words are folk wisdom or local wisdom, which are interchangeable.

Thai wisdom

The term Thai Wisdom (Phatcharin Sirasunthorn, 2007, p. 9) means 1) the knowledge that is created and developed in the context of Thai cultural society following the development of society at different times. Thai wisdom is therefore something that shows the behavior and Thai people's way of life related to beliefs, values, traditions, arts, rituals, teachings. 2) The body of knowledge arising from the thinking process and the adaptation process of the people in Thai society in order to be able to live happily 3) The body of knowledge that Thai people have invented, including literary inscriptions of life, innovation, and technology that is collectively called Thai culture.

Thai wisdom is the result of Thai people's interaction both inside and outside of Thai society. It is a fruit of the relationship between Thai people and the natural environment in the context of socio-cultural, physical characteristics, and beliefs (excluding the beliefs in supernatural power) and the Thai wisdom conceptual process. It is what the society agrees as goodness. There have been applications, adaptations, transformations, and inheritance from generation to generation through Social Process, Social Action, and Social Interaction.

However, Patcharin Sirasunthon (2007, p. 10) concluded that Thai wisdom is an important mechanism or tool which individuals and society use to maintain cultural characteristics of people in the society in any ethnic group. It is the expression of a person or a group of people in Thai society in the form of ideas, knowledge, and the output of knowledge, both concrete and abstract, to meet the needs of individuals, groups, communities, and society, as well as to solve problems that arise. To strengthen the community. To achieve the ultimate life's goal which is living a healthy and happy life in a peaceful, stable, and secure society.

Thai wisdom, as indicated by Phatcharin Sirasunthon (2007, p. 15), can be classified into two categories according to characteristics and patterns of wisdom: 1)

Tangible Thai wisdom, namely the product of wisdom such as handicrafts, art, and Thai architecture, etc.; and 2) Intangible Thai wisdom such as systems of thought, beliefs, values, and ideological systems, etc.

Local Wisdom

From the synthesis of definitions and concepts about local wisdom or Thai wisdom of Chonlapas Wongprasert (2008: 50-59), it is as follows:

(1) Definition from Systematic Concept

1.1 Local wisdom is a process, referring to the intellectual process that Thai people have come up with from learning and inheriting from ancestors as well as direct and indirect experience, utilizing to adapt and to live in relation to the natural environment and socio-cultural, both concrete and abstract. It is the potential and capacity of the community adopting local research processes, trial and error or observation, accumulation, inherited, scrutinized, improved, developed, and selected for a long time from one generation to the next and between various ethnic groups. Eventually, it becomes the local identity of each community in Thailand.

1.2 Local wisdom as a systematic concept of the intellectual capital, referring to the background, foundation, and knowledge of the Thai people that have been accumulated and used as a living practice. The intellectual capital of villagers and communities has been established including harmony between religions, climate, environment, professions, social processes, and their worldview towards the supernatural. It could be abstract, such as living philosophy on birth, injury, death, value, and meaning of all things in daily life. Or it could be concrete such as ways on livelihoods, agriculture, handicrafts, arts, and music.

(2) Definition from Main Substance Concept.

2.1 Local wisdom as the knowledge of the villagers, referring to the knowledge created from the wisdom of the villagers as potential or the ability to properly solve real-life problems the local area has. It has been cultivated, transmitted, and adapted through a process of development in harmony with the times to live a happy life.

2.2 Local wisdom as the experience of the villagers, referring to the knowledge and experience of local villagers who have adapted and lived in the ecosystem or natural environment. It may be interactions among the same ethnic

groups and between several ethnic groups as holistic and highly integrated. It is culturally based, linked to the abstract, as well as the worldview towards the transcendent things. The local wisdom has been crystallized into a body of knowledge that have been inherited, collected, learnt, refined, and developed the way of life from predecessor's traditions and cultures for a long time.

2.3 Local wisdom as the capability of the community, referring to the knowledge and ability of the villagers which has been invented, accumulated, inherited, improved, and learnt from one generation to the next. It is the potential or the core capacity of the community. Local wisdom as the capability of the community is the ability to create, to develop, and to sustain life by solving the problems of its community members.

2.4 Local wisdom as the foundation and everything of the villagers, referring to the foundation and everything that the villagers think that comes from their combination of experiences and new knowledge applied for the solving of concrete and abstract problems of the villagers in such society; leading to perceiving, trusting, and understanding as cumulative intelligence and is the body of all knowledge of the villagers.

2.5 Local wisdom as a way of life, referring to life plans. It is the process of changing the way of life of a community, the process of modifying the way of life of the community, and a paradigm of rural or local groups of people toward managing the relationship between people, nature, and the supernatural.

2.6 Local wisdom as intellectual capital, referring to the cognitive process linked between nature, mind, behavior, society, organization, culture, community, economy, and production technology. Local human resources related to the production process and the way of life of the villagers. It is valuable; and it is an intellectual asset that can develop into an industry.

2.7 Local wisdom as a learning process, referring to the learning process of the people within a society, which permeates through daily life and pervades in various rituals, as a practical guideline for youths, that is further adapted and developed by each subsequent generation. It is the mega mind that merges the people in a society to live together in peace.

(3) Definition from Origin Concept

3.1 Caused by the transfer of knowledge and experiences from elders, ancestors, and gurus in the community.

3.2 Caused by experience of living with nature, describing the relationship between life and nature in the form of rules and restrictions such as spiritualism, water management systems, etc.

3.3 Caused by a specific experience such as Career experience - treatment of disease, etc.

3.4 Caused by experiences of living together. The concrete expression is the belief in ancestors and various rituals, direct experiences of the life of that person or group.

3.5 Caused by other cultures that is introduced into the community, combined with existing knowledge, adapted to the local landscape, climate, and resources.

3.6 Caused by synthesizing their experiences with words taught by others.

3.7 Caused by changes, which are interdependent factors, are known as cause and effect.

3.8 Belongs to a group, not a single person or a particular family.

3.9 There is a person who transmits wisdom and has a person who inherits until the present.

(4) Other Definitions and Concepts.

4.1 The process of local wisdom management was found to be highly integrated and dynamic. It changes all the time. There is a connection and an accumulation of knowledge in the past. Knowledge is distributed, transferred, and changed for the merit of balancing social development.

4.2 Channels for transferring local wisdom, wisdom is transferred through many different channels: social system, production system, various rituals, occupation, farming, handicrafts, way of life, folk experiences, traditions, folk performances, and arts.

4.3 The characteristics of local wisdom were found to have many characteristics, including rules, values, teachings, behaviors, thoughts, knowledge, beliefs, abilities, intelligence, and wit.

4.4 Defining Thai wisdom: It was found that Thai wisdom has been defined in Thai society for a long time in a timely manner. Some were old wisdom, which was once lost and restored.

4 .5 Evidence referring to local wisdom: It was found that there are many forms, including people, images, literature, objects, and music that can indicate the origin. In addition, there is a clear concrete indication of the origin or record. It has clear elements including an identifier that indicates a good thing.

4.6 The goals of local wisdom have been found to have positive intentions in many ways, including making the community self-reliant, reducing dependence on outside causes peace in both communities and villages, enabling a solution or prevent problems. This makes it possible to resolve conflicts in the community and between communities. It is a knowledge of things such as management, adaptation, learning for the survival of a person, community, and society. It is the core paradigm of looking at life, the creation and improvement of the knowledge system of villagers, solving problems that arise in the community appropriately for each locality, and having value to oneself and society.

Types of local wisdom

Local wisdom can be divided into 11 areas as follows:

1. Language and Literature
2. Agriculture
3. Customs
4. Fine arts, painting, sculpture, contemporary art, architecture, and archeology
5. Performance arts, fighting, and folk games
6. Food and nutrition
7. Crafting
8. Occupation
9. Natural resources and environmental management
10. Community management
11. Local technology or other techniques

Transferring Wisdom

Wisdom can be transferred in many ways with differing methods, and can be separated into two important groups: direct and indirect. A direct transfer of wisdom is when the knowledge is transmitted from one generation to another through the use of spoken or written language. An indirect transfer of wisdom can be carried out in a variety of ways, including insertion in the form of entertainment, such as Likay, Thai-style antiphon, Salo-Saw-Sueng, etc., or in the form of a painting, such as temple murals, etc.

Design

The meaning of the design (Lersom Sathapitanon, 1994, p. 8) Design is the arrangement of elements of several constructions in relation to each other, whether similar or different, brought together by visually to create a point of attraction. Design appears in a different form and gives a different meaning - "Design is art. Art is design" Because art is the composition and creation of things. It is also a work that arises from the expression of human emotion, intelligence, vision, and skill, which is consistent with materials and technology of the time.

Design and Creation of Art

The thing to be aware of when designing and creating art is that basic art design begins with the creation of 2D work by using elements of art such as points, lines, planes, volumes with the same or different shapes, sizes, colours and textures. Those elements are composed into a 2-dimensional image in the space; and extended to 3-dimensions by using the appropriate composition (Elements of Art) as follows:

1. Dot
2. Line
3. Shape and Form
4. Space and Volume
5. Texture
6. Empty space or background (Ground)
7. Light Weight (Value and Gradation)
8. Light and Shadow
9. Silhouette
10. Colour

Two-dimensional art (Lesom Sathapitanon, 1990, p. 37) requires two points to be considered:

1. Frame: All types of elements generally fall within the boundaries of the so-called "frame", the two-dimensional art defines the periphery of the design and clearly shows the interior space. Most of the frames are rectangular. But in design, there are no fixed rules; a frame can therefore be of any form, such as a circle, triangle, or polygon. The frame may be indented, the designer may leave room for the imaginary frame and allow the viewer to create the frame of their own.

2. Picture Plane: The texture of the paper or other material texture is used to create artwork. The shape may appear above the image or parallel to the image. This is due to the illusion of space in a three-dimensional way.

Creation

Creation is something that arises from creativity. It is an operation involving different ways to create something new that has never been seen before. Only living things are able to think creatively. Creativity is a high level of thinking; it is a kind of intellectual ability that can be thought of in many directions and forms without boundaries. This leads to the thinking process of creating something new or to the development of something that already exists, for the better. This process of creation results in works that are unique and original. It can be said that humans are the only living things in the world that is creative. Since the past, only humans have the ability create new things for their livelihoods and be able to develop things for the better. Humans have shown the ability to develop oneself, society, countries, and the world to have qualities that are most suitable for human beings, while other animal species, which evolved like humans, have continued to live unchanged in their lives. It could be said that more than half of the world's great discoveries were accidental.

The development of human creativity often brings about change. Creativity may not have to be as great as evolution, but it may involve some development, perhaps little things for oneself. When human beings change, they will find that the world is changing, too. With the transformative path that humans experience with the world, creativity has a rather broad meaning and can be used in productions/creation of new inventions, processes, new methods, with the expectation

that creativity will improve life and society. Human beings are happier through new and improved processes in terms of both quantity and quality.

Creativity

Creativity is divided into 3 categories:

1. Creative thinking refers to the thought process of searching for solutions to problems and developing or managing towards success and prosperity. In other words, it is the study of problems through analysis, to find causes and work out solutions for further planning.

2. Creative beauty refers to the creation of beauty that is novel, more beautiful, and valuable, which is a practical form of creativity, such as the creation of art, house, classroom, or office decoration, etc.

3. Creative function refers to the creation and adaptation of things to have functional values, such as inventions or works of art that utilize materials for the certain purposes, etc.

Art and Creation

Art, in its original meaning, refers to craftsmanship, which is man-made work with elaborateness. Humans use wisdom, faith, and persistence to recreate art, so art is not a natural occurrence.

The word Art comes from the words Arti and Arte used in the Renaissance, where the meaning of the word Arti refers to a group of craftsmen in the 14th, 15th and 16th centuries. The word Arte refers to craftsmanship, which includes the artist's materials knowledge such as mixing colours, priming for oil painting, etc., as well as preparation and other material use.

Defining the word art is difficult because art is a creative work. The artists responsible for creating work always have new ideas and styles. Art theory of one time may be in complete conflict with that of another. And all those theories arise after all the innovative and advanced creations. However, the viewpoint of the meaning of art has a wide range of meanings according to perceptions and concepts. For example:

Art (Modern and Complete Thai Dictionary, 2009, p. 1059) is the result of human creativity, expressed in various forms, such as painting, music, theater, sculpture, etc. to create aesthetics, impression, or emotional impact.

Art (Chalud Nimsamer, 1991, p. 1) is a human creation to express emotions, feelings, intellect, thoughts and / or beauty.

Art (Wirat Phichayaphaiboon, 1985, p. 1) is a work that results from the expression of emotions, wit, and attitudes, as well as human skills. The creation of art today tends to be creative and expressive of emotions and ideas. When it comes to art, the work should at least stimulate emotion and creativity. In other words, it is a work that encourages the audience to imagine; and good art should have an aesthetic value which is caused by using elements of aesthetics as well.

Art is beauty

On the other hand, art also refers to beauty, the beauty here is a matter of aesthetic value, which is different from the economic value that considers the price. Beauty can be divided into 2 characteristics:

1. Physical Beauty is the beauty of the form that determines the story or arises from the harmony of the visual elements as a result of art elements or composition.

2. Psychological Beauty is the feelings or emotions expressed from a work of art that the audience can feel.

These two types of beauty coexist in any work of art, but their degree of expression ultimately depends on the type of work, creator intention, and audience perception.

The beauty of art comes from its creation. It is not related to the beauty of nature. It is a beauty that can be expressed even in unpleasant topics, stories, or contents. But when finished, it still shows the beauty that comes from the emotions that the artist intended. Hence, beauty is one of the sciences, which artists express themselves in art known as Aesthetics. This word has been used since the Renaissance. It represents the message that "Art does not simulate beauty but creates beauty".

It can be concluded that “Art is a man-made thing, created to achieve beauty and satisfaction.” Art has been developed from the long past; and it is moving forward to remain alongside the human race with endless creation and development.

The beginning of art is the need for humans to fabricate and create facilities for a safe, livelihood, and survival: simple shelters, crudely crafted weapons, containers made of simple pottery. All are the use of creativity to solve problems and meet human needs for living in a way that is different from nature. Later, when humans were exposed to natural phenomena, some of which were beyond the descriptive capabilities of that era, a fear of supernatural powers surfaced, and with that fear, various rituals have emerged and evolved into creeds or belief systems that became the religions of today. Art was created to perform these rituals. These creations of things, therefore, are the foundation and inspiration for later generations of humans to create unique and different work and to continually mold them into the better ones.

The Purpose of The Creation of Art

In art, especially contemporary art, artists will create a wider variety of works, resulting in a wider scope. But no matter how it is, every type of art created provides human-responsive value in the expression of emotions, feelings, and thoughts. It represents an important story or an impressive event; and stimulates 3 types of satisfaction, namely psychological, comfort, and functional.

Elements of the Creation of Art

Creativity can be successful or unsuccessful. Creativity is required as the guidelines and styles, but its success relies greatly on the talent of the artist. This is a unique ability, a mastery of remarkable training and effort. A work of art that is of incomparable beauty must only come from great craftsmanship. It also requires various materials to be used in the creation as well. The materials used in creativity are also divided into raw materials used as expressions and tools used to create works according to the skill of each artist. Each artist's approach to the creation of their art has a different origin. Artists are inspired differently by beauty, thoughts, feelings, or impressions. Some artists may create works of art to express their great craftsmanship

to proclaim their unmatched excellence without focusing on the content of the work. Some artists may create art from the use of materials that are of their interest without emphasizing any form or concept.

The Process of the Creation of Art

The creation of art has the following processes or steps:

1. Perception: It is the use of different human senses to perceive and to appreciate nature and the environment. Visual perception of the beauty of nature, such as the image of a lotus flower growing above water, or the sunset. Auditory stimulation from natural sounds or from modern technology such as the sound of pure and sweet chirping of birds, the sound of waterfalls hitting rocks. These images and sounds have inspired humans to create art, such as painting to capture the beauty and the feeling of nature, composing or performing music to describe its beauty or imitate the sounds of nature, etc.

2. Experience: It is the ways that human beings perceive, see, hear and practice that have accumulated into experience and expertise. For an example, an artist who love and appreciate the beauty of nature, and its flowers of various species, would tend to come in contact with and appreciate the beauty of nature and convey this beauty through his paintings. Over time, this artist would therefore acquire special experience and mastery in natural painting. Some artists have a passion for watercolour painting, while students may draw from daily life experiences, etc.

3. Imagination: It is the idea of creating an image in the mind before creating a tangible work of art. The perceiving of nature and surroundings inspire artistic creation. The accumulation of experience and expertise expands to create works of art with imagination. It is not only a transferring of experience and what is seen but also an expression from within. Imagination reflects creativity freely and varies depending on the perceived condition, inspiration, and experience of different creators.

6. Contextual Perspective: A Case Study of Contemporary Textiles Artists

Contemporary textile art and design is relatively new in Thailand, but has been in progress, and taking shape overseas for the past three decades. New pioneering artists and designers have no boundary between art, craft and design; a new direction of textile art and design is emerging.

There are a number of textile artists who make physical materials as the main focus to their artwork. Working with materials brings its own challenges. In the case of large-scale installations, there is a question of getting all the materials into their respective places. Therefore, a review of contemporary textiles artists and designers is one of the main concerns of this research. The researcher focused on the artworks from both International textile artists and Thai textile artists, who work with materials and present their artistic expressions through their artwork in different art forms. The artists and textile designers were reviewed and their disciplines and analyzed through contextual perspectives as follows:

1.1 The Imperative of the Sense of Touch: 'Haptic Experience'

Materials are usually used as an aesthetic content in creative textile arts by some contemporary textile artists to introduce audiences to a haptic experience.

This study will begin with the description and explanation of the role of contemporary textile arts, providing examples of two contemporary textile artists, namely Susie MacMurray and Diana Harrison. They are very well-known in creating textile art experiments related to the texture and surface based on particular techniques and physical materials in order to convey the sense of touch in their artworks. On top of this, the researcher will also describe how artists present the haptic experience to enhance users' engagement and creativity in the visual art, which may be considered as the new approach of creative textile art. Recently, there has been an increasing interest in the importance of being skilled in contemporary practice. Greenlees (2010) mentioned that collaboration is a very important aspect of working for all cultures because it promotes and supports the creative dialogue that results in the public, and all those involved, seeing things from a new perspective.

The art of textile design changed radically after the Second World War. The history of textiles, from prehistoric times to the present day, is also shaped by the Second World War. Since the modern economy and industries have been developed between the years 1945 to 1990, textile arts could be moved to the central of modernist theoretical dialogues and debates, as they began to deliberate on the ways in which textile arts could be considered as arts and crafts. This resulted in the development of the contemporary craft movement in textiles (War, 2003). It seems that the major changes in those periods have occurred in the textile field. Changes were made to the production processes and has served as a basis for contemporary practices, while on the arts and design side, several distinct of textile sensations and aesthetic concepts in visual arts were presented.

It is often difficult to identify what is meant by the terms “sense of touch” and “aesthetics” in creative art. As Millar (2004, p. 4) pointed out that “in every society there are people from many cultures, with different artistic traditions. The extent of tolerance and inclusiveness varies; the artist offers a context, not a fixed end-point”. A lot of evidence indicates that there are different perspectives to the criteria that is used to determine something as a work of art. Some arts practitioners are satisfied to be identified by the styles and contexts of their work. Others may prefer to be known for their ability to manipulate the creative process and experiment with materials. Artists do not work, produce, and present their artworks in the same ways. Each artist would have their own way of using their practices to engage and involve the audiences in their creative process.

There is some evidence, in various art forms of minimalism during the 1960s to 1970s. For instance, reducing sculpture and painting to the simplest forms (Ward, 2003). In addition, minimalism artists, tend to convey a sense of touch that probably does not demand an emphasis on textures and surfaces. By employing their creative practices, even simple design elements such as forms and shapes could be used to demonstrate the sense of touch and suggest a tactile sensation to the audience. Nevertheless, it could be agreed that a degree of understanding of different approaches presented by the artisans is required for viewers to be able to engage in the conceptual and visual arts. So, it is possible to develop a creative practice that relate to the haptic experience.

For many textile artists, textures and surfaces can reflect their characteristics and personal identity and provides an aesthetic meaning to their conceptual works of art. For this situation, novel uses of textiles are the artists' ways of exploring creative ideas through the sense of touch, which is shared as a new challenge to control the visual art. This could be a consequence of the way they create the objects that not only raise the status of textile design, but they also attract and encourage the audiences' engagement as well. Such factors can even raise the significance and uniqueness of the work itself. This could be demonstrated through the creative processes and skills of the creator in using their creative thinking to develop and enhance the appeal of their works. Perhaps, artists know the basic techniques but wish to develop their ideas to push the creative boundary and to present different aspects of their aesthetic contents to the audience.

Currently, textile arts tend to be presented through more abstract forms of expression. The meaning attached to an object is subjective, the artisan's role is to interpret and make use of that meaning. In various creative arts' frameworks, there are many different methods of interpretation and creative activities to present ideas. It could be presented through social, cultural, art, and design or technique. Nowadays, some textile artists are working to move towards the creation of textiles that specifically related to the aesthetics and communication of the craft skills and techniques employed (Millar, 2007). Susie MacMurray and Diana Harrison are notable examples of artists who mainly use the contemporary approach of experimenting on their works with different methods and processes. In their practices, textiles are different from fine art in terms of the aesthetic contents and techniques of construction. In many other ways, textile arts cater to the sense of touch in the design and communication of products. The main content of textiles is the physical senses such as touch, handling, texture and surface (Gale and Kaur, 2002). Of these elements of design, texture and surface are becoming the core parts of the creative skills for a number of contemporary artists to visually engage the audiences.

As a visual element of design, texture and surface design has continuously evolved how textile artists think about textures and surfaces and how they are applied as a visual language to present aesthetic meanings to the viewers. Currently, there is considerable interest in texture and surface from several artists, practitioners and designers who have been inspired by the aesthetics and the techniques involved. There are many definitions of texture and surface from the different perspectives of artists around the world. Texture and surface were described as being like 'expressive materials' in Finland (Nimkulrat, 2009). The Macmillan Dictionary (2011) defines the texture and surface as 'the effect that is produced when different things combine or the way that something feels when you touch it, or simply referring to the top layer or outside part of something'. It may then be possible for contemporary textile artists to use it to explore the sense of beauty within a conceptual work of art.

Indeed, it could be concluded that the meaning of the texture and surface can be defined differently according to different contexts and aspects. Colchester (1991, p.105) suggested that 'interest in the contemporary crafts will continue to develop as it is realized that they offer resources, 'a bank' of styles and experimental approaches to technique, that can sensitize designers to the sensual and decorative potential of fabric'. Thus, the crossover between contemporary craft and design is prominent.

All substance has a texture of its own, whether soft or solid, smooth or rough, tough or stiff (Oei and De Kegel, 2002). Texture is one of the more subtle design elements. It can make an artwork or image richer and more interesting. In terms of textile arts, textures and surfaces can be defined as the ways the materials affect audiences, as well as react when they put them together. A surface may have a variety of actual textures created by the artists' choice of materials and techniques of application, to present a distinctive design and definition in terms of aesthetic elements in creative art. Bradley Quinn states that 'the idea that surfaces can be interactive platforms as well as vehicles for the creative expression is driving both their physical and virtual components forward' (2010, p. 63). So, using techniques and surface design, it is possible to create a wide range of material effects. Textile artist often use the effect of materials to present contemporary sensibilities to engage viewers to the tactile experience. The two remarkable examples of the way artists apply the textures and surfaces to attract the audience interest can be seen in 'Widow 2009' and 'Box'

Figure 45 Widow 2009, Black nappa leather, 43 kg adamantine dressmaker pins, tailors dummy collection of Manchester Art Gallery.

Source : https://intoform.wordpress.com/2011/11/23/the-eyes-of-the-skin-susie-macmurray/

Figure 46 The details of Widow 2009.

Source : https://viola.bz/prickly-widow-dress-by-susie-mcmurray/

‘Widow 2009’garment installation created by Susie MacMurray, it is a collection at Manchester Art Gallery. ‘Widow’ was shown in the exhibition ‘Power of Making’ at the Victoria and Albert Museum in London. ‘Widow’ was created by using a large number of dressmaker pins to present the true texture and surface through the garment sculpture model, experimenting with ideas around the materials itself and boundary between form and shape of material characteristic. It seems to me that the artist requires the audience to participate in the haptic experience through the sense of touch in design and communication of the artwork or product. The choice of material resulted in a garment sculpture that is entirely unique in its visual surface. It is probably the result of an interplay of the artist and the material. By changing its scale and creating a large installation, it can be considered as a ‘Garment Sculpture’. With this, the artist has drawn attention to various aspects, while displaying a very particular hand-made aesthetic.

‘Widow 2009’ could be defined, primarily, by its material, where its texture and surface are animated by the interactions between form, techniques and material choice. With the intention to evoke an emotional response, the artist presented this idea through experimentation with effects of materials, such as adamantine dressmaker pins, to create a spiky texture that is sharp to the touch, yet created within a form that is soft to the eyes. The resulting physical appearance is certainly an amazing garment sculpture. The aesthetic value of the material is evident. It also shows the artist’s willingness to explore the physical characteristics of various materials. This approach provides a conceptual groundwork pertaining to the use and benefit of materials in representing the senses of touch and sight as well as feelings, while retaining and enhancing the material’s characteristics. Through this haptic experience, the viewers are shown a degree of craftsmanship, as well as an imaginative and spectacular application of materials. Kubicki (2003) described MacMurray as an artist who have produced works on many levels and is responsible to the reproduced artifacts, that it is obviously and skillfully crafted by their own hands. Finally, ‘Widow 2009’ is truly beautiful and unique in representing the sense of touch and the effect on people’ eyes toward the textures and surfaces of each materials. It is interesting to see each element of this garment sculpture interact with each other.

Material culture and contemporary design forms an unconventional approach to creative texture and surface design on textiles. This may be the result of the conflicting physical properties of soft leather and sharp pins. It also portrays a sense of bravery and strength in unity as a single pin can easily be bent, but thousands of pins are strong. The way of creating an idea around the juxtaposition of the various reactions towards the materials and the shape of the work, has a different effect on the audience than the same thing shown through a lighting effect. However, the relationship between the design, the shaping of its materials and the created surfaces, when it combined together, would stimulate viewers on a deeper level. This work has demonstrated how visual stimulation can evoke an emotional response within its audience.

