TEXTURED EFFECTS IN TEXTILE ARTS AS A MEDIUM OF ARTISTIC EXPRESSION

By

MISS Kesinee SRISONGMUANG

A Thesis Submitted in Partial Fulfillment of the Requirements

for Doctor of Philosophy DESIGN ARTS (INTERNATIONAL PROGRAM)

Graduate School, Silpakorn University

Academic Year 2020

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MISS KESINEE SRISONGMUANG : TEXTURED EFFECTS IN TEXTILE ARTS AS A MEDIUM OF ARTISTIC EXPRESSION THESIS ADVISOR : ASSISTANT PROFESSOR VEERAWAT SIRIVESMAS, Ph.D.

The textured effect of the washing process is an 'inevitable change appearance' in fabrics. The quest for the potentiality of these inevitable change textures in textiles generated the research topic. This research aims to analyze existing textured effects on appearance and to identify critical factors to create textured effects in which textile art is the medium, in order to contribute to the knowledge of the relationship between temporal and conceptual contexts in inevitable change to expand the aesthetic quality of these appearances through the researcher, from an art practitioner's viewpoint.

The research methodology employed iterative practice-led research and research-led practice in a single project. In this research, literature reviews, research studies, field studies, notetaking, observation, and photography are tools to identify the concept of artistic 'medium' through experiments. Local materials and parts of traditional processes are applied for the experiments. The first half of the experiments was to collect materials from traditional materials processes with local artisans in Northeastern Thailand. Indigenous handspun cotton and silk that are predominantly used in local Thai handwoven textiles are selected for this research. Yarn twist made by cotton and silk, obtaining the alternative characteristics and property of elasticity add the potentiality of textured effects into common local materials. The processes and works of professional artists were adopted to understand the relationship between the physical and aesthetical by creating textile art practices.

The research result is a series of textile art representing creative textiles' textures that inevitably change appearance into the main protagonist. These textile artworks' new characters conveyed the relationship between materials, process, and conceptual context making as an expressive tool for subjective inspiration, to approach the art and/or design outcome of the topic. As an art practitioner, the researcher gains both tacit physical and aesthetic knowledge through this research and practice. Furthermore, the alternative characteristics added to common local materials that expand the potentiality of yarn making could create new value, both physical and aesthetic, for future alternatives to use in the local textile community.

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Kesinee SRISONGMUANG

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Chapter 1

Introduction

Statements and significance of the problems

Washing is a regularly affective process that is able to change the appearance of a fabric's texture. To extend the life of the fabric's use, many research studies propose numerous innovations to resolve this issue, such as wrinkle free or wrinkle resistance using many methods for the pleasant durable textures of the cloth for the users. The finishing can be temporary or permanent, in which the finishing changes the appearance or texture of the fabrics. Significant technological advances using new materials and procedures are being developed(Baugh, 2011a). The various alternative durable textures of fabrics have also been created for utilisation with several styles and moods on different surfaces. For example, pleats are an alternative textured fabric that have provided the timeless beauty from the Egyptian period until the twentieth century. In 1907, the work of fine hand-pleated silk was first created by Mariano Fortuny, the notable Spanish fashion designer, who invented the silk pleating process to make the classic Delphos gown that challenged all fashion trends. This deceitfully basic, however clever design freed the female shape the restrictions of women's outfits at the time.(S.R.L., 2020). Later, the differentiated perspective of pleats in Issey Miyake's concept in 1960 were continuously developed and produced in high fashion. However, the utilisation is universal and reflects the character of freedom. This "Pleats Please" line of Issey Miyake showed the freedom and minimal style that can be made long-lasting in his brand(Edelkroot, 2012a).

All genius has launched the monumental pleats to the earth that are pleasant to users. Beside pleats being popularly textured, there are the structural textured fabrics that make the looks of fabrics that are more casual, such as seersucker in which texturing and weaving are achieved by using the different tensions of warping yarns. These are normally formed as vertical stripes, although

horizontal ones are possible too(Shenton, 2014). The textured effects start when removing the fabric, and the warps start shrinking in different tensions, making the material have unsmooth textures. Fashion apparel brought this seersucker fabric into the formal silhouette patterns such as suits in summer season to make its look have a more casual style and be suitable for outdoor occasions. The texture effect appearance of fabrics can be designed by processing the materials.

The advantageous invention of durable textured fabrics, some of which are created by structuring effects and some by undergoing the advanced processes of new technology, provide the advantage of the durability of the texture's appearance. However, this is less well-maintained after the washing process. Besides function and utilisation, the textures of textiles need to be created for the significant concepts and styles of the fabric's appearance.

Based on the above, wrinkles resulting from the washing process have led to the invention of both maintaining a wrinkle-free condition and the alternative textures in fabrics. Along with these creations, the artists and designers attempt to find their own style by using traditional methods but emerging with a unique kind of textural appearance, as mentioned with regard to the differentiated fashion styles of pleats between Mariano Fortuny and Issey Miyake.

As the inevitable constancy of change is always occurring in everything, the actual texture in the natural system is an expressive tool for artists and designers to create works according to their points of view. The washing process in the cycle of textile usage affects the appearance.

This point generates ideas about how the changes, such as the washing process, cause a negatively unsatisfactory appearance or the other subjective 'change'. It can be a tool to approach the textured effects and their aesthetic value in textile art and design appearance through the personal question regarding the inevitable change of things.

With a wrinkled texture, natural materials such as silk and cotton are accessible. There is an extensive range of materials that are used to make textiles. The various natural materials that are most useful in fabrics are cotton, flax, silk, and wool. This research focuses on a well-known local material: Thai silk, as a valuable product of Thailand. Local Thai fabrics have been produced for domestic use using production techniques that have been inherited from generation to generation. In terms of design, handwoven cloth has over time been adjusted, developed and created to serve everyday utilisation. Therefore, to maintain this skilfulness and further combine the handmade aesthetic heritage, it is beneficial to expand and interpret the aesthetic value of texture effects through this study as an expressive tool for creative vision.

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Research Objectives

This research adopts a question regarding wrinkling as an inevitable event in the life cycle of cloth in order to focus on and explore the relevant physical and aesthetic knowledge. Therefore, this paper aims to experiment on creating a textured

effects appearance having advantages by using Thai materials and handwoven fabrics as follows:

1. To study, explore and analyse existing textured effects and relevant appearances.
2. To experiment and identify the key factors of creating textured effects and relevant appearances having advantages in handwoven textiles.
3. To map the key factors and examine the textured effect creation in handwoven textiles.

Research Methodology

This research is an iterative research-led practice and practice-led research to identify the key data for creating the texture in the experiment. The research-led practice starts with the study and analysis of the data collected from existing knowledge to be explored as knowledge relevant to the topic. This was done in parallel to the practice-led research, by starting with an idea or innovation on the material processing and weft direction of weaving. This process was followed by the formulation and theorisations that may be applied to the generation of creative texture effects appearance, in which it is possible at every stage to return in a revisiting of the generational idea. These can jump from one point to any other found in the research structure in order to analyse the results and discuss the refining of the creative works and the data of relevant knowledge.

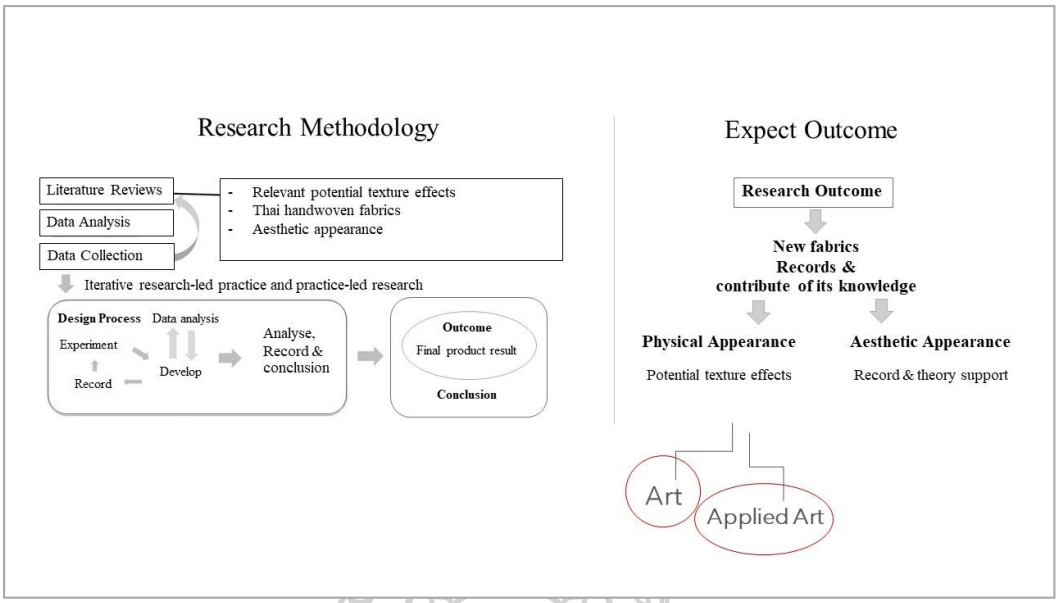


Figure 1. Research methodology and expect outcome illustrated by the researcher.

Research Methods

The steps to approach the results of the research are as follows:

1. Studying the properties of commonly used materials and the previous studies of existing texture effects of textiles and their relevance.
2. Selecting subjective objects in change-related texture effects to analyse for key findings
3. Experimenting based on the key findings related to texture effects in handwoven textiles.
4. Results and discussion
5. Examining the results.
6. Drawing conclusions.

Hypothesis

Based on the review of the literature on existing texture fabrics, the key factors in making textures vary for the different types of production and processing. Materials, tension, structures, heat, water and moisture are all potential factors involved, especially the yarn twist that has a high influence over the surface of fabrics. Therefore, this paper is focused on Thai materials and local processes, of which the further stages can apply the knowledge from the experiment to handwoven techniques.

Expect Outcome

This research aims to study and identify the keys data that can apply to the handwoven fabrics and approach process and method of texture effects and expand the aesthetic value of texture effect appearance as the expressive tool in creativity. The research had experimented on combining natural fibre materials, cotton and silk. The contribution of its knowledge for new fabric will be the expected outcome of this research.

1. Data collections and the analysis of existing textured effects appearance and relevant topics.

2. Keys finding of making a textured effect in textile appearance.

3. Obtaining knowledge of the relationship between materials and making an expressive tool for subjective inspired and approaching the topic's art or/and design outcome.

4. Expanding potentiality and adding alternativity to common local materials in use.

5. A researcher as a practitioner gain both tacit physical and aesthetic knowledge through the research-led practice of the topic.

Term and definition

Texture

Texture refers to the way of perceiving surface quality. It is an experience surrounding. The texture is defined as the tactile characteristic of an object's surface at its most fundamental level. It appeals to the sense of touch, which might elicit unpleasant, pleasurable, or familiar sensations. (Esaak, 2019). It's a two-dimensional and three-dimensional design element with distinct visual and physical features. Actual texture, inferred or simulated texture, imagined texture, and abstract texture are all examples of texture present in artists' works.(Torkzadeh & Afshari, 2019).

Textured effect

In this research, on texture expressiveness feature in the subjective and contextual works of research. *The textured effect* refers to a surface quality that conveys an element of two-dimensional or three-dimensional surface that appears its texture caused effects by processing to its appearance.

Wrinkle

A small line or folds in fabrics; if material wrinkles, or if something wrinkles it, it gets a small line or folds. In this research, the wrinkle in fabric has been twisted, wrinkled, or distorted in any way.

Chapter 2

Literature Reviews and Related Studies

1. What is textile?

Fairchild's Dictionary of Textiles defines *'Textile'* derived from the Latin term textiles based on the verb *texere,* meaning *to weave.* 1. A materials broad classification that can be utilized in constructing fabrics, including yarns and textile fibres. 2. Designating the constructed fabric, including knitted, woven, and nonwoven structures and crocheted and lace goods. 3. Descriptive of processes, organizations, personnel associated with the manufacture of products from fibres or yarns(Phyllis G. Tortora, 2003). According to John Gillow and Bryan Sentence's book, *A Visual Guide to Traditional Techniques World Textiles*, the name *"Textile"* derives from the Latin verb texture, which the Romans used to denote *"to weave," "to braid,"* and *"to construct."* Textiles are made of destructible materials that can only be kept under extreme conditions for millennia.(Sentance, 2004).

The name originated from the French texere and the Latin textilis, meaning *"to weave,"* according to Encyclopaedia Britannica. Originally, it solely applied to woven cloths. It has, however, expanded to encompass fabrics made in different techniques. Textiles include threads, ropes, cords, nets, braids, embroidery, lace, and fabrics created through weaving, bonding, knitting, tufting, or felting. In certain definitions, the term textile also refers to items made using the papermaking process that have qualities similar to traditional fabrics.(Abrahart, 2020). Therefore, textiles as its meaning can understand that Textile, come from Latin 'to weave', 'to construct' and 'to braid' with materials from fibres or yarns can be designating constructed and produced by many methods.

Textiles have been associated to women's work, home, and family life, and hence to what could be called a feminine sensibility. As a result, textiles have rarely figured in discussions and studies of modern art.(Smith, 2017). The discussion of Gloria Elizabeth Chacon on her article, *Materials Culture Indigeneity, and Temporality, Textile as Legal Subject Material Culture* about textile object and subject that the discussion focuses on how indigenous textiles and their producers call into question the western concepts as authorship; the legal and philosophical parameters which define and separate Artisan from Artist, and the boundaries lines distinguishing commercial enterprise from purely personal expression. She presented the complex relationship between innovation and the preservation of tradition, community versus commons or public domain, as well as ancestral and modern temporarily. There are collective groups of woven textiles novels from Gloria Elizabeth Chacón's article(Chacón, 2020) that are...

'Textile patterns as symbolic line impressions, denoting personal and social expressions passed down as ancestral knowledge, ..., these stand in for a sophisticated communication system that is closely knit within the spoken language, the ancestors, the universe, and cultural continuity.'

Sabina Aguilera

'Pictograms as highly metaphorical.'

De Ávila and Schaefer

'Textile designs are analyzed as projections of a conceptual reality that illustrates the spiritual and the physical world.'

Edward B. Dwyer, Margot Blum Schevill and Janet Catherine Berlo.

'Textile signs denote status and rank, ethnicity and gender within communities.'

Elizabeth M. Brumfiel

'Textiles as symbols of humility and subordination for women.'

June Nash

'Textile production as standing in for coitus, fetus, life, death, and rebirth.'

Thelma Sullivan

'The textile represents a three-dimensional object and subject as well as a site of transformation where social and ethnic relations are negotiated' and *'living beings or beings in evolution.'*

lvira Espejo and Denise Arnold

Gloria Elizabeth Chacón's essay starts from the state of Denise Arnold and Sevia Espejo that woven textiles are not only material and spiritual object but subject also. The essay was written to telescopic approach around indigenous woman's weaving and the relationship to their textile's properties. Her studies collect varied interpretations of textiles from many ones who works in this field. Her collection invariably demonstrates that textile move them beyond their unity and require distinct analytical lenses to discern the treads and shapes, and context of indigenous productions. Textile does not entered an analogous relationship with a similar cultural system and thus have enter local market on unequal terms. And her view on western art systems is that treated textile as expressions of folklore or ethnic materials existing in public domain.

As those interpretations of woven textile's novels, it has seen that the literature involves textiles in expression tools, cultural contexts, and the utilisations.

There is another article of Nanang Rizali from Faculty of Art and Design, Universitas Sebeles Maret, Indonesia*, Art, Design and Textile Craft Art,* discussed textiles as a medium for expression, crafts, and arts. A media for expression, textiles have the opportunity to be used as the basic material for producing works. The embodiment of creative forms and the compositions of textiles in addition to functional can also be a medium of expression and fiction in the form of aesthetically non-functional exploration. Textile art is not merely a wall decoration or natural aesthetical element of the room but also a medium for freedom and creative experimentation(Rizali, 2018).

Handwoven Textiles

The textile history is nearly as old as the history of human civilization, and as time passes, the history of textile must evolve. The invention of flax and fleece texture at the uncovering of Swiss lake dwellers in the 6th and 7th centuries BC is the most seasoned recorded trace of using fibre. The silk culture first appeared in India about 400AD, while cotton spinning dates back to 3000BC. The use of highly twisted yarns to create textured fabrics goes back at least to ancient China, a part of silk from the Shang dynasty (1600–1027BC) being a very early example. A cloth having both S and Z twist yarns in the warp and S twist in the weft was discovered in a tomb from the Warring States period (475–221 BC). To generate an overall crinkled texture (crepe), alternating S and Z twists in the warp, weft, or both is still used today. Since 3400 BC, when Egypt established the skill of spinning linen and weaving. It is possible that the ancient Egyptians were aware of the conceivable outcomes of yarn twist for making textured effects, even though no fabrics have been found where yarn twist is definitely creating such an effect. A dress dated to the fifth dynasty (2498–2345BC) showed some signs, while being preserved that it might have been outlined to pleat suddenly. A description of this dress is given by the Egyptologist, Rosa – lind Janssen (formerly Hall), who also draws attention to wall

paintings from the eighteenth dynasty that may represent such natural pleating. So, it is possible that a naturally pleated texture was known and used.(Ann Richards, 2017)

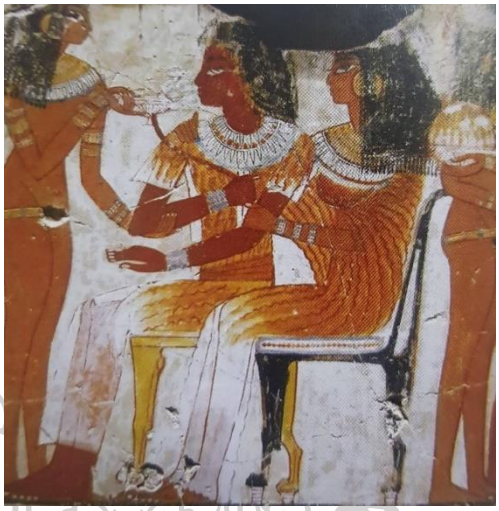


Figure 2. In the scene from Nebamun's tomb appears visitors wearing clothes with undulated pleats.
Noted from weaving textiles that shape themselves, by Ann Richards, 2012, p. 24.

The industrial revolution of the 18th and 19th centuries resulted in the board disclosure of machines and their widespread application in the preparation of natural fibres. The discovery of synthetic fibres such as nylon opened up a larger market for textiles and fuelled the development of new and improved natural fibre sources. Localized skills and textile handicraft among many nationalities were encouraged by the improvement of transportation and communication systems.(School, 2021).

The story of creating the textile improvement is subsequently essentially a yarn spun from deduction and conjecture rather than hard evidence. Recently, there is an article '*Made of English Thread' The Fabric to Empire* by Davia Patel had discussion on the fabrics of India (FOI) exhibition that presented 200 select objects and sorted them out into broadly chronological structure with six theme areas. The curation handle was to celebrate the assortment, virtuosity, and community of textile history over 4,000 years, and to explore the global impact historically. The timeline moved continuously from the historic, pre-1,900 selection to the modern

and contemporary. The discussion presents through all sections in different contexts such as from ‘Sacred fabrics’, ‘A global trade’ to ‘At the cutting Edge’. This was not as it were an appearance in its focus on materials, design and on making, set inside cultural, historical, and social context, but also in this article showed the sub-section Content board of ‘Cloth and Crisis’ the trade between India and Britain in which Britain started to trade machine-made yarn and cloth to India within the 1780s and 1830 it about wiped out Indian homemade yarn through and through(Patel, 2019). This noted the timeline of change and material was historically developed.

Certain materials, objects and methods from India spread into Southeast Asia in such a distant and amazing past that their correct way is troublesome to follow. The recorded proof of a few critical components of textile culture has been found in India, counting cotton thread and the adoption of a number of important dye-stuffs, although there has no way of determining exactly when or how this occurred. However, cotton, indigo are likely ruddy colours have a long history of utilizing within the locale. Southeast Asian people groups commonly accept them to have been made or concocted by their establishing precursors.

Textiles from Asia are one of the most skilful and stimulating types of handicraft. Materials, particularly in Southeast Asia, play otherworldly and custom significance in ceremonies of state and religion. Textiles works in this continental, formed by a wide assortment of procedure regularly of expand and complex plan, show superior levels of specialized expertise in dyeing, weaving, appliqué and embroidery. A differing quality of materials includes bark, plant filaments, cotton, silk, shells, dots, silver, and gold and among a master- a combination of designs, motifs and patterns are theoretical geometric shapes, arabesques, ships, blooms, calligraphy, human, recognizable creatures and fanciful figures. The typical primary function for textiles is their utilisation as articles of clothing. However, apart from their significance as ordinary and ceremonial dress, textiles in Southeast Asia have various other capacities, including their devout parts. They are intimately associated

with systems of social status, religion and trade. These capacities, in turn, influence the measure, structure, shape, and decoration of the cloths. Since decorative textiles are of extraordinary significance as expanding festive garments, cloth making frequently requires physical and spiritual precautions to conduct the quality of colouring, weaving, and the artisan's well-being Accordingly, legends and ceremonies encompass both the roots and the making of imported textures. The surface of the textiles, the aptitude of the craftswoman, the abundance of the colours, and the clarity and complexity of the design and patterning are the standard criteria for evaluating the excellence and these textiles merit. A few simple striped or plain-dyed cloths have incredible custom potency. In addition, numerous designs and motifs pass on critical messages noteworthy as they were to those recognizable with the specific social and religious principles of the people who have produced them. It is as if seeing the dress in their cultural context started to get their genuine esteem and meaning. (Maxwell, 2014).

Figure 3. Pleated blue Hmong skirt.

Retrieved from: https://amedestissus.com/post/478966892172/pleated-blue-hmong-skirt

As for cultural textured textile appeared in Asia, there is pleated skirt, that was an essential piece of clothing for most Hmong of Laos, China and Vietnam. Amongst the three Hmong groups living in the northern Laos, Blue Hmong women’s

and girls' skirt is the most amazing one. This skirt was entirely handmade in hemp fibre turned into yarn. The yarn was bleached until white then woven into fabric on a back-strap loom. Nowadays, it is really difficult to find an authentic hemp Blue Hmong skirt that is entirely handmade in exactly the same way as done in the past; time-consumingly; More and more cotton cloth are used instead of hemp, indigo dye is no longer a vegetable dye and batik motifs are less elaborate. Pieces cut from the damaged old skirts are used to make bags and other items.(tissus, 2019).

2. Textured textiles and its relief effects-based dimensions change

There are many valuable volumes that concentrate either on an intensive study of one specific aspect of textile construction or decoration, such as weaving, dyeing, and embroidery. In this research, textures that appears on its textile surface is focusing on. Textile is an important cultural object serving as a clothing material throughout the world, which also acts as a body protection tool. According to the generated idea of expanding the texture appearance through the change of inevitable of washing that is the common life cycle of fabric's utilisation. Besides wrinkle free that invent for the satisfaction of user with the convenient of less caring after wash, less ironing, the surface of clothes has been durability of its smooth surfaces, there are the textured design to create textured with the advantage of less or no maintenance after wash.

The textures of surfaces have the advantage of saving time and energy when caring for them, and in textiles, the field of textiles, like design thinking, has influenced the bounds of product utility expansion. The work is not as it were utilization and protection but also aesthetic and appearance. The merging of imagination and technological opportunity enable infinite the variety of fabric design in agreement with all variables influencing the design versatile function expectations. Because the weaving finishing process affects both physical and aesthetical properties, raw materials, yarn, technical, weave, density-tension difference, and surface deformations, all varied yarns and structures generate effects. Creating three-

dimensional relief effects can be done through weaving techniques to ensure three-dimensional structure or by using different yarns or fabrics. When the yarn is tightly twisted, for example, the cloth shrinks naturally, and the alleviation effects occur without any assistance.

At present, there are numerous examples of woven brought pleat effects with various productions, such as woven pleats, shrinkage pleats, and pleats formed during the finishing process. Various yarns are woven together in weaving with fibres with different chemical and physical properties in finishing processes applied to the fabrics designed. Using shape-memory materials in textile constructions, pleats and relief structures with finishing procedures can be generated. *Pleats Effects with Alternative Materials and Finishing Methods* was investigated and analysed in Sedaf Acar's experimental research by developing pleats effects with shrinkage and finishing process. It provided technical data indicating different chemicals applied to different raw materials caused different types and raw materials yarns to shrink at different speeds, resulting in different pleat effects(Sedef Acar, 2019).

The creative use of textured textile appearances: case study on "Pleats" and its concepts of creation

To study textured textiles, this research is also studied on the textures appearance in fashion textiles to understand the differentiate characteristics of pleats and perspective of designers. As seen in supply chain of textile production, there are the creative use of existing textured fabrics for serving demanded of utilisation such home textile and fashion textiles. Along with the structural textures of woven textiles, there are the other creative used of fabrics which are created showing designer's perspective that reflect their own expressions. Pleats is one of textured textiles that is very impressive and inspired me, a researcher to explore this case study of remarkable textured creation. Pleating effects can be achieved by physically ways of creation. Such as the fabric in specific various creative patterns and combinations, likes professional woven pleats-form and appearances of Ann Richards

(Figure_). Pleating can also achieve by stitching, through heat and pressure and through chemical means. There are several methods for pleating.

Producing an expanded fabric by layering fabric at frequent basis for a volume effect or making pressed creases in fabric, either randomly or at regular intervals, is the general notion of pleats for fashion design that Gail Baugh explained. There are some pleat examples with distinct textured appearances due to the various materials utilized in the production process. Natural silk fibre may be manipulated into a pleated fabric that is both durable and long-lasting. Pleated silk fabrics, such as silk organza, China silk, silk chiffon, and silk georgette, are always light weight and frequently used to produce elegant clothes.

Heat and chemicals are required to create a long-lasting pleated cotton fibre fabric. Originally, pleating and crinkling produced a less durable finish, but cotton fabrics can now be chemically treated to keep their texture and pleating characteristics. The crinkled fabric that results has a less defined pleated effect and wrinkled appearance. By this, the appearance of cotton made pleats, in the researcher's view, has the more naturally and freely casual look of textured appearance.

Figure 4. From left to right: 1. Crystal-pleated chiffon, 2. Accordion–pleated China silk, 3. Crinkle-finish calico.

Figure 4, showed the crystal pleated chiffon is pleated with modest pleats, adding volume to fabric. For accordion-pleated China silk, this silk fabric retains its lustre, adding sharply pleats. The irregular surface of calico fabric is chemicals and heat applied to fabric whereas compressed, when release it is durably creased.

By above, these pleats belong to the field of clothing and fashion. To consider the design and its principles and their applications on fabrics. The article Textile Pleats as Timeless Beauty by Nelson Kume and Isabel Italiano discussed the manual and semi-industrial techniques, pleat characteristics, the surface as one of the design elements that are critical aesthetic tools and the means by which designers can delicately modify limelight and effects on clothing(Italiano, 2015). It discussed on the concept's relationship analysis-design elements in fashion design, workmanship and the making methods. And this divided pleat production into three types; the first is a handmade process aided by iron pressing that is manual pleating craftsmanship. The second one is machine pleating that creates pleats by passing a roll of fabric between heated rollers. The last is patterned moulds which are heated to form the pleats made in the semi-industrial process, and the pre-cut fabric is placed between two sheets of paper folded into patterns.

The style of pleats in fashion textile

The creative pleats is one of alternative textured fabrics that many of these timeless beauty fabrics are created by artisans, artists and designers from ancient time until now. Since the pleat in Egypt period to the creative hand pleated silk made by Mariano Fortuny. The design was noted that liberated female form and broke the mold of woman's fashion of the time.

Figure 5. Left: Peggy Guuggenheim was wearing Mariano Foruny's Delpho gown. Retrieved from https://www.fortuny.shop/, Right: Dress of Issey Miyake, Pleats Please, noted from *Pleats Please, Issey Miyakey*, P.19, 2012, Tokyo, TASCHEN Gmbh

The first company, Inoue Pleats, was to produce pleats on a large scale in Japan. For the companies and designers like Issey Miyake, have popularized the pleats in the contemporary fashion world. The differentiated perspective of pleats in concept of Issey Miyake in 1960 is continual developed and produced in high fashion, though it is similar elegance look to Fortuny's Delpho gown, the utilization is more universal and reflect the character of freedom. This pleat please of Issey Miyake shown the minimal style that can be grown last long in his brand *"wearing a Miyake is like wearing an experience"*, Li EdelKoot written in *Pleats Please, Issey Miyake* book(Edelkroot, 2012b), as we can see in presenting photos in Figure 5.

As above, Fortuny and Issey Miyake both are genius who has launched the monumental pleats to the earth that pleasant to users. Therefore, these pleats have been a good example of creating something with practical purposes, but also transcend approach, allowing the designer or artist to use his or her imagination to explore and bring textures quality to the appearance.

3. The professional artists and practitioners in handwoven textured textiles

The basic textile properties that collected keys data of creating textures in textiles in previous literatures reviewed, design thinking of the textured effects is very important for the textile makers or the creators in other fields. Repeated experiments and practices led skill as well as generated and expanded ideas of creating. The researcher, as a practitioner in woven textile, has studied and explored textured textiles art and design. Through their works reflects their remarkable textured appearance in their paths of textile's practices.

Woven textile as self-organizing structure of Ann Richards

Technical specifications of the properties of materials and structures are intuitive sense that go beyond theoretical knowledge. The complexity can sometimes seem unmanageable. Knowing about scientific measurements is well worth of the properties of different materials and structures. In the book of Ann Richards, *Weaving Textiles that Shaped Themselves* (see Bibliography), described

about useful techniques in the sense to play on materials and structure that sometime apparent failure can form a new idea. This book focuses mainly on ways in which twist can become a major element in decorative design yarn. The creating design process must be a series of experiments to understand what is happening before deciding on the next step of textile weave. The powerful texture that Ann Richards describes in her book, showed the knowledge of diversified experiments of textured appearance in textile's surface that can emerge by wet finishing, from interplay of fibre, yarn twist and weave structures. Her aims of written this book is to share her personal experience and the knowledge she has gained from other people. She had mentioned to many artists and designers works in her book. I as a researcher appreciated her valuable book for the textured textiles which inspired to practice and open minded for the results of experiments led to next experiment as an interplay between design idea and the possibilities of materials and structures.

For many years Ann Richards has been experiments on textured textiles, making variation of a soft pleated fabric using warp -float/weft-float stripes. And she has created her new version of pleated fabrics and textured textiles with the many different possible combinations of fibre, spinning technique, yarn thickness and twist angle.

Figure 6 shows her work as a soft engineered textiles shape with pleating, folding, twisting, and double sides, as well as repetition and shifting of simple shapes(council, 2020). Silk/Steel in plain weave, with spun silk in a cord described that this weave using only single beam. These works of Ann Richards have the excellent shrinkage in of float s in pleats structure. The combination of different materials and structures of her design is constructed through repetition and displacement of a simple shape, to create a piece of spiral delicacy formed pleats in three-dimensional.

Figure 6. Weaving textiles that shape themselves,
Left- p.183 and right-p.134, by Ann Richards, 2017, the crowood press

By Ann Richards's textiles works and her useful technical knowledge of textured textile in her book, noted that as with all theorizing, this can only be a starting point that much be tested by experiment. Therefore, the theory is very important to create the works but the effects after that creations can be surprisingly showed their textured effects themselves. This noted of her perspective reinforced me that there are unstable or unpredictable things can be always happened and the next step of that happened so there is important to open-minded and be accepted inevitable in everything.

Catharine Ellis, the originator of the woven shibori

Catharine Ellis invented the woven shibori technique and wrote the instructional book *Woven Shibori*(Interweave Press, 2005). Her breakthrough strategy - woven shibori - combines hitherto unexplored dyeing and weaving techniques. Weft yarns create amazing and unique resist designs in this manner. Binding, sewing, pleating, and folding are all used in traditional Japanese shibori to compress material before it is colored. The woven shibori was inspired by the sewn shibori. Parallel rows of running stitches are sewn by hand with a needle into a piece of completed cloth in traditional stitched or mokume shibori. When the sewing is finished, the stitches are utilized to gather the material securely. The material is then dyed, and the folds in the cloth resist the dye to varied degrees. Woven shibori is a resistive

and weaving technique that Catharine Ellis invented and applied in the mid-1990s. It has since evolved both technically and creatively(Ellis, 2020).

Figure 7. Catherine's circle scarf

Retrieved from https://www.ellistextiles.com/resources/

Not only colour but also texture of fabric is affected to the surface of fabric. This technique gives unique colour dyed pattern and texture that depends on the materials combination in used of that fabrics. Working with structural weave, dye application, and fibre choices can result in a remarkable variety of fabrics. In a proper combination of weaving and surface design, fabrics can be shaped, modified, and stacked to create the desired texture.

Figure 8. Woven shibori resist, scored, permanent pleat by Catherine Ellis,

Retrieved from https://maiwahandprints.blogspot.com/2010/08/weaving-resist-woven-shibori.html

Arai and Reiko Sudo, Co-founder of Nuno Corporation

At Nuno, textiles are aspiration, inspiration and language that tell their story. They make textiles, tradition and nature are woven with innovation("nuno.com," 2021). Their senses of textile design as if the massage of simply beautiful moment. Its pieces, adored for blending conventional styles with advanced sensibilities(Lopez, 2014).

Jun'icho Arai and Reiko Sudo together established the NUNO textile studio and retail shop in 1984. fabric design was considered avant-garde. It is traditional and contemporary Japanese textile design("nuno.com," 2021). NUNO means 'cloth' in Japanese. The Corporation is an integrated establishment with design, some manufacturing and retail sales carried out in-house. Arai left NUNO in 1987, Sudo became chief designer and director and raised NUNO's profile to universal noticeable quality. 'Origami Pleats' is an original 1997 textile design by Reiko Sudo. relies on a special heat-setting process to fix the origami-like pleats. NUNO fabrics are innovative and distinctive rather than purpose specific as they can be used for fashion, interior design or any other application.

Figure 9. Origami Pleats' textile, Reiko Sudo for NUNO Corporation.
Retrieved from https://collection.maas.museum/object/354375

Reiko Sudo trained has a passion for designing fabrics that consolidate traditional Japanese crafts with modern designing strategies. Materials used by NUNO include cotton, silk, hand-made paper, nylon tape and polyester. Technologies used by NUNO and derived from Japanese craft culture includes rust-dyeing, salt shrinking, caustic burning, mud-dyeing, chemicals or machine, fatiguing by hand, and graffiti(sciences, 2021).

Sally Eyring

Sally Eyring written the book, 3D hand loom weaving, sculptural tools and techniques. Her works in 3D weaving having knowledge of creating expanded and dense area and weaving with infinite tensioning to form its fabrics in three dimensional rather than making the overall texture relief surface. Likes engineered textile weave techniques belong to her experiments to overcome the common flat

of its shape and form and by focused techniques creating the details of fabrics and its planning combinations.

Figure 10. Sculpture by Sally Eyring.
Retrieved from https://www.kogan.com/au/

By appearing the benefits of challenging each perspective of the weaving process and breaking a few of the ancient rules, Eyring helps handweavers free their abilities to design the shapes they need to create and then weave them.

Lilian Ellot

Lillian Ellot was an artist, innovator and instructor in Fibre Arts. She acquired skills in several media and was the notable artist who experiments on weaving forms. Not only one technique in fabrics but she well known in experiments on weaving through baskets art weaving. Silk texture design was one of her weaving skills. A substantial body of work studying the effects of over twisted spun yarn, both S and Z twist, for the completed surface of her textile.

Figure 11. Overspun, weaving of Elliott showed effect of S and Z twist yarn collapse the surface.

Note from Lillian Elliott by Pat Hickman, Textile society of America, 2014.

She began to experiment with solid materials by building basket-like forms. She despised the delicate, floppy baskets of the period and instead experimented with basketry materials and the scale of elements, using her unique method of holding things together. For her, making baskets was similar to sketching, ceramics, and textiles. “Drawn Form” in line elements carried on Lillian's simple lines in space, explain the outward space and the interior structure concurrently.(Hickman, 2004).

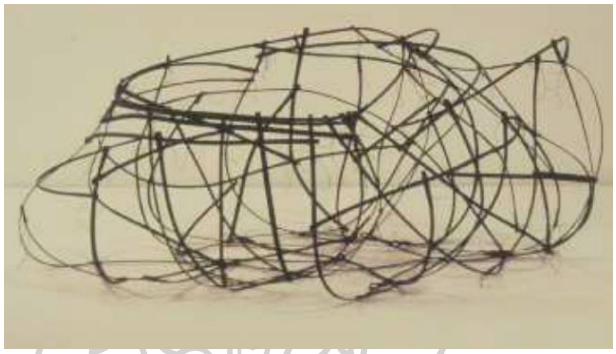


Figure 12. “Drawn Form” by Elliott. Note from Lillian Elliott by Pat Hickman, Textile society of America, 2014.

Weaving for Shape and Texture, hand-weave designer Lotte Dalgaard,

Lotte Dalgaard is Denmark’s most energizing hand-weavers, making one-off textures with extraordinary creased, puckered, crinkled impacts in the weave, which are at that point changed into a special identity. Her texture weaving with active yarns: elastic yarns, crepe yarns and shrink yarns. Lotte Dalgaard had the collaborated with the fashion designer, Ann Smidt in 2013. The clothes in this project were genuinely works of art.

Figure 13. Garments and textile's texture of Lotte Dalgaard.

Retrieved from, two left, https://www.textilesnaturales.com/archives/7230 and right, https://etn-net.org/publications.html

Making maquettes, sampling on the loom, modeling fabrics on a mannequin, drawing, and, of course, creating the intricate weave draft are all part of the process of turning these ideas into final items. Lotte used to weave each inch of fabric in a particular sequence. Shibori methods and Pressure steaming are sometimes used to solve textiles into other changeless creases that are able to structure along the warp of textile or on the inclination of texture, shaping more delicate creases("ANNA," 2013). She moreover has the book "Thread Enchantment – weaving with shape and texture" with Paulette Adam. Her woven dynamic yarns that might get hold of shrink and her weaving may be a trustworthy source of motivation for designers, weavers and fabric researchers(Network, 2021).

4. Textile property and textile's texture

1. The characteristics of vast maturity natural fibres in used.

There are wide range of materials can be used to makes textiles, the vast maturity of all textiles made from natural materials are in cotton, flax, silk, or wool. In Thailand, the commonly used fibres are cotton and silk. Therefore, in this research is studied on these two main fibres that can be produced and found in the country.

The fibres categories by the sources of fibres that were researched and study on the characteristic as below,

Silk: Natural Fibre – Animal

Silk is the animal fibre which is widely used in Thailand. The well-known of Thai silk is the yellow type. 'Mai-Ban' has been produced in family business. Silk is marked that its fibre properties are low thickness makes for comfortable and light clothing. It is additionally high resistance to distortion great insulation properties. Silk is one of the strongest natural fibres and silk fibre while produced under varying cocoon circumstances, is shimmer and shine, and good affinity to dye. It will always produce fibre that dyes beautifully. Silk property is one of the foremost comfortable fibre in the world.

Cotton: Natural Fibre – Plant

Cotton is a light and is 95% cellulose, soft material with high absorption capability. It has a diverse colour based on where it grew. For example, the American varieties is white fibre, whereas the Chinese are brownish reddish and the Egyptian are yellowish. The length of the fibre similarly varies from 10 to 60 millimetre.

The fibre through a microscope appears to be ribbon-like, spatula-shaped. It is twisted and has two ends in a spiral that is regularly wrapped in high-quality fibre and tightly.

Cotton is non-elastic, and its resistance is decided by the presence of water: wet fibres are more resistant than dry ones. To improve and enhance certain features of cotton items, some unique processes are used. These include sulfurization: in order to obtain a fabric that will shrink less than 1%, the fibre is washed, pressed and dried; mercerization: this treatment gives the fibre a great look and changeless shininess, as well as an incredible resistance to traction, a better response to almost all dyestuffs, and a higher elasticity.

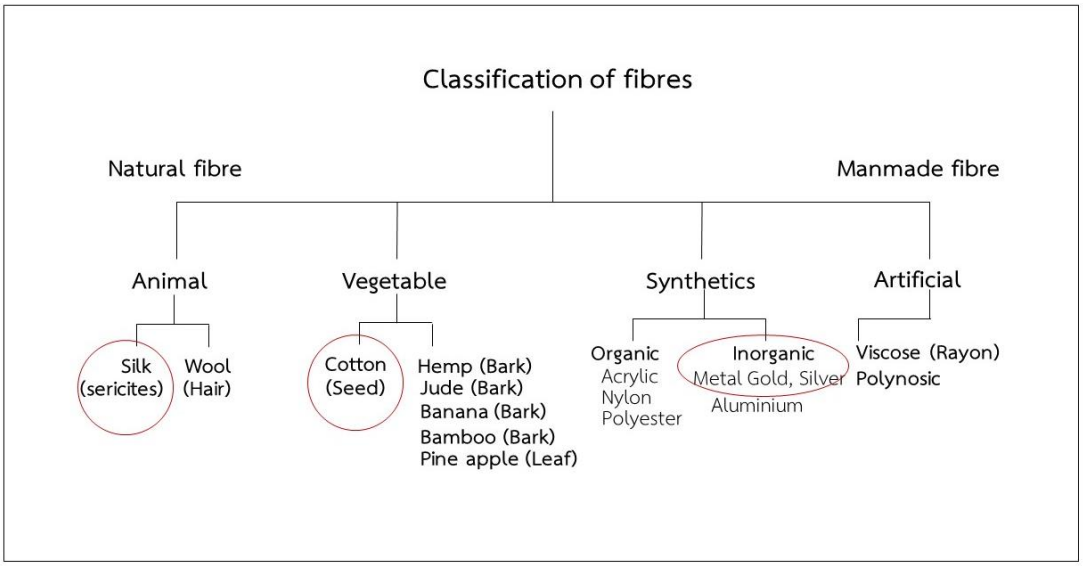


Figure 14. Classification of major fibers used.

Noted from Introduction to Textile Fibres (1st Ed) by H.V. Sreenivasa Murthy Murthy, H.V.S., 2015, Newyork: WPI Publishing.

Mineral Fibres

In Thailand, the material used in fabrics having mineral fibre in the yarn combination also. The fabric that has mineral fibre such as Lurex is Thai Brocade which mostly used lurex and silk in fabric for shiny and having luxury looks.

Table no. 1, below showed positive and negative characteristics of materials which main used in the research.

Positive and Negative Characteristics of Materials		
Fibre	Positive	Negative
Plant (cellulose) fibre Cotton	Absorbent Strong when wet Conduct heat well Good abrasion resistance No static buildup Matt appearance	Not colourfast in dark tones Shrink Heavy fibre when wet Not fast drying Poor-resilience Flammable No elasticity Fair resistance to sun
Protein Fibre Silk	Lustrous Soft hand/drape Very good absorbency Moderate resilience Easily dyed	Expensive Fair colourfastness Fair elasticity

Table 1. Noted. Adapted from the fashion designer's textile directory (p.28, p32) by Gail Baugh, 2011, London: Thames & Hudson.

By comparing these two main focused materials that can produced within local area where the research is carried out.. Cotton and silk have the different as their fibre types. Cotton is cellulose fibre, but silk is come from cocoon, the protein fibre which the appearance of cotton is matt while silk is shine and lustrous. So, this gives the different looks of what materials are used for making fabrics. Cotton gives more casual looks. And another noted to consider that can relate to textured effects is about the elasticity. Cotton, a cellulose is no elastic but silk, as a protein fibre (similar wool) has elastic property.

The properties of textile fibres

The relevant fibres properties in textured textiles

That the vast majority materials used in traditional Thai handwoven is cotton and silk. The small-family production has given this heritage from generations to generations. Many handmade silk and cotton yarn are produced in home. These two fibres are main materials used in this research. Studying basic characteristics of fibres, then this is about yarns making and weave structures that strongly involved to make texture in textiles. The details of textile properties from the book *Weaving Textiles that shaped themselves* (see Bibliography) of Ann Richards, put the important scientific knowledge. This research has collected data and analysed for experimenting and practicing stage to approach the effective textured effects appearance outcome.

Making of yarns

There are many ways to make texture in textile by using materials characteristics, structure of yarns twisted in different direction, tension and stress effect, shrinkage, and weave structure and so. *The Fashion Designer's Textile Directory, the Creative Use of Fabrics in Design*, written by Gail Baugh (see Bibliography) is a visual guidebook that systematically showcases everything, including natural fibre textile, to the modern technical artificial textiles. It is arranged in five sections led easily understand and can choose suitable textiles for design.

Yarn is a prolonged skein made from various stable or filament fibres, as well as other materials. Yarn must be strong enough to be looped, interlaced, or used in other ways to create two-dimensional, flexible textile textures.

Making yarns from long fibre filaments are fundamentally invented by twisting staple filaments together (in a handle known as spinning) to form a continuous strand. Making yarns from long fibre filaments are fundamentally invented by twisting staple filaments together (in a handle known as spinning) to form a

continuous strand. However, less twisting (spinning) is required. The yarn twist amount determines the yarn quality (the more twist, the stronger the yarn), and the twist direction affects the surface.

Spun yarn, monofilament yarn, and multifilament yarn are the three basic yarns. Spun yarn is made by twisting staple fibres together. Long-staple fibres like merino wool or high-quality cotton will produce a smooth, lustrous yarn. Short staple strands such as low-quality cotton produce coarse, dull yarn. Even though long-staple fibres are spun together, high-quality spun yarns are better in diameter and shinier than low-quality yarns. A yarn count system is used for measured spun yarn. For example, a fine yarn size 60 is used for fine shirting and a large cotton yarn estimate 12 is used for heavy denim. Monofilament yarn made by only one fibre yarn. The multifilament yarn made by filament fibre as it were, such as fibre silk, polyester or rayon. Two fundamental sorts of multifilament yarns are utilized. Firstly, for texturized yarns that make elastic, spun-liked or bulk or hang yarns and secondly, smooth yarns make lustrous or glossy yarns.(baugh, 2011b).

The table of data below showed the illustration of yarn divided categories with simple, complex, spun and multifilament yarns. Elastic plied yarn is comprised of elastic monofilament yarn that is covered by another yarn.

Yarn Categories		
Simple Yarns (One Fibre Content)	Complex Yarns, Plied Yarn (Multiple Fibre Content)	Elastic Piled Yarns (Monofilament Elastic Core)
 Single yarn	 Tweed yarn	 Core-spun: spun yarn coiled around an elastic core.
 Piled yarn	 Slubbed yarn	 Core- wrapped: bulk textured multifilament yarn wrapped around an elastic core.
	Special Yarn for Special Effect	
	 Boucle' yarn	
	Chenille yarn	

Table 2. Noted. Adapted from the fashion designer's textile directory (p.34) by Gail Baugh, 2011, London: Thames & Hudson.

Yarns may either be formed of continuous filaments or spun from shorter fibres. Continuous filaments, such as silk, do not require twist to give them strength, though they are usually lightly twisted to make a yarn that is more coherent. Yarns

made from short fibres, such as wool, cotton or linen, must be twisted in order to form a yarn of sufficient strength for weaving. Yarns may be twisted either to the left or the right and these different directions are indicated by the letters S and Z, the diagonal strokes of these two letters lying in line with the fibres in the yarn. A yarn may also be twisted by different amounts and, as more twist is added, the fibres within the yarn will be seen to form a progressively larger angle with the axis of the yarn.

Twist Yarn

One of the powerful influences on fabric appearance that has a surprisingly long history is yarn twist. The use of highly twisted yarns to create textured fabrics goes back at least to ancient China. As can be seen nowadays, some samples are delicate textures of the crepe effect, known for thousands of years, and the techniques in S and Z twist in the alternating warp and weft that can create an overall crinkled texture continuing until today. Anne Richards is an outstanding textile designer-maker and a teacher who used the contrast of fibre and yarn twist to create textiles that transform themselves into textured and elastic fabrics. The use of yarn twist results in highly textured effects in materials. The fine yarn needs more twist than a thicker one. In Figure 15, the illustration shows yarn twist in different angles. The 15 degrees twist angle can give a soft twist, 20 - 30 degrees provides a medium twist, and a tough twist is about 40 - 45 degrees. The very hard twist affects the firmness of the texture, crepes, and crepons with silk(Anne Richards, 2017).

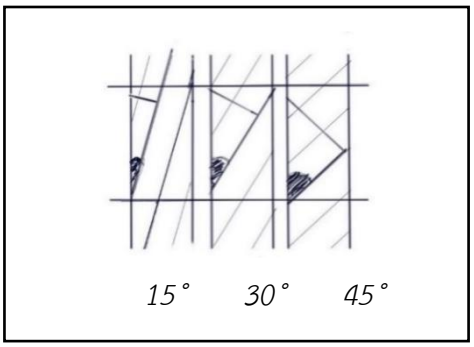


Figure 15. Twist angle illustrated by author.