Figure 47 Gladrags 2002 10000 fuchsia pink balloons, rug underlay, collection of Pallant House Gallery, Chichester.

Source : https://www.axisweb.org/p/susiemacmurray/workset/78152-gladrags/

Figure 48 The details of Gladrags 2002.

Source : https://www.axisweb.org/p/susiemacmurray/workset/78152-gladrags/

Figure 49 A mixture of frailties 2004, 1400 household glove turned inside out, calico, tailors dummy.

Source : https://intoform.wordpress.com/2011/11/23/the-eyes-of-the-skin-susie-macmurray/

Figure 50 The details of A mixture of frailties 2004

An ability to work with a range of materials is an important skill to an artist. MacMurray has created textile artworks using various materials such as latex balloon (see figure. 2), household gloves (see figure. 3) as well as other materials, to make large scales garment installations. These materials have different characteristics. In relation to soft and spiky textures, each material is carefully considered to find its reaction and to activate its internal content. Consequently, when combined together with ideas and techniques, a surprising variety of dimensions of garment sculpture is created. In addition, the methods that artists use to present the design are a way to present a new challenge and showcase its hand-made aesthetics. The idea about the materials may be presented through the sense of touch in the design. Perhaps, because of the simulation of visual texture, the physical sense offers tactile qualities in creative expression.

In terms of haptic experience, 'Widow 2009' did not allow viewers to touch or to wear the piece. MacMurray said that, 'what performance we do in public we are always being somebody and that's sometime an effort and that is alluded to in the dress is so physically different to wear'. Most of the artists were *offered them through t*extiles. It is important to describe the power of visual texture that provides audiences to subjective experience of aesthetic communication in creative art. Visual texture could be used to present a new way of creating objects. Some contemporary textile

artists are using this particular approach in order to conduct their work and to provide work that is more impressive through texture and surface design. Nevertheless, there are some quilt practitioners, who have experimented with the potentials of texture and surface to explore the efficiency of the techniques and share the findings through expressions of visual textures. One of the outstanding examples is ‘Box’. It was made by Diana Harrison, who has quilt works on display at the Victoria and Albert Museum’s exhibition, “Quilts 1700 to 2010”. The exhibition provides the audience with an opportunity to explore contemporary quilts.

Figure 51 Box, Quilt techniques collection in the exhibition, Quilt: 1700 to 2010 at V&A Museum, United Kingdom.

Source : http://thebesttimeoftheday.blogspot.com/2011/11/diana-harrison.html

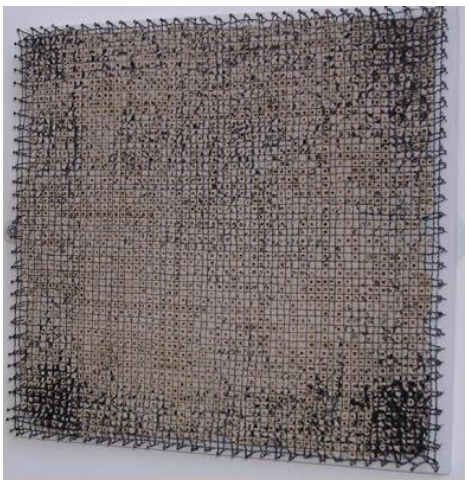

Figure 52 The details of Box.
Source : http://thebesttimeoftheday.blogspot.com/2011/11/diana-harrison.html

There is no doubt that quilting in the last decades have changed from traditional to contemporary quilt designs. Some quilted works showed the artist's technical expertise on quilt designs, using a variety of materials to experiment with textures, surfaces and techniques, both by hand and by machine. Susie MacMurray's intentions behind the texture, the surface and the process are the key factors in building slight differences between the sense of touch and the communication of the work. 'Diana Harrison's quilt's narrative surface provides both her starting points (beaches and road surfaces) and the outcome (the final surface of the work). The processes of stitching and printing are also interesting. Millar talked about Harrison's work that the way she achieved those surfaces provide the narrative of work' (Millar, 2007, p. 163). It seems that for 'Box', its surface does not represent reality but personal perception.

Diana Harrison's 'Box' is an installation of quilt art based on discarded cardboard boxes (Prichard, 2010, p.192). This work, presented through the form and functions of a box, is inspired by the artist's experience. The box was collected on the journey back from work as the artist walked up the road. The artist would collect them all on her way home, open them out, examine them and find interesting aspects that would inspire further work. (Harrison, 2010). Perhaps, Inspiration and personal identity play a significant part in an artist's practice. In this case, inspiration was taken

from the shape of a box. The physical characteristics and the artist's personal perception are used to present a physical sense of material aesthetics to engage audiences in the artist's own narrative. In terms of visual art, 'Box' does not only show the aesthetics of texture and surface on quilted fabric, but it also presents the idea of a collaborative piece of material. What would 'Box' do to the interpretation of textile texture within the artist's own skill-based techniques and practices. Hence, the artists connect the boundaries of the fabric elements to the meaning of haptic experiences.

Perhaps, an investigation into the techniques provides an artist with more opportunity to work with a range of contemporary practices. Therefore, it is important for contemporary artists to deal with the techniques based on the art practice for both hand and machine skills. This could be presented through technical skills. As Diana said 'I was also interested in the scans and X-rays of bone density, the fine lines and fragile structures evident in bone disease' (Millar, 2007, p. 163).

Different techniques are used to make the work by presenting the physical sense or a tactile sensation in several ways. The textile texture was shown on the work; the meaning of surface on textiles does not always present the sense of touch by hands and eyes. The physical sense in 'Box' is telling a story behind work to the audiences to allow them to perceive the haptic experience from the artist's perspective. Some people may learn to understand the results of a surface reflection in visual art. Therefore, it might be a way for an artist to put meaning of a haptic experience within the work. This may be different from what the audience interprets. Dianna has created a large piece of fabric rather than a small piece of fabric in traditional quilts. Which block pattern piecing developed further, with countless patterns being created with new methods, this is the highlight of 'Box'. In the process of creation, techniques and skills were employed to transform of the cloth through dyeing, the shapes are prepared and layered then machine-stitched. Texture and surface design in 'Box' can be used as backgrounds or perhaps used to form a starting point of creative ideas and techniques from person-based and techniques-based perspectives. 'Box' could show the transformation in the meaning of a haptic experience in order to perceive its texture and surface as a visual design and to create a unique work that has transcended creative boundaries.

To summarize, textile artists should use and implement visual elements in their design to engage different audiences through the haptic experiences. The significant roles of texture and surface design have been frequently established in a wide range of practices in contemporary textile art. Texture and surface also have been used by contemporary textile artists to investigate the sense of touch from both artists and viewers. In presenting the aesthetics of texture and surface through the visual art, there are many different ways to relate the audiences to the haptic experience. Perhaps, it would be more interesting to experiment with specific materials or techniques. These can be used as a practice in creative art. Textile artists may also develop their concepts of texture and experiment with different presentations of their idea through personal experiences, technical skills and various materials. However, some artists could produce the artworks or products using his/ her personal narrative and experiences as with the 'Box 2010' by Diana Harrison. It is essential for artists to focus and push the boundaries with skill-based techniques in order to present a haptic experience through the surface as narrative and create distinctive textile textures. Consequently, the 'Widow 2009' by Susie MacMurray shows the power of visual texture that appear on materials which the artist-as-maker is guided by intuitive responses of material characteristics in order to engage several audiences to the tactile dimension from feeling and seeing of the design through contemporary sensibilities. Therefore, there is no doubt that textile arts might use the effect of texture and surface to offer the audiences a haptic experience. In the visual arts, it is undeniable that texture and surface should represent both physical sense and subjective experience. Texture is the perceived surface quality of a work of art. It is an element of two-dimensional and three-dimensional design and is distinguished by its perceived visual and physical properties. Texture and surface are very meaningful for the artist and practitioners. They can be made differently and require several ways to address them. Finally, use of texture and surface, along with other elements of design, can convey a variety of messages and emotions, as well as create uniqueness in the artwork.

1.2 The Boundaries of Contemporary Textile Practice: Artistic Expression and Modernism Aesthetics

How do contemporary textile artists embody technical 'skills' within contemporary practice to engage audience in visual perspective? Textiles have been introduced to the audiences in different aspects of creativity in today's world. The textile industries of have developed a lot through the years. Textiles are also related to other art and fashion industries. For instance, fashion designers commonly rely on textile designs to set their fashion collections apart from others. More so today than ever before, textiles are receiving a host of development.

In 2004, According to professor Lesley Millar, "textiles have played a huge important role within the emerging craft economy of the later 20th century, in that as a discipline move between fashion, interior design and art" (p. 42). The roles of textiles enhance the quality of living for the people in different contexts. This may because of the various natures of personal attachment to the subject area. There are perhaps wide approaches for contemporary textile artists to create contemporary textiles. Many art practitioners use several styles and contexts of their textile works to present their personal identities, characteristics, and inspire creative souls toward their textile works. Others may like engaging with the process, appearing to identify very strongly with the subject's various technical skills and take an experimental approach to technique through contemporary visual practice.

Regarding the role of practical skills and artistic response within creative practice, it might be beneficial for textile designers to discover how textile artists have been investigating the technical skills within their practical experience through their application within creative processes. Therefore, the main content of this essay would be focused on two well-known contemporary textile artists, Ptolemy Mann and Masae Banba, the artists are of different nationalities, but there is a similarity in the quality of work they created and the boundaries of contemporary textile practice. This paper will analyze and evaluate the artistic responses to developments in creative practices, whilst retaining a strong identity to the artistic subject and demonstrating work follows a contemporary approach.

Gale and Kaur (2002) suggested that “textiles are not a single subject in the classical sense; it is a collection of many that spin around the presence of cloth; its making, its analysis, its sale and its use or even its disappearance” (p. 4), Textile can be made from many materials. The different communities are the reason for the involvement in various stages of one craft. For this reason, contemporary textile artists and practitioners have involved the design and production of textile works in different perspectives. Therefore, it is important for contemporary textile artists to create modern textiles, which could be present in a diverse range of creative practice through creative visual art.

There are some textile artists and practitioners who are working to move towards creating specific subject areas which relate to technical skills within their practical life through modernist aesthetic communication and techniques based on skill (Millar, 2008). Ptolemy Mann and Masae Bamba are notable samples of contemporary textile artists who are mainly applying contemporary practices to experiment with technical skills in order to create modern textiles in different disciplines. For these artists the knowledge and understanding of technical skills play a significant role in their practical framework to engage audience visual perspective.

Currently, contemporary textile artists and designers tend to present their artworks while considering the technical skills within contemporary practice. An example of this is ‘Monolith 2009’, created by Ptolemy Mann, a British textile artist specializing in hand dyeing processes and large-scale woven works. Her designs have been exhibited in galleries and interior spaces for decorative items and build environments. Mann was trained as a weaver and graduated from the Royal College of Art in 1997. She produces woven works and experiments with traditional Ikat techniques and hand dyeing processes.

One of the unique aspects of Mann’s works is the colour she used as the results of technical skills of Ikat and dyeing techniques. The use of colour that reflects the surrounding in Mann’s work, entirely presents the artist's identity and technical skill. It is the artistic signature of hand dyeing skills. The use of colour in her ‘Monolith 2009’ was fantastic. It does not engage audiences with only the visual aesthetic but also shows visual skills to the audiences. Mann does not create textile work in the same way as with traditional practice. However, she applied her creative ideas and technical skills in dyeing, to develop of a contemporary language through abstract expression. The work was displayed as an abstract design and used colour as

a medium for her visual skills to engage audiences in artistic identity, visual aesthetic and the psychedelic characteristics and the technical skills of hand dyeing.

Monolith 2009' is a combination of the artist's technical skills, on the one hand is there is her practical artistic skills and on the other, is her use of colour as a visual element to introduce audiences to her visual skills. Ptolemy Mann's beautiful hand woven, colour saturated, silk Ikat installation became points of reference for a crossover between craft, design and art. The dyeing techniques, which Ptolemy Mann uses, require her technical skills and practical experience. What gives her work its distinctive character is the combination of this technique with the maker's instinctive command of colour.

Normally, the use of colours is subjective. The perception of colour, the use of coloured materials or colour-producing products, and the communication of colour are circumstances that are unique to human beings. Evidence suggests that the experience of the personal taste of the use of colour can reflect the identity of an artist through the sensation of beauty which is generated in response to an object (Clay, 2009, p. 137). It is often difficult to explain exactly how visual colour perspective textile works. However, the choice of colour in contemporary textiles can be used as aesthetic factors to attract the audiences visually and aesthetically in creative art. The other good sample in using nice colour in textiles is the work called 'Chromatic Landscape 2012'. Its colour expresses several feelings, evokes moods, and even affects the emotional well-being of audiences which come from the reflection of technical skills and aesthetic qualities.

The idea of modernity through the use of craft sensibilities, it can be presented by contemporary textile artists and practitioners from different perspectives. For Ptolemy Mann, she is novel in her choice to work with traditional skills while presenting them in contemporary ways to engage the audience. It is a new way of making textiles and presenting them as an artistic expression. While, Mann does not create woven textiles following the traditional pattern with 'Chromatic Landscape 2012', which was shown in the exhibition 'The Architecture of Cloth, Colour & Space' at Aram Gallery in London. The artist invites us not only to observe the work but also to enter into and experience it. Besides the concept of colour, the production of colour, and the control of colour, her textile products are highly influential to the various aspects of industry, commerce, and everyday life.

Figure 53 Monoliths 2009, The Collection in the exhibition Warp& Weft at Craft in the Bay, Cardiff.

Source : http://laurathomaswoventextiles.blogspot.com/2011/02/warpweft-exhibition-at-craft-in-bay.html

Figure 54 Chromatic Landscape 2012, The collection in the Architecture of cloth, Colour & Space at Aram Gallery in London.

Source : http://wgsn-hbl.blogspot.com/2012/02/architecture-of-cloth-colour-space.html

For many textile artists, technical skills can reflect their characters and personal identities in many ways. For this reason, the new textile artists are exploring creative ideas concerning the knowledge of technical skills within contemporary practice. This could be a consequence of the way they create objects that not only attract the audience's interest, but also raise the level of their technical skills. It is because of this that artworks have become more notable and unique.

Figure 55 The details of Chromatic Landscape 2012, The collection in the international art fair for contemporary object at Saatchi Gallery in Chelsea.
Source : https://www.artsthread.com/news/collect-2011-london-highlights-part-1/

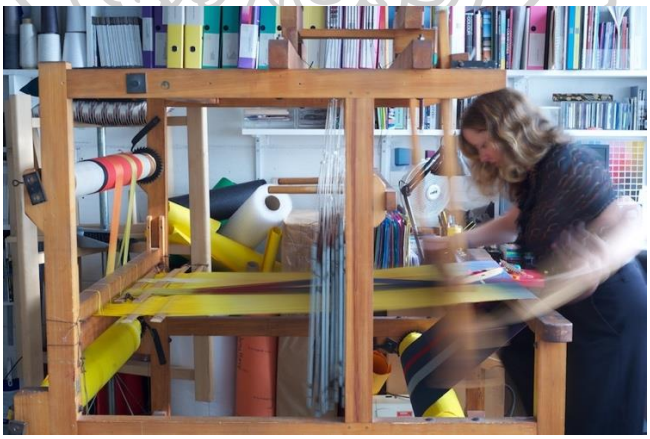

Figure 56 Ptolemy Mann, weaving room at studio in London.
Source : https://newmor.com/introducing-latest-newmor-designer-ptolemy-mann/

Figure 57 Ptolemy Mann, hand dyeing at studio in London.
Source : http://m.interiordesign.net/articles/17109-sussex-based-artist-ptolemy-mann-paints-with-woven-cotton/

Perhaps, the investigation of techniques provides artists with a great opportunity to work with a wide range of contemporary creative practices. There are a number of contemporary textile artists and practitioners who are working on deepening their knowledge of technical skills. These skills can be used to represent the personality of the artists through practical experience and engage audiences in the visual perspective. It is a creative identity that may help to create what is normally called visual practice in creative art. Lesley Millar (2004) has mentioned that the nature of textiles allows for a flexibility of identity with a wide network of influence to textile artists and practitioners. Therefore, it is interesting to note that modern textile artists and practitioners are becoming involved in the production aspects of their work and the value of technical skills.

Thus, the knowledge of technical skills from traditional techniques is often engaged by contemporary textile artists to introduce the audience to a visual perspective through artistic expressions of modern design. A famous example is Masae Bamba Japanese textile artist who applied traditional techniques of shibori to contemporary textiles through the soft sculpture installation work, ‘Tender Thorns 1995’. The traditional techniques approach is based upon rigorous training in

technical skills and comprehensive knowledge of materials. The artist was influenced by the dyeing culture in her own country and her works have been published in the book ‘Cloth and Culture Now’, edited by Professor Lesley Millar. The book provides the opportunity for readers to understand the cultural backgrounds of works from modern textile artists selected from six different countries: Estonia, Latvia, Lithuania, Finland, Japan, and the United Kingdom. As Lesley Millar (2008, p. 5) has mentioned, a range of cultural context and creative practice from the work of artists provides an understanding of the links between traditional and contemporary practice. In each of these countries contemporary textile artists are using a narrative of traditional practice within the discourse surrounding their contemporary practice.

One of the outstanding examples is ‘Flame 2008’ a soft sculpture created by Masae Bamba, a Japanese textile artist who experimented with traditional dyeing techniques. ‘Flame 2008’ was created by using ‘shibori’ traditional dyeing technique from Japan, using silk cloth as a material to present the characteristics of ‘shibori’ technique. The artist was fascinated by the traditional dyeing technique of ‘shibori’ in Japan and used installation work as a contemporary visual practice to engage the audiences to explore the physical sensations of her work. Masae Bamba has applied her technical skills through creative practice to introduce audiences to contemporary visual art.

Bamba has attempted to use her knowledge of traditional techniques to convey a personal narrative on the spiritual culture of the Japanese styles. The use of technical skills as personal narrative invites the viewer on a journey, creating a sense of visual art and visual skill which is different from traditional styles. As the artist herself has said, ‘at the start I wanted to create totally new and different work and so my idea is very different from the traditional styles’. Therefore, it could be considered that Masae Bamba acknowledges the importance of content within the work. The cultural and personal narratives within the work are explored through a notion of traditional skills, originally inspired by the artist’s experience.

Figure 58 Tender Thorns 1995.

Source : https://www.pinterest.com/pin/440086194810824587/

Figure 59 The details of Tender Thorns, 1995.

Source : https://www.pinterest.com/pin/324822191846125513

Figure 60 Flame, 2008.

Source : http://www.transitionandinfluenceprojects.com/gallery/masaebamba. html#six

Figure 61 The details of Flame, 2008, Installation: silk, collection in transition and influence.

Source : https://research.uca.ac.uk/view/creators/Bamba=3AMasae=3A= 3A.html

Perhaps the individual perception of defining a character for contemporary textile artists in the creative process may differ in accordance with personal background knowledge and experience, perspectives, and contexts, but it can be related to the practical experience in the production of artifacts. They develop visual and tactile ideas, referring to a specific area and investigate with techniques and processes (Gale and Kaur, 2002). Artists may understand how to use processes and techniques as a source of inspiration. However, it is the textile artists' choice of mediums that allows them to create works that engage audiences through creative thoughts and ideas in visual practice more distinctively.

To summarize, in recent contemporary practices there has been an increasing consensus on the importance of being technically skilled. The knowledge of skill-based techniques had been frequently used in a wide range of creative practices by contemporary textile artists. Therefore, it is essential for contemporary textile artists to consider the role of technical skills in their practice through contemporary visual practice. In presenting the technical skills in contemporary textiles, there are many different ways to relate artist expression and modernist aesthetics.

Perhaps, it would be more interesting to experiment with specific techniques. This is can be used as a visual practice in creative art. Textile artists may also develop their ideas by embodying their technical skills with personal experience. However, there are some textile artists who could create textiles by engaging in technical skills as a personal narrative and experience, as the ‘Flame 2008’ by Masae Bamba. It is essential for the artists to focus and push the boundaries with skilled-based techniques to present their technical skills as a visual art form to create distinctive contemporary textiles. As for, Ptolemy Mann’s ‘Monolith 2009’, the technicality of her hand dyeing skills represents her artistic identity. The visual element of colour is used to present an artistic expression that engages the audience in modernist aesthetics. Colour variety and new colour or shade development are major driving forces in the production and marketing of textiles as well as numerous other products. It is expected that this article shed light on the enduring significance of contemporary textiles practices as a major form of artistic expression and modernist aesthetic across different works.

Chapter 3
RESEARCH METHODOLOGY

This study is a practice-bases research that can be divide into three parts. The first focus is on reviewing artistic expression in contemporary textile practice from international artists and Thai artists. The second focus is on reviewing the craftsmanship and the skills required in the traditional techniques of textile production in Thailand. The third focus is on the use of experimental methods to develop a new perspective of textile art and craft by using local material "Eri Silk" through art practice and artistic expression.

This is a study of physical materials employed in textile art, written from the point of view of a textile artist, so that the significance of this relationship will be examined in particular through the views of textile artists. It will shed light on the value of materials as a physical realization of the ideas of an artist in a meaningful and tangible form of art. The results acquired through these research methodologies, are then developed into a body of knowledge that is an integration of aesthetic and design principles with theoretical experiments in creative arts. The methodology and tools for data collection are note-taking, interviewing, observation, photography and experiment work.

Figure 62 The research problem field: the relationship between Local Material "Eri Silk" and Artistic Expression.

As this research undertakes to examine a material employed in textile art written from the point of view of a textile artist. It aims to explore the relationship between material and artistic expression. It will highlight the value of materials in a physical realization of the ideas of an artist in a meaningful and tangible form of art. It will explore how materials and artistic expression relate to each other in a creative process. How artistic expressions take place in the creative process of textile art. Identify inherent qualities of materials that are considered to be particularly expressive, and the extent to which the physical quality of materials can affect a textile artist in their creative process.

This research questions that experience of a textile practice with a specific material in artistic processes is important. The research also implies the importance of acknowledging and reflecting on particular phenomena that happen when an artist is working with the material and making artworks from it.

1. Data Analysis: Material in Textile Art from an artist's Viewpoint

For many years, textile art has been developed dramatically in terms of process-methods, translating ideas and creative expression. In 2002, According to Gale and Kaur stated the development of the textile art as "In terms of textile art, it has gained increasing currency in recent decades and is used to describe textile work that, like sculpture, paintings or installation, can exist in gallery or public spaces" (p.77).

It is clear that textiles have become a part of all kinds of creativity in today's world. It may fall into the category of applied arts, industrial arts, decorative arts, fine arts or crafts. Possibly with future advancements in society, contemporary production processes may create opportunities for artisans to introduce audiences to several ranges of creative practices and ways of thinking to transform everyday objects into works of visual art. A textile artist tends to create artworks using a specific physical material or a set of materials together with a unique technique throughout their professional practice. The notion of the importance of the use specific materials raises challenges and questions that contemporary artists need to reconcile with in their practices. Textile artist Anni Albers (2020) has outlined this point thus "Being creative is not so much the desire to do something as the listening to that which wants to be done: the dictation of the materials".

Anni Albers: Pictorial weaving

Anni Albers, a German-born American textile artist who was one of the most influential Figure in textile arts in the 20th century, credited with blurring the line between traditional craft and art. Albers also celebrated the role of "play" in the creative process. She believed that a spontaneous and experimental approach to hues, patterns, and materials inspired meaningful work. In a 1941 article, "Hand weaving Today: Textile work at Black Mountain College," she proposed that artists start works with "a playful beginning, unresponsive to any demand of usefulness, an enjoyment of colours, forms, surface contrasts and harmonies—a tactile sensuousness."

Figure 63 Anni Albers on weaving.
Source : https://awarewomenartists.com/en/artiste/anni-albers/

In her own practice, Albers embraced play through injecting spontaneity and creativity into the highly technical process of weaving, where the loom dictated many aesthetic decisions. She experimented with unorthodox metal threads, for instance, and often improvised shapes and compositions as she wove, rather than religiously following a pattern. Albers even nodded directly to her reverence of play in the title of one work, *Play of Squares* (1955). The textile shows a labyrinth of white and deep-brown squares, organized seemingly haphazardly—without a predictable, overarching formula. Scholar Virginia Gardner Troy pointed out in a 1999 essay that the piece "evokes an ambiguous arrangement of words and letters (a play of words) or of

musical notes (a play of sounds).” The spirit of playfulness also led Albers to experiment with other mediums, like printmaking and jewelry, where she fashioned imaginative wearable art from everyday objects like bottle caps, strainers, and paperclips.

Figure 64 Anni Albers. Play of Squares, 1955. Wool and Linen. Collection Currier Museum of Art, New Hampshire.

Source: © 2019 The Josef and Anni Albers Foundation/ARS, NY.

Albers kept an intimate relationship with materials. Across the works throughout her lifetime, she redefined thread-making with unconventional components, and reinterpreted mathematical theories and ancient texts with new technical weaving.

In 1982 Anni Alberts mentioned on essay “Material as Metaphor” that “To make it visible and tangible, we need light and material, any material. And any material can take on the burden of what had been brewing in our consciousness or subconsciousness, in our awareness or in our dreams”. The observation and use of raw materials would also help her work stand the test of time. “The more we avoid standing in the way of the material and in the way of tools and machines,” In 1937 Anni Albert wrote about work with material in “Design Anonymous and Timeless”

that “the better chance there is that our work will not be dated, will not bear the stamp of too limited a period of time and be old fashioned someday instead of antique.”

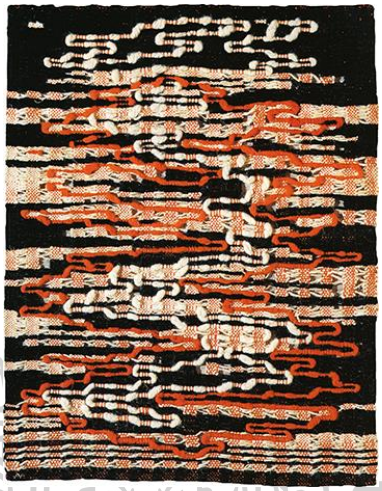

Figure 65 Anni Albers. Pictorial weaving, Under Way, 1963
Source: © 2018 The Josef and Anni Albers Foundation/Artists Rights Society (ARS), New York/DACS, London.