Twist has continuously been a vital component in textile design, because it has such a capable impact on the appearance, handle, and useful properties of textures. Solidly twisted yarns make very hardwearing fabrics, and this will clearly have been a serious, viable issue since the earliest times. Though most of the early uses of yarn twist involved simple weaves, high-twist yarns also work well when used with other structures.

Strength

Strength is one of the most important properties. Silk and cotton are of moderate strength and wool is very much weaker. Though this research is focused on these two mainly used materials, others some can be combined to approach the textures required. To check the strength of yarns can do by pulling them to see how easily they break. To check the structure – the yarn which imposed by the spinning process also influences the strength of the yarn for the proper use in weave.

Toughness

Toughness, the ability of a material to absorb energy without breaking. Silk is much the toughest of the natural fibres, with cotton much less. This ability can be a choice of using for functional and the practical to choose the materials for processing them in the next step.

Stiffness

Cotton and silk seem moderately flexible, and flax is very inflexible. There are also often tension problems with linen yarns because flax is a very stiff fibre, compared with silk, cotton, and wool. These differences can easily be sensed when handling yarns in these different materials. The flexibility of the wool can readily be felt and seen, as it is easily extensible, and it also shows good elastic recovery, springing back to its original length.

Stress and the Creping Reaction

The stress produced by high levels of twist has an additional effect. Yarns become unbalanced, tending to crinkle and spiral to escape the stress imposed on them, and it is these movements that create textured 'crepe' effects within a woven fabric. Although some fibres produce yarns that react in this way at modest levels of twist, most yarns will need to be spun to higher than the optimum twist required for strength, if they are to have good creping properties. High twist yarns are usually weaker than normal yarns.

1.2.2 Structure of weaving

Woven Textile Design, written by Jan Shenton described textured weaves that many ways and techniques can be added to the weave designs. Several weave structures can be alternatively used for three-dimensional characters and exaggerated surface texture of the fabric structures using honeycomb, mock leno, seersucker, corded cloths, pile constructions and crepes. Blister or pucker fabrics are written in Double cloth. This structure fabric shows surface as if stitching the two cloths together. The effect of two yarns contrasting is used in double cloth. One of the warps should us a stable yarn, while the other warp can be a slightly elasticated yarn, over spun yarn or woollen yarn that will shrink when washed. This research had selected names of structural textured patterns in woven fabrics from this book adopted to table which have details of keys structuring of weave that make textures in table below,

Structure and Pattern Combinations		
Honeycomb (Waffle)		Weft and warp floats in a diamond formation.
Mock Leno		Grouping together small units of alternating warp and weft floats with plain weave.
Seersucker		Crinkle cloths feather distinctive pucker areas in contrast to stable areas within the finish fabric. Normally form ed as vertical stripes.
Crepe Weaves		Have a non-directional weave construction with no prominent effect such as in a twill weave, sateen of plain weave. The effect produced can be confused textural pattern.
Mini Pleats		Warp tension tight on seersucker pattern.
Corded Cloths		Ribs formed on the surface created by short floats on the reverse of a ground fabric, knowing as Bedford cords.
Corduroy		Similar construction of Bedford cords being difference that the weft float is cut to achieve a pile.
Double Cloth		Having many applications and is very versatile in double layers woven fabric.

Table 3. Noted. Photos and texts adapted from Woven Textile Design (p.118, 127, 132, 135, 138, 141, 149, 146, 150) by Jan Shenton, 2014, London: Laurance King Publishing Ltd.

As above, data collection of textile properties and the structural textures studied, and described that fibre types and their characteristics are also have the different properties. In this research, the focused-on yarn making is hypothesis that can be influenced to outcome of texture appearances. Twist yarns is also the powerful textured effects that is selected to experiment in this research topic. The details of experiment to achieve twist yarns, see at chapter 3, the experiment and process of twist yarn.

5. Art and Aesthetic Value

Art as Expression

"Art is imitation (representation)" is the statement that has not only been challenged but has also been dormant in at least some arts since the nineteenth century. It was later superseded by the theory that art is expression. Instead of reflecting external world states, art is assumed to reflect the artist's inner state. A work of art is created when a new combination of elements in the medium is formed. A work of art is created when a new combination of elements in the medium is formed. The elements existed prior to creation, but not in the same combination; the creation is pre-existing materials re-formation.

Materials, Textures, and artistic expression

The practice and research-led iteratively processes between critical theoretical research and practical works. In this research, the chosen medium as the tool for artistic expression is involves conducting the empirical research and the influenced conceptual context of researcher. To analyse how artist's action their creative works, in this research is studied the process of creating artworks of artist's action to solve the particular medium in expression of the artwork.

In this study, practice-led research was used to establish links between the hand weaving experience and conceptual contexts as an artist aspect. The role of hand weaving and material as the tool to express my practitioner artist aspect. To

express artistic viewpoint and approach texture appearance in conceptual context this research this research has also practice on the materials to approach the research aims. Weaving is the process that I, as researcher and art practitioner has hand weaving experience background, chosen this weaving to practice and present significant challenges for the relief effects on the textile appearance.

The expression entails using a medium with the skill to make the artwork expressive or represent a meaning. To practice, experiment, and create artworks, physical action is used to form a tangible object, and an expressive act is used to incorporate meaning into the object. Experiencing the medium's materials can aid in expressing ideas and creativity, as they embody its creator's expressive and creative ideas through their material-physical form(Nimkulrat, 2010). Making is knowing, and its materiality leads to a materialist interpretation of creation. The manner in which something is produced reflects a way of thinking. The making produces the knowing(Lehmann, 2012). Skilful use of such tools must be learned; the maker must negotiate and learn, through experience, how to handle and control the tool, developing a relationship with and becoming acquainted with the materials(Townsend, 2016).

According to the 'Act as Expression' guide of John Dewey's theory, *"Materials undergoing combustion as a result of intimate contacts and mutually exercised resistances constitute inspiration,...., The act of expression is not something which supervenes upon an already complete inspiration. It is the carrying forward to the completion of inspiration employing the objective material of perception an imaginary."*(Dewey, 2005)

In this research, to approach creative texture as a tool of artistic expression, the subject of contextual aesthetics related to topic, is to study more in how artists express their viewpoints through practice the concept and process making.

Medium and artistic expression

To experiment and create art, there need to describe the related keywords' meaning, study and understand on that of all relations, which will take the important conducting role for empirical art works in this research. Therefore, started form the definitions of all three related words, *Medium, Expression and Arts* to find out their significant concepts and able to syntax these all as to conduct the empirical and contextual relating to approach the creative work of art.

Medium in Art

According to the statement of Robinson *"Finding the medium that excites your imagination, that you love to play with and work in, is an important step to freeing your creative energies."*(Robinson, 2009)

According to Ken Robinson the medium instead of the context is the vehicle for inventive self-expression. The 'medium' is an organization or implies doing and accomplishing something. In the context of individual inventiveness, it is the means or mode of creative expression. The perspective in which people study, work, play, and socialize involves the medium through that they can express themselves through what they do and how and why they do it(Jackson, 2015).

Daniel Wack's art critical concept, Aesthetic Medium, discussed on artistic medium first emerged in 18th-century European art discourse. Medium investigation arose alongside, and evolved in response to, modern art. As critics and theorists began to argue in the 18th century for art and the aesthetic as a distinct form of experience, liberate of its previous subservience to religion and capable of focusing only on beauty, a medium investigation emerged. In the nineteenth century, a medium investigation took two distinct forms of critical and theoretical discussion in art. Within the boundaries of traditional art forms. Modernist interest in medium aimed to strip away superfluous traditional artistic conventions in order to identify what was essential to the form. Artists can only discover the possibility of an art

form, whether traditional or newly emerging, through acts of artistic creation. As a result, the relationship between art forms and their media evolves and changes as new art forms are discovered and reimagined by artists. Danpiel Wack classified the term "artistic medium," which is used by artists and art critics to refer to the material from which a work of art or, more broadly, a specific art form is created, into different classifications. On the one hand, there is a great deal of discussion about an artistic medium, which is a material out of which a work of art is made. For example, after the artist's title on the showcase card, there can be 'papier-mache' depicted the materials of a sculpture or 'watercolour' of a painting. On the other hand, the term "medium" can also refer to the way an artwork integrates its viewer's experience in time and space.

According to his writing, the artistic medium continues to be a fruitful critical concept for operating artists and critics who are interested in articulating the means by which an artistic encounter is organized and arranged. For artists and critics, medium refers to how something has the ability to make a specific impact or organize a specific type of experience. The artistic medium is a critical concept in this case. The approach to medium examination considers artistic media to be the capacities for structuring and organizing the possible outcomes in under an artistic challenge. These abilities for coordinating artistic experience are forms of repetition or automatisms that have significance as a means of structuring a form of artistic experience.

The ‘value of artistic medium’ is realized when it is approached not as a few raw material of its conceivable artistic employments but as implies by which artist discover and investigate possibility within a particular artistic problem. The use of a medium by artists to create new occurrences of an art form, and by audiences to experience specific instances of the art form(Wack, 2021).

Expression in Art

''Expression in the field of art is always communication". Martin Foss (Professor and Philosopher) stated flatly(Artzolo, 2021). This quotation of Martin Foss is to identify, expression and communication in art.

Expression and Communication in Art, written by Edward S. Casey, restricted the paper's main point to the phenomenon of expression in art and a common form of its misinterpretation. In his paper, one of the most mysterious objects of philosophical description is the phenomenon of expression. The term "ex-pression" suggests a process rather than an object: the exteriorization of inner content. The process and the content defy conventional 'objective' description. The aesthetic object is not merely a point of transition but is fundamentally intransitive. There is a recurring tendency in art to connect expression and communication. Edward S. Casey linked the definitions of Martin Foss, Joseph Margolis, John Dewey, and Plato that all descriptive expression is connected to arts that communicate. Plato has emphasized its communicative aspect most emphatically, frequently placing expression in the service of communication, theories related.

While *Media, Expression and the Arts,* by Elliot W. Eisner, was and important guideline to clear how those three things are related in Art. His paper is to describe the relationship between medium, expression and to suggest what these relationships imply for educational practice, the arts and media research. In his essay, the contents rests upon seven ideas that make brief excursions, started into the meaning of expression that is a consequence of intelligence, which is the intelligence of man’s expressive modalities, the expression to the form of arts, the experience of the forms of art, to decode what artist’s encoded, the artistic development and the last is about, New forms of art evoke new forms of experience.

In his writing, the act of expression is the transformation of an idea, an image, or a feeling into a material that will give it public form. It is, in his opinion, to act

impulsively, to exhibit specific actions or attitudes, rather than to engage in expressive action. Only the artist uses materials that function properly as a medium, a vehicle for conveying their idea, image, and feeling.

The conceptual in Art and Artistic Value

The paper of Roger Seamon, *The Conceptual Dimension in Art and the Modern Theory of Artistic Value,* discussed on conceptual art, started with the impact if Marcel Duchamp's ready madness on the philosophy of art has been to be called "conceptual art'. Work fuelled a radical rethinking of conventional art theory, and the next revolution was comprised of three major theoretical events. These works have resulted in a revolution consisting of three major theoretical events, which are,

1. There was nothing particularly noteworthy about these art objects.
2. The perceptual requirement for the art was eliminated.
3. Its centrality being questioned.

While conceptual art was nothing more than "things to think about" and had nothing to do with any mode of perception, other aesthetic objects rely on sensory orders(Sparshott, 1982). Seamon described the conceptual dimension that some of the most prominent modern visual artists have cultivated strikingly and innovatively, which has led to radical conclusions about art in general. Conceptual art emphasizes what was already present in some art. The conceptual dimension should be understood as an endless possibility and addition rather than a challenge to the forms of artistic value that have emerged in recent years(Seamon, 2021).

6. Texture as the medium of artistic expression in arts; cases studies

How do textures in the arts affect meaning? while psychological judgments of texture properties must be chosen to make on individual texture samples or areas of uniform texture within a larger texture field indicated by different ensemble

rules.(Tyler, 2004). The sense of touch is essential for understanding texture. The texture is an important visual element that influences artwork. To investigate the work of artists by gaining knowledge how they create-descriptive methods with the goal of influencing the visual element of textures as well as the effectiveness in conveying the expression and meaning in its art piece.

Bryan Nash Gill and his prints

American artist, Bryan Nash Gill was primarily created relief prints and sculptures with wood. His expressive tool was implied texture creation by actual texture sources from nature. His perspective in art was that *art is (or should be) an authentic experience, which brings you closer to understanding yourself in relation to your surroundings*. Bryan's art captured the very essence of a tree's lifetime. He observed tree and captured it in each season through his art conveyed meaning as if tree's perspective of one's existing lifetime uniqueness by his experience. His prints reveal the change of tree in each season that was a window into the seasons of his life. Bryan's process of art making and the moment of creating was more important than the destination of its art appearance. He lived in the organically texture creative moment and never worried about the destination of his art appearance, but about the process of discovery, and where he was right then("Bryan Nash Gill," 2020).

Figure 16. Work of arts simulated nature inspired of Bryan Nash Gill's print, Retrieved from https://www.arch2o.com/tree-ring-woodcuts-bryan-nash-gill/

Textured textiles art of Hanne Friis

Hanne Friis, Norwegian sculptural textile artist, is interested in the way the spiral embodies a fundamental principle of growth. She sees that ferns naturally grow curly on the point of unrolling and finding its fern-shape, the growth is internally programmed. Her work hangs from the ceiling and give the impression of an airy floating that leaves scope for motion. The spiral can be appeared simply doodle, formed by the hand, appear like the trunk.

Figure 17. Hanne Friis's textile sculpture,
Retrieved from: http://www.hannefriis.com/html/HOK.html

In the process of creating, Friis does not imitate the laws and biological systems of nature, but touches on primal forms in the wild, uncontrollable interpretation. The voluminous shape of sculpture reveals with waves and peaks. The colours show alpha and omega that emerges from Friis' painting. The colour palette can be characterize as emotional and give the work an extra dimension. Her textile links up with the cyclic processes of nature. The realization of growth towards the path of decay and decomposition.

Paper sculpture of Peter Gentanaar

Peter Gentanaar is a German paper sculptor. He works on Paper that inspired by plant bud. The evaporation of fibres curling around the spine is the new form.

On his work's story of experiments.(Artists, 2020) His website has described that, in early years, he started his art works with figurative colour lithography and when he found the limiting, he reverted to experiments he had made in arts and crafts. At the first prints were a success, with his half inch deep grooves engraved into surface of Plexiglas to press the paper into. But he failed with deeper grooving, the paper unable to fill that depth. The solution came to his mind that why not he lay the fresh wet paper on the Plexiglas to dry then this the deciding to solve problem by starting a new experiment for papermaking.

Peter did not work in a traditional way. He used a vacuum pump to remove water out of the pulp which built a sheet former. This vacuum technique able to suck excess water out of freshy pour concrete. By this, Peter built a large vacuum table base on this principle then a new technique of sheet making by pulp pouring started to develop. On one hand, the paper pulp for art works of Peter was also improved by the Hollander beater that he bought an old laboratory beater. Later, he started manufacture of his own beater designed with small-scale paper making. It was easy to be cleaned and able to beat hemp and flax, pump materials.

Peter researched the effect of Hollander beating on the fibres. The drying of fibres, 2- dimensional shape transformed into ultralight 3- dimensional shape. To give freedom into the materials become objective. Peter used two materials that were bamboo and the fibres pulp. Peter's paper consists of fibres like hemp, cotton and flax, long fibres, in comparison to wood fibres. The different combination of fibres give the different paper. His sculptures were constructed using shape borrowed from the plant. The spine of leaf was imitated and used the more basic forms such as triangles, squares and trapezium's that allowed more control over the end result. The triangles and rectangles easily turn and twist.

"Dry" is the key formed process of Peter's sculpture. His work is formed above the wet vacuum table surface. It shrinks up to 40 percent by dehumidifiers

and fans speed up the drying. This force puts non-shrinkage bamboo framework under stress, just as a leaf when it dries.

Figure 18. Peter Gentanaar described his works,
Retrived from https://gentenaar-torley.nl/peter/

Figure 19. Paper sculpture of Peter Gentanaar,
Retrieved from: https://gentenaar-torley.nl/peter/peters-portfolio/#jp-carousel-106

Irish Van Harpen and her symbiotic relationship in nature

Another work, by Iris van Herpen, the fashion designer, which is the appearance of her work is very notable. She perceives Haute Couture as an impactful language, an intriguing substance that emerges from the intersection of innovation and craftsmanship. The symbiotic relationships found in nature's complex system, the imaginary forces that construct architectural designs, and the irregular movement in which the body and intellect cross are influences that form the transformational, imaginative process.

Her design is deeply ingrained in nature. Water, soil, and air are all components that escape traces in sensorial clothing. Elements that flow into the designs include unlimited features implying movement, such as the boundless forces and fluidity of water or its crystalline arrangements. It visualizes and emerges the unseen forces that shape our world through biomimicry, spreading a profound sense of natural nearness.

Both fa architecture and fashion, according to Van Herpen, are expressions of self, community, and culture that connect to the times and fabric of society. Changes in recognition prompted by polarities between the complex and delicate structure and development encompass the brand's poetics. Iris van Herpen blurs the lines between craftsmanship and design by combining the complexities of craftsmanship with the pioneering spirit of innovation. According to Iris van Herpen's viewpoints, the possibilities for creative ability are limitless.(Herpen, 2020).

Figure 20. Fashion of Iris Van Herpen,
Retrieved from https://www.irisvanherpen.com

According to the previously mentioned John Dewey's Theory, the expression of those artists is the handing forward to the completion of inspiration through the objective material of perception and imagination. The nature story inspired of artists, are examples that showed the potential tool of inspiration of nature carrying expressive texture elements of their works. Textures of their arts using to reinforce their overall messages and aspects. They created their textures element of art by nature’s inspired. Bryan Nash Gill’s art that used actual texture of tree to create an

implied texture element in print. He had experienced the moment of making art to express his view on the nature's cycle of tree in each season. While Hanne Friis and Peter Gentanaar brought the cyclic process of nature to create their textures and art forms. Irish Van harpen brought the symbiotic relationships found in nature's intricate web, the invisible forces that structure architectural patterns, in which the body and mind intersect are influences that shape the visionary creative process. In addition, the work of Gentanaar and Irish Van harpen are regarded asthe two difference in materials but they have showed autonomy movement in his three-dimensional art form.

Artists use visual element of texture with different originality techniques in order to be coordinated forms and being more objective of work to subject and visual features of work. To texture harmony with visual features and creation of diversity in forms, the artist has been able to strengthen the structure and composition of the work and prevent uniform and monotonous surfaces. So that they induce the subject and the content of work to the audience in some way make visual communication with viewer(Ebrahim Torkzadeh, 2019).

Artists' works with conceptual contexts in 'nature of life'

There's another curiously work of Julian Voss-Andreae, a German artist is broadly known for his striking large-scale private and public commissions frequently mixing scientific insights with figurative sculpture into the nature of reality. His figures are as often as possible appeared at universal art fairs. Voss-work Andreae's has been featured in national press around the world, and recordings of his sculpture have gone viral, reaching tens of millions of people. Earlier in his art career, Julian Voss-Andreae examined quantum material science and logic and did his graduate investigation research in a seminal test in foundational quantum material science at the University of Vienna. His mastery in different areas of science and profound

enthusiasm for the mysteries of quantum physics has been an inspiration source for his work(J. V.-. Andreae, 2020).

The German artist well known for his science-themed sculptures. Julian Voss-Andreae, transformed his idea of quantum physics into art. His striking large-scale public often blending figurative sculpture with scientific insights into the nature of reality. Prior to his art career, he studied quantum physics and philosophy in Berlin and Edinburgh. His work is heavily influenced by his background in science. Julian Voss-Andreae expertise in diverse fields of science and mysteries of quantum physics have been a continual source of inspiration for his work(J. V.-. Andreae, 2020). His best-known works include Angel of the West (erected in Florida) and Quantum Man (installed in Washington). His work aims to investigate the character of the difficulty in grasping the illustrated of shift by transforming ideas that emerged in the isolated artistic realm of quantum physics into art that evokes a sensual experience.(J. V. Andreae, 2011). Through the work of Julian Voss-Andrea, the researcher has analyzed the processed of creating his work. This artwork as the tool of expression reflects the message of the truth in nature. If seeing front the figurative is as a metal plates, the moving around to different angle of seeing the figurative itself is as if going to be disappear.

Figure 21. Julian Voss Andrea's sculpture, 'Quantum man'.

Retrieved from: https://julianvossandreae.com/works/quantum-sculptures-quantum-man/

The works of sample artists above are case studies to see how artists process their works in the relationship between experience, nature, and art. According to the theory of John Dewey narrated in the volume of 'Experience and Nature'(Dewey, 2018(1958)), It states that '*It is seen that science is an art, that art is practice, and that the only distinction worth drawing is not between practice and theory, but between the modes of practice that are full of meaning. When this perception draws, it will commonplace that art – the method of practice activity that is charged with meanings capable of immediately enjoyed possession is the complete culmination of nature, and that "science" is properly a handmaiden that conducts natural events to this issue. Division of everything into nature and experience, of experience into practice and theory, art and science, of art into useful and fine, menial and free'.*

There is another work of Thai textile Artist and Designer, Khanittha Nualtaranee, and her aspect in Life about a continuous of becoming and learning. During her MA thesis year in Aalto University (Finland), Khanittha gained experience in the aspect of creating art and the textile art that had broadly expanded in several ways. She is propelled by Tim Slowinski who stated that art is a way of life, a method of being, a way of perceiving the world. She communicated her views of being human through her pieces of craftsmanship. As her aspect, art may be a way of life and life is the method of learning within the impermanence. The concept of impermanence comes as the fundamental characteristic of all being. That's affected by the principle of The Buddhism and it significantly impacts the ways of her life and convictions. She expressed that the thought of impermanence endeavours us to acknowledge the alter of everything in life. It is an irrefutable and inevitable truth of human life. Nothing is settled and changeless, on the other hand everything is in a state of change. The moment of realizing and knowing assists oneself

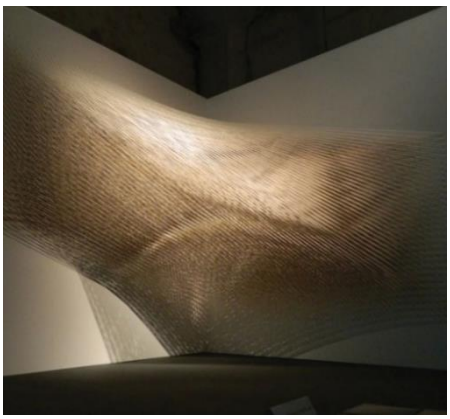


Figure 22. Khanittha Nualtaranee's artwork expressing to aspect of impermanence. Retrieved from https://www.coroflot.com/Khanittha/Impermanence-of-things

Her sculpture artwork gives a straightforward experience for the audiences to view the phenomenon of change. She presented her "impermanence" thought through a textile art object: it aims to capture the viewers' eyes with the illusion of visual perception. The viewers will be driven to reconsider the deliberate of its creation after they go through the moment of realizing, which can happen when they take different angle sees to work. The imaginative art conveys her understanding of the "impermanence of things". The changing and unusual of its presentation is outlined to perceive by ones' internal eyes that will inevitably initiate the thought of impermanence in life.

7. 'Appearance' as inevitable change: impermanence in the aesthetic of things (A beauty of things impermanence)

Washing clothes bring some unsatisfied surfaces, this is the starting point of the research, and people need to iron their clothes for the second skin-like for their pleasures. The wrinkles are categories into two types, desirable wrinkle for good looking and undesirable that occurred when wearing. Desirable wrinkle can be shown its texture and has advantage of no ironing. The undesirable wrinkle clothes have been problems for today lifestyle. Therefore, there are many inventions to keep clothes in smooth look of fabrics. In this discussion is not finding how to get rid of the wrinkles. But this discussion tries to understand about the appearance.

In western aesthetic, according to Stephen Barley, who written the book, *Ugly, the Aesthetics of Everything,* (Baylely, 2012)seems to be passionate in the irregular appearance and discussed about the ugly and beauty. He mentioned in the text that beauty is unattainable [Beauty- drive us to desperation, offering to a second a peek of an eternity that we would like to stretch out over the entire time], but ugliness is? He argues that beauty may arouse metaphysical speculation, whereas ugliness merely irritates us. Moreover, beauty is not always pleasurable.

Figure 23. The appearance of digital image created to suggest compromised perfection by David Moratilla, close up portrait, 2011,
Noted form, Ugly, Aesthetics of everything by Stephen Bayley, 2012, p.11.

Beautiful perfection can be boring and sometimes downright disturbing. He gave the example that in the world of robotics and computer – generating imagery when robots begin closely approximate human appearance. It is too perfect to be human famously in *Final fantasy: the Spirit with in* (2001), the CGI film synthetic human actors- the character found to be too disquietingly perfect with their regular features. Accordingly, 3D animations are now taught to design imperfections, so that their characters are more realistically human.

He opened the discussion that it is easy to make claim that ugliness is not the opposite of beauty, but one aspect of it.

Stephen Bayley convinces his readers that '*the more you think about ugliness the more you look at ugliness, the more elusive the idea becomes'* and

'Aesthetics is a science of beauty, buy it is an imprecise science. In fact, in terms of evidence and repeatable'.

The chapter two of this book has discussed how ugliness be measured mathematically? Due to the golden section or the classic *ratio aurea* is a proportional rule. If a line is relationship of the smaller part to the larger part to the whole. It is a golden section mathematically. Some speculate that we find this ratio pleasing because it corresponds to the human field of vision.

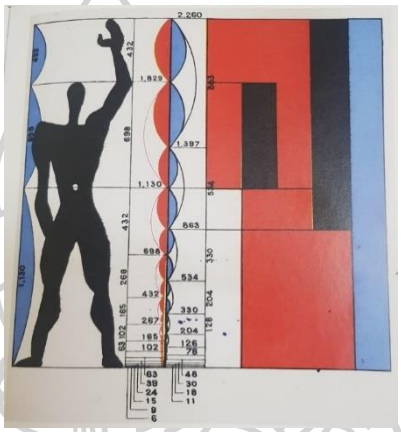


Figure 24. Le Corbusier Modulor, as show in science et Vie (October, 1995), Noted form, Ugly, *Aesthetics of everything by Stephen* Bayley, 2012, p.45

Science does not recognize the idea of beauty or ugliness, although mathematicians often describe an equation as 'beautiful' if it is elegance and correct.

Stephen's view that ugly is not the opposite of beauty is agreeable. And to understand more in this context of *'appearance'*. That arise from the after washed appearance. That arouse me to explore on this changed appearance that led some annoying and pleasant expecting of people.

In Japanese aesthetics, there is the term of '*Wabi – Sabi* ' that refer to*' the extinction of a beauty'* there is no ugly at all, whereas it is a beauty of things imperfect, impermanent, and incomplete(Koren, 1994).

"To Taoism that which is absolutely still or absolutely perfect is absolutely dead, for without the possibility of growth and change there can be no Tao. In reality there is nothing in the universe which is completely perfect or completely still; it is only in the minds of men that such concepts exist."

Alan Watts(Goodreads, 2020)

In, *the Way of Zen,* by Alan Watts, has discussed on the western science that it has made nature intelligible in terms of its symmetries and regularities, analyzing its most wayward forms into components of a regular and measurable shape(Watt, 1975).

The terms wabi and sabi both discover their roots within the skeptic Zen infinite view and between them convey the transaction between youth and ancient age, life and death-the rhythms of nature, beauty and ugliness. In the event that one wished to be more associated, wabi tends to be more related with way of life, while sabi is frequently utilized to portray the more physical characteristics of objects that show a sense of the impermanent(Juniper, 2003).

A term like wabi sabi is more difficult to understand than one might think. The historical understandings of the two words show up the complexity and ambiguity that they have come to represent, and by looking at their entry and usage throughout history. Like many other words describing feelings and ideologies, the words wabi and sabi have evolved over a thousand years of cultural change. The complexion and depth of words can increase exponentially.

Because the words wabi and sabi have been used to specify such a wide range of ideas and emotions over such a long period, their meanings are more open to individual interpretation than almost any other word in the Japanese lexicon. In literature, the author will point out that he wants to realize the full potential means

any of his composition by purposefully removing objects and subjects, thus broadening the scope of elucidation.

Andrew Juniper who composed the book 'Wabi Sabi' the Japanese craftsmanship of impermanence gave the scope that Wabi sabi is an instinctive appreciation of a transitory in the physical world that reflects the irreversible flow of life within the spiritual world. It is a downplayed beauty that exists within the humble, rural, imperfect, or indeed rotted, an aesthetic sensibility that finds a melancholic beauty in the impermanence of all things.

What is beauty?

The idea that beauty exists in its own right is not just an untenable pot according to Zen theory but also the vast majority of scholarly supposition. Beauty is most likely best defined as the aesthetic pleasure derived from perceiving something that one accepts to be physically appealing. he fact that some consider the unpleasant, asymmetric, and humble objects of wabi sabi to be the essence of beauty indicates that a rational or objective approach to understanding beauty will likely abdicate little.

Expression with wabi sabi materials in textile materials

Wabi sabi is an aesthetic that stems from an individual's demeanour rather than from art. As for our sentiments, if something evokes feelings of intangible longing, it has wabi sabi for the individual concerned. It is, like all art, highly personal and subjective. Almost all wabi sabi expressions require a natural component, as there is no sense of time and impermanence without it. The impermanence of all matter is widely regarded as unsuitable materials for genuine wabi sabi expression.

The wabi Sabi texture angle can be discovered in coarse weaves and the use of conventional characteristic dyes. These dyes are associated with materials such as cotton and silk. Wabi sabi style result is best achieved by allowing a degree of haphazardness in the handle. There is a nearly intangible stream of colour change throughout the piece of fabric. The coloring process also allows nature's hand to

weave its spell into the fabric, resulting in a degree of imperfection that can be seen and savored, as with natural mediums. The use of natural dyes and hand weaving of the materials ensures that the textiles have an additional dimension of intrigue lacking in the consistency of most modern machine-made textures, faded natural c**olours.**

Buddhism

By above, the review in Wabi Sabi, Japanese aesthetic, has influenced from Zen, Mahayana Buddhism. Zen originated in China during the Tang dynasty, known as the Chan School. This was strongly to Taoist philosophy. From China, Chan spread to Japan, and became Japanese Zen.

Constancy in change as the subjective of this research. As a researcher, the hometown is located in Thailand and had experience to study in India where both of countries are the important place of Buddhism, Theravada. In Thailand, Buddhism has long been in Thai people's life since about 2300 years ago. Buddhism, the religious comes from the mainland emerged that is India.

Previously, the Buddhism was such a religious by birth of a researcher. The self-experience when studying in master's degree in India was the started point of interesting and learning in the Buddhism. India is the rich culture and religious place. Daily life of people who live in this country has involved to their religious, especially Hinduism which now the most believe in India. Hinduist Indian always prey to their Gods in every morning. This the cause that the researcher has started to learn about the Buddhism and Buddhist teaching, own religious. The researcher have more understanding in Buddhism through volunteer's duty. As the coordinator on the intensive course of the Thai monks' group made the researcher has absorbed, continual studied and practiced herself to see the truth in life following the Buddhism. The 'nothingness' and 'the constancy of change' in this research derived from the Buddhist teaching that influenced the researcher's aspect. By studying the Buddhist teaching, this has become a part of living and practicing. Theravada Buddhism considers 'emptiness' to be one of the most essential doors to

enlightenment. Theravada Buddhism teaches impermanence and not-self; in practice, these teachings in both traditions frequently point to the same thing(Insightmeditationcenter, 2021). In the book, *Buddhadhamma : the laws of nature and their benefits to life*, written by Bhikkhu P.A. Payutto (Somdet Phra Buddhaghosacariya) and translated by Robin Philip Moore described the truth and the Buddhist teaching that the truth exists in an objective way, following its own nature. The Buddha simply discovered this truth and revealed it to others. The gist of this truth is that things exist according to a natural causal process-a dynamic of causes and conditions. Those people who discern things as they truly are, rather than according to how they want them to be, gain insight into this objective truth. They are, distorting mental defilements, devoid of obstructive, attaining an awakened, immediate understanding of truth. Their understanding is firsthand; it need not be relayed through someone else. This natural causal process manifests in many forms, as is outlined in the various laws of nature, like physical laws (utu-niyāma), the law niyāma), and general laws of nature (dhamma-niyāma)(Bhikkhu P.A. Payutto, 2017).

Buddhist and Science

Buddhism is not as abundant and deep as it once was. It is also a very practical religion. The Buddhist teaching is for all conscious beings, not just one group of people or one country. People with low, medium, and high intelligence can practice this religion in accordance with their intelligence level. Some intellectuals and modern scientists refer to Buddhism as a science of the mind, teaching us to seek enlightenment through experience and reasoning instead of belief and faith. It is undeniably a mental science. Buddhism teaches that all internal and external phenomena should be investigated. That reason is why modern scientists are so fascinated by Buddhism. The Logic of Buddhism can withstand rationale and logic. Furthermore, Buddhism encourages us to test the logic of its teachings before accepting them. The Buddha said: *Bhikshus and cholars should not accept my words out of reverence but only after thorough analysis and examination;* just as a goldsmith would test gold by way of burning, cutting, and rubbing.

Buddhism and science use similar methods to discover the truth. It teaches us that the first step in attempting to understand a phenomenon is to perceive its coordinates. Based on this, the reasoning is used to comprehend the phenomenon's less visible facts. The discovery we made is being tested in real-world applications. It corresponds to scientific research methodology.

Spirituality has suffered setbacks due to the arrival of science in the 17th century, with some religious traditions losing followers, but Buddhism has withstood the scientific test. Buddhism complements science because it is based on facts and logic. In reality, scientific discoveries such as those made by Darwin and Newton are analogous to Buddhist teachings. Numerous aspects of gravity and movement laws, nuclear vitality, evolution theories are similar to theories advanced in the Abhidharma text and Sutra of Mindfulness. More specifically, Einstein's Theory of Relativity, which overthrew previous physicists' concepts, is similar in many ways to the theory of dependent origination advanced by the Indian Buddhist master Acharya Nityananda some 2000 years ago.

Many logical or scientific disciplines, including cosmology, biology, particle physics, neurology, cosmology, and material science, share ground with Buddhism. The Quantum Theory, as clarified by Einstein's primary students—Heisenberg, Niels Bohr, and Max Planck—is analogous to Buddhist teaching. A series of conferences called "Mind and Life" promotes dialogue between scientists and Buddhists. Psychiatrists Freud and Jung attribute many mental illnesses to upbringing, particularly the relationship between a child and his or her mother. Some human mental problems, psychologists believe, are linked to the instruction and proclivities of guardians. According to them, ready to overcome human unhappiness or pain by discharging it in the form of dramas, painting or other physical representations.

The Lord Buddha's teachings are centred on the path of removing negative afflictions and their roots from our minds. This teaching is applicable in all situations. This will be the study of Buddhist teaching and an objective investigation into its validity.

Impermanence

It is the truth that no one is immortal. Subsequently, All human must spend lives doing something significant. They want to achieve happiness. Furthermore, for this, to keep themselves busy from morning to evening in spiritual and worldly affairs. No matter how low or high their occupational and financial standing, eventually, everybody must confront the reality of the circumstance of pass away. In Buddhist teaching, impermanence is considered in the sense that it perishes. All conditioned things exist only momentarily, at a specific time and place, then cease there and then. An object in the past does not exist in the present; an object present now does not exist in the future. Things do not persevere in any settled, permanent way. Modern scientific revelations, not slightest in physics, have made a difference to uncover and illustrate impermanence. Many scientific theories, say of the birth and death of stars or of atomic disintegration, illustrate the law of impermanence. Something is considered impermanent since it is uncertain and unsteady and because it has a beginning and an end(Bhikkhu P.A. Payutto, 2017). Therefore, to remind ourselves every minute of living, and reform our minds has been the wise course of action. In preparation for the eventuality of the moment come, neither physical beauty nor physical strength will save us from circumstance of change in life, keeping in mind and awareness in the wide perspective in lifetime that nothing last long.

All above in part of believe as my aspect, therefore, the Buddhist teaching, as one of tools for contemplation and understand the constancy in change of the researcher, to approach the research outcome.

8. Element of textures that related the theories of understanding nature's system, Growth and Expand

Bruno Munari was a well-known Milanese graphic artist and designer for his research in visual communication and cinematography. Various exhibitions of his work have been held in the United States, Europe and Japan. His book '*Design as*

Art' was a kind of diary in which he tried to see the way and adhere of the metamorphosis of artist that transform into the designer.

Perspective of Bruno Munari on the nature narrated the way of study on nature and how it processes on Art and Design works. The topic of 'Research Design' in Design as Art book narrated that to understand the nature. Observing natural forms in the transformation process, following their cycles of evolution, can give a series of clarifications as to why its forms. His approach can be outlined in three sentences: "taking time to observe; creating a profound understanding, and acting rapidly"(Munari, 2008).

He mentioned that "Copying nature' and understanding nature is not the same. To copy nature can be essentially a form of manual deftness that does not help to understand, for it appears things just as we are acclimated to seeing them. But considering the structures of nature, watching the advancement of forms can give everybody a better understanding of the world we live in.

Bruno described the growth and explosion by observing the bush. In the event that he was to require a photo of the bush, slightly out of focus, and appear it side by side with a photo of a hand-grenade detonating. The two things would have the same form. A firework is nothing other than a tree or a vast artificial flower that grows, blooms and dies in the course of a few seconds. After that it shrivels and falls to the ground in unrecognizable shreds.

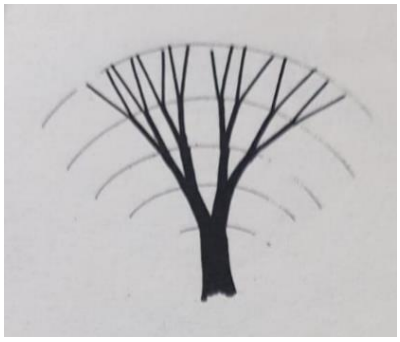


Figure 25. Growth and explosion.

Noted. From Design as Art p.160, by M. Bruno, 2008, Great Britain, The Penguin Group.

Figure 26, diagram of the growth of a conventionalized tree (Bruno drawn from his memory after a study by Leonardo). Each arc represents each branches fork and a year (in the theory of an infinite number of year times). They do so according to genuine relationships and surrounding conditions.

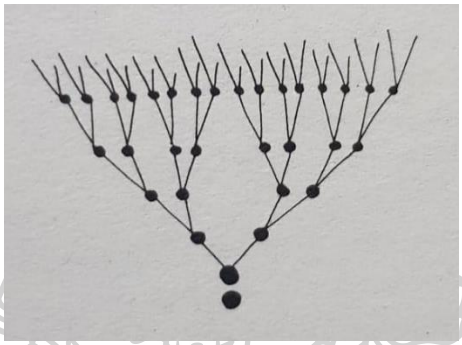


Figure 26. Diagram of growth of a conventionalized tree.
Noted. From Design as Art p.160, by M. Bruno, 2008, Great Britain, The Penguin Group.

The atomic chain reaction is considered in the theoretical, as a diagram, it is comparable to the tree's growth. The only difference is the time component: instants instead of years.

A drawing shows the growth of a conventionalized tree. It begins from the trunk and then produces an arrangement of forks. At the same time, the thickness of the branches tapers until the whole thing takes on a rounded form quite the same to that of a nuclear explosion, so-called 'mushroom'. The process of growth shows the same progression as atomic chain-reaction: 2-4-8-16-32-64, etc. At this point, they arose in the first place purely from visual observation. However, simple observation may stimulate more profound research. Alternatively, it may simply demonstrate a coincidence between one visual perception and another based on one’s logic and experience.

The artworks with concave-convex forms made by Munari began making the forms of metal netting in 1948 and exhibited them. The net is flexible folding and

keeping it smooth and round with the corner touches the point. Tie it there with a piece of fine wire. This form will be semi-transparent and will have the same plastic characteristics as a shell, or as mathematical forms or certain topological.

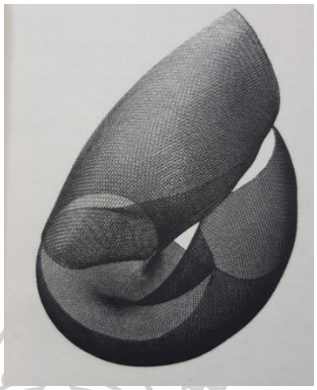


Figure 27. Concave-convex form by Bruno Munari.

Noted. From Design as Art p.160, by M. Bruno, 2008, Great Britain, The Penguin Group.

The concave-convex form that made by net to be hung from the ceiling. If put the light on them, the shadow of its appears on the ceiling, corner and the wall. The air makes them turn the least movement that have the interesting moiré effects and vanish like a cloud.

Another nature inspiration for the artwork is the theory of continuous structure. Natural shapes are persistently adjusted amid growth by their surroundings. The internal structures allow birth and adjust themselves to numerous differing forms. The continuous structures with their capacity for variety concurring to the connecting. The work of art is a unique thing, independent of what it communicates. Each continuous structure is duplicated in a certain number of divergent copies and their arrangement. The component of the continuous structures is based on the element defined by the square and the correct point.

Figure 28. Continuous and expansion.

Noted. From Design as Art p.166, by M. Bruno, 2008, Great Britain, The Penguin Group.

The works of art in the natural structure are created in the same way as natural things mentioned. Munari created artwork that could be infinite series. The artwork was composed of modulated elements join together. The basic element joined to others like them gave this structure their particular form.

Figure 29. Continuous structure.

Noted. From Design as Art p.168, by M. Bruno, 2008, Great Britain, The Penguin Group Assembled by Shuzo Takigouchi.

There is a picture of assembled structures created by Shuzo Takigouchi. Its structure is an outstanding sculpture, unlike the conventional sculpture. They do not have a base, a front and a back. They can be displayed of mass and spaces fixed once and for all. However, this becomes variable according to how many are used and how they are arranged by Shuzo Takigouchi. The structure is unlike the conventional sculpture. They do not have a base, a front and a back. They can be placed any way up or hung on the wall. The abstract sculpture could catch the

aspect of a continuous structure. The structure does not have a composition an interplay of mass and spaces settled once and for all. But this ends up variable concurring how many are used and how they are arranged in the object as an entire(Munari, 2008).

Chapter 3
Methodology of the Research

This research aims to study and identify keys data that can apply to approach process and method of texture effects, as well as expand aesthetic value of texture effect appearance. To approach the objectives, this research is an iterative research-led practice and practice-led research. To The research-led practice started with study and analyse data collected of existing knowledge to be explored knowledge that relevant topic. This has done parallel practice-led research, which the researcher started with idea or play on materials to generate ideas. This process followed by formulation and theorizations may applied to the generation of future creative works which every stage possible to go and turn back in a revisiting of generation ideas and so on (Dean, 2010). Those can be jump from one point to any other found in the research structure to analyse the result and discuss for refining the creative works and data of knowledge relevant.

1. Research approach and methods

The research approach that was followed for the purposes of this research was iterative practice and research. According to this approach, researchers begin with explore data existing an analysed, which are used to produce generalized theories and discussions with the experiment process in the research. The reasons for turning in between practice and research which can go and back in any stages, that to approach and refine outcome. It is also most appropriate for small project of experiment adjustable refine experiment process through the result and examine the theories relevant. The research approach used in my research can be seen in as an interplay between literature reviews, experiment as art practice and design, art aspect and examine the experiment through art and design objects.

The document of Linda Candy, *Practice Based Research: A Guide*, can guided clearly of the characteristics of research in practice and research. There are two types of practice-related research: practice-based and practice-led. 1. If a creative artefact is the foundation of the contribution to knowledge, the research is practice-based. 2. The research is practice-led if it primarily leads to new understandings about practise—the distinction between the two stems from the research's emphasis on knowledge contribution and creative outcome.

According to Lyle Skains' description of Practice-based Research, the creative artefact is the foundation of the contribution to knowledge. This method is used in original research that seeks new knowledge through practice and its outcomes. The creative artefacts of creative practice are used to demonstrate claims of originality. The creative artefact is accompanied by a critical discussion of the meaning and context of the claims. A complete understanding can only be obtained through the cohesive presentation of the creative artefact and the critical integration(Skains).

From Practice-led Research, Research-led Practice in the Creative Arts, edited by Hazel Smith and Roger T. Dean, addresses a critical issue for contemporary creative arts practitioners: the involvement and significance of creative work within the academic field and its connection to research practices. Higher education has become more accepting of creative work and its existing and potential research relationships. At the heart of the connection between creative practice and research, systematic creative work was undertaken to increase the stock of knowledge to devise new applications(Dean, 2009). The book's suggestion is a process that generates knowledge that applies to other processes other than the one studied in its production and transferable. Hazel and Dean considered and debated the methodologies of research-led practice and practice-led research and modelled the relationship between creative practice and research. Figure 30, the collaborative research and creative practice model in which they engaged with both practice-led research and research-led practice, the transference of research characteristics onto

practice, and alternations between research and creative practice, often within a single project.

Therefore, the research is adopted the relationship of research and art practice which contains the creative practice-based research to approach the objectives of research, as to do research and art practice. In design process, the experiments, are developed through the analysing of its creative texts that the researcher keep reading and noted relevant critical theories and record the results of experiments to create final works and writing or Interpretation of the outcome. The diagram of relation between research and practice methods is illustrated as below.

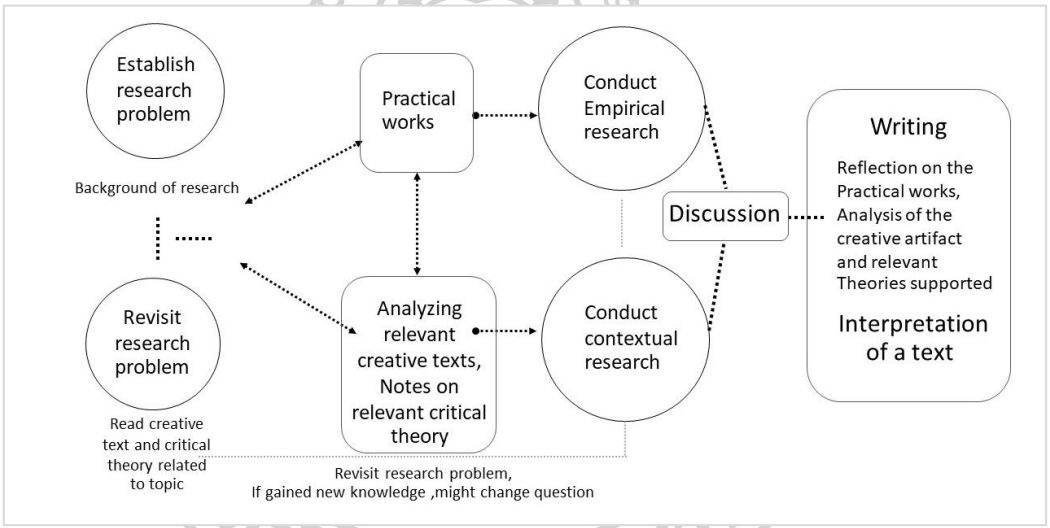


Figure 30. Practice and research methods in this research, illustrated by author.

Research methods

To approach the objectives of the research, consist of four main activities in this research that are,

1.) Identify issue and generated ideas (in chapter 1)
2.) Literature reviews to explore and analyse existing textured effects appearance and relevant topics. (chapter 2 and 3)
3.) Experiment and identify the key factors of creating textured effects appearance of textile. (chapter 3)

4.) Examine keys finding to create textured effect appearance in textile and contribute of its knowledge. (chapter 4)

As activities of research, can appear in variety of guises across practice and research. Research conducted in the process of shaping an artwork: or research which is documentation, theorization, and contextualization of an artwork.

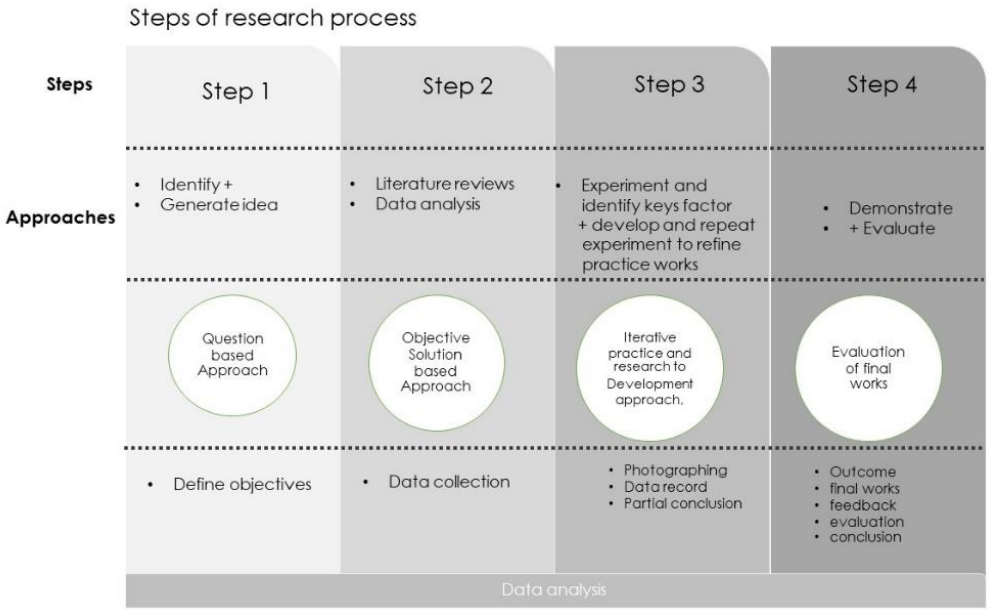


Figure 31. The steps of the research, illustrated by author.