Anni Albers made clear that her pictorial weavings are to be considered works of art, a tactic to address the Beaux Arts hierarchy by putting textiles and crafts in the fine art category. These works displayed what the artist described as ‘a form of weaving that is pictorial in character, in contrast to pattern of hand-weaving, which deals with repeats of contrasting areas. There are artworks made by the materials and processes of weaving. ‘Red and Blue Layers’ (1954) as an example of technical and artistic triumph, Albers used the technique known as leno or gauze weave, where the vertical wraps twist over each other around the horizontal wefts.

Figure 66 Anni Albers. Intersecting (detail; 1962), Red and Blue Layers, Cotton and rayon.

Source: © 2018 The Josef and Anni Albers Foundation/Artists Rights Society (ARS), New York/DACS, London.

Perhaps one of her most impressive pictorial weavings which can be read through semiotics was Six Prayers (1966-7), a piece that was commissioned by the Jewish Museum, New York to create a memorial to the six million Jews who had been killed in the Holocaust. She took the opportunity to create an 'architectural' tapestry to consider the form and function of the Torah scrolls with their Hebrew script. The 6 panels in a somber palette of grey and beige cotton and linen threads, highlighted by silver accents, each measuring 186 x 50 cm, were to be presented with spaces between them, intended for the memorial to be meditative rather than monumental. Critic Mark Stevens described the work as 'six weavings resemble prayer shawls. The interlacing of discordant lines suggests both control and mayhem, darkness and light; human beings appear woven of good and evil on the loom of nature.'. Despite the critic's metaphorical and rather exaggerating interpretation, his reading revealed Albers's intentional use of the luminous surfaces which created an optical effect. 'Albers's expertise in textile properties and technologies, and her understanding of their impact in a given space resulted with *Six Prayers*, in a memorial which is mindful of tradition yet unapologetically modern' commented curator Ann Coxon.

Figure 67 Anni Albers. Six Prayers, 1966–67. Cotton, linen bast, silver lurex. 186 × 48.9 cm each panel. Jewish Museum, New York.

Source: Photographs of courtesy of The Josef and Anni Albers Foundation.

Sheila Hick: Sculptural Installation

Sheila Hick is a contemporary American artist known for her innovative use of weaving and sculptural installations. Ranging from small wall hangings that the artist refers to as minim, to enormous site-specific works, Hicks's works blur the distinction between fine art and craft. "Textile had been relegated to a secondary role in our society, to a material that was considered either functional or decorative," she explained. "I wanted to give it another status and show what an artist can do with these incredible materials." Born on July 24, 1934 in Hastings, NE, Hicks learned to sew from her grandmother at an early age. She went on to study under Josef Albers at the Yale University School of Art and Architecture, where she received both her BFA and MFA. During her time at university, Hicks was awarded a Fulbright Scholarship to study and produce art in Chile. While abroad, she photographed Peruvian and Bolivian archaeological sites and studied pre-Columbian textile techniques. Moving to Paris in 1964, Hicks has been continually relevant in the contemporary art world, participating in the 2014 Whitney Biennial and the 2017 Venice Biennale. The artist continues to live and works in Paris, France. Her works are held in the collections of

the Art Institute of Chicago, the Tate Gallery in London, the Stedelijk Museum in Amsterdam, and The Museum of Modern Art in New York, among others.

Figure 68 Sheila Hick, Portrait 2018, Musee Carnavalet, Paris

Source : Photographs of Cristobal Zanartu

Figure 69 Sheila Hicks, Baoli, natural linen, triple-dyed embroidery cotton, 114 x 63 x 8 inches, 2014.

Source : Pinterest.

Figure 70 Sheila Hicks, Pillar of Inquiry, Supple Column 2013-2014.
Source : https://www.moma.org/calendar/exhibitions/5073/installation_images /43607

This solo exhibition at Centre Pompidou looks back at Sheila Hicks' career from 1957 to the present day; the exhibition invites the public to discover the various expressions of an art that uses cotton, wool, linen and silk to enrich our perceptions of colour, material and space.

Jakkai Siributr: Social context

Jakkai Siributr, a Thai textile artist, is one of the leading contemporary artists in Southeast Asia. His fascination with textiles and embroidery began as a child in Bangkok, and he went on to study textile design in college and graduate school in the United States before returning to Thailand. He is noted for producing meticulously handmade tapestry and installation works that make powerful statements about religious, social, and political issues in contemporary textile art. A main preoccupation of his art is the interaction of Buddhism and materialism in modern life, and the everyday popular culture of Thailand.

Figure 71 Jakkai Siributr, Thai Textile artist

Source : www.cobosocial.com

Figure 72 Jakkai Siributr, IDP Story Cloth. Continuum: Acculturating 2016, The Art Centre, Chulalongkorn University.

Source : Photographs of Supawinee Charungkiattikul

Ploenchan Vinyaratn: Tapestry Art

Thai contemporary weaver, Ploenchan Vinyaratn redefined the process and materials of tapestry by utilizing new materials and forms. Her artistic practice arises from her environmental conscientiousness within the contemporary world. She combined her technical skills and her environmental concepts with materials through creative production. She uses free hand weaves and crochet work as textile mediums to express an inner sense through her understanding of textile structures and her knowledge of textiles.

Figure 73 Ploenchan Vinyaratn, Sea Ghost 2020, mixed media installation, The Sea Ghost and Beyond Exhibition, Nova Contemporary.

Source : Photographs of Supawinee Charungkiattikul

The result of in-depth interview with the artist at The Sea Ghost and Beyond Exhibition at Nova Contemporary on September 19th, 2020. The researcher seeks to understand how the quality of a material, particularly visual and tactile qualities, influence the senses, feeling, cognitive emotions of both artist and audience when they experience the material and the overall artworks in which this particular material has been employed. The visual and haptic qualities of a material may contribute to the occurrence of artistic expression in the artistic process and invite the artist and the spectators to interpret and reflect on the creative work. Ploenchan Vinyaratn said that her textile works are "raw materials-based textile art". A material is considered to play an important role in textile art practice: not only in the creative production but also in the exposition of artworks, and not only in the intimate process of touching but also in the distant operation through observation. A work of art, for example, can transfer a message from the artist to viewers that material can contain an aesthetic experience.

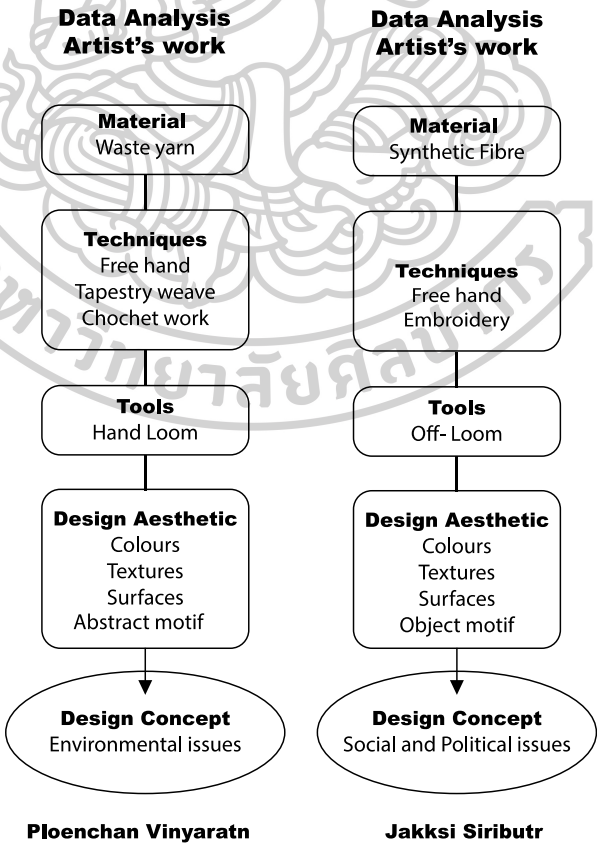

Figure 74 Diagram showing Data Analysis of " Artist's work"

Thai Textile artists and designs have explored and experimented with new media to elevate textile art to an equal footing with Fine Art. Nowadays, traditional textile techniques and the process of manipulating materials are generally accepted as textile mediums to create contemporary art. Unconventional materials and textile disciplines have shown potential in the use of creative thinking to present a sophisticated art form. The results of Artistic reviews as diagram following:

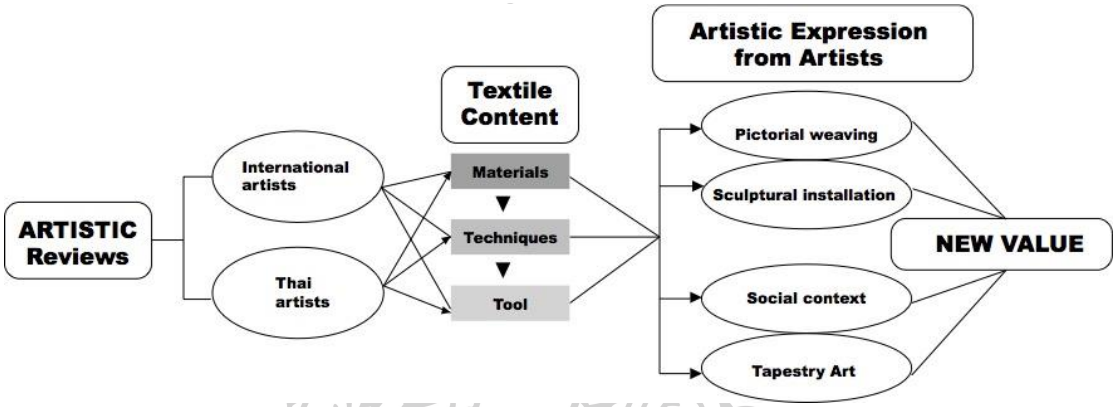

Figure 75 Diagram showing results of "Literature reviews and Related studies"

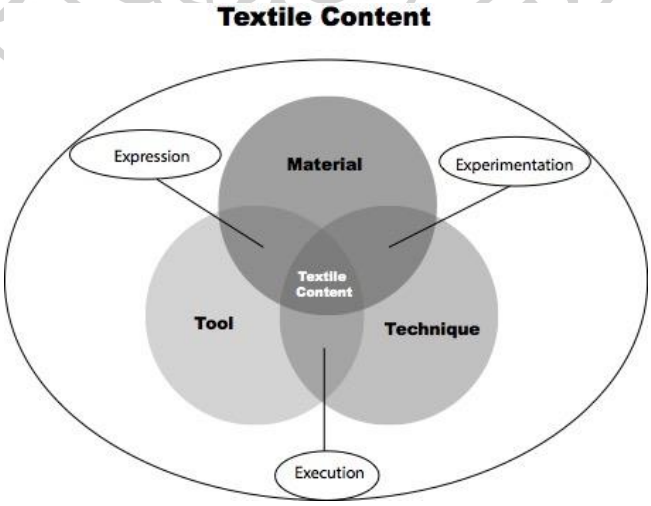

Figure 76 Diagram showing "Textile Content" base on artistic expression

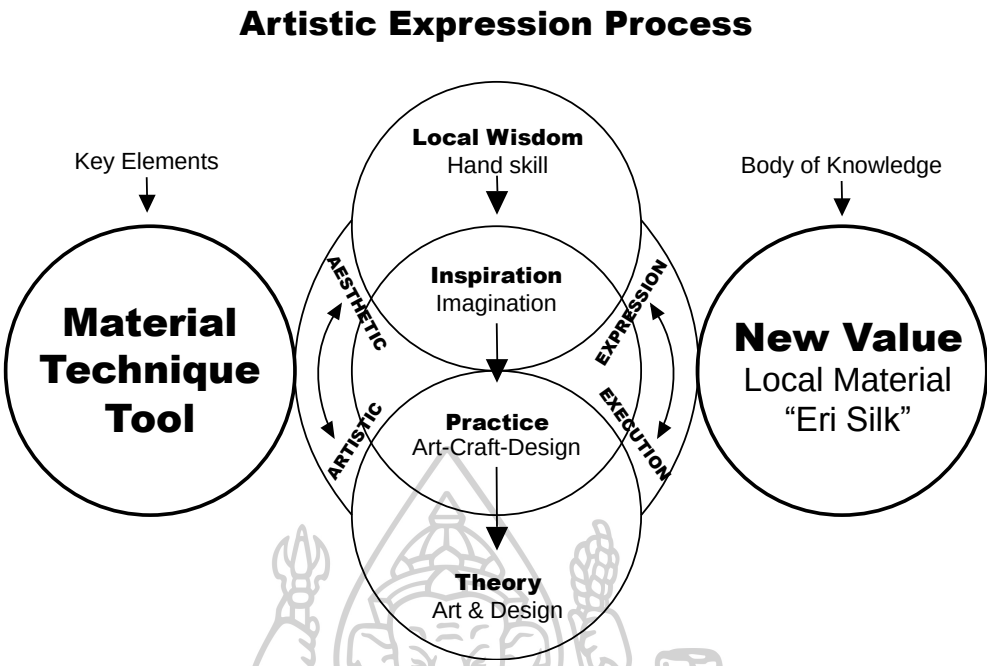

Figure 77 Diagram showing “Artistic Expression Process”

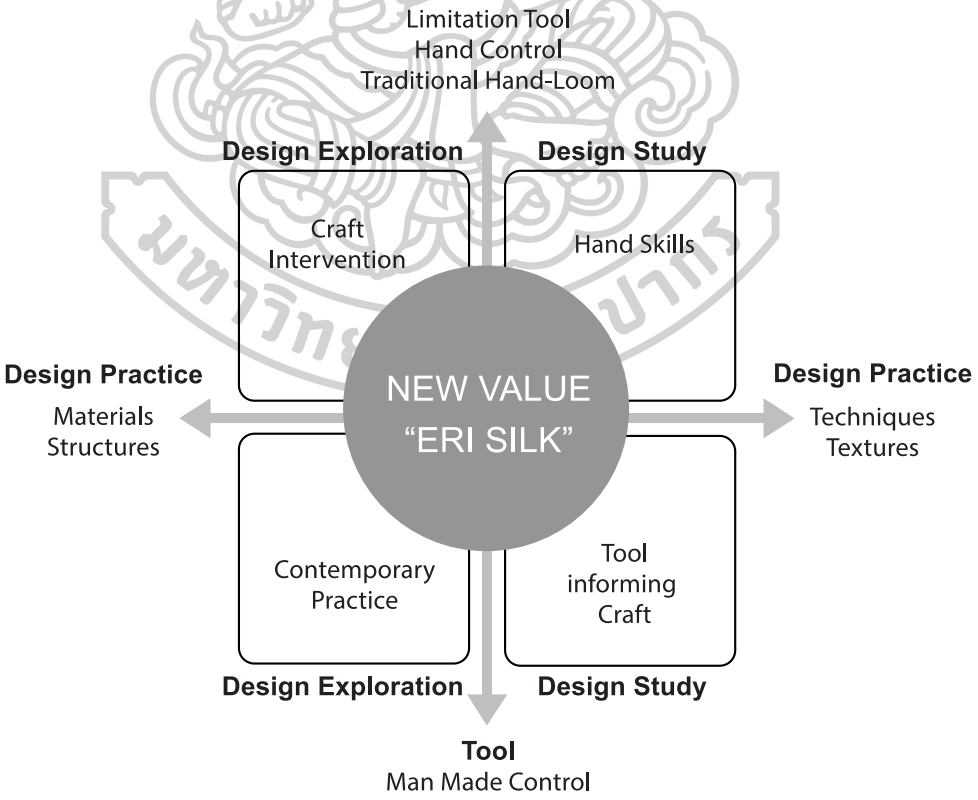

Figure 78 Diagram showing “The Conceptual Framework”

2. Data Collection: Local Wisdom in the Isan Region of Thailand

Textile art is a creative wisdom of local people in various regions of Thailand. It is also a work of art that represents the uniqueness of Thailand's art and culture that encompasses the way of life, traditions, and cultures that have been unique to communities in different regions of Thailand for a long time. The craft is used in garments as well as in the performance of various rituals in the Isan or Northeast of Thailand, which is considered to be the oldest source of weaving wisdom in Thailand. Through archaeological evidence from various sources, it was found that humans in Isan region have been producing clothes for thousands of years. This includes the evidence of ancient Isan textiles of each ethnic group showing that local fiber materials were used in weaving. Evidence was also presented to show the signs of relationships between different cultural groups in the Isan region. Isan textiles are unique textiles that are outstanding, beautiful, with exquisite patterns and colours. In particular, the beauty of the textiles varies with each cultural group, creating diverse products and became famous local wisdoms of handcraft. This is an important identity of the Isan textiles of Thailand.

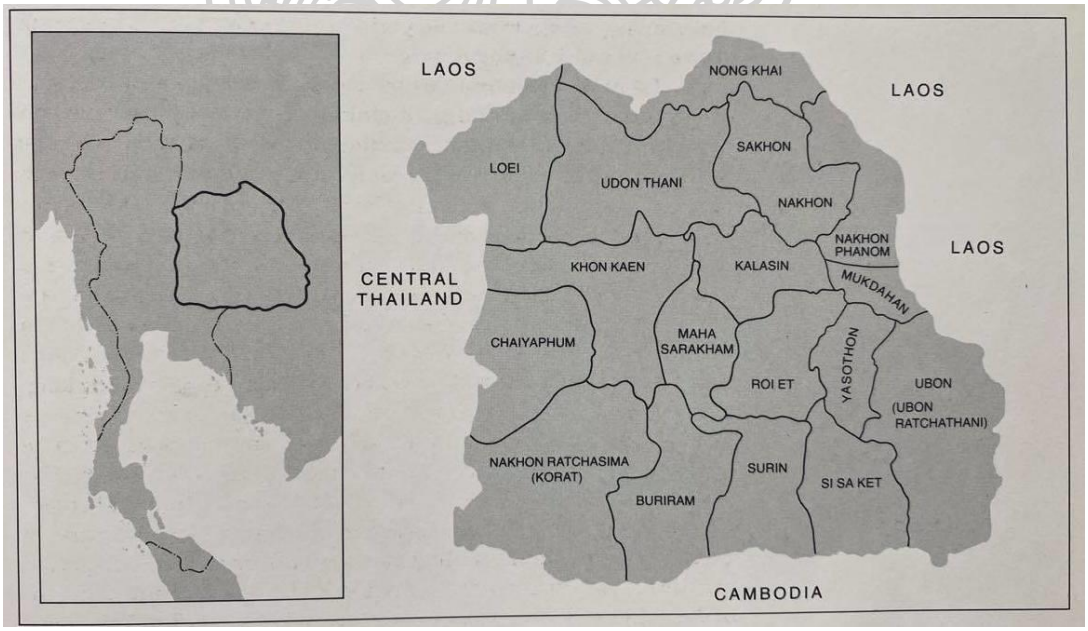

Figure 79 The Isan Region (Northeast of Thailand)

Figure 80 Thai silk fabric from Surin province, located in the Northeast of Thailand.

Traditional Hand-woven Techniques

Isan, or North-eastern region of Thailand, is an important source of wisdom for producing weaving fibers in Thailand. Isan villagers can use basic technology with their in-house equipment in the manufacture of fiber materials including high-quality homegrown silk fibers and environmental-friendly handspun cotton. Evidence of the ancient Isan fabrics of each ethnic group clearly shows which ethnic group is proficient in which local fiber materials are used for weaving. Some groups have both silk and cotton skills, some of which share characteristics that show signs of cultural relations between groups. The type of fiber affects the aptness of a weaving machine.

Figure 81 organic cotton, natural dyed

Figure 82 Mulberry silk, natural dyed

Tools and equipment

In addition, there have been modifications in some fiber production equipment to be able to use silk and cotton fibers interchangeably during production, such as the use of “Kong” for cotton spinning, or “Lha”, also used in cotton spinning, for controlling silk fiber spinning, or Mudmee silk spun tubes for weaving, etc.

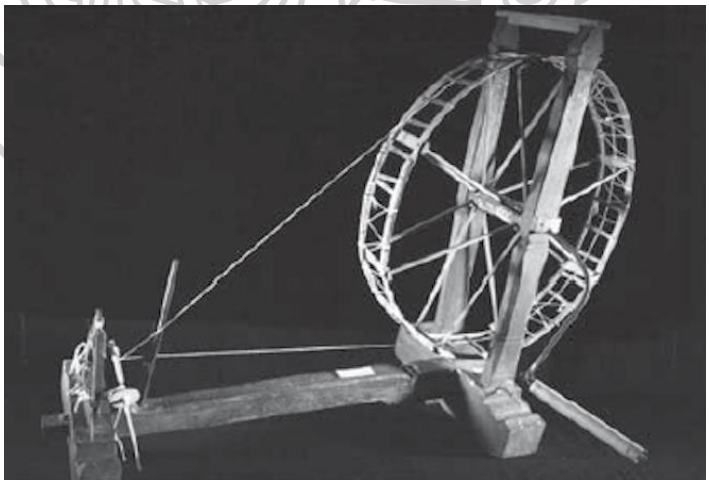

Figure 83 Cotton spinning call “Lha” Local wisdom equipment

Source: Accessed February 18, 2020. Available from www.e-shann.com

Figure 84 Cotton spinning in Northeast of Thailand, Sakon Nakhon province

Figure 85 Cotton spinning with local equipment in Northeast of Thailand

Figure 86 Cotton fibers with natural dyed indigo, Sakon Nakhon province in Thailand

Figure 87 The traditional of hand-processed cotton yarn, Sakon Nakhon Province in the Northeast of Thailand.

Figure 88 Woman weaving indigo dyed cotton scarf with traditional techniques of hand-processed and hand-weaving, Sakon Nakhon Province.

3. Experimental Methods: The Integration of "Eri Silk" with Textile Techniques

This focus on the use of experimental methods through practice process to develop a new perspective of textile art and craft using local material "Eri Silk" through art practice, experimentation with the techniques, tools and textile structures.

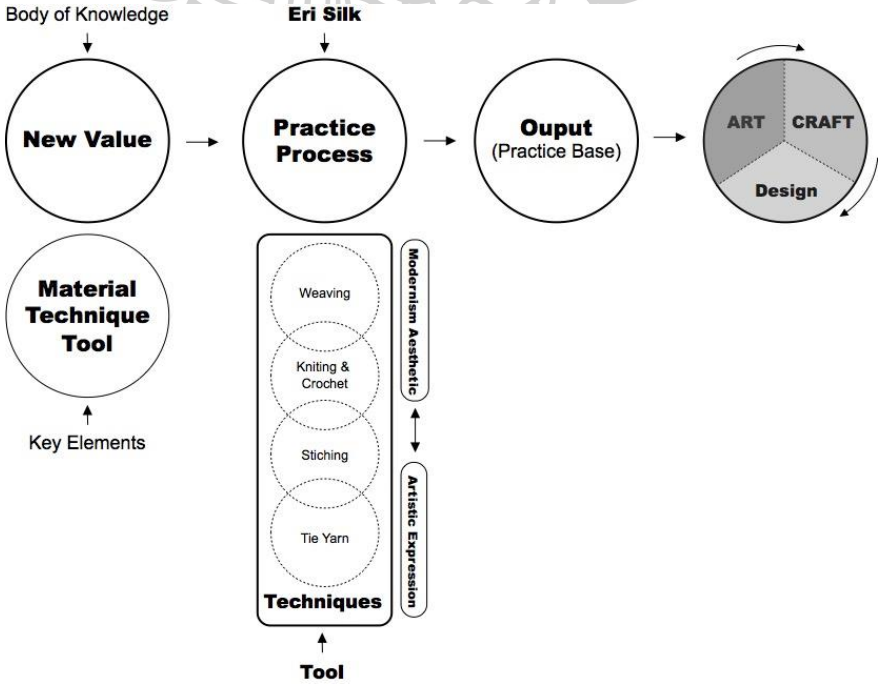

Figure 89 Diagram showing "Design Process (Practice-based research)"

3.1 Materials

Eri silk is a wild silk originated from India. In Thailand, Eri silkworms are mostly raised in the northeastern region, such as Chaiyaphum, Khon Kaen, Roi Et, because of widespread castor and cassava cultivation, which is an important food source of Eri silkworms. As for other regions, there are some cultures such as the central region: Uthai Thani, Northern region: Chiang Mai, Chiang Rai, etc. Eri silk fiber, when it is woven into fabric, is one of the unique local fibers of Isan. The history of Eri silkworm culture started from a group of scholars who studied the silkworms for a long time, but due to various obstacles, had to discontinue their research. Until Prof. Dr. Sutham Areekul, former president of Kasetsart University, adopted the silk. It ultimately became an academic cooperation between the Department of Mulberry Silk of Kasetsart University, Khon Kaen University, and many other universities in the Isan region, who were important proponents of silkworm culture in Thailand.

Figure 90 Local Material “Eri Silk” (Raw material)

Figure 91 Local Material “Eri Silk” (Rough texture)

Figure 92 Local Material “Eri Silk” (Soft fibers)

Figure 93 Mood board showing “Eri Silk” cocoon

Figure 94 Mood board showing traditional textile techniques “Ikat” weaving

3.2 Techniques

Weaving techniques

Weaving is a process by which warp and weft yarns of any material are brought together systematically, intertwined, and locked creating sheets of fabric which can be cut, sewn, and manipulated into clothing and other uses. Fabric can be dyed into different colours either before or after weaving. Dyeing can create simple colours or designed patterns, originally by using natural dyes and later using more convenient synthetic chemicals. Printing motifs on plain textiles have also been developed since early times as simple decorations, along with embroidering and sewing other materials onto the fabric. Fancy techniques in weaving can also produce endless patterns and brocade effects decorating textiles. In Thailand many techniques in weaving are found, the basics of which are as follows:

Plain Weave

Sheet fabric is created by simple crisscrossing of warp and weft yarn similar to basket weaving. With the help of the heddle in hand looms, tight or loose weaves can be created. Both warp and weft yarns can be of the same or different colours to create stripes, checkered, and endless visual patterns. Plain weave cotton fabrics, coarse or fine, are popular with the general population, whether for clothing, bedding, wrapping, or even ceremonial use. Fine thin cotton is often used as lining for expensive and elaborate brocade textiles for ceremonial purposes. At the same time, lustrous plain weave silks are for formal attires and have found their way into contemporary fashion.

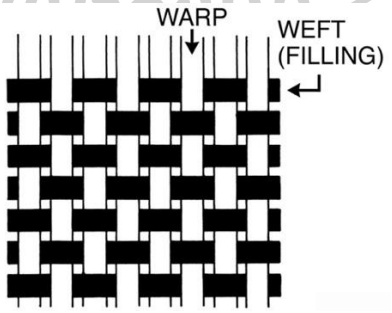

Figure 95 Plain weave structure

Source : https://www.quora.com/What-is-the-difference-between-a-twill-weave-and-a-plain-weave-carbon-fiber-fabric-and-is-it-possible-to-tell-the-two-apart-visually

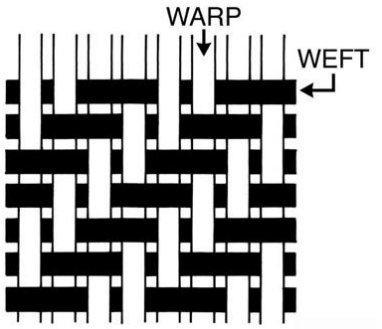

Figure 96 Twill weave structure

Source : https://www.quora.com/What-is-the-difference-between-a-twill-weave-and-a-plain-weave-carbon-fiber-fabric-and-is-it-possible-to-tell-the-two-apart-visually.

Figure 97 Experimental work by using “Eri Silk” combined with weaving technique gives a rough surface

Pattern Weave: “Ikat” technique

Patterns can be created by tie-dyeing yarn before weaving, a technique known generally as Ikat but called matmi in Thailand. The method of dyeing the yarn is explained in Chapter 3. Today the majority of weavers make pattern ties in the weft, but there is a tradition of warp matmi among a minority group, the Lawa, who wove warp matmi for their phasin. Normally weft matmi is woven with two shafts in

a plain-weave construction. However, occasionally three shafts are used, creating a 1.2 twill, the pattern on the weft-faced side giving a beautifully clear and bright impression. The result of these experiment can be created an interesting look for “Eri silk”. However, the pattern from the weft Ikat techniques base on using “Eri Silk” shown the blur pattern on hand-woven cloth.

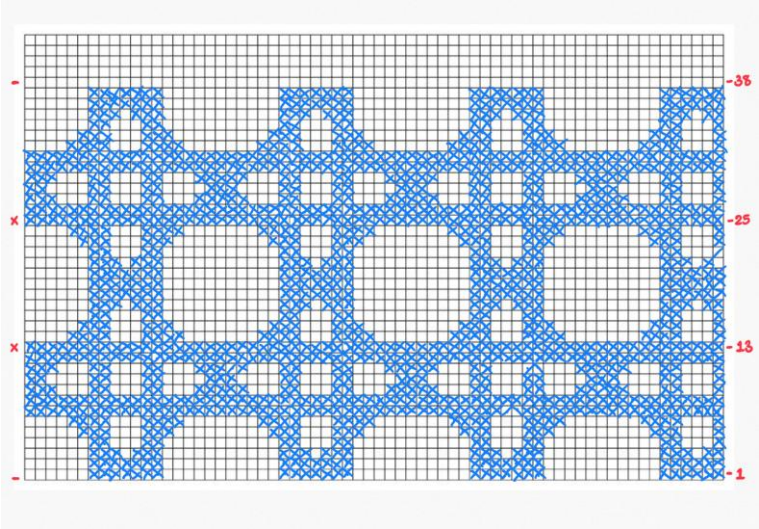

Figure 98 Design pattern for Ikat weaving techniques

Figure 99 Experimental work by using “Eri Silk” combined with Ikat techniques

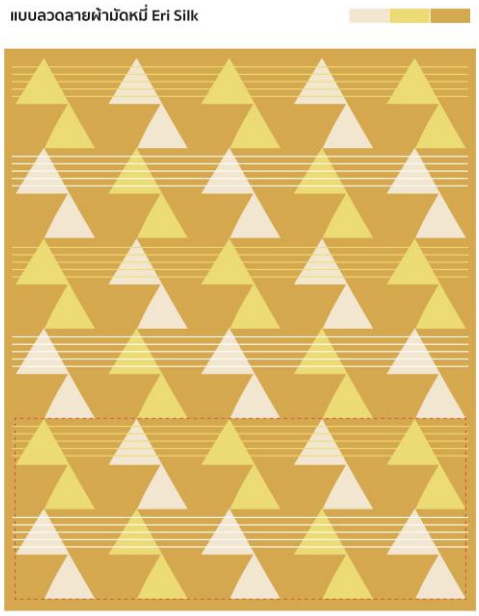

Figure 100 Contemporary design pattern for Ikat weaving technique

Figure 101 Experimental work by using “Eri Silk” combined with Ikat techniques

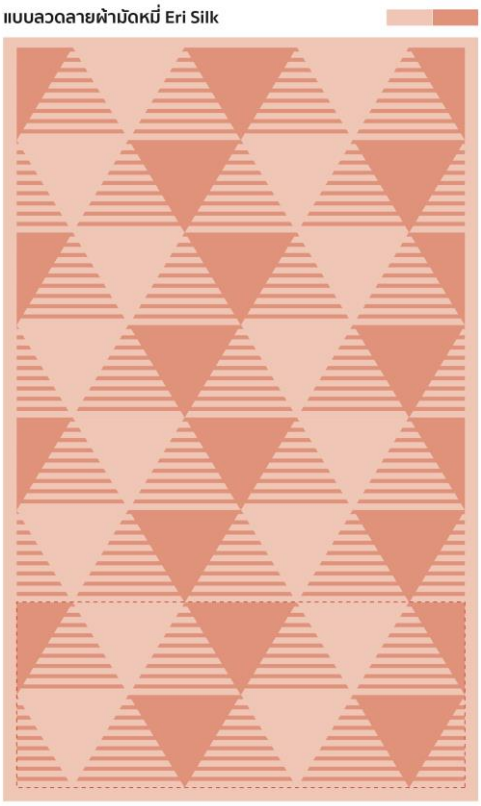

Figure 102 Contemporary design pattern for Ikat weaving technique

Figure 103 Experimental work by using “Eri Silk” combined with Ikat techniques

Knitting & Crochet techniques

Knitting is a method by which yarn is manipulated to create a textile or fabric; it is used in many types of garment. Knitting may be done by hand or machine. Knitting creates stitch: loops of yarn in a row, either flat or round (tubular). Differences in yarn (varying in fiber types, weight, uniformity and twist), needle size, stitch type allow for a variety of knitted fabrics with different properties.

The process of knitting has three basic tasks:

1. The active (unsecured) stitches must be held so they don't drop
2. These stitches must be released sometime after they are secured
3. New bights of yarn must be passed through the fabric, usually through active stitches, thus securing them.

The basic knitted fabric (as in the diagram, and usually called a *stocking* or *stockinette* pattern) has a definite "right side" and "wrong side". On the right side, the visible portions of the loops are the verticals connecting two rows which are arranged in a grid of *V* shape. On the wrong side, the ends of the loops are visible, both the tops and bottoms, creating a much more-bumpy texture sometimes called reverse stockinette. (Despite being the "wrong side," reverse stockinette is frequently used as a pattern in its own right.)

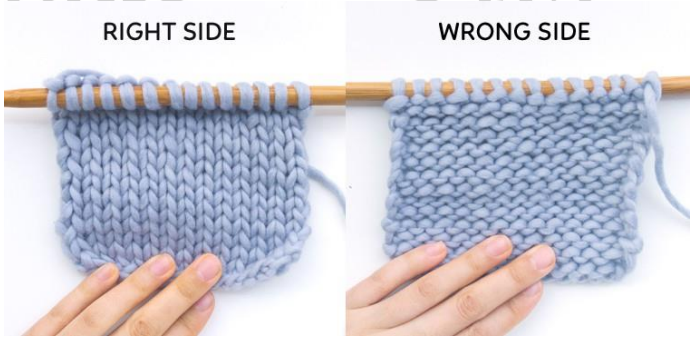

Figure 104 Knit on the right side (knit side) and purl on the wrong side (purl side)
Source: Accessed February 18, 2020. Available from https://sheepandstitch.com/library/stockinette-stitch-knitting-for-beginners/

Crochet is a process of creating textiles by using a crochet hook to interlock loops of yarn, thread, or strands of other materials. The thickness or weight of the yarn is a significant factor in determining how many stitches and rows are required to cover a given area for a given stitch pattern. Freeform crochet is a technique can create interesting shapes in three dimensions because new stitches can be made independently of previous stitches almost anywhere in the crocheted piece. It is generally accomplished by building shapes or structural elements onto existing crocheted fabric at any place the crafter desires.

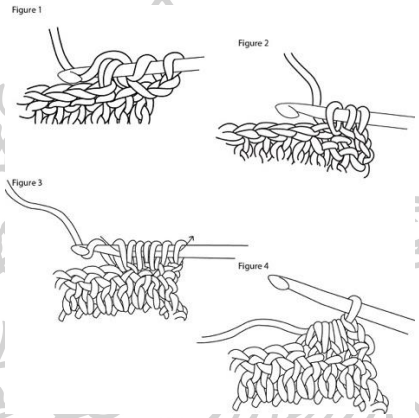

Figure 105 Double Crochet construction

Source : https://www.interweave.com/article/crochet/double-crochet-three-together-dc3tog/

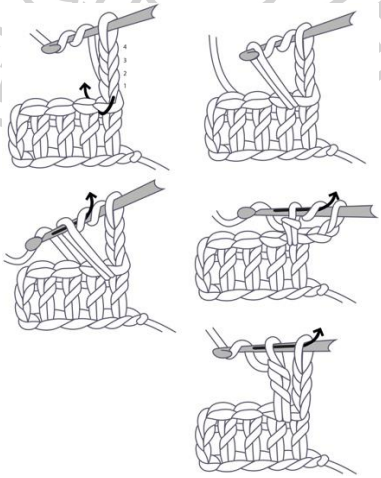

Figure 106 Triple Crochet construction.

Source : https://www.amigurumipatterns.net/stitches/triple-crochet/

Figure 107 Experimentation: Eri Silk with knitting technique (Shape)

Figure 108 Experimentation: Eri Silk with crochet technique with raffia fiber (Form)

I have been using ‘Eri Silk’ as a raw material and main medium in textile work through traditional textile production. The results of my experiments have led me to develop different approaches for this local material. I then started working on combining ‘Eri Silk’ with knitting techniques. This series of work with this organic medium was a combination of wearable art and knitted jewelry pieces:

Figure 109 Experimentation: Eri Silk with crochet technique (Line)

Figure 110 Experimentation: Eri Silk with crochet technique (Line)

3.3 Tools and Equipment

Figure 111 Tools and Equipment (Hand-dobby loom) to create weave structure

Figure 112 Tools and Equipment (Lags and pegs) to create weave pattern

Figure 113 Tools and Equipment (Frame Loom) to create tapestry weave

4. Experimental Method: Incorporation of "Eri Silk" with Artistic Expression

4.1 Design Inspiration

The work is started from the contour line. I found that the beauty of the line itself is very interesting. The contour line looks like a filament or fibers when it is together it would shape the form. And I decided to use it as a main design element to my work. I also would like to explores the way of design elements being used in the textile art form. I draw the line in organic shape, it is line thickness, connection, rhythm and spacing between each line to give the movement

Creating textile art through artistic expression. Therefor I would give the art by storytelling and form the contour line, I then use a location map of Thailand, Khon Kaen, the local area of Mancha Khiri district, where is a weaving community village that has an intellectual capital of woven fabric with local materials "Eri silk".

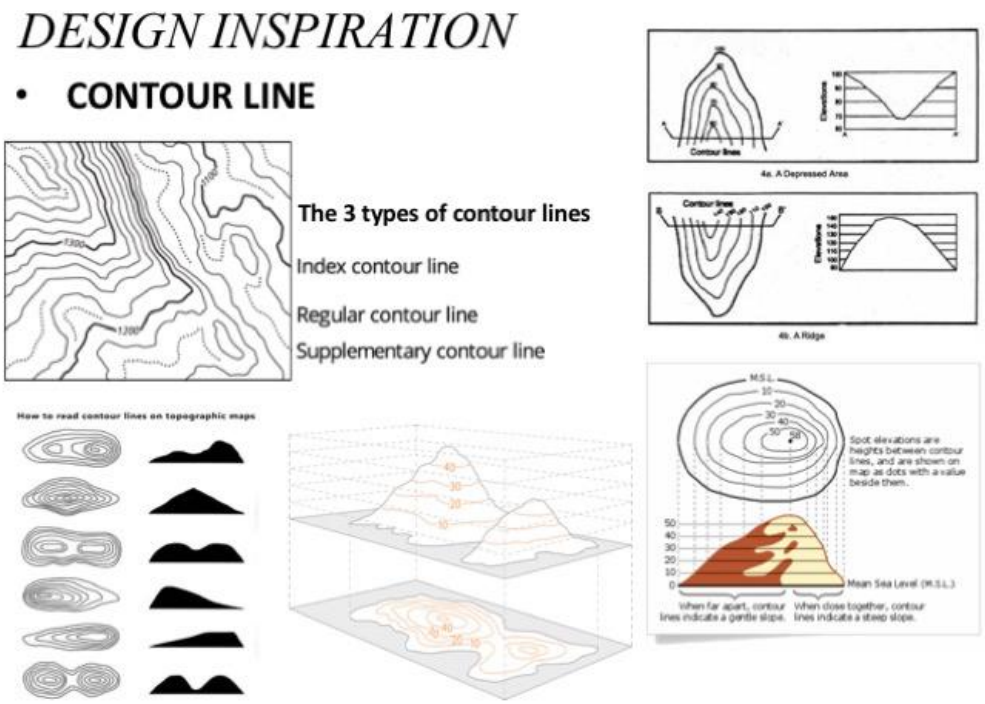

Figure 114 Contour lines with three-dimensional view

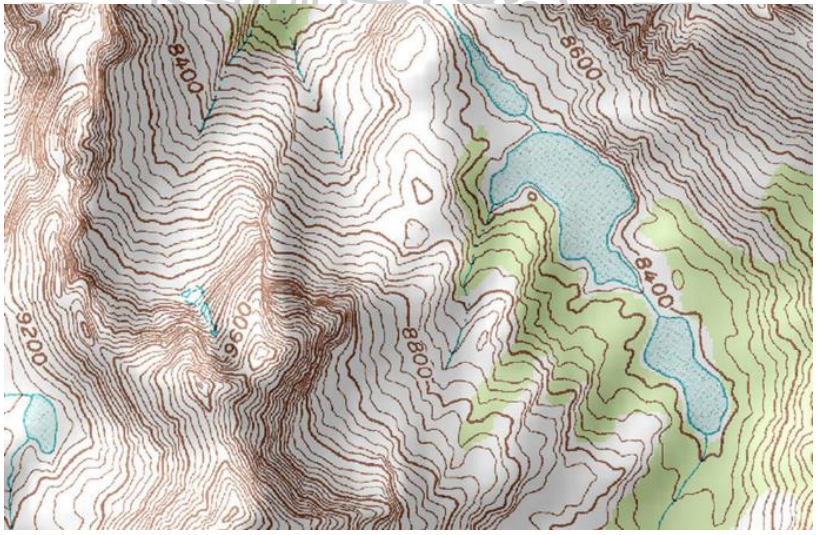

Figure 115 Contour lines on Map

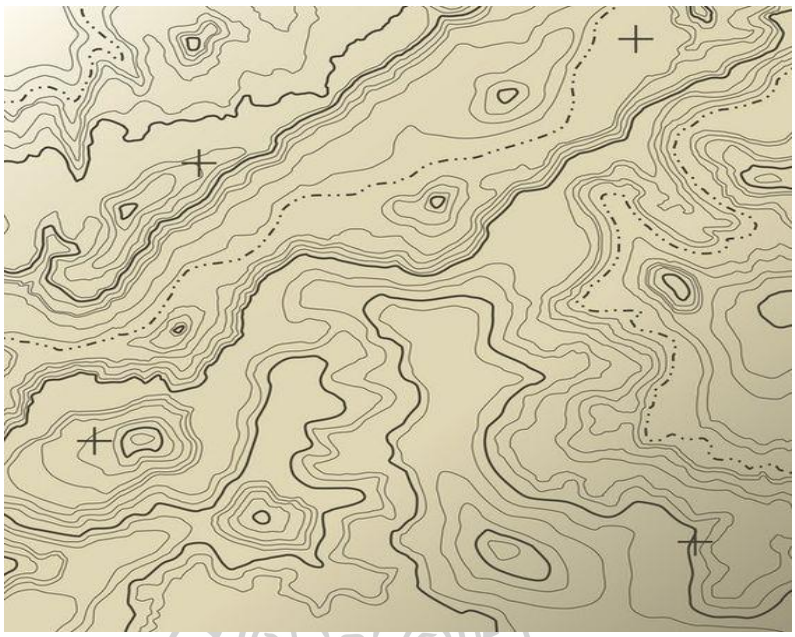

Figure 116 Contour lines and Spacing

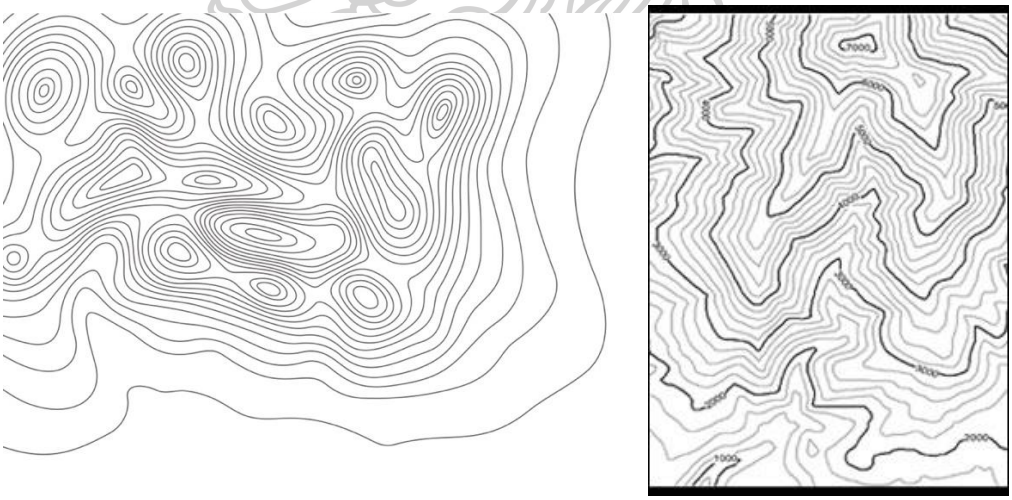

Figure 117 Contour lines movement with Curved lines and Zig Zag lines

Figure 118 Location map, Khon Kaen Map

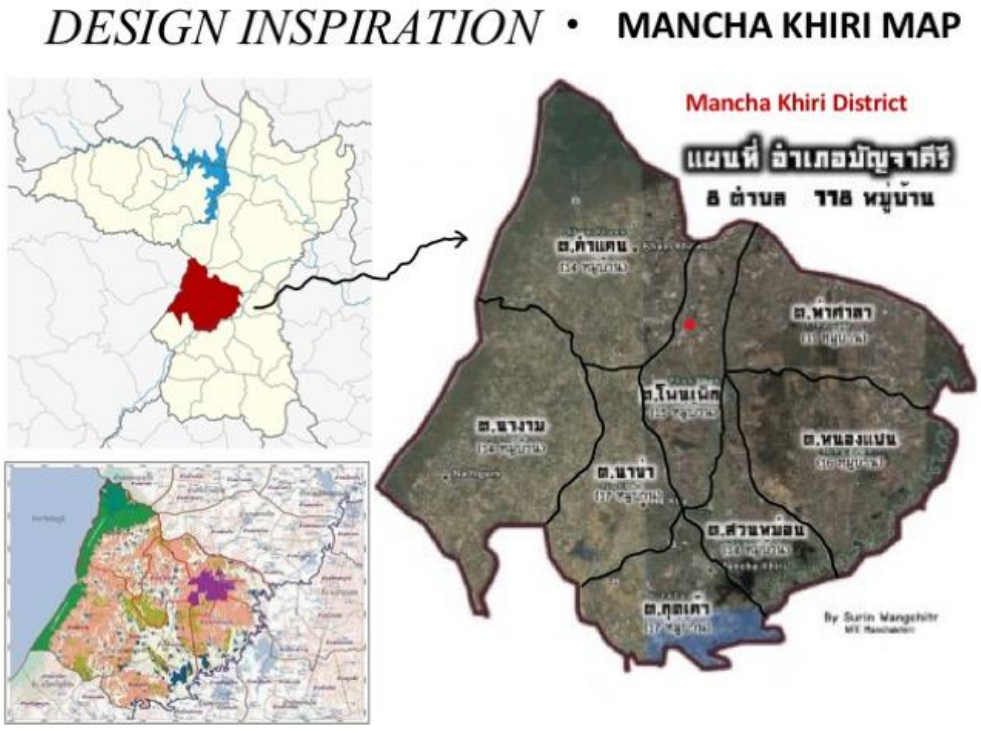

Figure 119 Location map, Mancha Khiri Map

4.2 Design Concept

The concept of this textile art design is inspired by the natural form seen during the fieldwork. The inspiration came from 4 aspects as follow:

- The beauty: Insect wing, the textile technique resembling the flexibility of insect wings.
- The movement: Curling leaf, the fiber curling technique resembling the silk leaves. Showing that "The beautiful changes of nature".
- The shape: Eri Silk Cocoons, the fiber binding technique resembling the silk cocoon.
- The local wisdom of Silk threshing basket, the technique of starting, growing, and drying, the cycle of life, and the nature of Eri silk.

Art Form 1: Insect wing, the technique resembling the flexibility of insect wings.

Connection lines, line relations, shape, free space, material surface, the mesh, lightness and airiness. The connection of each gap harmoniously shaped into organic shapes that come from small units of interlocking spaces with varying sizes.

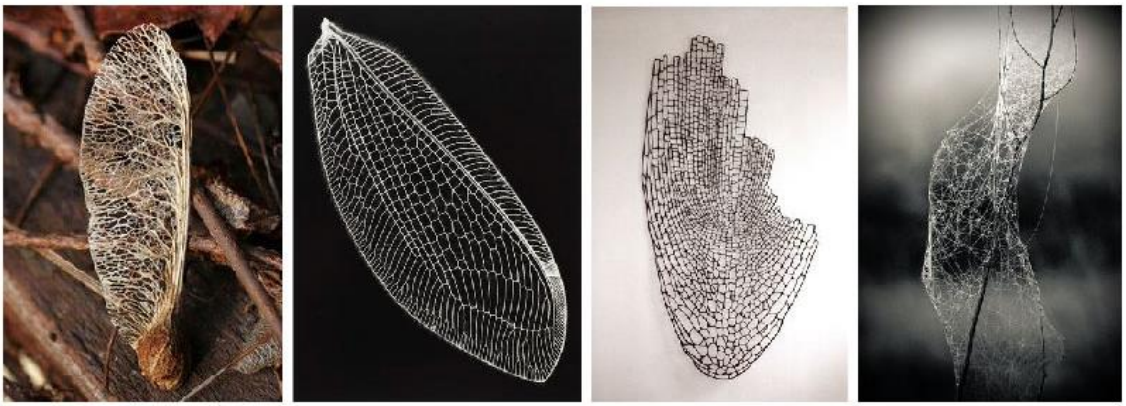

Figure 120 Visual inspiration for Artwork Form 2

Art Form 2: Curling leaf, the fiber curling technique resembling the silk leaves.

The beauty caused by changes in the shape of the curled leaf, the dryness of the leaves, the rolled-up shape, the shrinking of leaves, the vibe of life and movement. A dry leaf that has wilted and fallen from a tree lies completely still. There is a tenderness, and gentleness within. A change of shape that has the appearance of unwinding like a leaf that, when dry, will curl up in natural manner. "The beautiful changes of nature".

Figure 121 Visual inspiration for Artwork Form 2

Art Form 3: Cocoon, the fiber binding technique resembling the silk cocoon.

The beauty in the path of nature. Silk threads with glossiness and light, thin harmonized lines, the interlaced form of a cocoon giving off tenderness, softness, and rhythm. The imperfection of the cycle of life. The occurrence, existence, and death of the living. The cocoon is the habitat of a pupa, the beginning of life. It implies a house that

gives a warm and fuzzy feeling as well as a sense security. Encapsulation. The cocoon entails a small unit, a small cocoon gathered into a social group, the interdependence.

Figure 122 Visual inspiration for Artwork Form 2

Art Form 4: Silk threshing basket, the technique of starting, growing, and drying, reminiscent of the cycle of life, the nature of Eri silk.

The life cycle of all things, circulation, the origin of beautiful things, Genesis of Silkworm, Genesis of life reminiscent of the Buddhist notion of the "transmigration of souls". The threshing basket was the shelter of the pupa, butterflies, creatures that are short-lived but still has a useful "Value after death", the path of life that follows the natural path. In this form, the form was translated as the occurrence, existence, and death of life. The form presents the natural beauty of materials, surfaces, environment, local, communities, and culture. Also, the circle shape of the basket, the distance of the parallel space in a circle, the radius in a hierarchical direction, the innate beauty of the woven fiber interlacing with local wisdom. The way of life of the weavers who value the culture of silkworms, the maintaining, and the reflection of local culture and lifestyle through the lens of the ephemeral of everything on the planet. "Circle of Life" Local wisdom, Beauty in nature and Living memory and Momentary beauty.