Dividing methods as the steps of research having details as follow,

Step1:

1. Identifying the issue and generated ideas from the question based approached to define objectives.

Step 2:

1. Reviewing literature and analyse data to find the solution of the objective getting data collection of keys finding.

Step 3:

1. Studying on properties of common using materials and previous study of existing texture effects of textiles and relevant.
2. Experimenting on finding factors of texture effect in handwoven textile, the physical appearance keys finding:
3. Analysing on subjective of change related texture effects to analyse for keys finding for contextual creativity in textured textiles appearance.
4. Drawing conclusion and discussing the results

Step 4:

7. Evaluating the final works
8. Drawing Conclusion

2. Data analysis: Medium and artistic expression

Art as Expression

The perspective that "art is imitation (representation)" has not only been challenged, but it has also been marginal in at slightest a few of the arts since the 19th century. It was consequently supplanted by the theory that art is expression. Art is held to reflect the internal state of the artist rather than reflecting states of the external world. The creation of artwork is the bringing about of a new combination of elements in the medium. The elements existed beforehand but not in the same combination; creation is the re-formation of these pre-existing materials.

Medium and artistic expression

The practice and research-led iteratively processes between critical theoretical research and practical works. In this research, the chosen medium as the tool for artistic expression is involves conducting the empirical research and the influenced conceptual context of researcher. To analyse how artists action their creative works, in this research is studied the process of creating artworks of artist's action to solve the particular medium in expression of the artwork.

Practice-led research in this study drawing parallels between the experience of hand weaving and conceptual contexts as artist aspect. The role of hand weaving and material as the tool to express my practitioner artist aspect. To express artistic viewpoint and approach texture appearance in conceptual context this research this research has also practice on the materials to approach the research aims. Weaving is the process that I, as researcher and art practitioner has hand weaving experience background, chosen this weaving to practice and present significant challenges for the relief effects on the textile appearance.

The expression includes skilful of a medium in arrange to form the work of art embody or expressive a meaning. To practice, experiment and create artworks engage both an expressive act and a physical action to create a tangible object to integrate a meaning into the object. Experiencing the materials of the medium can help express ideas and creativity, embodied its maker's expressive and imaginative thought through its material-physical form(Nimkulrat, 2010). Making is knowing, its material character leads to a materialist reading of creation. The manner are delivered reflects a way of considering and the making conceives the knowing(Lehmann, 2012). Skillful utilize of such tools must be learned; the creator has got to learn and arrange, through experience, how to control and handle the tool, and in doing so creates a relationship with and come to know the materials(Townsend, 2016).

The guide of *'Act as Expression'* of John Dewey's theory, "*Materials undergoing combustion because of intimate contacts and mutually exercised resistances constitute inspiration, …., The act of expression is not something which supervenes upon an inspiration already complete. It is the carrying forward to completion of an inspiration by means of the objective material of perception an imaginary"(Dewey, 2005).*

There is the process of experiment and create work of art through the art practice in this research which draws the diagram as follows,

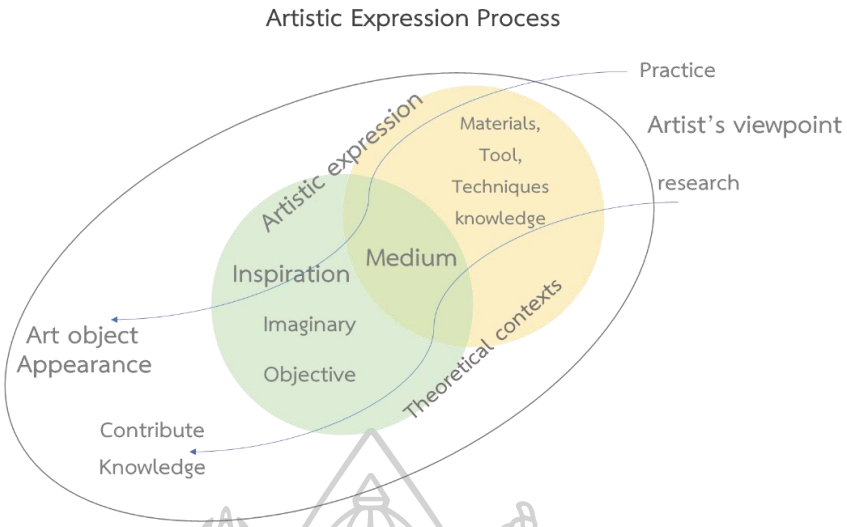


Figure 32. Diagram shows research and practice in artistic expression process.

In this research, to approach creative texture as a tool of artistic expression, the subject of contextual aesthetics related to topic is to study more in how artists express their viewpoints through practice the concept and process making.

In literature reviews, chapter 2, Bryan Nash Gill's art that used actual texture of tree to create an implied texture element in print. He had experienced the moment of making art to express his view on the nature's cycle of tree in each season. While Hanne Friis and Peter Gentanaar brought the cyclic process of nature to create their textures and art forms. In addition, the work of Gentanaar has not only fabricated art from the two dimensions but the evaporation process of making sculpture is also showed unique autonomy movement in his three-dimensional art form.

The nature story inspired of artists that mentioned, are examples that showed the potential subjective tool of expressive texture elements of their works. Moreover, materials that those artists and designer selected could be emphasized

texture and movement. By the studied, this is how the experiment on textured effects in textile having subjective of nature inspired is generate.

According to John Dewey's Theory that mention before, the expression of those artists is the carrying forward to completion of an inspiration employing the objective material of perception an imaginary. The nature story inspired of artists, are examples that showed the potential tool of inspiration of nature carrying expressive texture elements of their works. Textures of their arts using to reinforce their overall messages and aspects. They created their textures element of art by nature's inspired. Bryan Nash Gill's art that used actual texture of tree to create an implied texture element in print. He had experienced the moment of making art to express his view on the nature's cycle of tree in each season. While Hanne Friis and Peter Gentanaar brought the cyclic process of nature to create their textures and art forms. Irish Van harpen brought the symbiotic relationships found in nature's complicated web, the undetectable strengths that structure architectural patterns, in which the body and mind intersect are influences that shape the visionary imaginative process. In addition, the work of Gentanaar and Irish Van Harpen, the two different in materials but they have showed autonomy movement in his three-dimensional art form.

Artists use visual element of texture with different originality techniques in order to be coordinated forms and being more objective of work to subject and visual features of work. To texture harmony with visual features and creation of diversity in forms, the artist has been able to strengthen the structure and composition of the work and prevent uniform and monotonous surfaces. So that they induce the subject and the content of work to the audience in some way make visual communication with viewer(Ebrahim Torkzadeh, 2019).

3. Experimental methods, exploration, and observation records

After generated idea to establish the topic of research, the second step is to explore the existing textured effects appearance and relevant topics. In this stage, the researcher has studied and reviewed in many sources of physical factors of textured fabrics and interesting relevant objects by field trips, articles, books, internet, and other sources. By doing this, key factors are collected from the different source of study that led to experiment to approach the research objectives and develop to conduct the empirical and contextual research by practicing and analysing the creative artefact.

Each creative process of experiments, both physical textured effects and the conceptual related to topic that arises when creating particular practice works. This chapter is about examine keys data collecting from the literature reviews and explore texture effects interplay with materials and processes of data analysis.

There are two parts of experiments to approach research aims,

Part 1: Physical characteristics

- Experiment by examining materials and process of creating.

Part 2: Concept of expression

- Experiment relates to the conceptual context.

3.1 Part 1: Physical textured effects appearance

3.1.1 Experiment by examining materials characteristics and process of creating

From experiments to experiments, repetitive practical as art practitioner started from the experiment on materials selected for making textured effect appearance.

a) Experiment 1: Surveying the local Thai materials widely used by artisans.

*Key finding***:** local material in used and their *characteristics* in texture appearance.

In the market, there are variety of local woven fabrics that are consisted of natural types of materials in which main local materials used and can be produced within country that are:

1.) Silk – industrial silk, homemade silk or called *'Mai-Ban'* in Thai.
2.) Cotton – industrial cotton, homemade cotton that is hand spun cotton.

In local Thai handwoven yarns, the artisans have inherited self-producing. Silk and cotton have been made in the family. The physical characteristic of industrial silk and homemade is slightly differ with sizing. Industrial silk is finer and thinner than mai-ban that has the unsmooth thread and little mass in comparison.

For cotton, the industrial cotton has wide range number of threads. In Thailand, hand spun cotton is the heritage of producing the cotton hand spun yarn. *'Fai-khen'* is the word that called Thai hand spun cotton. The Physical appearance of cotton hand spun has been different to the industrial cotton. For the industrial cotton is smooth, strengthen, fast producing effects to the price. In hand spun cotton has the unique physical yarn with plump and slub, having irregular appearance caused by uneven thickness that it seems to be charming for this handmade yarn.

Cotton is inelastic and rigid fibre. It is breathable fibre, in many countries produce and use cotton as the main fibre in used. In Thailand, the weather is mostly hot and humidity, using cotton is proper for the weather. The appearance after washed of cotton hand spun of the test showed the interesting textured effect on the surface.

Process:

1. Select some ready fabrics, natural made that available in the local market.

2. Wash fabric in normal temperature.
3. Record any observations during the process of experiment.

Testing texture appearance by select some of ready fabrics in local market.

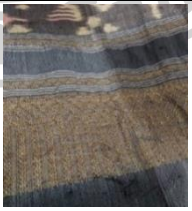
	Material Combination	Structure	Unwashed	Washed	Washed Physical Appearance
1	*Warp* – cotton 40/2 *Weft* – Hand spun cotton	2 Shafts in plain weave			Hand rough, high wrinkles effect
2	*Warp* – cotton 40/2 *Weft* – mercerized cotton	4 Shafts in mixed - broken twill			Less wrinkle, creases from twist fabric
3	*Warp* – cotton 40/2 *Weft* – bold cotton	Multi shaft weaving			Moderate textures
4	*Warp* – cotton 40/2 *Weft* – fine silk	4 Whaft mixed patterns			Less texture appeared

Table 4. Comparing local fabric in unwashed and washed appearances.

Observation Records: Hand spun cotton showed high wrinkles effect, even though in plain woven; common cotton, industrial made showed moderate wrinkles texture. Mercerize cotton made less wrinkles and having creases from twisting fabric there was also less texture in fine silk.

b) Experiment 2: Experiment on wrinkling formation and durability of ready plain weave fabrics in local market *Key finding***:** testing after washed *characteristics* of cotton and silk in plain weave, 2 shafts structure and *textured effects appearance* by formed twists.

Process:

1. Selecting some ready fabrics, cotton and silk that available in the local market.
2. Designing twist by form the fabrics in different ways

Figure 33. Designing twist by form the fabrics in different ways.

3. Boiling in hot water temperature about > 95 degree and dried without release twist formed

Figure 34. Boiling in hot water temperature about > 95 degree and dried without release twist formed.

4. After wet finished in heat water 95 degree Celsius for 1 hr.

Figure 35. After wet finished in heat water 95 degree Celsius for 1 hr.

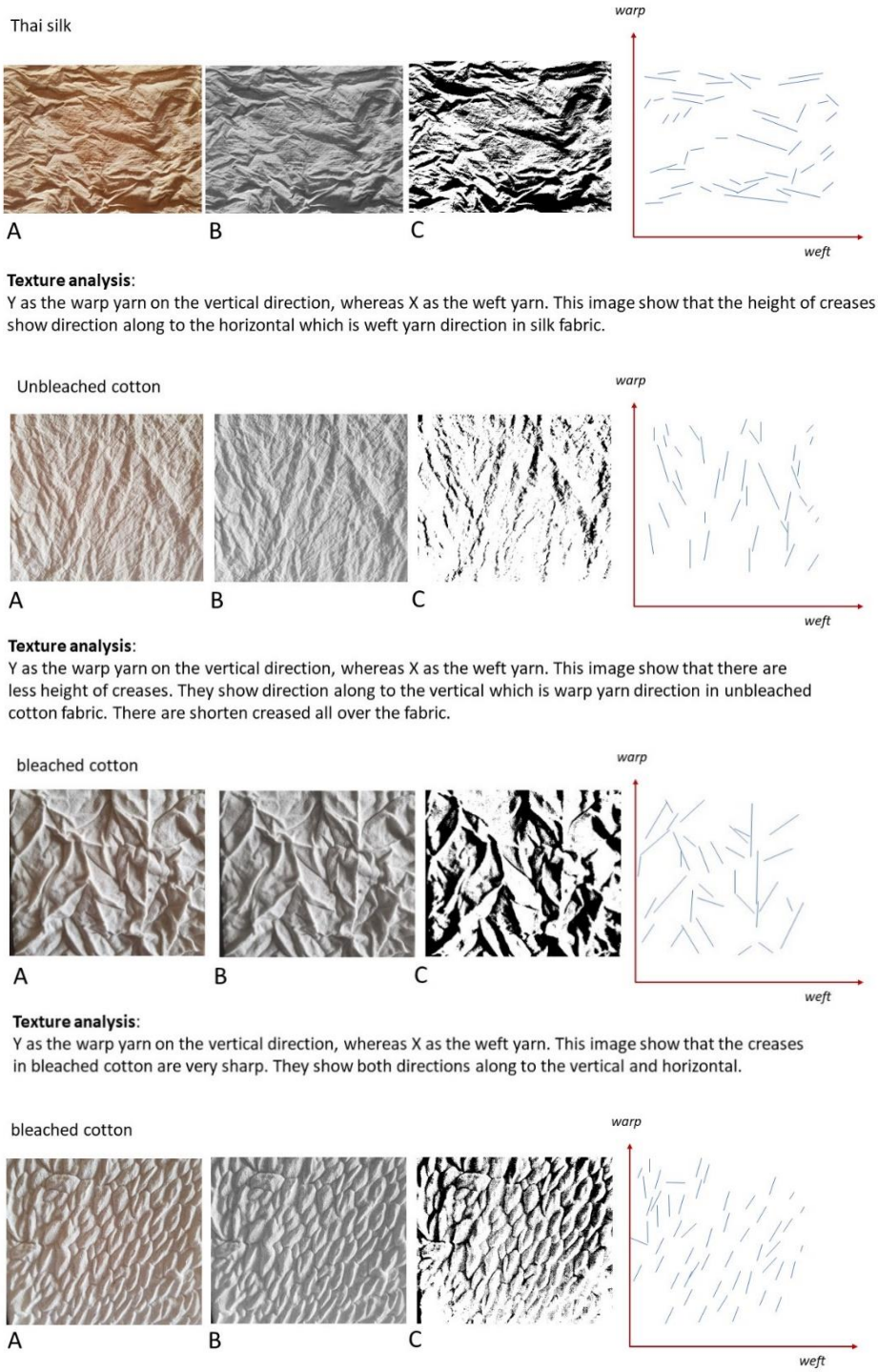


Figure 36. After boil fabrics showed different appearance due to different twist.

c). Experiment 3: ready fabric in forms of twist

The experiment from twist in previous experiment showed the appearance with the *Keys finding*: the relation of shape and texture effects through formed twist in wet finish (washed)

Recorded by observing:

The twist fabrics has interesting texture and movement with the direction of twist to formed and curved itself, especially in the rhombus shape, that has high degree axis.

3.1.2 Materials and structures in designing textured effects in textiles

a) Exploring and making materials

Experiment 1: Experiment on examine relevant materials of existing texture appearance

Key finding: materials in relevant texture effects by experiment: adopted to experiment to test textures appearance.

Figure 38. Existing materials with the textured appearance.

1. Selected materials to experiment.
2. Use plain weave, to test the texture effect, follow the previous experiment of texturing by twist and crush to simulate the existing textures.

Figure 39. Paper used, a material weft experiment.

Figure 40. Details of material and its appearance.

Recorded by observing:

Experiment 1, Figure 39 and 40, the texture appearance in paper weave as the weft and the warp is cotton, after cut-out from the loom its appearance is flat. Crushing this weave to form its wrinkle as testing the material in weaving, the appearance after crushed has some relief by hand forced but its textures was not durable in appearance. Some stitching was added into this appearance to make the relief remain.

Experiment 2, Figure 41, on right, the combination of weaving used copper - metallic yarn woven in cotton warp showed the appearance in wavy texture. The copper-metallic yarn is retaining unshrink by its characteristic but cotton in the same fabric shrink, by this, these woven fabrics is showed the wave in the area where weft by copper-metallic yarn connected to cotton area.

Figure 41. Copper-metallic and cotton woven fabric.

Note: By the phone interviews the expert of Thailand Textile institute (THTI) Mr. Rabchok suggested that each material has their own characters. Some materials cannot be made the yarn but can be produced in other process, paper is such as type of composite textile which does not produced by weaving but transform it and called the composite textiles mostly used in home textiles and part of industry.

b) Making Yarn

Key finding: twist yarn to test the textured effects by trying on different tools

From the results of washing fabric experiment, cotton hand spun shows the highest relief surface. Therefore, in this step of designing yarns must keep this material to be most effective material.

Cotton and silk production

Cotton takes approximately seven months from planting to harvesting. it is planted at the beginning of the monsoon season and harvested between December and February when the balls are ready to harvest. Indigenous cotton comes in two colours, cream and light brown(Convey, 1992).The fabric developed through weaving of hand spun yarn is more soft, supple, and absorbent. In small production of hand spun cotton, the mechanisation of spinning which was the first stage in the industrialisation. This is a decentralised and diverse system that related to quality, particular fibre length. Though this is the short fibre length if compared to industrialised cotton. But the short length of cotton is not the problem under old system, as weaver had special equipment that was adapted to use it(Anderson, 2018).

Natural fibres have been used in all cultures for making utilitarian products. Textile fibres are normally divided into two main classes: natural and man-made fibres. All fibres which come from natural sources (animals, plants, etc.) and do

not require fibre formation or reformation are classed as natural fibres. According to materials used in Thailand, among diversity of their heritage types of textile, cotton and silk are main consisted of fabrication. The production of silk and cotton was the work of mostly woman who cultivated cotton and gathered silk moths from the wild to use as breeding stock for sericulture. These traditions continue in some areas.

Figure 42. Indigenous Thai hand spun cotton in two colours. Photograph by author

Figure 43. Thai silk in natural dye colours. Photograph by author.

Experiment 1: twist yarn using hand spinning wheel tool.

Figure 44. Left, Spinning wheel and right yarn twist.

Figure 45. Result of the experiment.

1. Use cotton to spin into high twist yarn as weft yarn.
2. Weave in plain weave using cotton 40/2 as warp yarn.

Observing records

The appearance after weave has less texture effects, investigated that the twist hand spun in fine common cotton (industrial cotton) less effect of texture making.

Experiment 2: twist yarn using applied handy spun tools

1. Using handy spun tool with weft, by alternating weave to ikat or the other pattern.

Equipment: Handy spun tool, applied from the kitchen tool

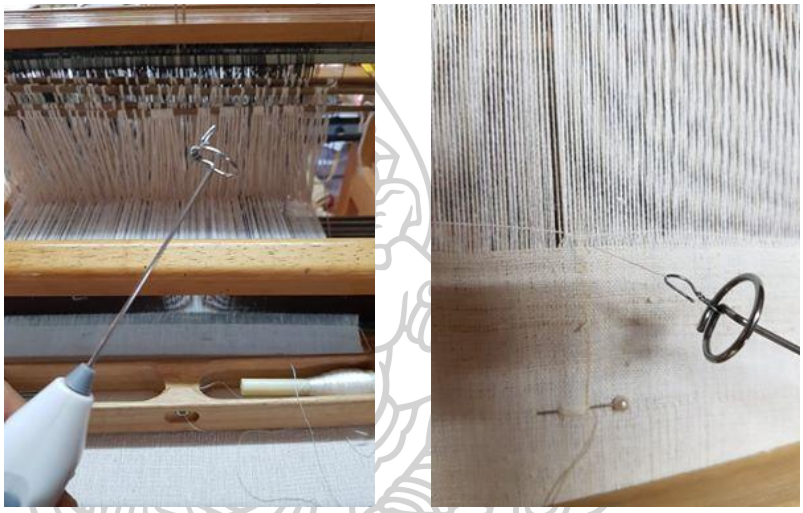


Figure 46. Handy spun tool.

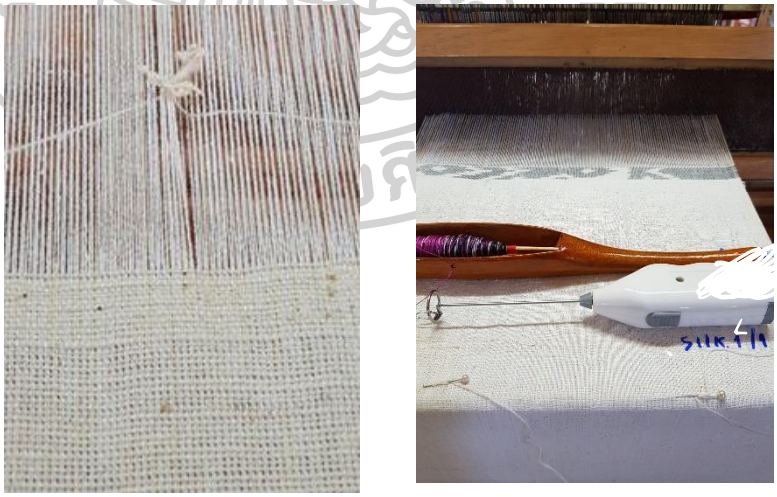


Figure 47. Left, yarn twist, right, Handy spun tool.

Figure 48. Emphasis pattern with texture.

Figure 49. Emphasis pattern with texture.

Observing record

Using hand spun tool made texture get rough and high relief texture.

Process similar to tapestry weave that can control the thread by hand freely. And it's consuming time for the process.

Experiment 3: twist yarn using spinning wheel machine

Figure 50. Spinning wheel (power) machine.

1. Use 2 plied yarn in combination of ikat and cotton. Twist to add size of yarn and make uneven volume of the yarn with tied weft yarn (ikat).

Figure 51. Left, twisted ikat in flying wheel, right and twist yarn.

Figure 52. Weft ikat and the emphasis design of yarn twist.

Use the spinning wheel to twist with local weft ikat, in the rhythm of ikat pattern.

Figure 53. The appearance showed relief textures on the surface that weft emphasis pattern.

Observing Record

This process much consuming time, the appearance of this production has shown the thicker fabric and patterned of this production.

3.1.3 Combine effects making from the previous experiments

Experiment 1: twist yarn woven in rhombus shape (on loom)

Key finding: relationship between twist and shape of fabric

The degree of shape in fabric after twist and wet finished show interesting appearance. This stage of experiment is to test the effect of twist yarn in the irregular shape of fabric making.

Yarn twist in new shape in small, needle weave combining the used of shaped twisted fabric.

Figure 54. Left, twist yarn in shaped weaving on loom and right, when remove the piece of experiment from loom.

Figure 55. Left, before soak in hot water, middle, when cut warp yarns and the piece of experiment autonomy performed curved itself, and right after soak and twist.

Figure 56. After washed the rhombus woven piece of textile.

Observing recorded:

The small piece of rhombus woven textile has the cured itself after brought out from the weave. And when passed the step of wet finish in hot water, the small textile has effects of formed and textured itself.

Experiment 2: twist yarn woven in rhombus shape (needle work)

Key finding: relationship between twist and shape of fabric

From above experiment 1, the same series of shaped weave was planned to develop in the more convenient to produce the textile object. Needle work is one choice of tacit knowledge of the researcher. By expand the relation of material and shape weave to approach texture appearance, this experiment was tried on small weave process.

Process:

1. Pin needle to foam sheet, making vertical thread as the warp yarn in high degree to shape the warp as the rhombus shape.

2. Put the twist yarn, using metallic twisted silk, the weave direction was in shape angle going along direction and shape of thread pinned.