Figure 123 Visual inspiration for Artwork Form 4

4.3 Sketch Design

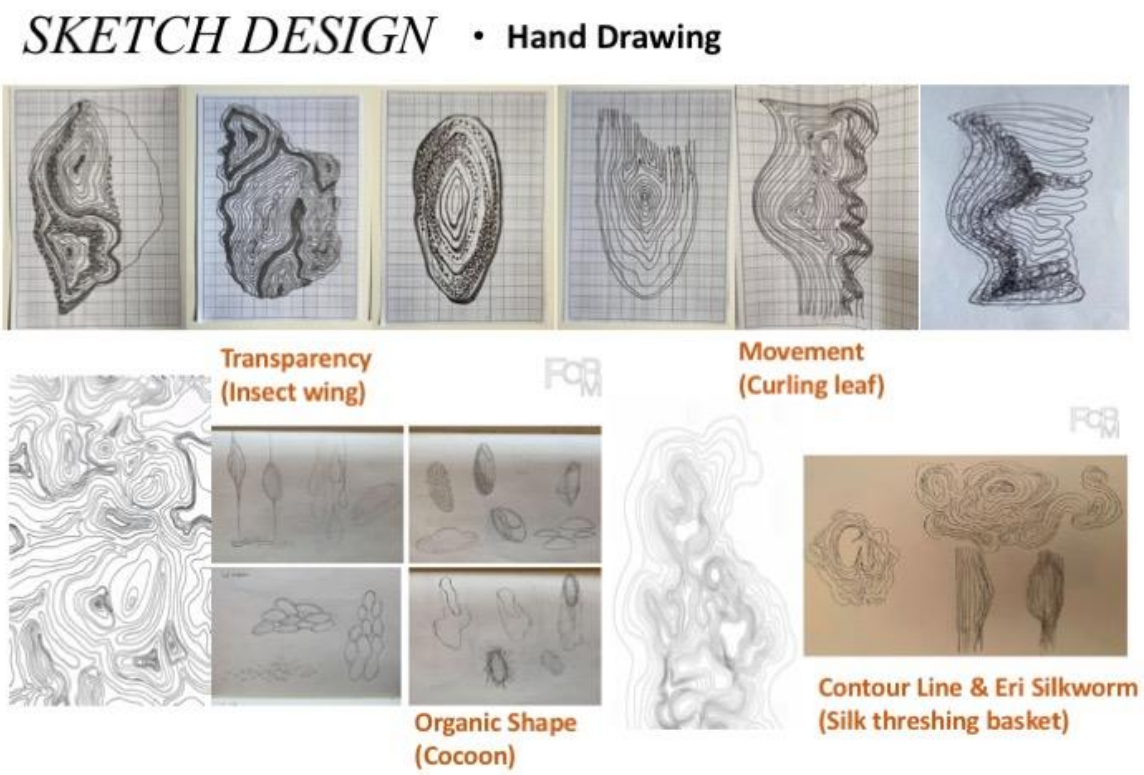

Figure 124 Sketch design by hand drawing

Figure 125 Sketch design by hand drawing

4.4 Studio Practice: Experimentation

- **Experimentation 1: Techniques Knitting & Crochet (Texture and Surface design)**

Figure 126 The Knitting and Crochet techniques to create web surfaces.

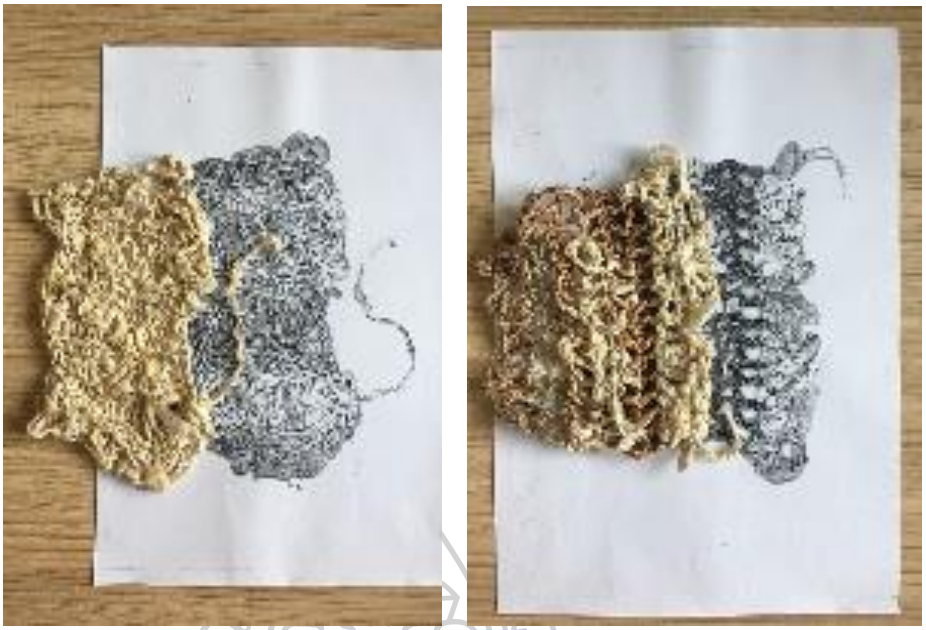

Figure 127 The Knitting and Crochet techniques to create Mass shapes.

- **Experimentation 2: Techniques Ikat or Tie Yarn (Structure design)**

Figure 128 The Ikat technique, creating a new style of binding to achieve the natural surface characteristics of fiber materials.

Figure 129 Tie yarn technique

- **Experimentation 3: Techniques Hand Weaving (Transparency fabric design)**

Figure 130 The Dobby handloom (tools), used to create a flexible weaving structure or the airy fabric.

Figure 131 The Dobby handloom (tools), used to create a flexible weaving structure or the airy fabric.

Figure 132 Experimentation: Double weave techniques

Figure 133 Results from experimentation: Double weave techniques

- **Experimentation 4: Techniques Process on Frame Loom (Form and Shape design)**

Figure 134 The framed loom (tools) to create a natural shape, the organic form, by experimenting with 2 fiber materials, wool fibers that are soft and highly flexible (Hi twisted fiber) with hard fibers. The result is formatted.

Figure 135 The framed loom (tools) to create a natural shape, the organic form, by experimenting with 2 fiber materials, wool fibers that are soft and highly flexible (Hi twisted fiber) with hard fibers. The result is formatted.

Figure 136 The framed loom technique to create a natural shape, the organic form, by experimenting with 2 fiber materials, wool fibers that are soft and highly flexible (Hi-twisted fiber) with hard fibers. The result is formatted.

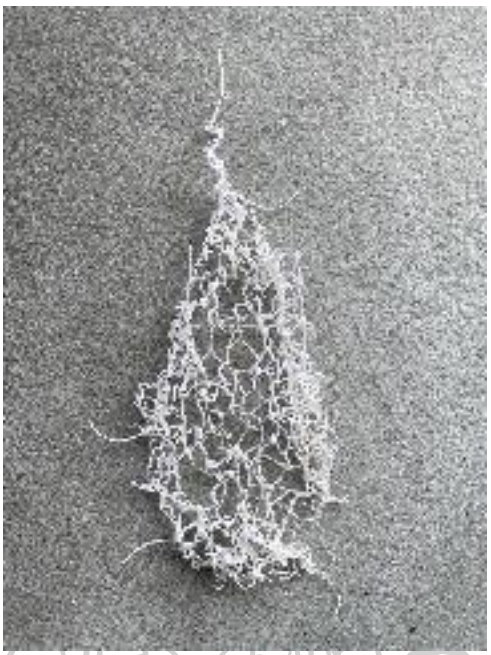

Figure 137 The framed loom technique to create a natural shape, the organic form, by experimenting with 2 fiber materials, wool fibers that are soft and highly flexible (Hi-twisted fiber) with hard fibers. The result is formatted.

Figure 138 The results from experimentation on Frame Loom technique, to create texture, surface, form and shape.

Figure 139 The results from experimentation on Frame Loom technique, to create texture, surface, form and shape.

Figure 140 The results from experimentation on Frame Loom technique, to create texture, surface, form and shape.

Figure 141 Texture and Surface by using Frame loom technique.

This research recognizes the importance of Eri silk, a local material in Thailand that can be cultivated and produced within the country without relying on imported fibers such as wool. Eri silk has many unique properties of animal fiber, it is thick and soft like wool but it absorbs sweat. On touch, the fiber has an inherent slubby texture. Eri silk yarn has a slight glossy shine which is beautiful and unique. In addition, it is a natural fiber that has an environmentally friendly production process.

Material knowledge is considered a source of creativity that will lead to the creation of new knowledge in the art, textile, and design of Thailand. It also provides opportunities for creating more value for textiles as creative cultural capital rather than an industrial product. This approach could play a major role in communities and societies in helping countries in every aspect. Eri silk has a high potential to be an important material to further the art of Thai textile.

Figure 142 Material selection

Figure 143 The results from experimentation on Frame Loom technique, to create texture, surface, form and shape.

Figure 144 Form and Shape by using Frame loom technique. Mix materials from Eri Silk and Raphia

Figure 145 The results from experimentation on Frame Loom technique, to create texture, surface, form and shape.

Figure 146 Form and Shape by using Frame loom technique. Mix materials from Eri Silk and Raphia

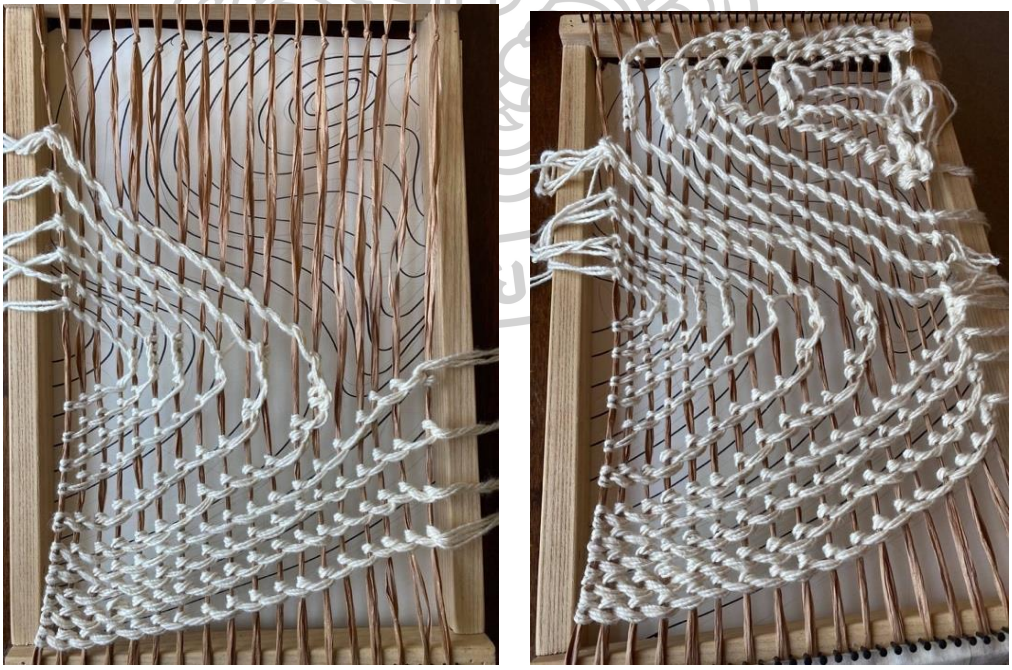

Figure 147 Exploring Contour lines by using Frame loom technique.

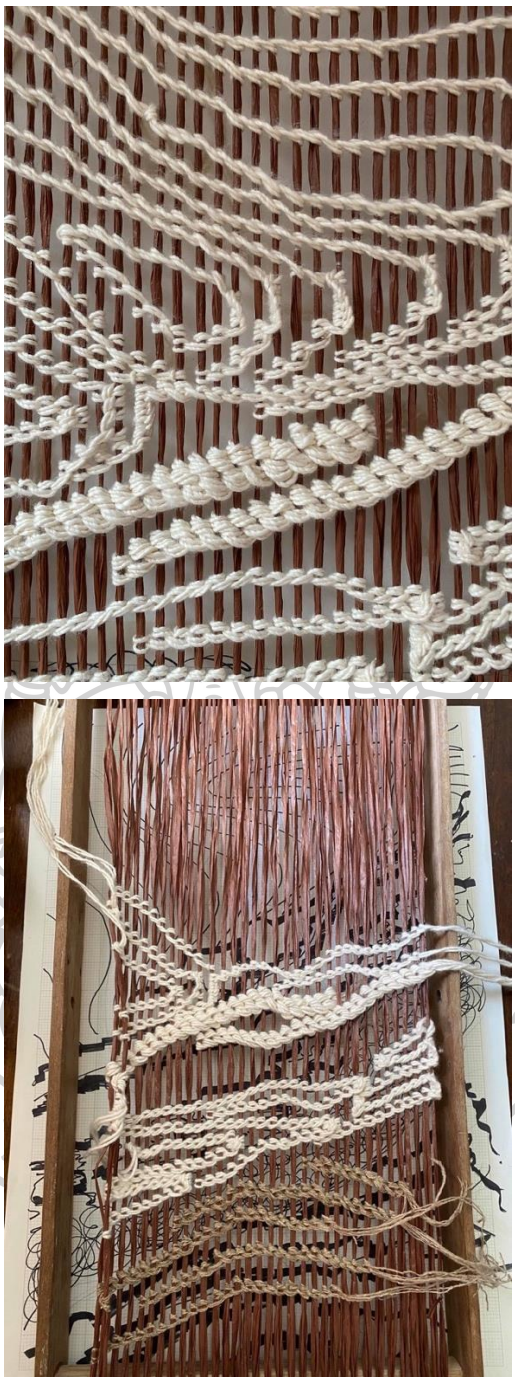

Figure 148 Exploring Contour lines by using Frame loom technique.

4.5 Results from all Experimentation

Figure 149 Results from all Experimentation through art practice

Figure 150 Results from all Experimentation through art practice

Figure 151 Results from all Experimentation through art practice

Summary of Experimentation

The purpose of these experiments, to create an organic textile art form, to experiment the weaving structure in various constructions, to experience the haptic quality and surface design on fabric by using a combination of local material and other fibers as a mix media to express the ideas. It is also to evaluate the knowledge acquired from using a complicated hand loom machine, a small table hand loom as well as sample tests done entirely by hand, perhaps I will only use a simple tool, “a small frame” to make my textile work. During the studio experience, I realized the importance of being skilled and possessing the craft knowledge to make things by hand.

Through the inspiration, the results of experimentation, all sample testing with art forms, and the ideas surrounding design concept, I have learnt and enjoyed creating things with my own hands.

Chapter 4
DESIGN SUMMARY

This part of the research is practice-based, in which the researcher has collected relevant data, analyzed, classified and synthesized into categories to conduct experiments on topics that need to be studied according to objectives under the implementation of the research methodology. The resulting design process of the final work of this research can be summarized in the following steps.

1. Research and Analysis
2. Planning and Development
3. Experimental Analysis
4. Design Development
5. Design Production

1. Process of Design

Artists and Designers use the design process to begin their work in art and design. In addition to design, theory is also required as a basic complement in the initial process. Design analysis and design solution are major procedures in the development of art and design. Carrying out experimental works before starting the actual work is a necessity as we can learn and be aware of various errors prior to the project's conclusion. The design Process can be resolved into four major methods, namely data research and design analysis, planning and development, experimental analysis, design development process, and finally, the production process.

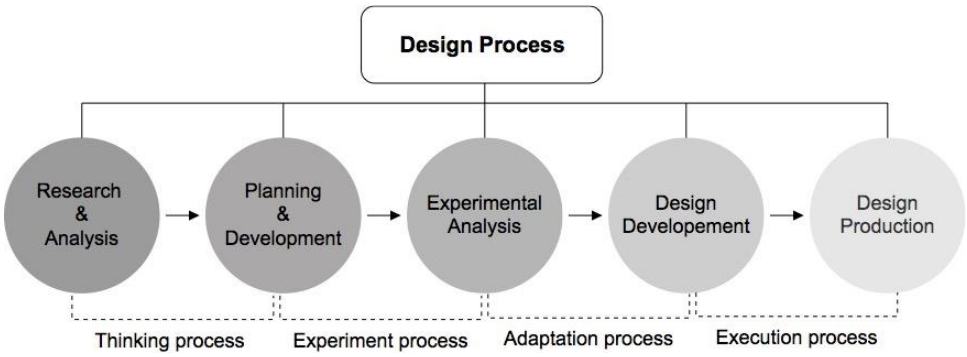

Figure 152 Diagram showing "Design process"

Research involves the interplay of a researcher-practitioner and their artistic process. This kind of interplay is an integral part of practice-led research, as discussed in chapter 2. The present chapter illustrates how Eri Silk, as the chosen material and a medium for artistic expression, can be incorporated into textile art. The researcher investigated this possible incorporation through both artistic process and the resulting textile artworks.

1.1 Research and Analysis

The study has led to the principle of design process as a guideline of research. The research process begins with the exploration of Eri silk as a local material through hand weaving techniques, analyzing the use of Eri Silk through art practice, exploring how the expressivity of the material in textiles can be used to demonstrate how art can drive a practice-led research process and how research can enhance the artistic process. This is a study of a physical material employed in textile art, written from the point of view of a textile artist, so that the significance of this relationship will be examined specifically through the eyes of a textile artist. The incorporation of material and expression could show the relationship between the two elements and the influence of local material “Eri Silk” on the making and understanding of artwork. It will shed light on the value of materials in the physical realization of an artist’s idea into tangible and meaningful from of art, and how it can be developed to differentiate and reach the level of international craftsmanship.

1.2 Planning and Development

Planning for the development of Eri Silk requires the synthesis of information through the principles of the weaving process. The selection of material, warp thread preparation in relation to the thickness of the fabric and the right equipment are issues to be considered. Proper time management and planning of the weaving operation is also important because the process is time consuming. This includes the collection and study of data on visual arts to formulate the shapes, forms and compositions of the design motif, before synthesizing with design principles to guide each aspect of the new development.

1.3 Experimental Analysis

A study and experiment according to the previously outlined research process. The researcher can summarize the results of each experiment to compare the pros and cons of each approach and to develop the subsequent design processes.

For my experiments as a textile artist, I tend to begin art production by conceiving the idea of the artwork (or a series of artworks). Then, I seek a suitable type of material for that artwork by touching and feeling several different materials until I discover the right one – a material through which I am able to express my idea (Illustration xx).

Figure 153 The general process of Art production.

The general way of creating artistic work. It has become the starting point of my research, which aims to seek answers and is reflected throughout my textile art practice. However, the focus on the material's influence makes the artistic part of this research differ from what is described above. To focus on the material's influence, the process for this study starts with material selection (Illustration xx).

Figure 154 The process of Art production focusing on the material's influence.

1.4 Design Development

The process of design development is to find a solution that improves the appropriate design while remaining relevant to the concept. As well as to examine the effectiveness of using multiple shafts to create structural textiles and to determine the limitations of the weaving technique. The researcher investigated the material characteristics of "Eri Silk" by experimenting with different textile manipulation

techniques. The material employed in every artwork is industrially made and the technique employed is hand weaving. The incorporation of material and expression could show the relationship between the two elements and the influence of "Eri Silk" on the making and understanding of artwork.

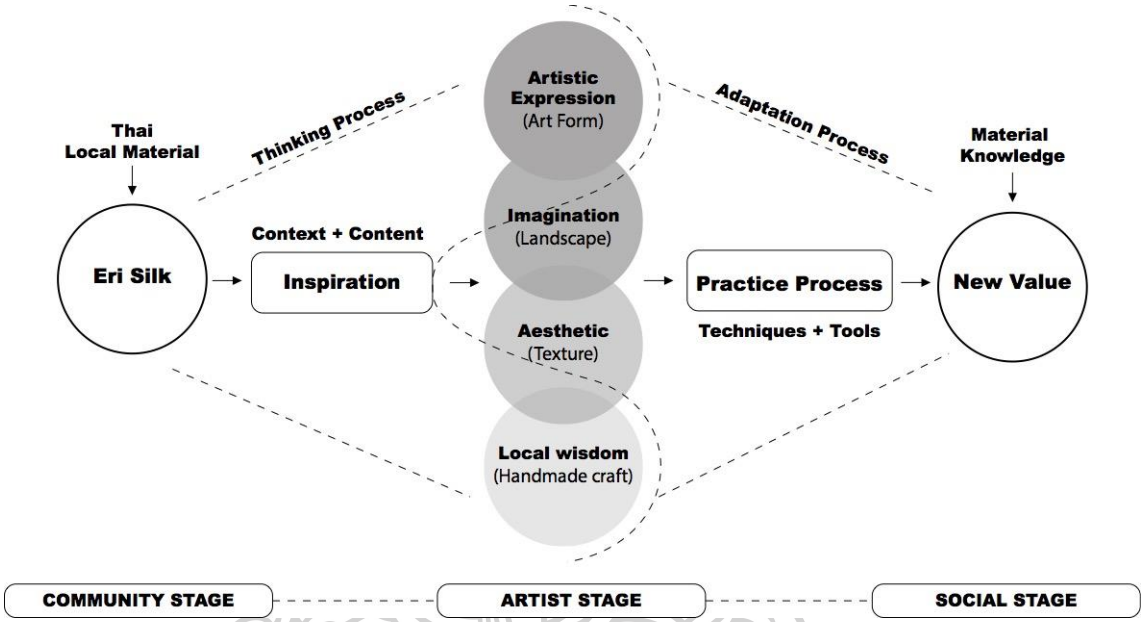

Figure 155 Diagram showing "Design Development Process"

1.5 Design Production

This study focuses on the observation of the work process in order to develop solutions and find ways to improve to the approach. The results obtained in this research will form a new body of knowledge which is the culmination of theoretical experiments through the research methodologies, and an integration of aesthetic and design principles of creative art.

The art work is designed through hand drawn sketches and computer program, Adobe Illustrator. After the drafts are concluded, the use of different types of hand looms is experimented. The appropriate loom for the double-weave technique is chosen according to its efficiency and viability. The frame loom was chosen for its ability to allow the weaver to see the both sides of fabric while weaving.