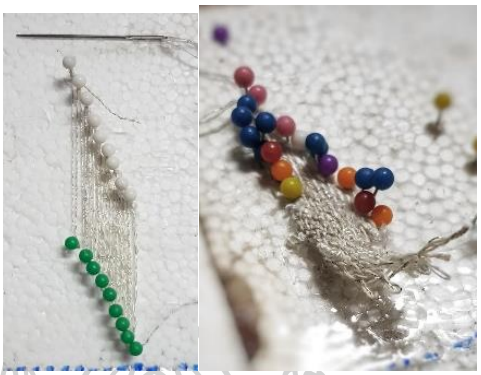


Figure 57. Needle weave in Rhombus shape.

3. Remove pins to release the woven textile and soak in hot water.

Figure 58. Needle weave in Rhombus shape when unpin.

Observing recorded:

The textile object of metallic and silk yarn twist has autonomy twist its form curvedly.

Experiment 3: weaving in irregular weft direction

Key finding: effect of high angle of weft direction weaving in table loom

This process is to experiment on various materials and weft directions, focusing to explore effect in irregular angle wefts from texture appearance in previous experiment.

Process: Creating the yarn twist with different combination of selected local yarns weave by beating various angle of weft directions in handwoven textile weaving.

Figure 59. Weaving in various weft yarns and irregular weft directions.

A piece of W50 x L70 cm handwoven fabric shows that there is irregular weft direction on various materials found in local Thai markets, such as cotton and some metallic yarn, and across multiple weft directions by using single and double plied yarns created to generate ideas. The interesting texture and shape at the edge with a diagonal weft line using yarn twist with a combination of thick and thin cotton together twist can be used to design the surface in the following experiment.

3.1.4 The relation between material characteristics and weft directions.

Experiment 1: Examine the relation between material characteristics and weft directions.

Keys finding: Exploring and comparing effect of yarn twist and simple single yarn to test effect on fabric.

To examine the relationship between the materials and weft directions, the experiment of handwoven fabrics was performed as seen in Table 1: (A) uneven angle twisted of single plied cotton yarn in weft, shows a potential effect on fabric texture and B) S double piled cotton X handspun cotton double yarn in weft.

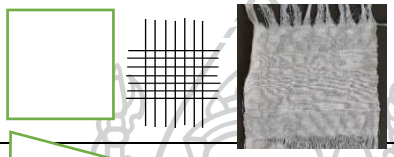
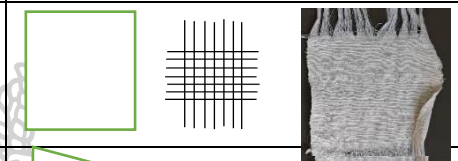
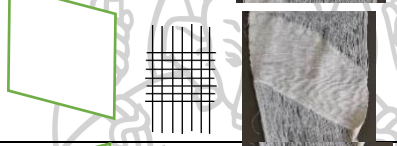
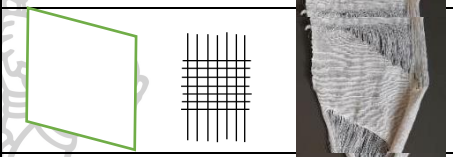
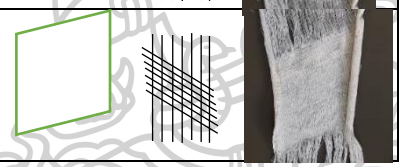
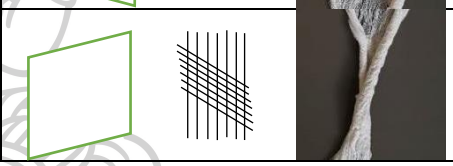
Weft Yarn	(A) Single piled Handspun cotton (Single yarns) 	(B) S double plied handspun cotton (Double yarns) 
1		
2		
3		

Table 5. Shape and structure formation to experiment.

Comparing single yarn and double-twist yarns in weave.

Figure 60. Experiment to compare the weft yarn of single weft and yarn twist weft.

Materials used:

Fabric [A], Figure 60: single plied handspun cotton.

Figure [B], Figure 60: (b) x (c): fine cotton double plied x handspun cotton.

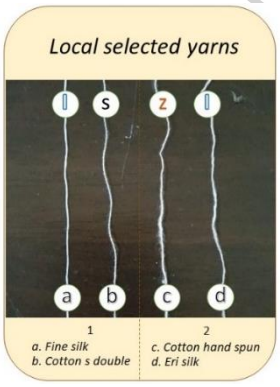
Observation recorded:

Results of the experiment show the left (A) woven fabric has a flatter surface, and the other (B) woven fabric appears wrinkle rolled with a curved texture appearance.

a) Making yarn: play more on yarn twist processing

Key finding: to fine textured effect of material use process of twist yarn. According to literature reviews in chapter 2, the high twist yarn is powerful for textured effects.

In chapter 2, the selected local Thai materials in used that were divided to be two groups of yarns, the fine and texture yarn. Silk and cotton are the types of yarns that generally used in Thailand. Four yarns selected which are *a*. fine silk *b.* Fine cotton *c.* Cotton hand spun and *d.* Eri silk.



Local selected yarns using in experiment

a.	Fine silk	(Protein fibre)
b.	Fine cotton, S double-plied	(Cellulose-veg)
c.	Cotton hand spun	(Cellulose-veg)
d.	Eri silk	(Protein fibre)

Figure 61. Left- Local selected yarns using for the experiment.

Combination of yarns to be twisted by pairing the yarns in two group by sizing with following.

1. Combining between thin yarns:

   a+a: fine silk x fine silk.

   a+b: fine silk x double plied fine cotton.

   b+b: double plied fine cotton x double plied fine cotton.

2. Combining thin with thick yarns:

   a+c: fine silk x handspun cotton

   a+d: fine silk x Eri silk.

   b+c: double plied fine cotton x handspun cotton.

3. Combining between uneven, thick yarns:

   c+d: handspun cotton x Eri silk.

Process:

1. Process yarn twist in uneven angle of twist.

High twist yarn is important to the texture appearance of fabrics. According to the constancy of change in subjective experience, this experiment was designed by the processing of yarn twist and adding uneven angle twist yarn in the low and high twists in the same yarn. To see how the effect possibly appears, for the uneven yarn twist, two angles were used to twist from over 45 degrees to less than 15 degrees. This makes the high and low twists, respectively, and the yarn twist characteristic is similar to elasticity.

Step1. More than 45 degree twist

Step2. Slowly moved hand to less than 45 degree twist

Step3. Moving yarns to about 15 degree twist respectively

Figure 62. Steps of uneven angle yarn twist experiment.

2. Weave in pain weave, basic structure that vast used in local handwoven textile.

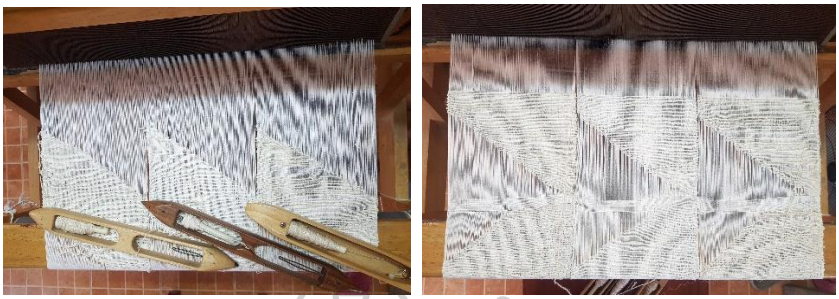


Figure 63. Weaving process of experiment in table loom.

Plain weave was selected for the experiment because of the basic structure of the fundamental weaving. This one-beam weaving technique is widely used in local Thai handwoven fabrics. Commonly, the type of texture is usually flat. Therefore, it can be examined with a focus on the materials affecting the textures.

Comparing the appearance of fabrics on before and after wash process

Figure 64. Left, unwashed handwoven fabric and right- after washed handwoven fabric.

Warp & Weft / Material Combination	Construction & Weft Direction				
	Shape				
Weft yarns	Yarn Twist	Results			
a+a: fine silk x fine silk					
Line 1	*a+a*	1 *a+a*	X	2 *a+a*	3 *a+a*
a+b: fine silk x fine cotton					
Line 2	*a+b*	1 *a+b*	X	2 *a+b*	3 *a+b*
b+b: fine cotton x fine cotton					
Line 3	*b+b*	1 *b+b*	X	2 *b+b*	3 *b+b*
a+d: fine silk x Eri silk					
Line 4	*a+d*	4 *a+d*	5 *a+d*	6 *a+d*	7 *a+d*
a+c: fine silk x handspun cotton					
Line 5	*a+c*	4 *a+c*	5 *a+c*	6 *a+c*	7 *a+c*
c+d: handspun cotton x Eri silk					
Line 6	*c+d*	4 *c+d*	5 *c+d*	6 *c+d*	7 *c+d*

Table 6. The data recorded and details of experiment.

There are plan of totally 6 pairs of yarns to weave with 2 structures of weft directions and 4 shapes of weaving, 1 simple weave shapes and 3 simplified shapes from leaf as above.

Table 6 shows a total of six pairs of yarns woven with two structures of weft directions and four shapes of weaving, one simple woven shape and three simplified shapes from the leaf.

Observing recorded:

The experiment results in Table 6 show 21 small shapes of two weavings, divided into three warp rows and seven weft lines. The photos of the weaving of each of the material combinations are seen in Table 6, from the top Line 1 to bottom Line 6 with numbers attached to the front of each combination. The results of Line 1: (a)+(a), 2 (a)+(b), and 3(b)+(b) in Table 6 show that less or non-textured effects appeared. Additionally, in Figure 64, right – after washing the fabric, these all-fine yarn twists wefts show less or non-textured effects, but some regular wrinkles can be seen in its appearance.

The bolder combined yarns twists in Lines 4, 5 and 6 show textured effects, especially in the irregular rhombus shape weft direction, which shows the curved and rolled effects in the samples, and a hard curve in Line 5, 6 (a)+(c), in the appearance before washing.

The after washing samples of (a)+(c): Fine silk combined with local Thai handspun cotton, and (c)+(d): local Thai handspun cotton combined with Eri silk show a gain of hard textured effects in the fabrics' appearance.

3.2 Part 2: Creative design art

Experiments relate to the conceptual contexts

From literature reviews of the creative texture of Artists who create their texture as the expressive tool to their art.

3.2.1 Simulated texture of natural objects

Experiment 1: to examine the process of making texture by simulate natural object

The experiment was developed from the needle weave from previous experiment (see, 3.1.3, experiment 2) this weave was *'simulated form'* of leaf.

Process:

1. Select the leaf from nature, observing and analyse outline of leaf.
2. Compare the same type of leaves by chosen one dried and another fresh leaf.
3. Pin the structure of vertical threads as warp yarn as drawing outline of shape.
4. Weave through the vertical thread in plain weave, with imitating structure of leaf into weft direction.
5. Remove pin after finish.
6. Soak in hot water.

Figure 65. Making texture by simulate natural object.

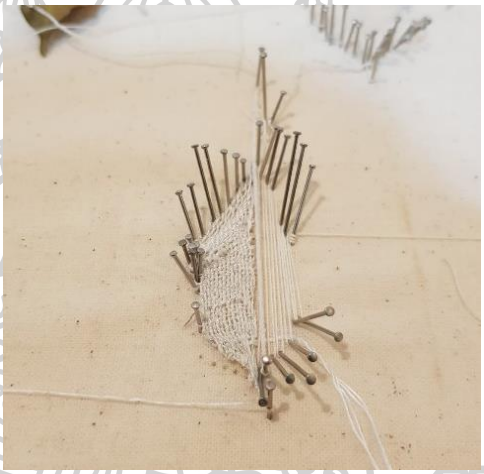


Figure 66. Making texture by simulate natural object.

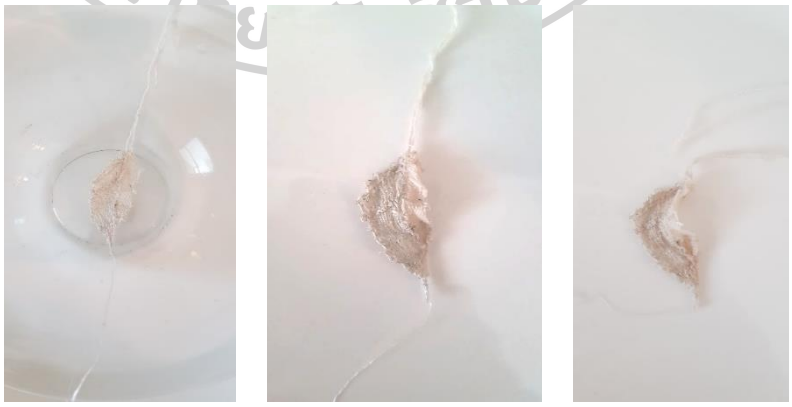


Figure 67, Wet finish in textile weave, simulated shape of weave.

Observing recorded:

Simulated woven textile followed form of leaf as drawing by weft in same direction of leaf's structure. The appearance after washed showed it formed itself as if the dried leaf.

From experiment to application

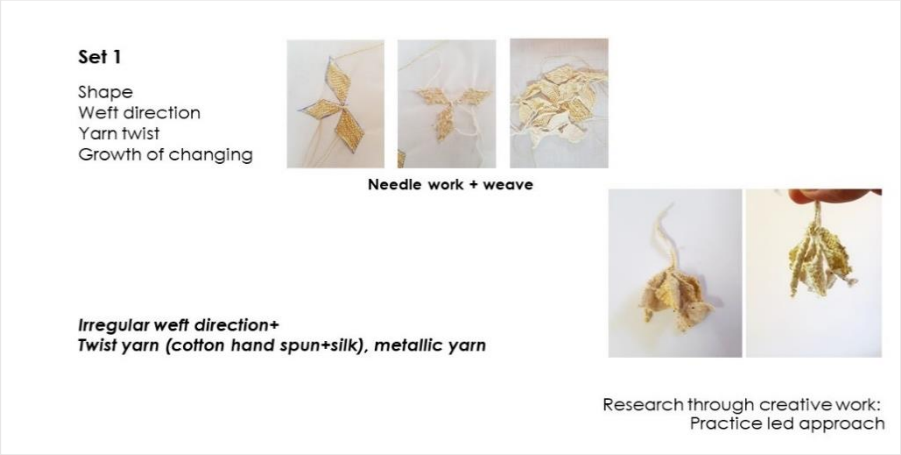


Figure 68. The experiments of simulate flowers in weaving.

Figure 69. Simulated form of flowers by needle weave in small, simplified form. Added the combination of yarn with metallic to get little hard form of textile.

The movement of its effects gave little sharp touch. The application in a set of ornaments, this samples applied how possibility of its effects can be applied to the utilization.

Figure 70. Simple shape with needle shaped weave.

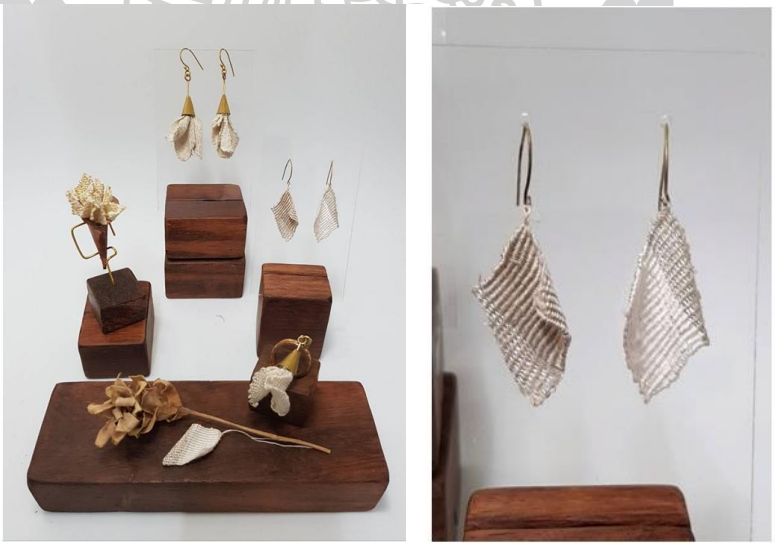


Figure 71. The samples of the formed and textured effects application.

Summary of Experimentation

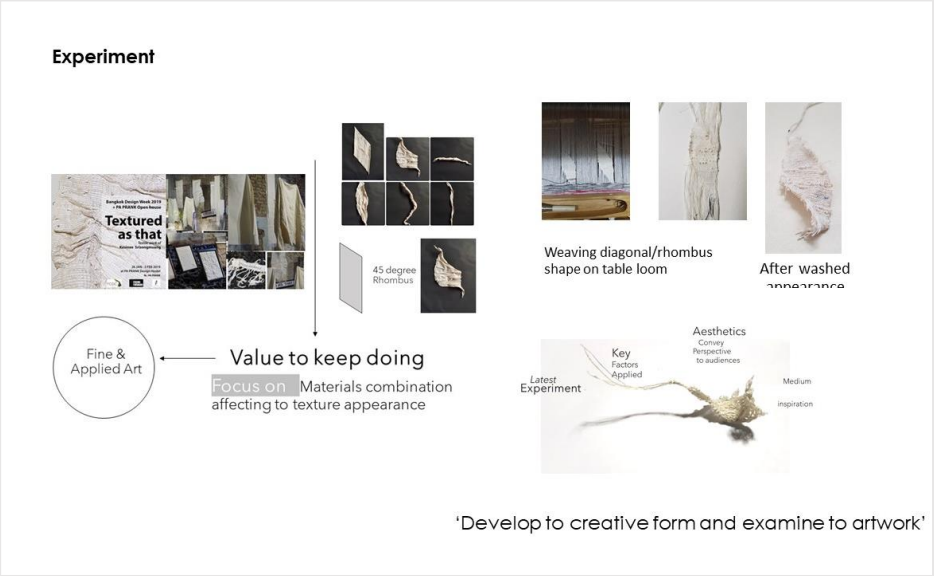


Figure 72. The collection of experimental ideas.

The research and practice in the stage of experimentations, propose to create the texture effects in the appearance of textile by weaving in various equipment and develop as well as refine its process, from yarn making to weave, shape and form, to approach the effects both in visual and haptic quality. It also evaluate the knowledge acquired from using spinning machine, the conduct in the angle of twist to make yarn effectively as raw material that would be used in the next step. The complicated of weaving in irregular weft direction on table loom, the dedicated needle weave in micro size. During practice and experience the whole experiments, the researcher realized that tacit knowledge has slowly gained through repetitive practices experience.

Chapter 4

Design Summary and Discussion

This part of the research is iterative practice and research, the research has collected relevant data, analyses to gain keys finding and experiments to approach the research aims.

As a researcher, art practitioner, to begin the work in art and design, the process of design has been used. The design art production of this study is focused on the observation of the work process in order to develop solution and find the way to improve to the approach.

The results obtain in this research will form a new body of the knowledge that is culmination of theoretical experiments through the research methodology and integrated of aesthetic of creative art.

This research uses visual element of texture with different originality techniques in order to be coordinated forms and being more objective of work to subject and visual features of work. To texture harmony with visual features and creation of diversity in forms, the structure and composition of the work and prevent uniform and monotonous surfaces. So in this research, subject and the content of work on the inevitable in change is the conceptual context of the art work as the medium to express artist viewpoint.

1. Design production

The aspect in constancy of change and the development of texture effects Design Inspiration: The inspiration from *Growth and Constancy in Change*.

According to sample selection of artists' works, the texture is created to express their perspective in arts that are inspired by the system of change. These textures are used as expressive tools in their art works to simulate existing texture effects that occur in nature. In this research, leaves that are easily found were

selected to be the case study of a natural object with texture changed. This stage is one of the methods that analyses the case study of the artists' subjective experience of their works. In the study, not only can the subjective natural inspiration be used to investigate the object inspired, but the structure, shape and form are also defined to obtain the potential vital factors that make textures appear in natural things in both physical and aesthetic views.

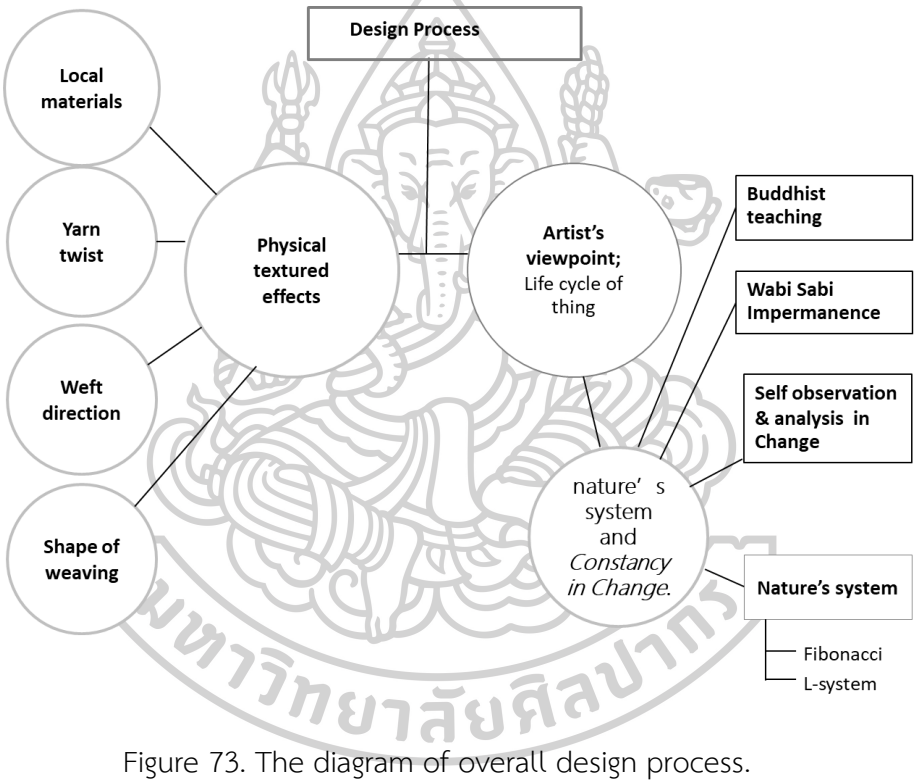


Figure 73. The diagram of overall design process.

Physical forms of leaf

Figure 74 shows the structure and form of evaporated leaves which are naturally curved and delicately flowing. In this research, (c, d), the actual leaves were simplified by selecting the general form of the leaf for a simple illustration as the diagonal lines and rhombus shape. These can be transferred to the weft direction and the shape of the weaving for the experiment.

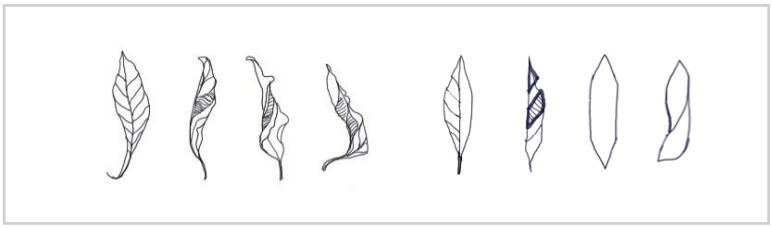


Figure 74. Structure and form of leaf studied, one of selected natural object inspiration.

To create the textile art inspired by the constancy of inevitable change. The selected leaf is representative of the change of nature. The simple sketch of the leaf form was done before weaving. The weaving itself consisted of a simple leaf-like shape and was woven using various irregular weft directions to create two triangular asymmetrical balances in its textile art form.

Sketch Design

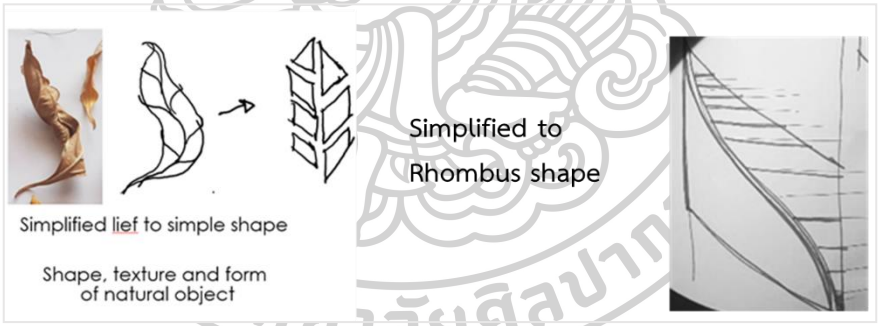


Figure 75. Simplified form of leaf and sketch as in simple, humble to create a weave.