2. The Creation of "Eri Silk" through Artistic Expression in Textile Art & Craft

2.1 Design Inspiration

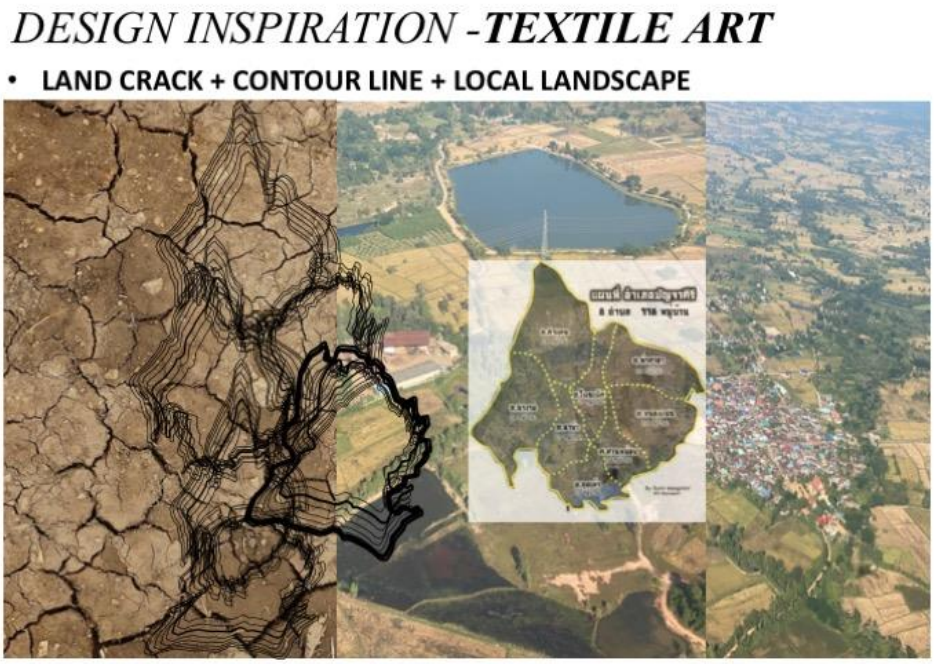

Figure 156 Design Inspiration- Textile Art

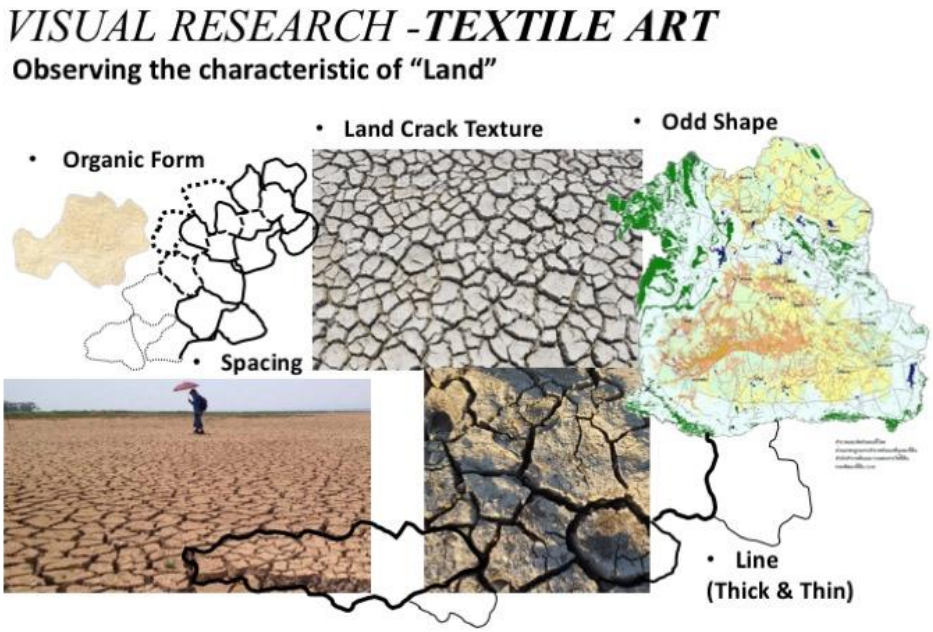

Figure 157 Visual Research- Textile Art

2.2 Design Inspiration

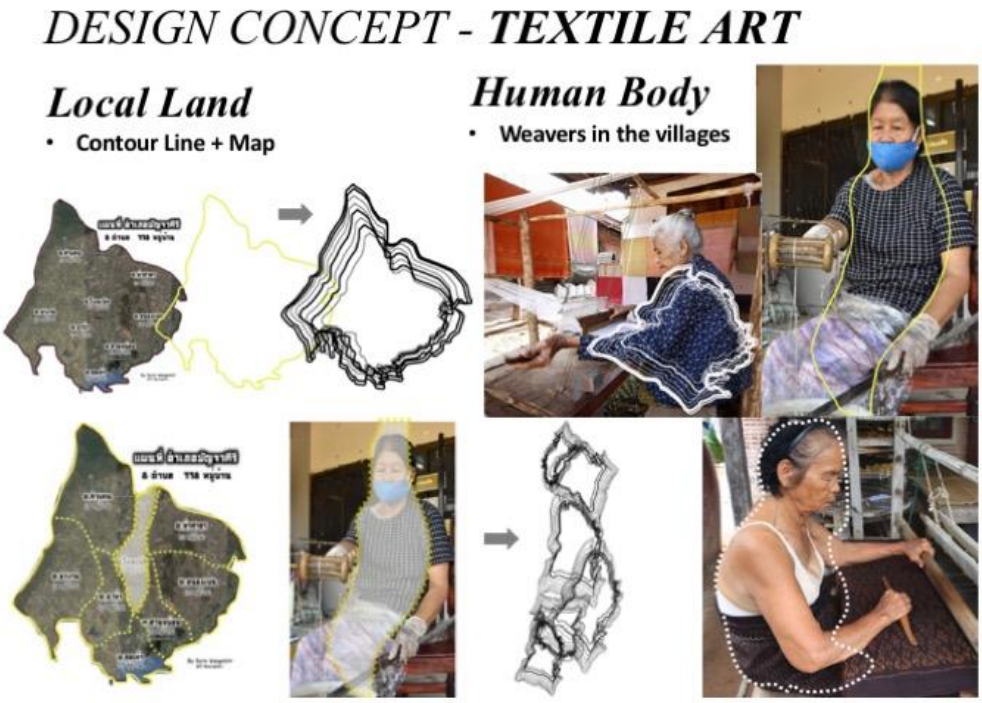

Figure 158 Design Concept- Textile Art

Figure 159 Human body from weavers in the village

2.3 Sketch Design

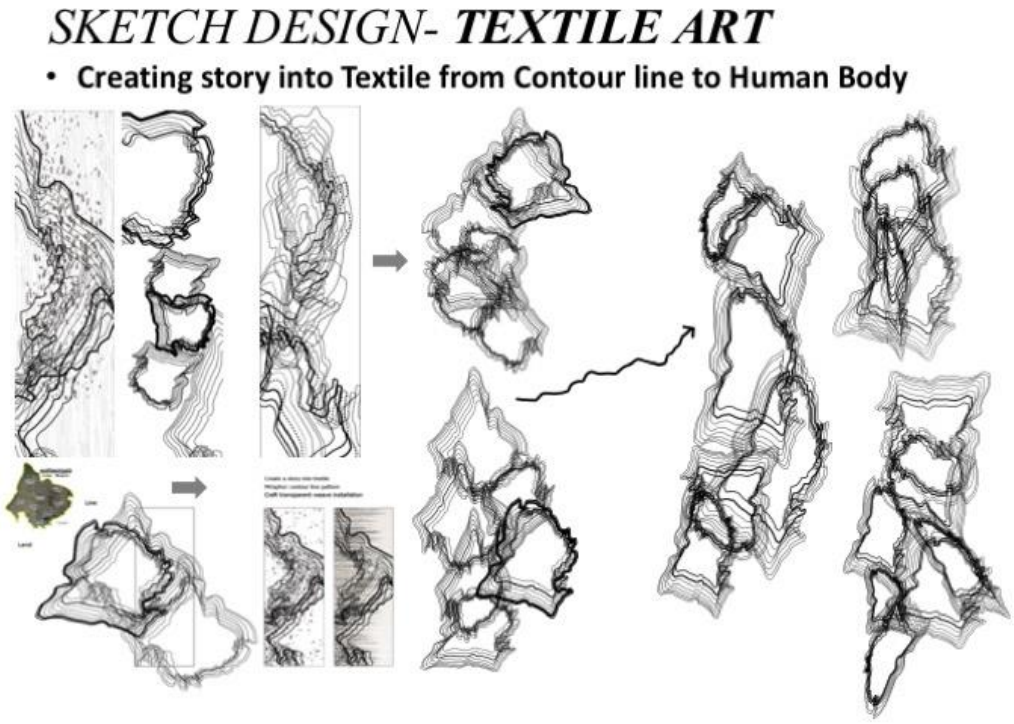

Figure 160 Series of sketch design-Textile Art

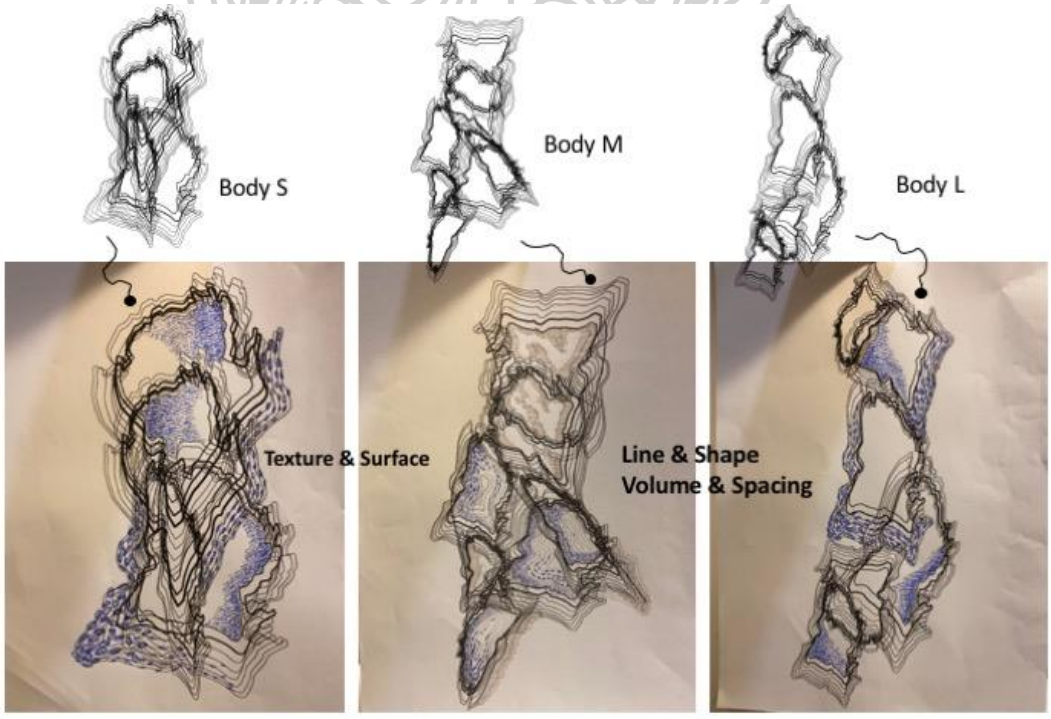

Figure 161 Series of sketch design-Textile Art (texture and surface design)

2.4 Design Process

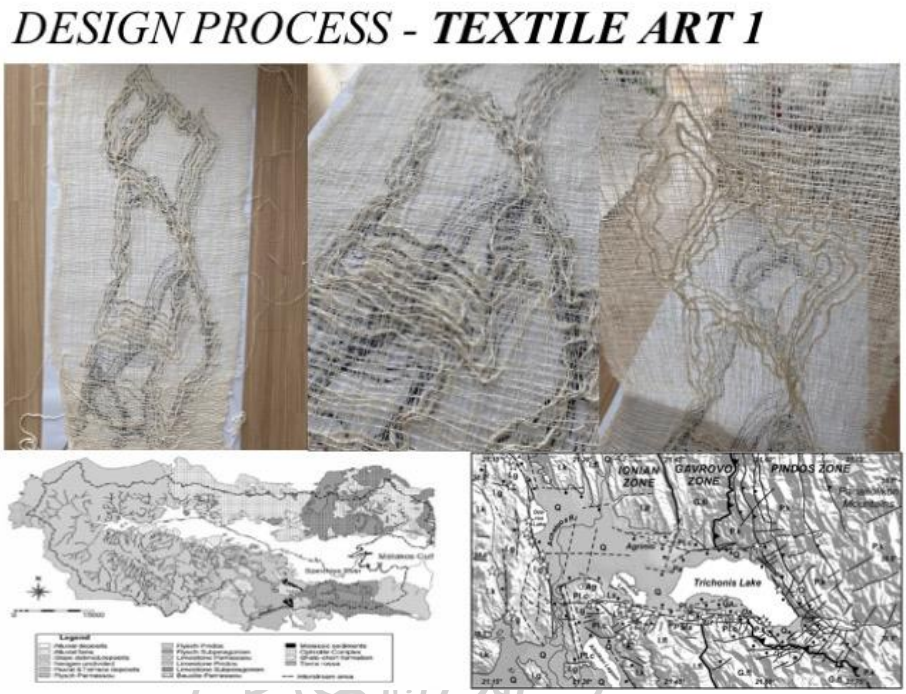

Figure 162 Design Process- Textile Art 1 Focus on Hand weaving techniques (tapestry weave) on transparency double cloth

Figure 163 Design Process- Textile Art 1, Hand woven “Eri Silk” double cloth

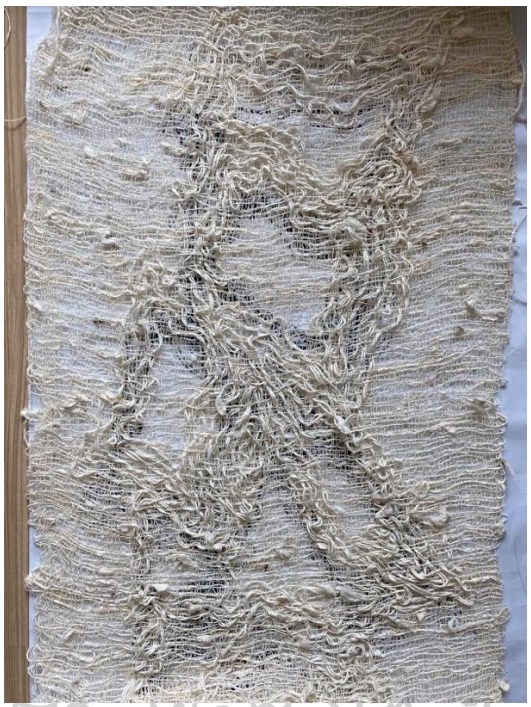

Figure 164 Design Process- Textile Art 1 Tapestry Weave “Eri Silk” with natural texture and surface

Figure 165 Design Process- Textile Art 1 Tapestry Weave “Eri Silk” on transparency double cloth

Figure 166 Design Process- Textile Art 2 Focus on Crochet techniques on a large-scale design

Figure 167 Design Process- Textile Art 2 Crochet techniques “Eri Silk” shows inherent textures and surfaces

Figure 168 Design Process- Textile Art 2, The Quality of “Eri Silk” local material that exist in the community in Thailand

Figure 169 Surface Design- Textile Art 2

Figure 170 Creation Work- Textile Art 2 Crochet techniques “Eri Silk” through artistic expression

Figure 171 Practice Process- Textile Art 2

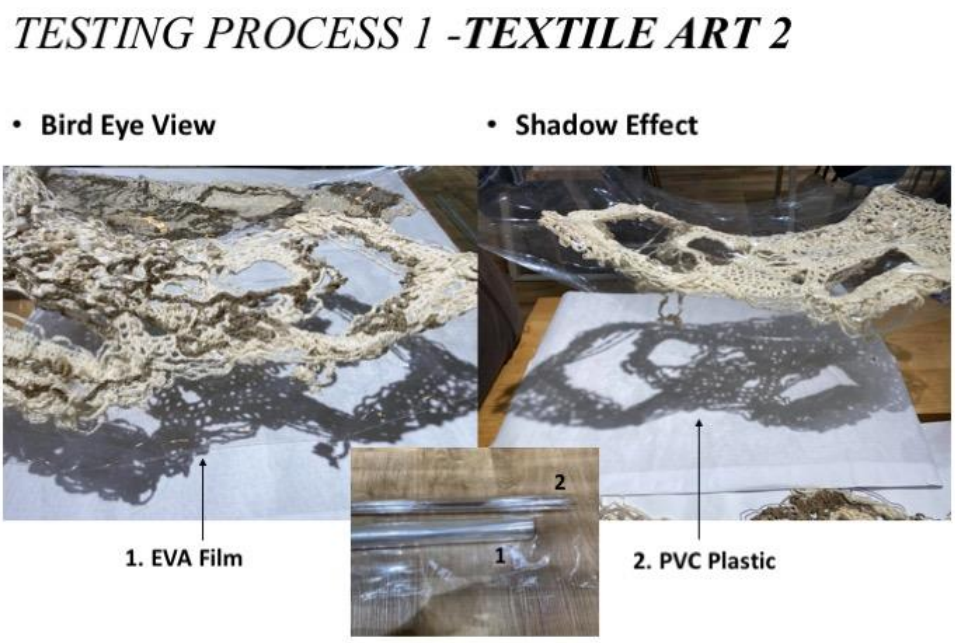

Figure 172 Testing Process- Textile Art 2 (Shadow effect)

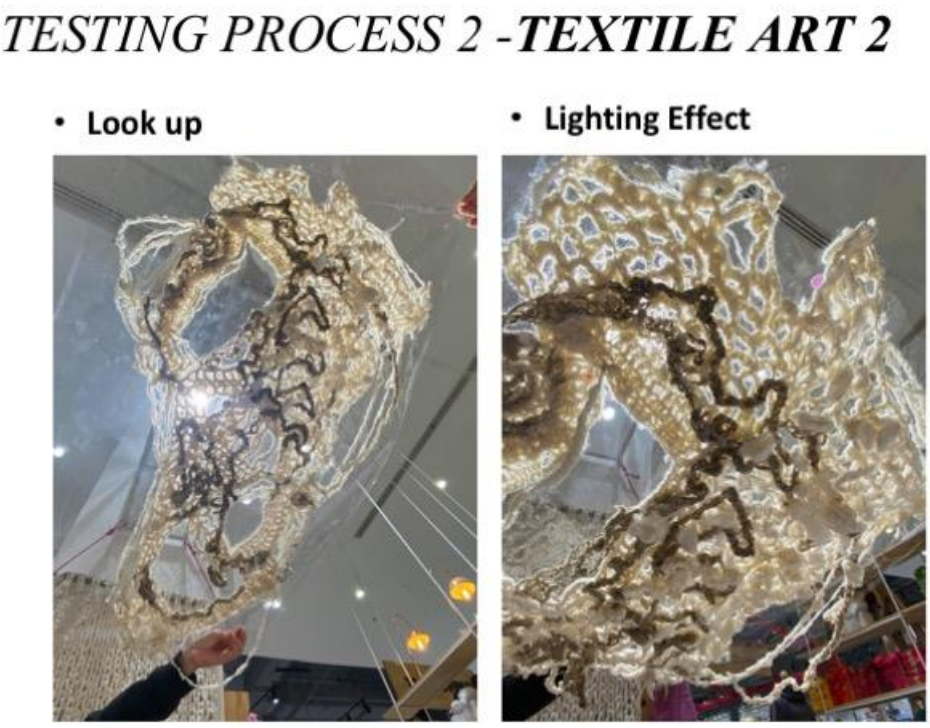

Figure 173 Testing Process- Textile Art 2 (Lighting effect)

Figure 174 Display Design - Textile Art 2 (Installation Art)

Conceptual Idea for Final Artwork

From Earth to Thread – the Journey of Eri Silkworm to Precious Textiles

- Process of natural fibers to thread
  Planting (soil-strain-maintenance)
  Harvest (learn-experiment-plot selection)
  Woven production
- Nature of silkworms, life cycle - Characteristics - Appearance, colours
  Behavior
- Special features of Eri Silk
- Value and Benefits
- Eri silk and local wisdom
- Modern and universal design for Value-adding
- Creation of the work from design

The story behind this series of artwork emerged from the effort to link textile art to the local community, beginning with the Thai woven fabric in the past, the conditions, distinctive characteristics, disadvantaged characteristics, problems, obstacles, and opportunities for development (including information from various sources). Followed by extracting lessons from the actual site, sharing experiences

with the textile institute. Exploring locals' way of life, their traditions, culture, local wisdom, inclinations, unique environmental conditions, characteristics, and limitations or opportunities for development. Then, linking the findings to the history of Eri silk; the beginning, the inspiration, the villagers, distinctive characteristics, and further opportunities for development towards an international level, through the process of co-designing, co-operation, and co-production with local communities with the potential and basic skills (weaving groups). Distinctive handicrafts with local characteristics have their unique charm. So, the result of the co-development of modern textile designs is contemporary uniqueness. The design may include a set of clothes or other inventions. Then the products are presented to the industrial production process to be able to compete internationally.

To uphold the royal ideals, royal remarks, and the sufficiency economy philosophy of King Rama IX, aiming to develop and to elevate the well-being of the people of Thailand, especially in rural communities. To promote continuous sustainable development of Eri silk weaving that allows villagers to have higher income, better ways of life, a better quality of life, and stability in accordance with the royal initiative and the sufficiency economy philosophy Of King Rama IX, who we worship and appreciate for his kindness. In addition, the objectives and the scholarship of this Ph.D. thesis are rooted in His Royal remarks as well.

As for the creation of textile art through artistic expression, I would present the piece through storytelling and use inspiration from contour lines found on the map of Thailand, specifically around the local area of Mancha Khiri district, in the Khon Kaen province. This is the location of the weaving community that has harbored the intellectual capital of woven fabric with local materials "Eri silk". The design process of this work started from the contour lines. I am fascinated by the beauty of the lines themselves. The contour lines are similar to a filament or fibers, in that the numerous lines come together to create a form. And I decided to use it as a main design element of my work. I would also like to explore the ways in which design elements can be used in textile art form. Lines are drawn with organic shape, giving consideration to their thickness, connections, rhythm and spacing between each line to convey a sense of the movement.

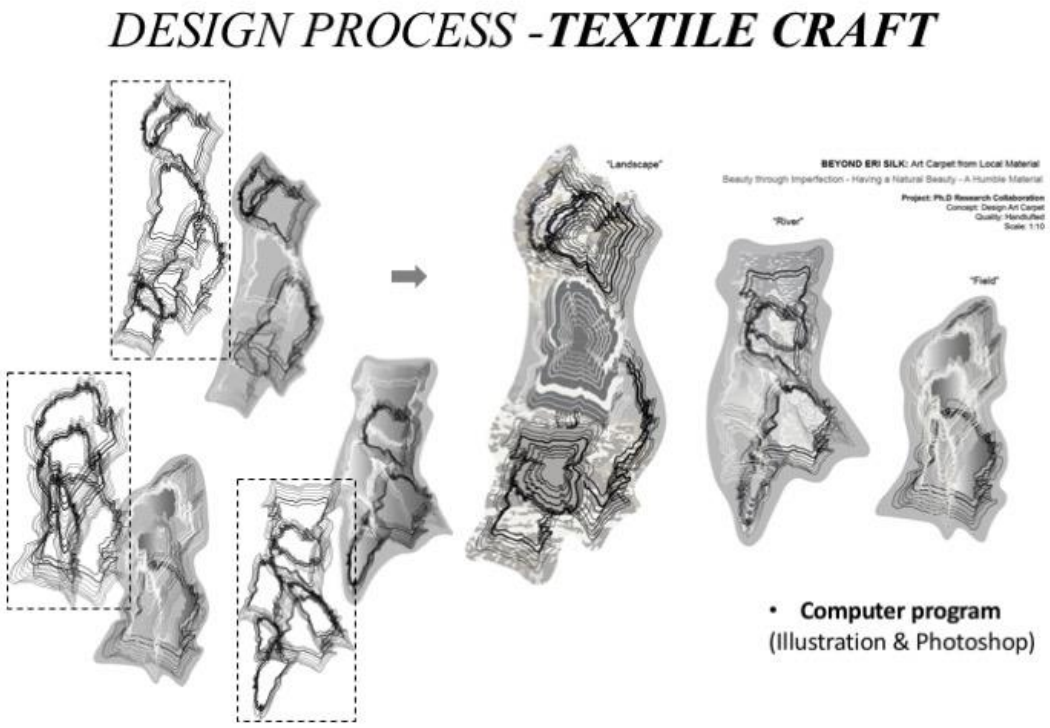

Figure 175 Design Process- Textile Craft (Carpet from "Eri Silk")

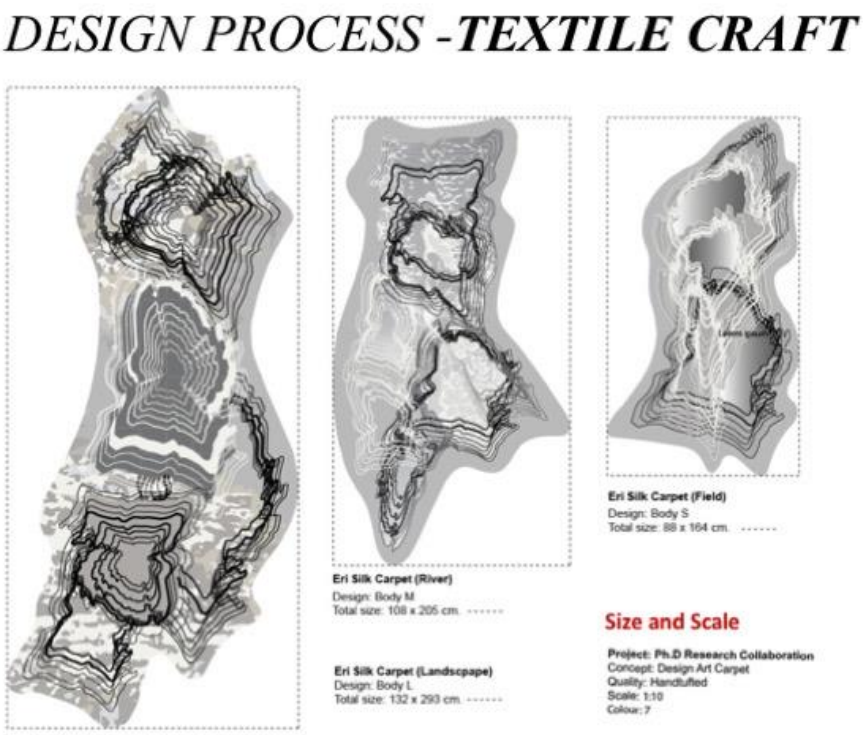

Figure 176 Design Process- Textile Craft (Size and Scale)

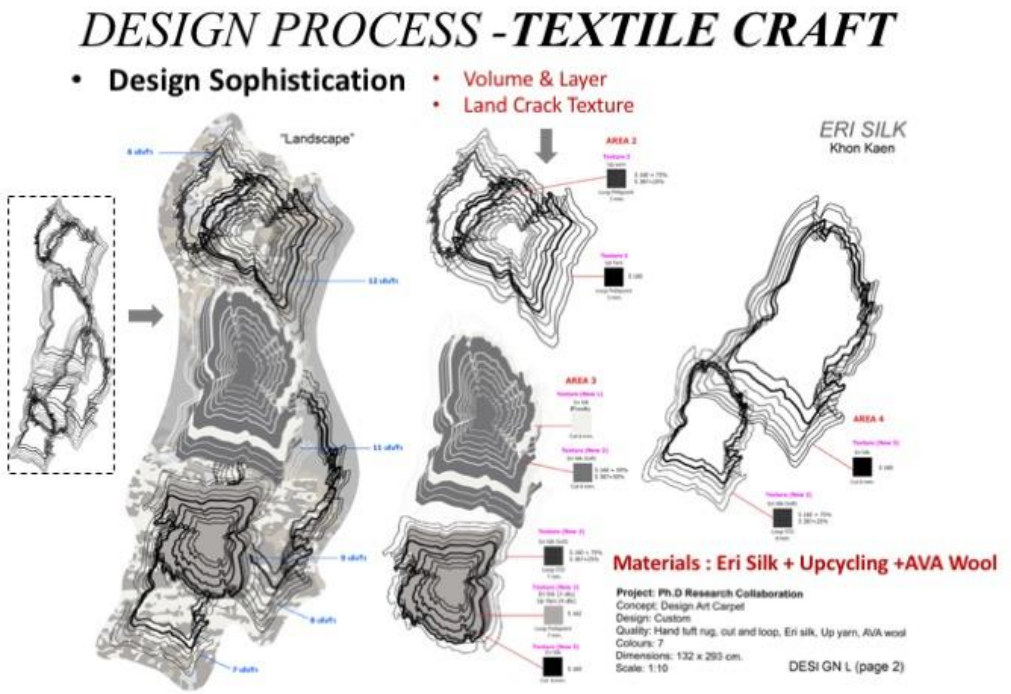

Figure 177 Design Landscape, Art Craft Carpet from local material “Eri Silk”

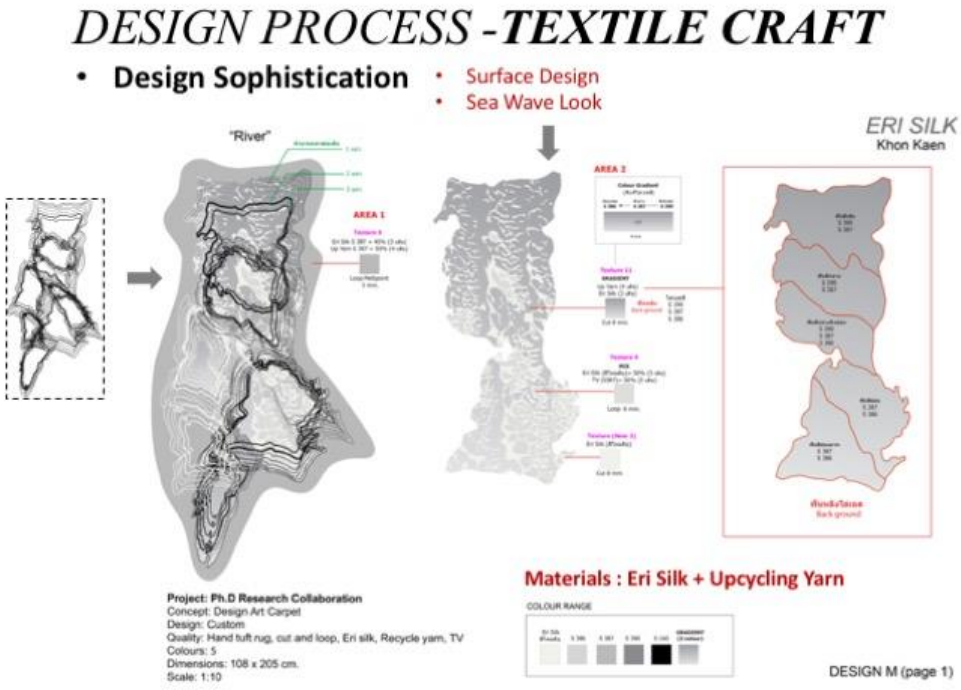

Figure 178 Design River, Art Craft Carpet from local material “Eri Silk”

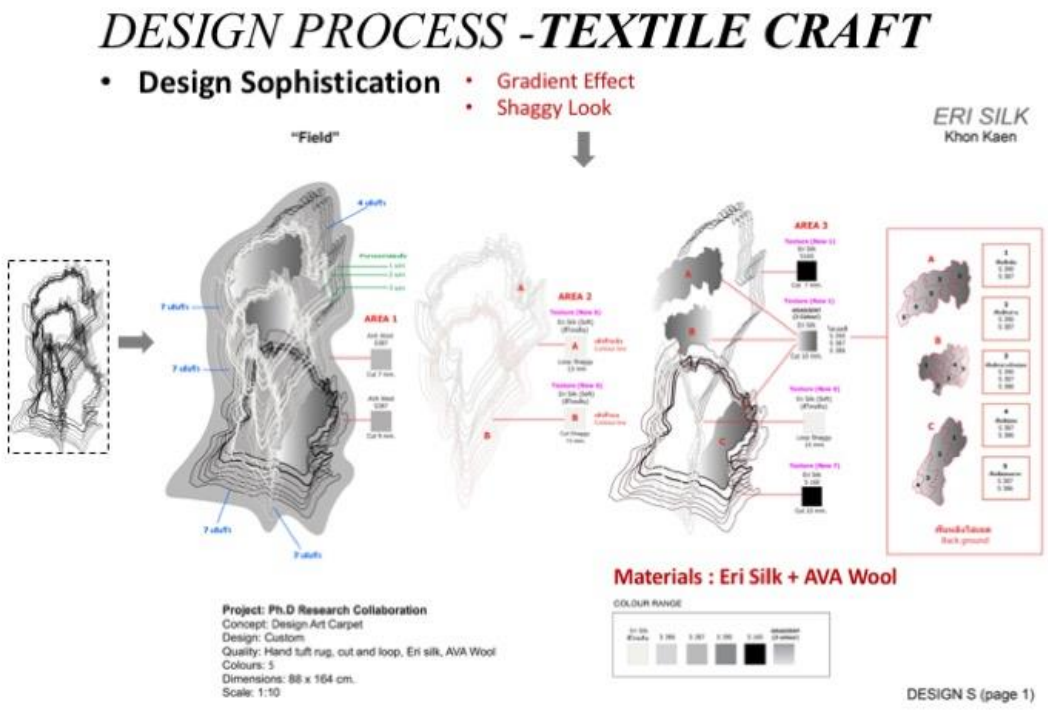

Figure 179 Design Field, Art Craft Carpet from local material “Eri Silk”

Figure 180 Example of requested textures

Figure 181 Production process- Design: Landscape (Ph.D. Research Collaboration with The Carpet Maker (Thailand) Co. Ltd.)

Figure 182 Production process- Design: River (Ph.D. Research Collaboration with The Carpet Maker (Thailand) Co. Ltd.)

Figure 183 Production process- Design: Field (Ph.D. Research Collaboration with The Carpet Maker (Thailand) Co. Ltd.)

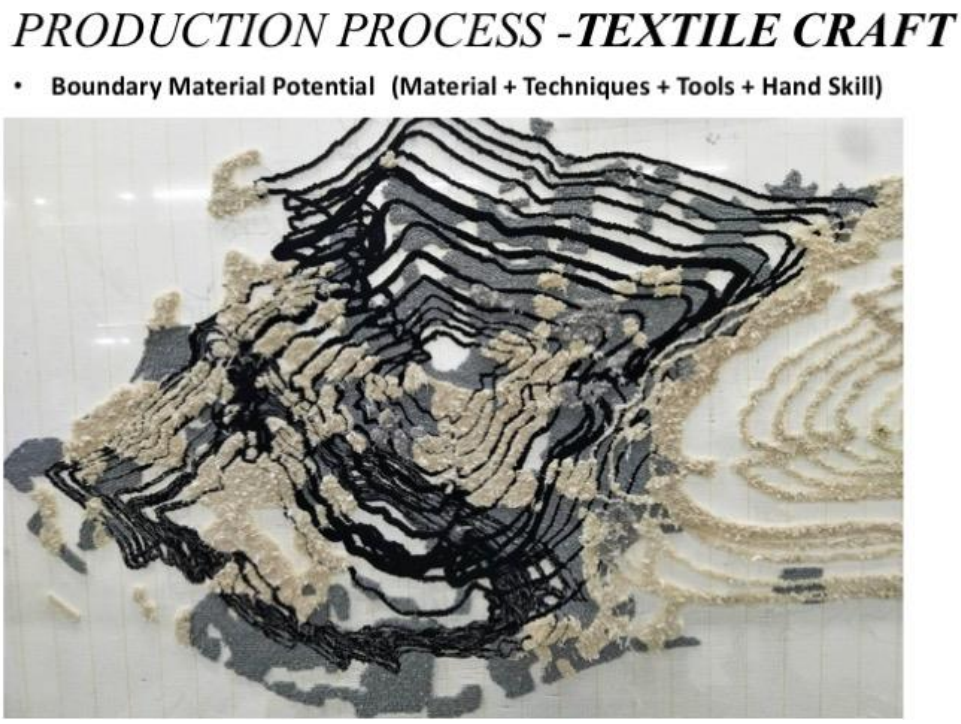

Figure 184 Production process exploring “Eri Silk” with techniques and tools (Ph.D. Research Collaboration with The Carpet Maker (Thailand) Co. Ltd.

Figure 185 Production process base on Artistic expression

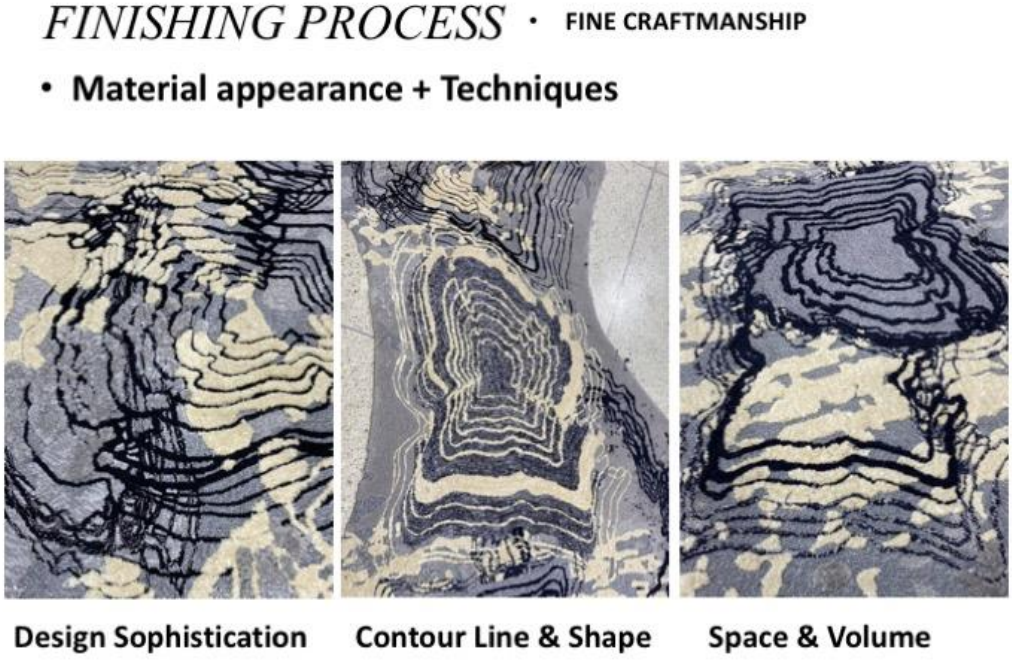

Figure 186 Finishing process “Eri Silk” combined with hand tufted carpet

Figure 187 Finishing process “Eri Silk” combined with hand tufted carpet

Figure 188 Finishing process Art Carpet from “Eri Silk” through craftmanship

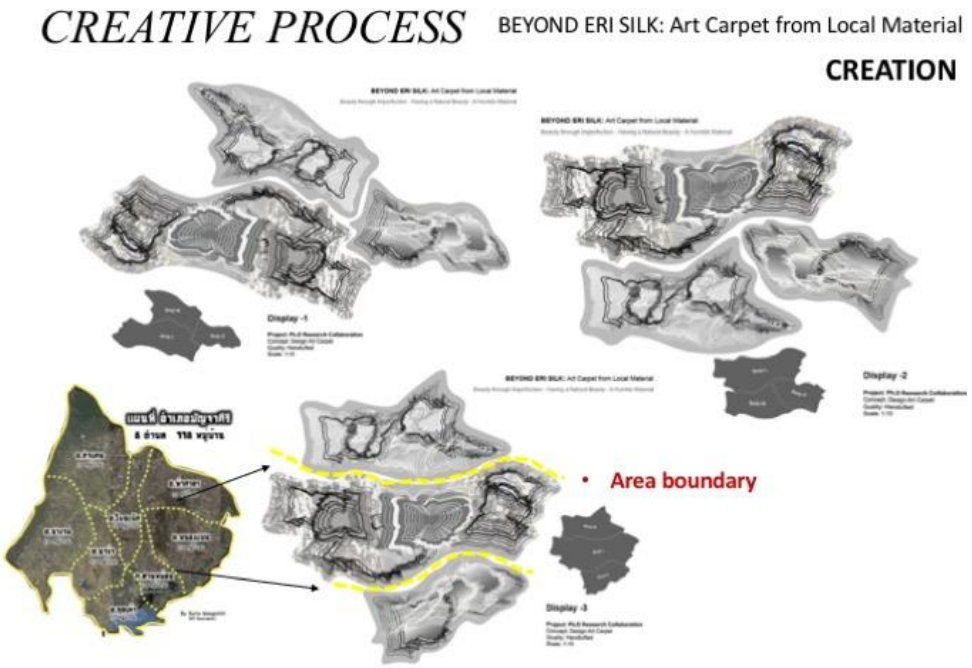

Figure 189 Creative process- Beyond Eri Silk (Creation)

Figure 190 Creative process- Beyond Eri Silk (Application)

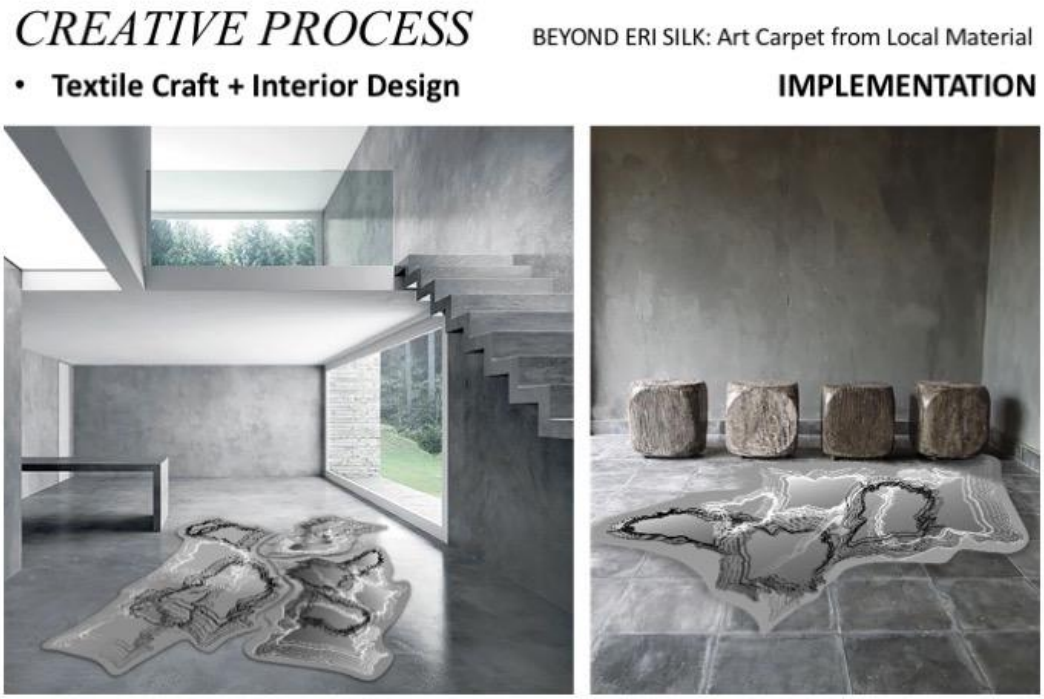

Figure 191 Creative process- Beyond Eri Silk (Implementation 1)

Figure 192 Creative process- Beyond Eri Silk (Implementation 2)

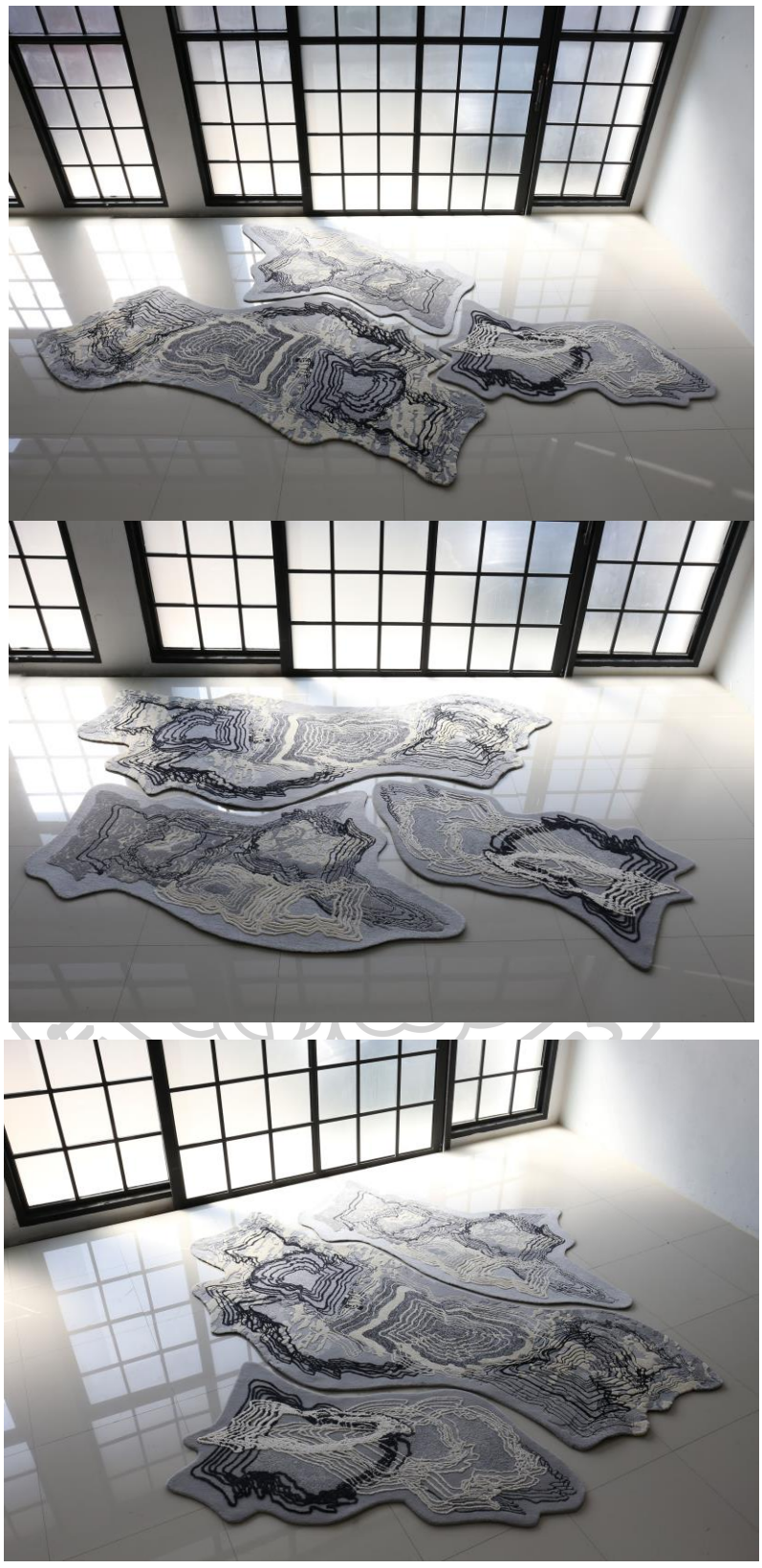

Figure 193 Art and Craft Carpet from “Eri Silk”: New value of Local Material

3. Conclusion

The research explores the interplay between art, craft and the identity within the contexts of material knowledge and visual culture. It also provides evidence of how knowledge, artistic capacity in textile design, aesthetics, philosophy and local skill-bases on the "Circular Economy", can coincide with global developmental goals and the "Green Economy". Therefore, it could become a model and reference point for other communities - those who share the same values - to contribute to the craft culture and material knowledge through textile disciplines.

It is possible to create textile art through art practices and design concepts of framing, sketching and creating, while identifying with the unique design language combining Thai local wisdom. This provides added value to the Thailand's cultural capital, which improves the quality of living standards in a sustainable and viable way. This strategy offers a viable solution for the development and enhancement of Thai textiles. It could play a widespread role in multiple communities as well as the potential to enhance Thailand's position in the global textile market. It could also become a model and reference point for other communities and economies to follow, providing a template for societies facing the ecological, social and economic challenges of a globalised 21st century.

Chapter 5
CONCLUSION AND SUGGESTION

This research aims to study the development of Thai art and textile design through the lens of creative, aesthetic and philosophical analyses, and to illustrate the importance of their roles in the Nation's development. The research delves into a community-based economy with its inspirational blend of tradition, art, lifestyle and culture. It recognizes the importance of material knowledge and culture, and proposes guidelines for, and knowledge of, the development of the Nation's textile diversity through art practice. This adds value by enhancing the quality of the country's textile art design and augmenting diversity within Thai weaving. It can also increase knowledge and encourage the continuation and preservation of the country's textile tradition. This research is appropriate for the future development of Thailand's Textile Tradition. The goal of this research is to highlight the importance of the development of textile art design. It describes constraints, problems, advantages and successes in creating value and developing textile art through art practices and design concepts. It explores the interplay between art, craft and identity within the contexts of material and visual culture. It also provides evidence of how knowledge, artistic capacity in textile design, aesthetics, philosophy and local skill-bases feed into the "Circular Economy", along with the global developmental goals of the 21st C, with regard to sustainability and the "Green Economy". Therefore, it could become a model and reference point for other communities - those who share the same values - to contribute to the propagation of craft culture and material knowledge through textile disciplines.

1. Research Summary

This study set out to clarify the expressive potential of materials, particularly Eri Silk, beyond its mere physicality, by exploring its relationship with artistic expression in textile art practice. Both the textile art production of the primary experiment in chapter 3, and the creation for art work in the chapter 4, led the process of enquiry and provided material for discussion. The study has demonstrated that the

local material ‘Eri Silk’, as a physical medium, incorporated artistic expression in the pieces of work throughout the various stages of creation, from their initial stages to completion, which could be experienced by the researcher and the audiences. The study has shown how this specific material could shape the interpretation of those experiencing the artwork and its material. Although the artwork intended to be open to interpretation, i.e. people seemed to have different opinions about the artwork. As interpretation brings out the meaning of something understood by an individual, meanings cannot occur as one single truth. This implies that a tangible thing can carry multiple meanings depending on who produces the interpretation and what previous experience the person possesses, as well as when and where the interpretation takes place, and so on. As mentioned earlier, materials such as ceramic, glass, metal, wood and textile have indicated craft-based art discourse. Although the importance of material has placed emphasis on the artistic expression of craft-based arts, techniques seem to be more dominant. In textile art, the creation of artwork is built around mastering technical skills, i.e. learning various textile techniques in the studio. Skill thus leads a creative process, and is followed by the selection of suitable materials for the mastered technique.

On creating and expressing, Dewey says: “(a)s we manipulate, we touch and feel; as we look; we see; as we listen, we hear.” The connection between hands and eyes is what allows one entire being to control both the doing and the perceiving. As stated in the previous section, Dewey points out that the process of expression is developed, not only in the artist’s mind, but also through her actions when she arranges visual elements or controls an actual medium. When an artist intends to express her emotions through her work, she thus conceives an idea and imagines it. Then, the eye of the artist attends the skillful hand that moves and manipulates the materials. In this sense, the mind also investigates and informs the hand on how to implement the technique in order to actualize the image in the mind. In responding to the images and what the artist intends to express, the hand does not only work with the physical material, but also feels how the material touches the fingers and the palm, sending the information about what is touched to the mind (Susan Stewart, 1999).

The mind analyses and evaluates what and how to continue the creative process. Expression, therefore, does not seem to exist only in the mind of the artist as said by Collingwood, but in the creative process through the interaction between the hand (together with the eye and the mind) and the material. The mind, the eye and the hand seem to work in concert and their movement influences how one think (Sennett 2008)

The act of expressing as Dewey puts it, begins when there is both a meaning of the outcomes and a medium to release the emotion. (Dewey, 1934) Expression then takes place when the mind of the artist conceives the idea of the resulting artwork and the hand of the artist uses the material and method. In Dewey's view on aesthetic expressiveness, meanings and values can be obtained from one's preceding experience and mix with the quality explicitly presented in the work of art and received by the person's direct sensory perceptions.

Aesthetics refers to the sense of perception toward beauty, both existing in nature and arising from the creation. It is the condition and relationship of emotion and mind caused by the perception and appreciation of beauty to the point of appreciation, satisfaction, and passion.

Aesthetics is the result of a scientific experience of "aesthetic". From a scientific aspect, it refers to "an art philosophy, whose substance is in the search for the nature of beauty and delicacy in the value of beautiful things, pleasure, and sweetness in nature or art. Aesthetics can be perceived without any words. Describing beauty is equivalent to blocking the perceived state of mind in which each person has different tastes to experience beauty."

Aesthetics or Esthetics is a branch of philosophy regarding theories of beauty and beauty in nature or the arts involved in the pursuit of value (axiology). In the past, aesthetics was known as "Theory of Beauty" or "Philosophy of taste", which is the subject of goodness, beauty, and truth inherent in nature or in art. The word Aesthetics comes from the Greek Aisthetikos - to perceive by the senses, meaning to perceive by the senses at different levels: 1) Beauty means the quality of being very pleasing, in form, colour, tone, behavior, etc. 2) Picturesque means having a natural beauty. 3) Sublime means the most exalted or impressive kind, extreme, lofty etc.

Generally, aesthetics is the beauty inherent in life, art, culture, and nature. It is in the reality of anything that contributes to enjoyment and appreciation through understanding and perceiving beauty, balance, or proportions. It can be within a person, animal, thing, event, place, music, idea, or art. Aesthetics can be perceived with the five senses or sensations within the human body namely sight, hearing, smell, taste, and touch. Another point of reception is through feelings of the individual.

1.1 The Uniqueness of Eri Silk fibers

Eri Silk is an open cocoon that has shorter fiber than the other types of silk cocoons. Eri Silk fiber is similar to cotton fiber, but the difference is that Eri Silk fiber is stronger and can absorb water better than cotton or mulberry silk. Eri Silk can be easily cultured, is stronger and more resistant to disease than mulberry silk (Attathom 1987: 481-458). The Eri silkworm has a shorter life span than mulberry silkworms, which means that Eri silkworms can grow faster.

Eri Silk cocoons have the same composition as mulberry silk cocoons, which is a fiber that contains Fibroin surrounded by sericin, a sticky substance that holds the fibers together in the cocoon, which is white, slender, and long. The fibers are woven together more loosely than mulberry silk. With the characteristics shown above, Eri Silk was the more suitable choice under the considerations of this study. Before deciding on it, deepening my understanding of this material was the next step. Regarding the other component of this research through artistic expression, as a result of reading into the literatures of aesthetics and philosophy of art, some philosophers' thoughts raised interesting questions. For example, Colling Wood's theory defining art as expression, which exists only in the artist's mind, and is not identical with the physical manifestation of a medium.

1.2 Analysis of the Attractiveness of Eri Silk

Eri Silk has several unique qualities; it is thick and soft like wool but has the ability to absorb sweat. With its unique quality and special softness, Eri Silk is classified as economic silk with high commercial potential. Different from other kinds of silk or cotton, Eri Silk is fluffier, similar to wool. The finished fabric provides good insulation and is warm in cold weather, whilst in hot weather it is light, airy and comfortable. The construction of Eri Silk fabric enables it to breathe well, the fibers do not feel rough or irritating on the skin. On touch, the fiber has an inherent slubby texture. Eri Silk yarn has a slight glossy shine which is beautiful and unique. In addition, Eri Silk is more durable than mulberry silk, easily maintained, and can be machine washed in the standard cycle.

Thai people may consider that Eri silk fabric is not as fine as mulberry silk, due to its roughness and its knots. The researcher saw the opportunity in Eri Silk that can be a Textile Material of the future. The identity of Eri Silk as a natural fiber material that many people think is inferior, however, if reappraised on the merits of its creative process, aesthetics, and philosophy, the value and appreciation of Eri Silk can be increased. The silk has to be further promoted in the art and design world, to create novel knowledge as a guideline for the unique development of the local wisdom textile art.

From the study, it was found that Eri Silk research and development in Thailand has four aspects as follows:

- Research and development of silkworm culture
- Research and development of the production and processing of Eri Silk thread for creating product diversity
- Research and development of fabric weaving for processing into fashion garments and soft-furnishing textiles for interior spaces
- Research and development of beauty and supplementary food products from Eri Silkworm cocoon

Obviously, Thailand still lacks the necessary research in silk, in terms of Eri Silk development in the field of art and design. The pursuit of a new knowledge-bank of creative work should encompass theoretical research conducted through an integration of creativity, aesthetics, philosophy, and technology. This is essential in creating value and developing the economy, society, and the nation towards steady progress in future sustainability in the context of Thailand's development policy, its 'National Economic and Social Development Plan', and the principles of the 'sufficiency economy'.