Textile Art 1

The structure of leaf, veins and rib are like leaf spiral. This structure has strengthened form of its leaf. It is also important for the naturally formed directing of the dry leaf appearance. The small rhombus shapes of leaf in between veins that been connected and turned to the hard form after the process of natural evaporation.

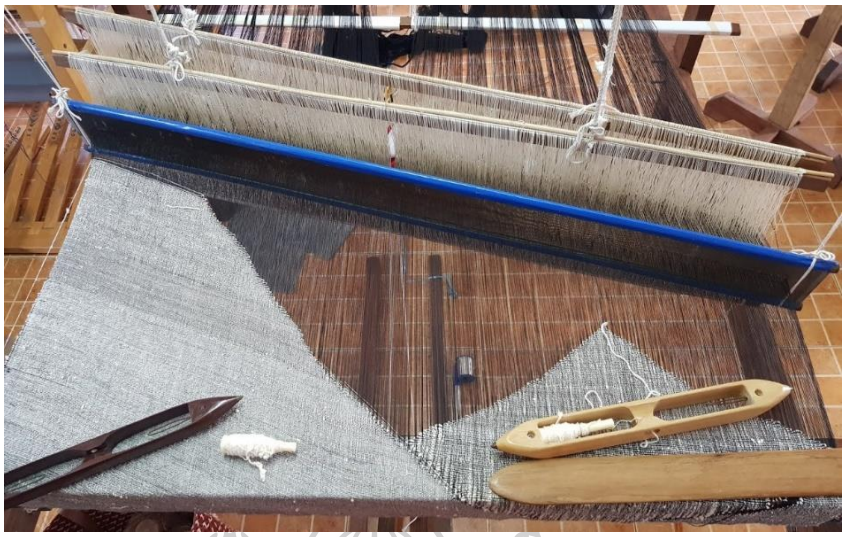


Figure 76. Weaving in the irregular weft, using twist yarn in combination of silk and cotton, local material and use the basic tools of local table loom.

Figure 77. Simulated leaf, form, and texture in context of unstable in life, examining results to create Textile art. Left -Before washed appearance, Middle-details of weaving, right- After washed appearance.

The simplicity of organic form with the equal sides of the two semi-organic triangular shapes simplified from leaf structure. The line of wefts and blank space between one shape and the next all bumpily contribute to give the performance of overall connected weaving pattern and shape. Outcome of the textile artwork appearance has naturally formed itself and the appearance appeared textured effects and movements in its texture's details.

Textile Art 2

Other texture relates to the subjective of fundamental problem of change. Looking at human's life that encounter the physical change, and getting own is the truth that everyone is inevitable, this subjective relevant inspired to use the wrinkle skin to imitate the textures in change of human.

Figure 78. Wrinkle skins.

Starting form study the structure of human: Skin wrinkles are from heat and times. This experiment chose the facial skin to study muscle and imitate the muscle direction to weave.

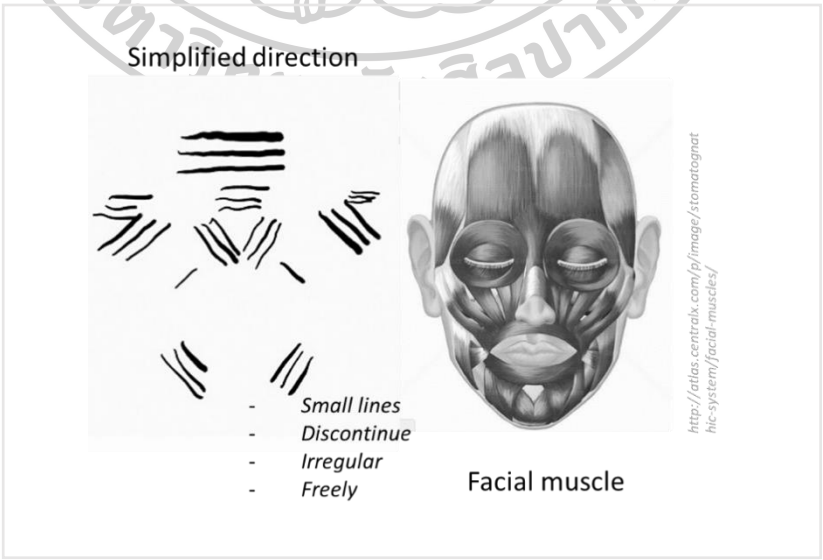


Figure 79. Design process -simplified and sketch.

Figure 80. Simulate facial muscle by weave in irregular direction to examine the weft direction and the texture effect after wash.

Textile Art 2

Figure 81. After remove and cut from the loom. The appearance of weaving was shrinkage along.to shape follow weft direction

Textile Art 3

To the Growth and expansion of nature, the theory of equal number of growth and expand in nature's life and the relation of subjective of constancy in change are used. The artwork was planned to create work inspired by the theory and concept related to the topic. To see clear on the growth this research has observing and documenting the growth in colour's change.

Design Process – Textile art 3

Figure 82. Lotus flower documentary to observe the change in nature.

By the observation this nature of growth, can be tract the colour in subjective of growth that it is going to be monochromatic colour. From fresh and delight in its color and lively flower become fade to monotone. This stage inspired to add colour in monochromatic colour in the creative art to employ the conceptual colour representative of growth to be faded.

Step or dye yarn using natural source of colour that are, the cover of mangosteens and black beans. Mangosteen can be found in seasonal in local market. And black bean is all the time available and easy to fine. Mangosteen's covers give yellow colour. And black bean gives blue-grey colour. In process of dying, the researcher brought yarn to be dyed in mud in the natural pond. Therefore, mud is

one mordant that can help colour to be good absorbed in its fibre. Why grey and yellow colour are dyed? To add monochromatic colour, the researcher taken basic colour of yarn before dyes. They are basically off-white (in yellow tone) and white colour (can go in grey and black).

Sketch Design

Contemplating by nature inspired and sketch design to plan for creative textile

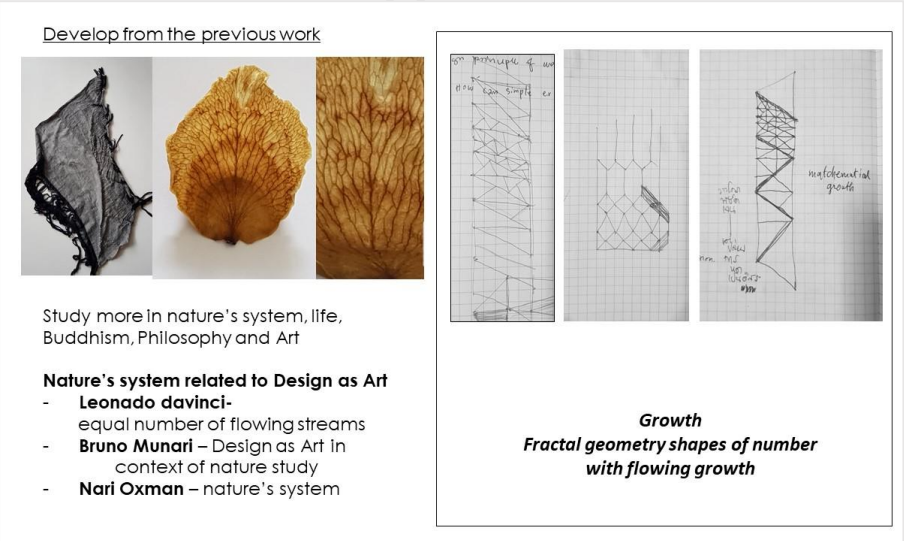


Figure 83. Sketch design inspired by nature's growth.

Sketch Design

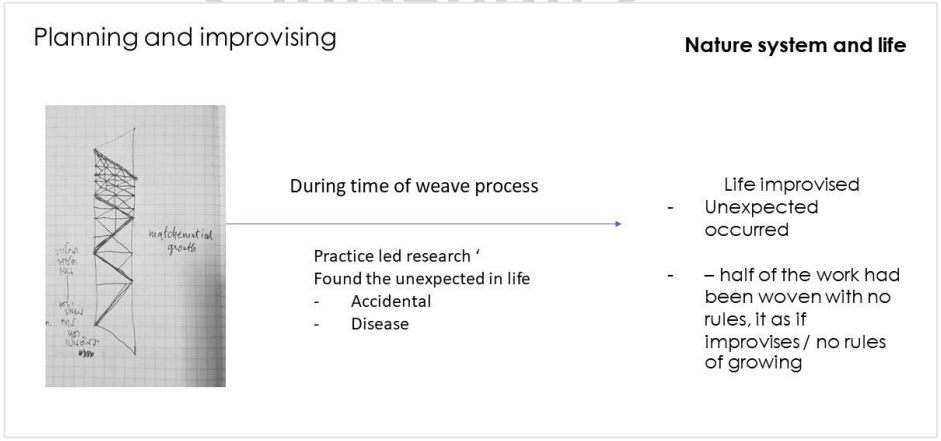


Figure 84. Sketch design of overall weave, adopt the growth in numbers of expansion in nature to pattern and conduct weaving in creative textile.

Design Process – Dyeing Yarns

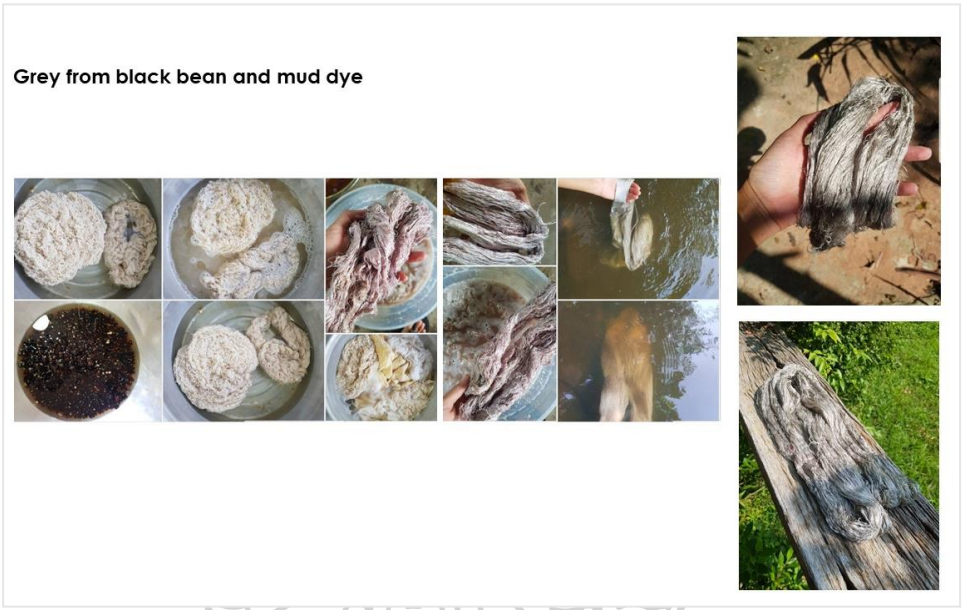


Figure 85. Dye silk in grey colour, the appearance shiny give effect like silver colour.

Figure 86. Dye silk in yellow from cover of mangosteens.

Design Process - Yarn processing and weaving

Yarns: this work is used twist yarns within different combination in size and number of yarns. The materials are cotton, cotton hand spun and local Thai silk and Eri silk.

Figure 87. Yarn processing to twist and dye.

Weaving process is continued using irregular weft directions follows the sketch that inspired by growth and expansion in nature's system.

Figure 88. Yarns using and weaving in table loom.

The Details of weaving in process are consist of the sections that simulated the details and structure in leaf and petal which the researcher had observing and looked deeply details from the object inspired.

Dividing the main section in equal number of mathematic expansions. Each block of weaving filled with the various yarn twist alternately, as showed of at least four flying shuttles used at the same time. This process has much consuming time with the details of weft yarns.

Figure 89. Weaving of creative textile in table handloom.

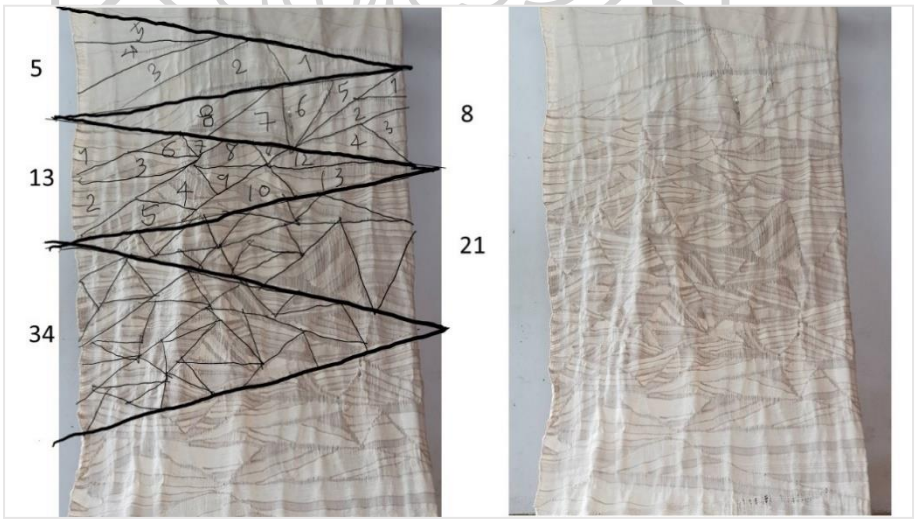


Figure 90. Mathematics expansion in nature's system is use in pattern of weave.

Design Process- Washed process – *to emphasis the inevitable in change concept*

Figure 91. The after wash textured effects appearance of hand woven textile.

Textile Art 3

Figure 92. Details of work.

Textile Art 4

Design Process: *The inspiration from Growth and Constancy in Change.*

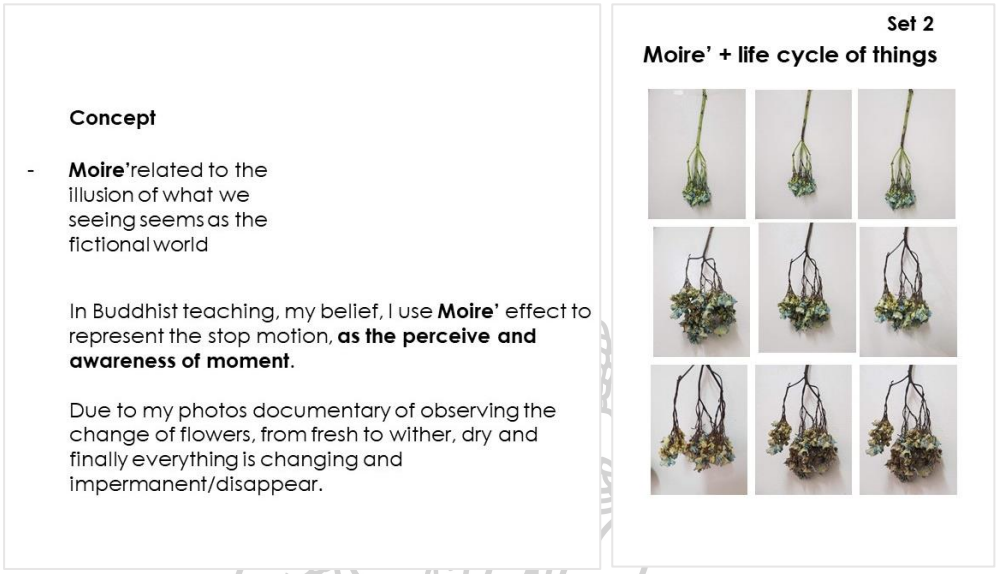


Figure 93. The view of change in lifecycle through the flower's change.

Due to the photos documentary to captured the change of flower, this generated question of why the simple eyes is hard to cath the slowly change that happening in life, awareness in change of our life.

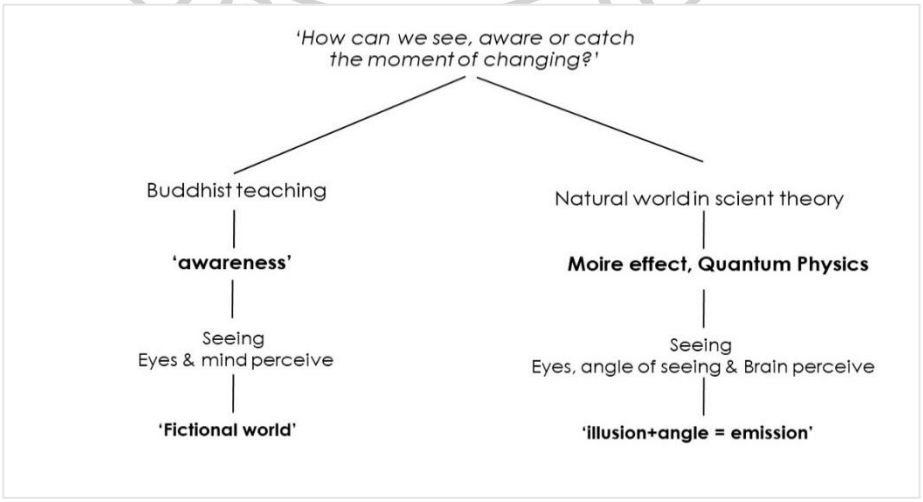


Figure 94. A diagram of contemplating in the moment of changing in life, in a coincident between Buddhist teaching and the theory of science.

Figure 95. The photos documentary of flower changed its appearance.

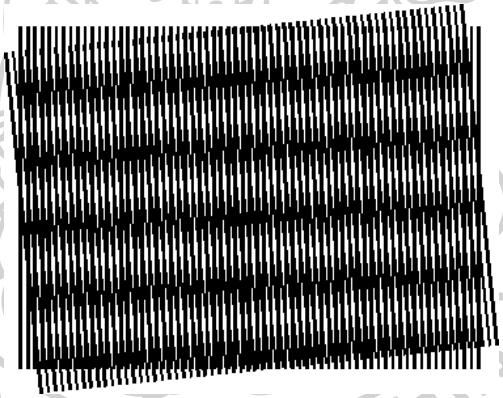


Figure 96. Moire' effect.
Retrieved from: https://whatis.techtarget.com/definition/moire-effect

Moiré effect is a visual perception that happen when viewing a set of dabs or line that is superimposed on another set of lines or specks, where the sets differ in relative measure, spacing or angle. Its effect can be seen when looking through conventional window screens at another screen or background(Farley, 2020).

Sketch Design

Applied the moire effect to design patterns of weft yarn by dyeing, ikat technique. Design 2 ikats weft pattern to weave alternately.

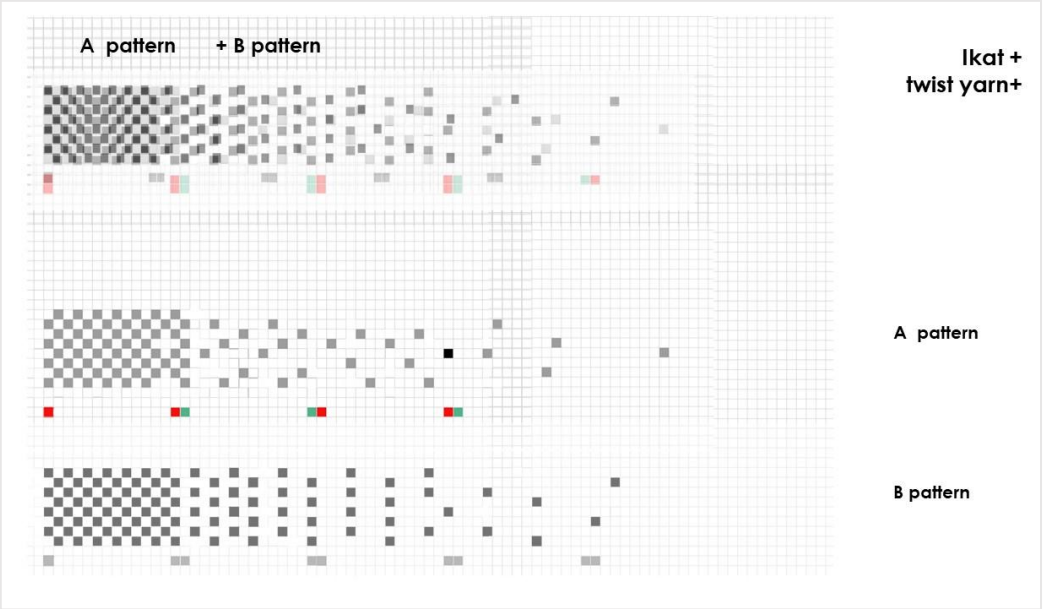


Figure 97. Ikat patterns, planned for weaving to examine the texture effect in appearance.

Design Process

Figure 98. Double weft ikats weave with the yarn twist, surface effect.

Figure 99. Weaving by merge 2 patterns.

Figure 100. After washed appearance of textile

Textile Art 4

Figure 101. Double weft ikats weave with the yarn twist, surface effect.

Textile Art 5

Design Process

The inspiration from Growth and Constancy in Change.

This work tries to use visual element of texture with different originality techniques in order to be coordinated forms and being more objective of work to subject and visual features of work. To texture harmony with visual features and creation of forms. Normally weaving is two dimensions or relief in three dimensions.

In this work not only simulate the shape but try to add the visual form to this textile. The structure and composition of the work adopt the nature's system of the ratio section. Spiral of dried leaf-inspired to apply its movement using the Walter Russell periodic spiral of elements, with different octaves matter.

Design process - Sketch Design

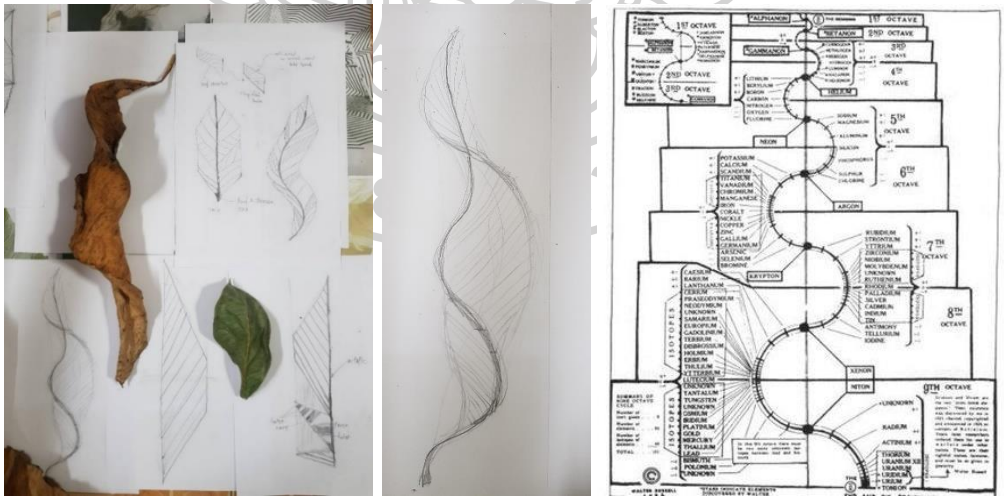


Figure 102. Left and middle, leafs, sketch design and movement prediction to create textile art.

Figure 103. Right, Diagram showing the ten octaves constitute one completed cycle of the transfer all of its dimensions in sequence.

Retrieved from; www. Meta-synthesis.com

Design Process – weaving

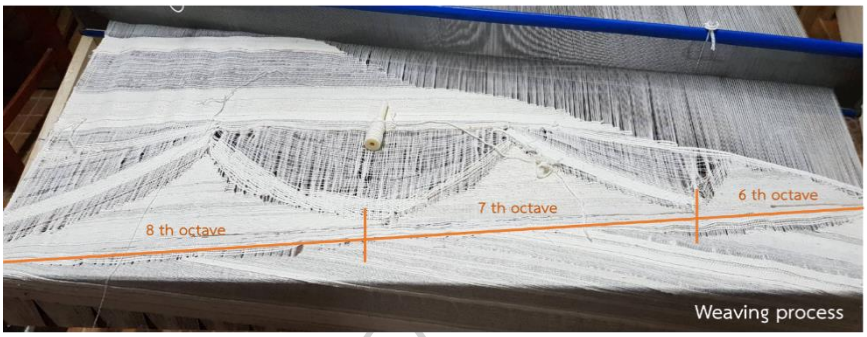


Figure 104. The weaving process, divided section follows the nature's system ratio.

Figure 105. Details of weaving, consists of various yarns and structured weft direction.

Figure 106. Details of after washed appearance, consists of various yarns and structured weft direction.

Textile Art 5

Figure 107. Textured effect of textile art, the appearance autonomy formed itself.

Textile Art 5, Details of works

Figure 108. Details of Textile Art 5.

Textile Art 6

Design Process

The Inspiration from Growth and Constancy in Change.

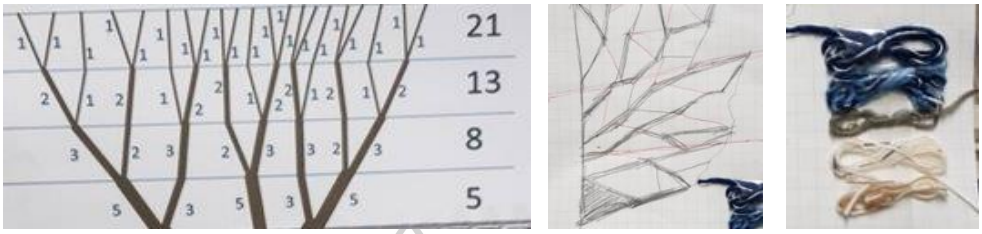


Figure 109. Left, The theory of equal growth and expansion in nature's life, centre: Sketch design of artwork and right: Natural indigo colour yarns and combinations.

Artwork planned to create textiles is inspired by the theory of equal growth and expansion in nature's life. This work has been developed from previous textile art, with patterns applied from the L-System (Lindenmayer System). As a biologist, Aristid Lindenmayer developed various algae growth patterns as a mathematical formalism for describing simple multicellular organism growth. The macro natural pattern of leaf veins inspires the sketch design, and indigo colour, texture and shape were planned to create appearance, with indigo colour dyed with blue and dark blue. Other natural coloured dyes were extracted from the Diospyros mollis shrub, popularly known as Ma-Klua in Thailand, which contains black and grey colours. The processing of indigo and Ma-Klua dyes is the same.

The dyeing process of these two materials involves oxidation. The yellow-green indigo changes to blue as it absorbs oxygen from the air – a subjective and conceptual metaphor of "Change".

The addition of heritage material, such as bamboo, inspired part of the leaf veins, and the bark component was wound by hand spun cotton by weaving in various weft directions to prevent slippage.

Figure 110. Textile on table loom.

Figure 111. Washing process and artwork appearance.

Figure 112. Artwork 6 appearance.

Textile Art 7 and 8

The indigo textile arts 7 and 8 are to examine the creative process of previous artwork. This added ikat yarns in between the alternate weaving to show some hidden patterns. The purpose is to represent details that communicate to audience awareness.

Once the audience becomes aware of the patterns by looking at these hidden details, it can relate to the practitioner's purpose, in a similar way to Textile Art 4.

The audience's consciousness concentrates on seeing these artworks, or sincerely intends to observe the possible details, to see the hidden ikat in the hand weaving: Other various yarns and weft directions woven for the effects of their combination in structure and appearance.

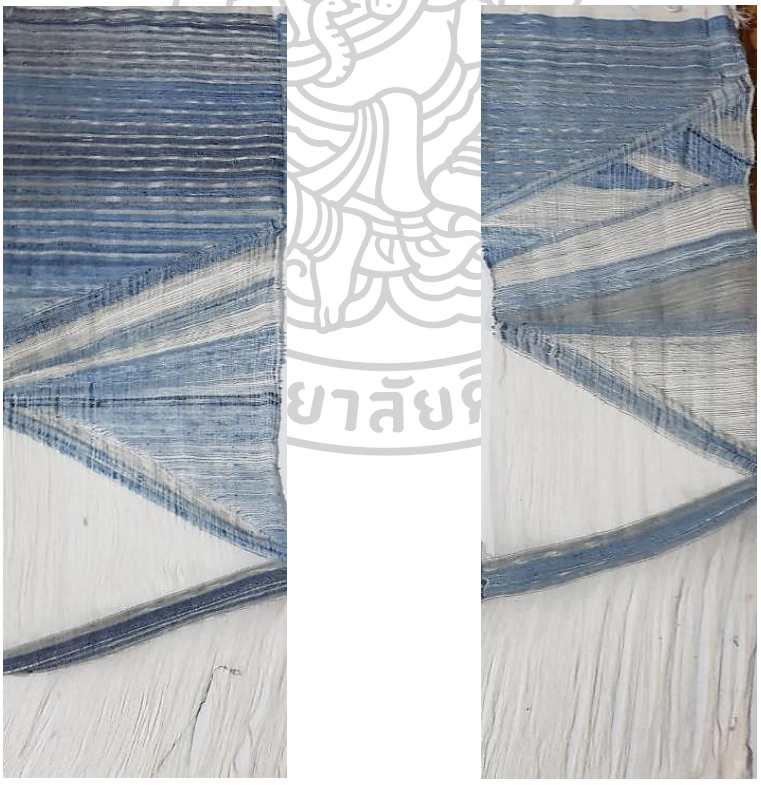


Figure 113. Left, Textile Art 7 and right, Textile Art 8 (before washing).

Figure 114. Left, Textile Art 7 and right, Textile Art 8 (washed).

Figure 115. Left, Textile Art 7 and right, Textile Art 8 (after washing).

Textile Art 9

An older lady produces this artwork to examine the process found by research. She is the official researcher's aunt who knows the basics of weaving and used to weave when she was young.

The weaving methods obtained from this research are simplified and applied to this weaving. Therefore, research of the non-traditional weave studies whether it can used by the community, or not. The inspiration of the work is in leaf form and its structure changes with evaporation.

Design Process

Figure 116. Sketch design and detail of woven textile in irregular weft directions.

Figure 117. Left: Older lady weaving fabric, right: Textile fabric on table loom.

Figure 118. Woven textile in washing process.

Figure 119. Details and appearance effects of wet fabric.

2. Results and Discussions

This research aims to study and identify the keys data that can apply to the handwoven fabrics and to approach process, method and expand aesthetic value of texture effect appearance as the expressive tool in creativity. The results are divided in to

1. Results of data collection existing textured effects appearance and relevant topics.
2. Results of experimenting and identify key factors of creating textured effects appearance of textile.
3. Result of examining keys finding to create textured effect appearance in textile and contribute of its knowledge.

2.1 Results of data collection existing textured effects appearance and relevant topics.

The researcher had done the data collection existing textured effects appearance and relevant topics. The data collection consists of keys factor to create textured effects in textiles and other arts and design fields that related to topic in literature reviews.

1.1 Textile properties.

1.2 Element of textures relate theory of nature.

1.3 The contextual of life cycle of nature representative in other art and design.

1.4 Element of textures related to the theories of understanding nature's system.

1.5 Aesthetical concept related to topic in aspect of constancy of change in The Buddhism and the inevitable impermanence of wabi sabi.

2.2 Results of experimenting and identify key factors of creating textured effects appearance of textile.

This can be divided into 2 parts that are:

2.2.1. Results of physical textured effects appearance.

2.2.2. Results of creative design art in conceptual contexts.

2.2.1 Results of physical textured effects appearance

a.) **Materials and yarn processing**

Expand the potentiality and alternativity of local Thai silk and hand spun cotton, local materials in new experience of using for textured effects, a different way of common use in local production.

The designing of yarn twist using local materials:

1.1 Uneven angle twist yarns.

Figure 120. Various combination of twist yarns in uneven angle twist.

This yarn characteristic has the uneven elasticity, due to the low and high angle twist. It is the property of basic twist yarn. Normally the twist yarn is twist in single angle. This process is play in yarn designing which approach for not only the physical appearance of yarn but the property of uneven elasticity for the effect of textured effect appearance.

Designing yarn twist and the combination

Material Combination	Number of yarn	Design twist in weft yarn	Shrinkage (cotton warp)
Hand spun cotton	1-Single ply – Z twist	Z twist - 1 ply with high twist for 60-80 round	30-40%
1 Hand spun cotton 1 Fine silk	2 ply yarn– Z twist	Z twist - 1 ply with high twist for 50-70 round	20-40%
2 Hand spun cotton 1 Fine silk	3 ply yarn – Z twist	Z twist - 1 ply with high twist for 50-70 round	30-50%
2 Hand spun cotton 2 Fine silk	4- ply yarn – Z twist	Z twist - 1 ply with high twist for 70-70 round	40-60 %

Table 7. High twist yarn in diverse combinations of local materials.

The uneven yarn twist in combination with the handspun cotton resulted in a hard effect on the fabric's textural appearance. The sharp angle of the weft direction in the rhombus-shape affects the handwoven fabric autonomy, which curved and formed itself once it was removed and cut from the frame. The result shows that the handspun cotton has its physical character in an uneven angle yarn twist and provides a hard texture effect in its appearance after being washed. Handspun cotton has its physical tacit slub-yarn character with an uneven single size. Not only is the half-fibre half-thread look of handspun cotton and cellulose fibre similar to wool, but the protein fibre also has a high-level shrinkage property. Even though cellulose generally has less potential than protein fibre in shrinking, the results from the uneven yarn twist shows that the texture and shrinking is similar to that of wool, and the protein fibre has a notable shrinking potential factor.

2.3 Result of examining keys finding to create textured effect appearance in textile and contribute of its knowledge.

a.) Irregular process of weaving affect texture and form of weaving

Irregular angles of weft directions in this practice-led research found textured and formed effects in combination of needle weave and irregular shape. The experiment has done in small rhombus shape and simulated the shape of leaf.

Figure 121. Small needle weave technique in sharp angle and irregular weft direction of weaving affects to the texture and form of its appearance after wet finish.

b.) Simulated and simplified form by nature inspired to hand woven textile

From literature reviews of the creative texture of Artists who create their texture as the expressive tool to their art.

Bryan Nash Gill's art that used actual texture of tree to create an implied texture element in print. He had experienced the moment of making art to express his view on the nature's cycle of tree in each season. While Hanne Friis and Peter Gentanaar brought the cyclic process of nature to create their textures and art forms. In addition, the work of Gentanaar has not only fabricated art from the two dimensions but the evaporation process of making sculpture is also showed unique autonomy movement in his three-dimensional art form.

The nature story inspired of artists that mentioned, are examples that showed the potential subjective tool of expressive texture elements of their works. Moreover, materials that those artists and designer selected could be emphasized texture and movement.

Research in natural object and simplified form into weaving shape

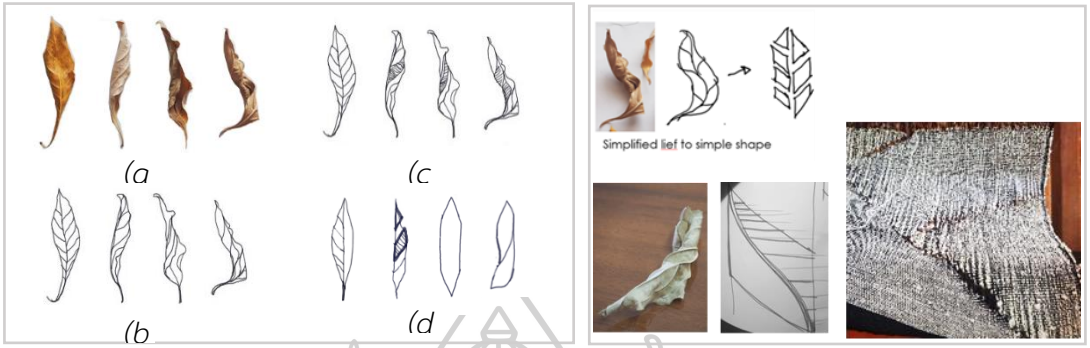


Figure 122. The application and observation to simplified shape.

c.) The relationship of Growth and expansion in nature's system in design

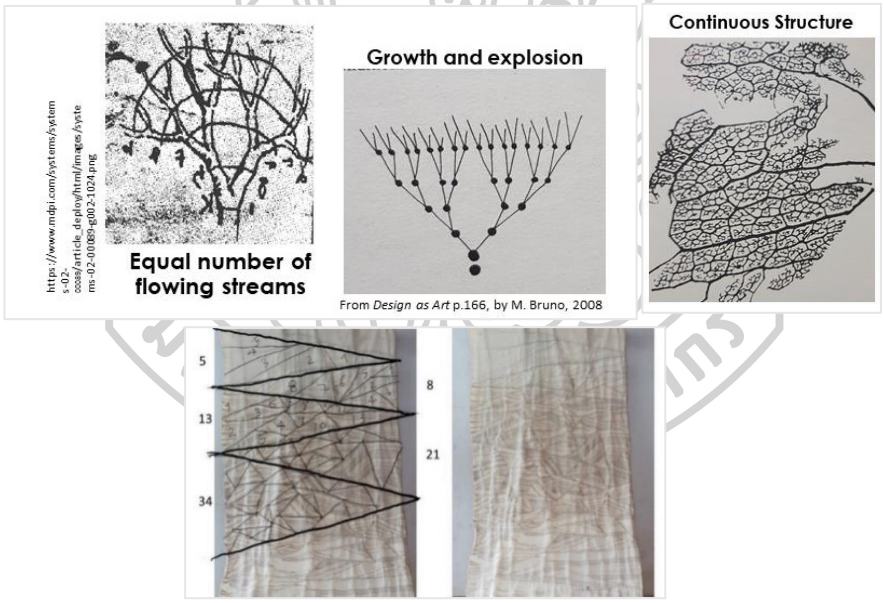


Figure 123. The application and observation in Growth and Expansion and equal mathematics are applied to the pattern in irregular weft woven textile.

d.) Aesthetical contexts relate to topic

The truth of life and acceptance of the reality in life cycle of things is inspired to the ideas for the experiment.

The truth of nature

Evaporation is the one part of the natural process in the life cycle of a leaf. This life cycle contains the truth of nature. Once the life is started, it must naturally continually grow and constantly change. It is an inevitable part of every life and the law and truth of nature. All life is an experience that is based on this truth of its life cycle.

In the truth of life

According to the Buddhist Four Noble Truths, the Buddha questioned life and gained enlightenment in the truth of nature that the cycle of birth and death is inevitable for everyone. Every life has to grow and die, and this is the loop in the universal life cycle. The Buddhist teachings let people accept this unavoidable occurrence in life, perceive everything in the suchness of the truth, and go beyond the life cycle by practising mindful living and staying in the middle with simplicity.

The truth of life and acceptance of the reality

Wabi-Sabi, the Japanese aesthetic concept, relates to beliefs of the Buddhist teachings. In Leonard Koren's book, Wabi-Sabi is the beauty of things being imperfect, impermanent, and incomplete. It is also a beauty of things being unconventional. The initial inspiration for Wabi-Sabi's metaphysical, spiritual, and moral principles come from the ideas about simplicity, naturalness and acceptance of reality found in Taoism and Chinese Zen Buddhism(Koren, 2008).

The truth of the life cycle inspired many ideas for the experiment: cloth also has a life cycle; it is used and is maintained. Washing is essential after-use caring and cleaning. Thus, the surface appearance of a material after being washed is a reality in its life cycle. Therefore, this research and experiment include the idea of the acceptance of the texture and inevitable appearance of fabric.

e.) The inevitable change in nature: Experiment on textured effects in textile art inspired by a coincident between the Buddhist teaching and the theory of science.

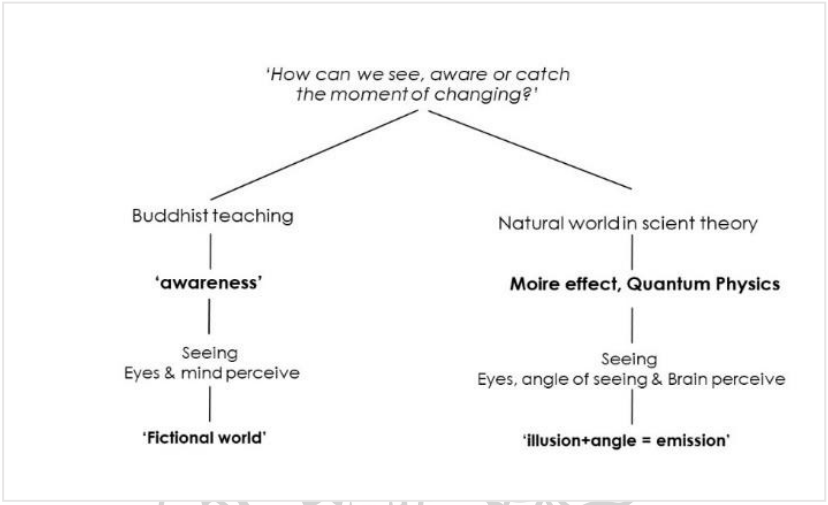


Figure 124. Diagram showing the moment of changing and the explanation of Buddhism and moire' effect.

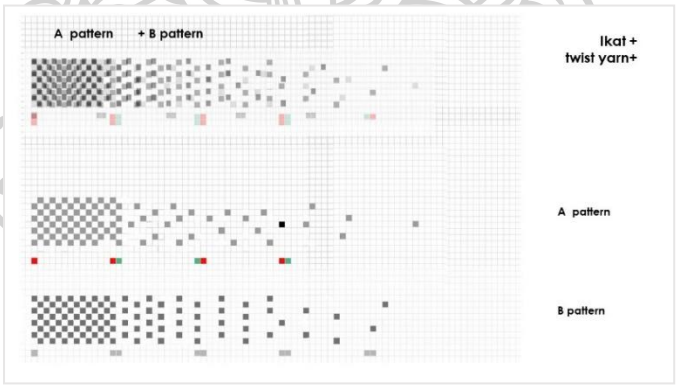


Figure 125. Process design using a coincident of two theories inspired to the textile art.

Textile Art 4, has question on the change in nature. The Buddhism teaches about the awareness and perceives the truth in life, by instead of eyes but mind, at the moment of change. On the side of scientific theories is tangible illustrated to describe the moment of change. The aspect of change in nature's system in the research aims to, demonstrated a coincident between the

Buddhist teaching and the theory of science as the expressed subjective tools to narrate the aspect of change in textured textile appearance. To capture the change in appearance like the slowly growth and changes in flowers, has been hard for catching the moment of change by our simple eyes. Some theories of science such as Moire' or/and Quantum physics theory can describe this change intangibility. As the textile art practitioner, the researcher, express the aspect through materials and process of textile weaving. The methods of this research, in textile making, used the traditional ikats to weave the illusion of pattern using the theory of Moire'. Two different wefts ikats are alternated weave in the same one with high twist yarn, the powerful yarn characteristic for making textured effects in fabrics. When these two patterns of ikat had been woven, the resultant appearance was unpattern showed but noised pattern has appeared. The contextual in this design art is to express the aspect in between Buddhist and scientific theories explanation.

Figure 126. After washed appearance detail of Textile Art 4.

The result of noised pattern appeared in textile appearance is difficult to see what pattern illustrated at a glance. The deeply intend to look at the details possible to see hidden pattern in this handwoven. Therefore, as the results of the experiment is reinforcing that the constancy in change as the growth, of such like flower's change, is to be disappear which in The Buddhist teaching has the point to aware of the impermanence in life.

The hidden pattern from the result of Textile Art 4 was inspired to later Textile Artworks' details. Wefts ikats and the mix colours twist yarns were used in to express the concept of artworks. Some details can be seen in Textile Art 6 and 7.

Figure 127. Hidden pattern of weft Ikat and twist yarns inTextile Arts 6 and 7.

f.) Textured effects, Form, Composition in textile art

Figure 128. Details and structure of artwork.

This artwork uses a visual element of texture with different originality techniques to be coordinated forms and be more objective of work to subject and visual features of work. Materials and the combination made this work to be formed and texture harmony with visual features and creation of forms. Typically weaving is two dimensions or relief in three dimensions. This work not only simulates the shape but try to add the visual form to this textile. The structure and composition of the work adopt the nature's system of the ratio section.

The Develop of design and composition work along with the Textile Art 5 to 9. The pieces of textile art 6 and 9 were adding bamboo's bark stick into weaving. The after washed appearance shows twist yarn shrinkage made the bamboo stick curving.

Figure 129. Details of bamboo stick' effect on the woven fabric, Textile Art 6.

Figure 130. Details of bamboo stick' effect on the woven fabric, Textile art 9.

ɡ.) The weavers who know the basics of weaving is able to weave by using methods obtained from this research. The process of producing is simplified and applied to handwoven textile art 9. Therefore, research of the non-traditional weave studies shows the result that it can be used in the community.

Figure 131. Handwoven Textile 9 was produced by the local lady.

Chapter 5

Conclusion of the Research

The aims of research are to approach process and method of texture effects and expand aesthetic value of texture effect appearance in creative textile. The main source of material used in this research selected from local materials in used in Thailand. Texture effects and constancy of change are the conceptual keys that this research is focused on. The physical appearance and aesthetic of accepted inevitable changed in texture is the question to the research that generated to find its advantage of appearance through inevitable change in life of everything. According to the research objectives and expect outcome, the results could be concluded as below:

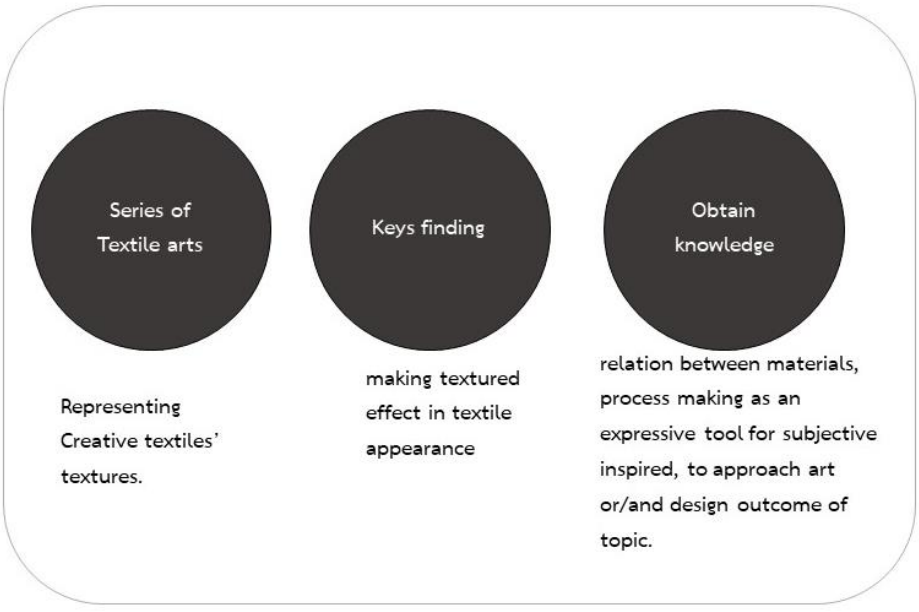


Figure 132. The Research outcome (5.1 – 5.3).

Conclusion

5.1 Establishing the significant of textured effects by studying, the relation between textured effects appearance and the contextual concept of change in life

cycle of nature. The research outcome conveys the relation between textures appearance and the change in life cycle of nature.

5.2 Collecting data and experiment for keys finding of textured effect in textile appearance. There are keys finding found through the practical works. The researcher as the practitioner experiments and examine the hypothesis of each experiment in the practice-led research. The results of each experiment have come along with the work of practicing by examining the data of collection.

5.3 Contributing the physical and aesthetical contexts of knowledge in the relation between texture effects and subjective inspired by change in life of the knowledge that contribute textured effects as a technique of using materials and process to create textures in textile as an expressive tool for subjective inspired. The study in nature's system both tangible and intangible go parallel through the research itself. The theories of nature and life in physical way of approaching such as the growth and expansion in nature has conduct physical research of textured effects in textile. And the theories and aspects in the constancy of change in life of aesthetical research are expressed through the contextual concept of practical work.

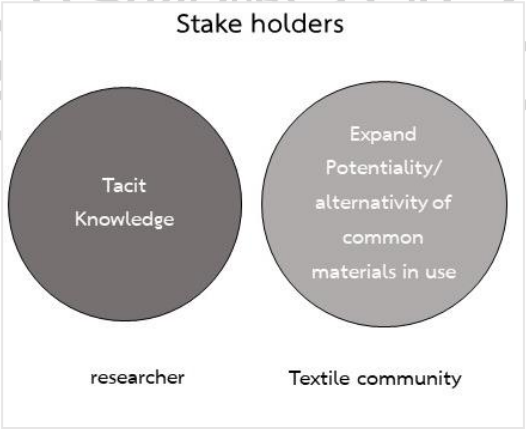


Figure 133. Research come (5.4 and 5.5).

5.4 In addition, this research has expanded the potentiality and alternativity of common local materials in a new experience of using for textured effects, a different way of common use in local production. According to the final piece of

handwoven textile in this research, the other weaver can weave by using this design weaving process of this research. Therefore, in the future, the local artisans or others who works related to this field can apply the process of this research.

5.5 As a researcher and textile practitioner, is able to gain both tacit physical and aesthetic knowledge through practice-led research topic.

The research development in the future:

1. Application of the knowledge to design for more utilization.
2. The method of research focus on relation between physical creative works and the conceptual that can be applied to other art and design areas.

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