2. Main Findings

This research aims to reveal how art practice as a way of thinking through materials can be incorporated into practice-led design research. It is a study of a physical material employed in textile art practice, exploring how the expressivity of materials in textiles is used to demonstrate how art can drive a practice-led research process. It sheds light on the value of material in the physical realization of the idea of an artist into meaningful and tangible works of art. The results obtained in this research will form a new body of knowledge which is the culmination of theoretical experiments through the research methodologies, and an integration of aesthetic and design principles of creative art. Craft-based art discourse has been identified and categorized by materials such as ceramics, glass, metal, wood and textile. The discussion surrounding materials seems to concern techniques of manipulating a material in order to bring forth a physical object. For example, in textile art, when discussing a specific material, whether on a professional or educational level, the issue is about textile techniques such as weaving, knitting and printing. It is more about skill and the end results, i.e., how to utilize techniques in relation to materials to make a beautiful thing, rather that discussing the meanings of the creative process.

Materials can be conceived as having expressive qualities or materialness presented through its visual and tactile aspects that can assist an artist in shaping their creative production throughout. The creation of an artwork in an artistic process takes place when the maker or artist intends the object to mean something and then creates it. The material in which a meaning is embedded in the creation process brings forth not only the physicality of the artwork but also a conception of it. The artwork thus

becomes the artist's material expression and the physical thing in which its maker's expressive and creative through is embodied. As John Dewey pointed out, the expressiveness of an art work is manifested by the artist's experience and action in resolving creative pressures in the medium (Dewey 1934, P. 60-109). The materialization of an art work, according to Dewey, is not just externalization of an artist's artistic intuition or expression, but the "subject-matter and sustainer of conscious activities" (Dewey 1925, P. 393). Expression is thus considered to involve a skillful control of a medium in order to make the art work expressive or embody meaning. Dewey's account on expression differs from Benedetto Croce's and Robin George Collingwood's notions of expression that distinguish expression from art objects, i.e. subjectivity from materiality.

3. Reflection on Research

Through my research and experience, I believe there is a renewed interest in technical skills for handmade products. In terms of design, I would do several things differently. I should have more sample designs before I proceeded to create on a larger scale, to be more open-minded, and experimented with other techniques which could help achieve my ideas. However, I think the main thing I learned from the studio practice is that I had built up on my practical skill through the research experience. I am also more aware of the importance of having the confidence, as a contemporary textile designer/maker, to present my ideas. Moreover, I also gained valuable experience through working on the project that has developed my practical skills in a professional way.

Finally, reflecting on the positive and negative aspects of my project will, I believe, really help me improve myself for the future. The Reflective Project has improved my confidence in my ability, through producing textile works. I feel it has effectively resulted from my ambition to achieve all my ideas through the research project. I am exploring alongside several different practical skills during my research project and I will continue to hone them. I have already attained good technical skills with the process I chose, and I feel that I can now apply my research, along with my

technical and practical skills to my works under a fresh perspective. I was really pushed to think conceptually and found this project challenging, enjoyable and most importantly, a significant step in furthering my creativity. I hope that this is reflected visually through my journal. Therefore, the knowledge and technical skill that I have develop through the use of traditional techniques and natural resources will support me in moving towards the fundamental concept of natural sustainability. I hope that the knowledge obtained through the studio experience from my research journey can effectively enhance the role of contemporary textile art in Thailand. I wish to share my knowledge and practical experience on a professional level in future.

4. Suggestion and Guidelines for Thai Eri Silk's Development

4.1 Importance and Development Research

From the research that included field interviews, which gathered information on Eri silk, the researcher has established guidelines to improve the utilization of Eri Silk. In conclusion, any activity related to Eri Silk can still be further developed as an alternative career that generates income for farmers and entrepreneurs, as well as manufacturers and producers of textile products. This project proposes that research in art, design, and silk development is very important to Thailand in terms of economy, society, and the inheritance of arts and culture, wisdom of the country. Thailand lacks knowledge about the development of local materials for the creative textile arts and crafts. Contemporary Textile Art presents textiles and textile-based thinking within the context of aesthetic values in art, art aesthetic approach, and craft design values rather than that of materialistic development. Contemporary Textile Art refers to art that uses a variety of materials, whether it is plant fibers, wool, or synthetic fibers using techniques including knitting, weaving, knotting, netting etc. Textile designers create work to present the texture, pattern, and colour of the fabric in order to create a product. Textile art reflects the unique characteristics of the work based on the experiences of the artist, or to convey the story through their imagination about nature or the local community.

The main factor limiting the development of textile art in Thailand is that local weavers are too accustomed to traditional weaving. They do not dare to innovate or try new things. There is also a lack of knowledge development in the use of textiles within a contemporary art context connecting with the concepts of production. Craft, Design, and Art are a combination of 3 contexts. The local weavers lack the sources of information about the raw materials for weaving, such as Eri Silk – they still use traditional silk or mulberry silk. When there are such restrictions on the use of weaving materials, the country's textile development remains in the same format that focuses on the development of woven fabrics or the pattern design in a traditional way. Accelerating the development to catch up with the competition in the production of woven fabric according commercial/industrial models has made us overlook the charm and the value of the textile art that emphasizes the meaning and quality of natural materials that exist in the community.

4.2 Material Properties and the Heart of the Development of Textile Art

This research, therefore, recognizes the importance of Eri Silk, a local material in Thailand that can be cultivated and produced within the country without relying on imported foreign fiber such as wool. Eri silk has many of the properties of animal fiber. In addition, it is a natural fiber that has an environmentally friendly production process. This level of sustainability is significant and especially meaningful. Eri Silk is known as 'Peaceful Silk', a silk thread that does not destroy living things. Many countries around the world accept Eri silk, especially in terms of spiritual values and Buddhism. Buddhist monks in India, Bhutan, Nepal, China, and Japan prefer this silk, due to its non-violent origins.

In addition, Eri Silk has the unique fibrous properties described above. It can be dyed with natural colours, to give a smooth and beautiful colour, and woven into fabrics to be processed into a variety of textile products. Taking note of consumer habits according to the changing lifestyles of each era, designers are now freer to create a wide range of work. From the past to the present, designers have become more active in the development of Thailand's textile work. Development and extensions from traditional wisdom, the handicraft skills, passed on from generation to generation, express the inspirations from nature, folk wisdom, and the combination

of the creativity and design into a work of contemporary textile art. These things are important for the development of new knowledge for Thailand, which needs to push for the development of design, art, craft textiles for humanity and contemporary society. This knowledge is considered a source of creativity that will lead to the creation of new knowledge in the art, textile, and design of Thailand, with a focus on creating more value for textiles as creative cultural capital, rather than an industrial product. This approach could play a major role in communities and societies in helping the country in numerous aspects.

Eri silk has a high potential to be an important material to carry forward the art of Thai textile. However, the future of Eri silk in Thailand depends on the continuation of development from the current situation of small household industries to community level and large-scale national level industries. This requires serious action and commitment. There must be studies into the field of design and art to pave the way. New platforms are needed to bring together creative work in synergy with theoretical research integrating aesthetics and core philosophies. The results of the research will lead to the development towards an improved quality of life, whilst enriching society, the economy, and the environment. The objective of this research is to develop textile art designs based on creativity, to draw the new generation into the country's textile art using design and creative theory as a guideline for creating works.

The theory and the novel knowledge obtained from this research in art and design, by integrating creativity, aesthetics, philosophy, and technology, can be applied to the development of textile art design in Thailand. The research into the development of the relationship between local materials and the country's textile wisdom, therefore, plays an important and necessary role in creating value, and developing society. In this way, the nation may progress steadily towards sustainability in the future in the context of the National Economic and Social Development Plan and the Sufficiency Economy Philosophy

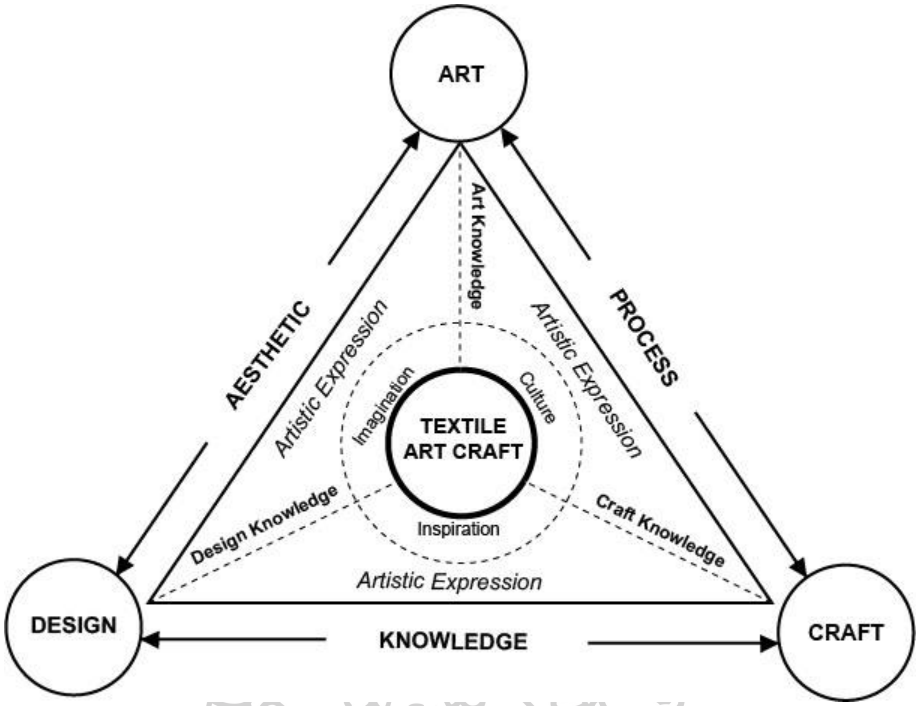

Figure 194 Diagram showing the Prism Model of “Textile Art and Craft” Knowledge (Based on Practice-based research)

Knowledge integration, artistic ability in design, aesthetics, philosophy and local wisdom based on the "Circular Economy" concept, along with the environment-oriented developmental approach of the 21st-century world, together create "Green Economy" growth and support sustainable development. These ideas are the answer to the development of Eri Silk, the local textile and fiber materials of Thailand in the future. The broad framework for national development according to the Sufficiency Economy Philosophy, i.e. moderation, reasoning, and self-sufficiency, is an appropriate guideline for the conservation and restoration of Thai textile and hand-woven fibers art in the form of simple, beautiful, harmonious and balanced, which is grounded upon the natural environment, culture, traditions and way of life of the Thai people. This reveals the true value and meaning of the creation of self-sufficient and sustainable artisanship and artworks. Making textile art through art practices and design concepts of framing, sketching and creating, - identify with the unique design language combining Thai local wisdom. This in turn provides added value to Thailand’s cultural capital, which improves living standards in a viable and

sustainable way. This strategy offers a real-world solution for the development and enhancement of Thai textiles. It could play a widespread role in multiple communities as well as the potential to enhance Thailand's position in the global textile market. It could also become a model and reference point for other communities and economies to follow, providing a template for societies facing the ecological, social and economic challenges of a globalised 21st century.

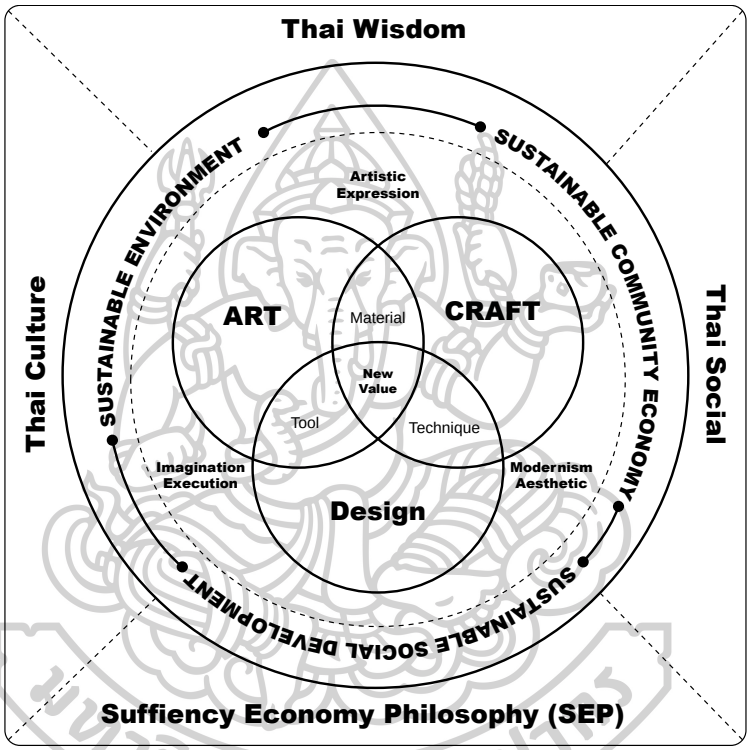

Figure 195 Diagram showing research outcome

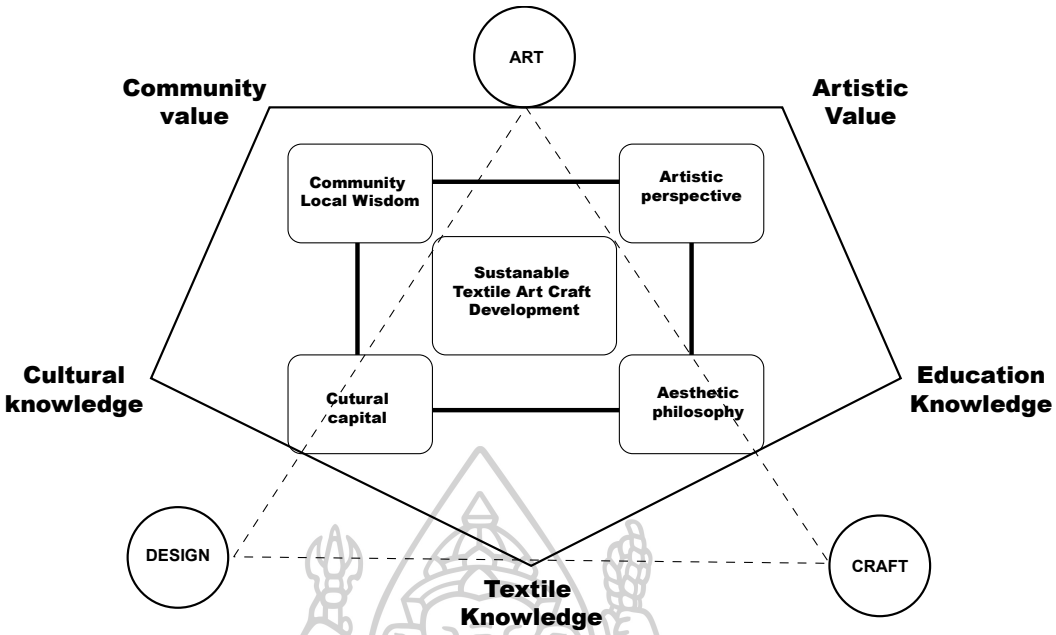

Figure 196 Diagram showing the result of Sustainable Textile Art and Craft Development to enhance new value of Local material “Eri Silk” based on Artistic Expression

REFERENCES

Adamson, Glenn. (2007). **Thinking Through Craft**. Oxford: Berg.

Adamson, Glenn. (ed.). (2010). **The Craft Reader**. Oxford: Berg.

Areekul, S. (1991). **Eri Silk Farming: Development for Northeast of Thailand**. 10(10): 1-3.

Attathon, T. (1987). "Potential hazards of Microbial Insecticides to the Eri silkworm Philosamiaricini." Sericologia. 27(3): 481-458

Bamba, Masae. (2010). **The Gallery of Contemporary Textile Artists**. Accessed on 10.04.12. Accessed from http://www.transitionandinfluence.com/gallery/masaebamba.html.

Bell, Robert. (2006). **Transformations: The language of craft**. London: Thames and Hudson Ltd.

Bhabha, Homi K. (1994). **The location of Culture**. London: Routledge.

Bloomer, Carolyn. M. (1990). **Principles of visual perception**. London: Herbert.

Boradkar, Prasad. (2009). **Design Things: a critical introduction to the culture of objects**. Oxford: Berg.

Bourdieu, Pierre. (1986). **Distinction: a social critique of the judgment of taste**. London: Routledge.

Britton, Alison. (2009). **Three by one: a selection from three public craft collection by Alison Britton**. Farnham: Craft Study Centre Council.

Carter, Michael. (1990). **Framing art: Introducing theory and the visual image**. Sydney: Hale& Iremonger.

Charny, Daniel. (ed.). (2011). **Power of Making**. London: V&A Publishing and The Crafts Council.

Chrienne, Chinn. (2007). **Colour & Texure Bible, 180 schemes for the home**. London: Quarto Publishing plc.

Clark, Simon. (2011). **Textile Design**. London: Laurence King Publishing Ltd.

Clay, Robert. (2009). **Beautiful Thing: an introduction to design**. Oxford: Berg.

Colchester, Chloe. (1991). T**he New Textiles, Trend and Tradition**. London: Thames and Hudson Ltd.

Colchester, Chloe. (2007). **Textiles Today, a Global Survey of Trends and Traditions**.

London: Thames and Hudson Ltd.

Collingwood, Robin George. (1958). **The Principle of Art**. Oxford: Oxford University Press.

De Lucio-Meyer, JJ. (1973). **Visual aesthetics**. London: Lund Humphries.

Delong, M and Wu, J and Bao, Mingxin. (2007). "May I Touch it?." In **Textile The Journal of Cloth & Culture** 5(1): 34-35.

Dewey, John. (1984). "Art as Experience.", From Stephen D Ross ED., **Art and Its Significance: An Anthology of Aesthetic Theory**. Pages 203-205. Albany: State university of New York Press.

Fariello M. Anna and Owen Paula. (2005). **Objects and meaning: new perspectives on art and craft**. USA: Scarecrow Press.

Gale, Colin and Kaur, Jasbir. (2002). **The Textile Book**. Oxford: Berg.

Gardner Troy, Virginia. (2006). **The Modernist Textile, Europe and America 1980-1940**. United Kingdom: Lund Humphries.

Gombrich, Ernst. (2005). "Press statement on The Story of Art." **The Gombrich Archive**. Archived from the original on February 14,2008 Retrieved January 18, 2008.

Greenlees, Rosy. (2010). **Lost in Lace: New approaches by UK and international artist**. Birmingham: The Craft Council and Birmingham Museums & Art Gallery.

Harrison, Diana. (2010). **Box by Diana Harrison**. Accessed on: 21.12.11. Accessed from http://www.youtube.com/watch?v=1occcMYLIcY.

Harrison, Diana. (2011). **Artist's statement**. Accessed on: 17.12.11. Accessed from http://www.transitionandinfluence.com/gallery/dianaharrisonstatement.html.

Holly, Michael Ann and Moxey, Keith. (2003). **Art history, Aesthetic, Visual studies**. London: Yale University.

Jintasataporn, O., Tabthipwon, P., and Ohshima, T. (2001). Chemical composition, lipid classand fatty acid composition of eri silkworm (*Philosamia ricini*). Proceedings of the JSPS70th International Commemorative Symposium. October 2001. Yokahoma, Japan p.1-2

Joshi, K. L. and Misra, S. D. (1982). "Silk Percentage and Effective Rate of Rearing of

Eri silkmoth, Philosamia ricini researched on two host plants and their combinations.”Entomol.7(1): 107-110

Kubicki, Kathy. (2003). **Beyond the Pale**. Accessed on: 12.12.11. Accessed from http://www.lesleyhalliwell.co.uk/?p=249.

Loannou, Noris. (1992). **Craft in Society: anthology of perspectives**. Western Australian: Fremantle Arts Centre Press.

Lunin, Lois F. (1990). “ “The Descriptive Challenges of Fiber Art” Library Trends.” **The Board of Trustees, University of Illinois**. 83 (4): 697-8.

Lunin, Lois F. (1990). “ “The Descriptive Challenges of Fiber Art” Library Trends.” **The Board of Trustees, University of Illinois**. 83 (4): 697-716.

Lenore Tawney. (2020). **Lenore G. Tawney Foundation**. Retrieve 14 September 2020

Macmillance dictionary. (2009-2010). **‘texture’ difition 2 (online)**. Accessed on: 10.11.11. Accessed from http://www.macmillandictionary.com/dictionary/ british/texture.

MacMurray, Susie. (2010). **Susie MacMurray**. Accessed on: 13.12.11. Accessed from http://www.susie-macmurray.co.uk/about.php.

Mann, Ptolemy. (2010). **Textile art: artist statement**. Accessed on: 10.04.12. Accessed from http://www.ptolemymann.com.

Mann, Ptolemy. (2012). **Maker of the month: textiles**. Accessed on: 10.04.12. Accessed from http://www.themaking.org.uk/Content/makers/makers.html.

McCarty, Cara and Maquaid, Matilda. (1998). **Structure and Surface**. New York: The Museum of Modern Art.

Millar, Lesley. (2002). “Textile: Craft, design, artisan and art.” In **Text for The Essay for the Opening Craft Study Centre**. 42-44. Hampshire: Canterton Books.

Millar, Lesley. (2004). “Through the Surface.” In **Text for The Study of Textile Art Design & History** 32(5): 40-9.

Millar, Lesley. (ed.). (2007). **Cloth and Culture Now**. Farnham: University College for the Creative Arts.

Millar, Lesley. (ed.). (2008). **Cloth and Culture Now**. Farnham: University College for the Creative Arts.

Millar, Lesley. (ed.). (2011). **Lost in Lace, Transparent Boundaries**. Birmingham:

Birmingham Museums & Art Gallery.

Monem, Nadine Kathe. (2008). **Contemporary Textile: the fabric of fine art**. London: Back Dog.

Nimkulrat, Nithikul. (2009). **Paperness: Expressive Material in Textile Art from an Artist's Viewpoint**. Finland: Otava Book Printing Ltd.

Oei, Loan and De Kegel, Cecile. (2002). **The Elements of Design, Rediscovering colour, Textures, Form and Shapes**. Singapore: Thames & Hudson.

Olding, Simon and Carter Pat. (ed.). (2004). **Crafts Study Centre: Essay for the Opening**. Hampshire: Canterton Books.

Phisit, S and Warnchit S. (1977). Some information of Wild Silk 50 (3): 148-157

Prichard, Sue. (ed.). (2010). **Quilts, 1700-2010: hidden histories, untold stories**. London: V&A.

Quinn, Bradley. (2010). **Surface. In: Textile Futures, fashion, design and technology**. Oxford: Berg.

Risatti, Howard. (2007). A **Theory of Craft: function and aesthetic expression**. Chapel Hill: The University of North Carolina Press.

Sarkar, D. C. (1988). Eri culture in India. Central Silk Board, Ministry of Textiles, Government of India. Grafo Printers, Bangalore, India

Schoeser, Mary. (1995). **International Textile Design**. Hong Kong: Laurence King Publishing Ltd.

Schoeser, Mary. (2003). **World textile: a concise history**. London: Thames & Hudson.

Sennett, Richard. (2008). **The Craftsman**. New Haven: Yale University Press.

Sengupta, K. (1987). Current status of non-mulberry sericulture and its future development.Proceedings of the XV International Sericultural Congress, Section 5: Non- mulberry silk. 2-6 March, 1987. Pattaya, Thailand. p.131- 138.

Sengupta, K. and Singh, K. (1974). An evaluation of the efficiency of different food plants and their combinations for the rearing of eri silkworm, *Philosamia ricini*. Proceedings of the First International Seminar on Non-mulberry Silks. Ranchi, India. p.189.

Sirimungkararat, S. (2009). "Development of Eri Silk yarn Production and Its Processing for Creation of Product Diversifications." Department of Plant

Science and Agricultural Resources, Faculty of Agriculture, Khon Kaen University.

Sirimongkararat, Sivilai. (2010). Creation and development of premium products from wild silkmoth fibers. Khon Kaen University.

Thangavelu, K. and Phuko, J. C. D. (1983). Food preference of eri silkworm (*Philosamia ricini*) (Saturniidae: Lepidoptera). Entomol. 8(4): 311-315.

Thipwadee et. Al., (1992). Raising the Eri Silk with various food plants Minutes of Meeting No. 30, Plant Division, Kasetsart University. p. 291-300

Turkle, Sherry. (2007). **Evocative Object: Things We Think With**. Cambridge: MIT Press.

Veiteberg, Jorunn. (2005). **Craft in Transition**. Norway: Valdres Trykkeri.

Ward, Glenn. (2003). **Postmodernism**. London: Hodder education.

Ward, Michael. (1934). **Art and Design in Textiles**. London: Van Nostrand Reinhold.

Wongtong, S., Areekul, P., Onlamoon, A. and Tragoolgarn, S. (1980). Research on wildsilkworm cultivation in the highland of northern Thailand. Final report. Highland Agriculture Project. 1976-1980. Kasetsart University, Bangkok, Thailand. p.199.

VITA

NAME	Miss Supawinee Charungkiattikul
DATE OF BIRTH	18 February 1984
PLACE OF BIRTH	Nakhon Si Thammarat
INSTITUTIONS ATTENDED	2018-Present Textile Designer, The Project "Mud Tor Jai" The Project of Textile Development with Creative Design on Thai Cultural Identity: Northeast Region Thailand Textile Institute, Ministry of Industry 2019-2020 Guest Lecture "Fashion & Textile Design" Department of Fashion, Textile and Garment Design, Faculty of Fine and Applied Arts Thammasat University, Thailand 2014-2019 Head of Design, Marketing Development Division The Carpet Maker (Thailand) Co., Ltd 2013-2014 Textile Designer, Product & Development Division PASAYA, Satin Textiles Co., Ltd, Bangkok, Thailand
HOME ADDRESS	171/866 Condo Lumpini Place, Pradiphat Road, Phaya Thai Bangkok 10400, Thailand
AWARD RECEIVED	2018 Awarded Research Fund of a Royal Golden Jubilee Ph.D. Scholarship from the National Research Council of Thailand under the Ministry of Higher Education, Science, Research and Innovation. (Grant No. PHD/0195/2561). Ph.D. Research Fellow at the school of Craft and Design, Textile Department, University for the Creative Arts (UCA), Farnham campus, UK 2015 Finalist Emerging Awards 2015: Textile and Fabric Design Designer of the Year 2015, organized by Silpakorn University 2014 Creative Textile Award 2014, Second Prize for Innovation in Textile design Awarded by Thailand Textile Institute 2007 Third Prize Winner, Prism Award for Interior Decorated Textiles Awarded by The Office of Product Value Development, Bangkok, Thailand