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Lignum Vitae Flower Cultural Dimensions and Pattern Design for Product Implementation

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Abstract

To develop Lignum Vitae Flower-related cultural capital products, this study sought to: 1) explore the cultural dimensions of flowers in terms of their meaning, beliefs, rituals, wisdom, and customs; 2) create constructive and creative patterns from Lignum Vitae Flower; and 3) synthesize Lignum Vitae Flower patterns for use in pattern design and creative product development, as well as to evaluate the design. Three floral specialists, one hundred clients utilizing both accidental and purposeful sampling (i.e., sampling at a specified place), six groups of Benja Rong porcelain makers, and three design experts made up the sample. The findings confirmed that 1) Lignum Vitae Flower has a connection to tradition, belief, and knowledge. 2) The Lignum Vitae Flower's composition, color, and creative relationship to symbol, meaning, and belief (which might serve as inspiration or cultural capital) could all be modified and included into the pattern design. 3) The most common use for the synthesized patterns is in the production of Benja Rong porcelains.

Keywords: *Lignum Vitae Flower, Relationship, Flower Culture, Pattern Design, Creative Arts*

Introduction

Thailand's diverse cultural legacy and internationally recognized aspects of Thai identity make it one of the most distinctive countries in terms of art and culture. A cultural foundation gap has resulted from the fast advancement of technology in tandem with the rapidly changing global culture. Since cultural value and cultural capital are markers of both cultural effectiveness and domestic economic growth, it is important to stress both the country's development and its cultural foundation at the same time (Zhu, Habisch, & Thøgersen, 2018). In Thailand, a developing nation, the emphasis on a strong cultural foundation—particularly the use of cultural capital—not only fosters a positive people-culture but also improves Thailand's revenue, reputation, and image abroad.

When employing cultural capital in developing nations, there are a number of factors to consider, including: 1) fostering a love, understanding, and pride in local cultural identity among children and youth; 2) improving the management of cultural heritage and capital to increase economic value; 3) adding value to goods and services by utilizing local knowledge and cultural capital to meet market demand; 4) creating cultural learning resources and imparting knowledge about history, tradition, and culture; 5) modernizing models and techniques in presenting Thainess; and 6) strengthening social immunity in terms of cultural dimensions (Ministry of Culture, 2016).

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Considering the integration of the six elements in emerging nations through the use of Thailand's cultural capital, Thai people employ flowers in diverse ways. For instance, they show the local cultural identity or adorn tradition and culture with flowers. In a similar vein, individuals in other nations also utilize flowers to convey their cultural identity or to create color. Therefore, flowers are frequently combined with creativity in fine arts, crafts, and creating arts that are exquisite and may honor a nation's cultural legacy.

Flowers are regarded to be connected to the modern shift in lifestyles, in addition to their traditional use in enhancing or beautifying, which is the basis of fine arts, crafts, and domestic arts produced by the upper class. In addition, flowers have a strong cultural background that links to Thailand's creative economy of product creation. Era 4.0 (National Cultural Master Plan 2007-2016; 54)

The researcher seeks to develop an appearance, identity, and image that represents Thainess by combining the wisdom value, cultural identity, and capital of fine arts and crafts, all in accordance with the significance and value of flowers. The Lignum Vitae Flower is used to design patterns on Benja Rong porcelains, which may generate revenue and open new employment opportunities including the usage of cultural capital. This is an example of how cultural capital is utilized to drive the creative economy. Furthermore, this creativity—which is a form of intellectual property—can simultaneously protect Thainess and express to the world.

Research Objectives

1. To investigate the cultural aspects of flowers including their significance, convictions, rites, knowledge, and traditions around the application of Lignum Vitae Flower
2. To design innovative and useful designs to produce cultural capital goods made from Lignum Vitae flowers.
3. To synthesis and assess the Lignum Vitae Flower patterns for use in pattern design and innovative product creation.

Method

Examine the cultural aspects of the Lignum Vitae Flower, including its origins, peculiar and unique beliefs, knowledge, and practices. This study used a mixed-method approach for creative pattern design, integrating quantitative research methods and descriptive analysis in the following ways: Methodology for Descriptive Analysis Research:

1. Review the literature to obtain knowledge about the cultural aspects of flowers, including their significance, beliefs, wisdom, and practices surrounding their use. This information can be gathered via publications, books, references, and research.
2. Research and acquire field data from the Suan Sunandha research region in Bangkok's Dusit district to learn more about the cultural origins of flowers and their link to meaning, beliefs, knowledge, and rituals.
3. Interview Method: To get knowledge, conduct group and in-depth interviews with floral specialists.
4. Method of Observation: Examine the designs and embellishments of different kinds of Thai flowers.
5. Examine information on creative compositions and design ideas that are pertinent to pattern design and fine arts.

Quantitative Research Method

1. Examine pertinent papers and studies on pattern design and organization, with a focus on integrating patterns into designs.
2. Create three designs.
3. Create a line of goods for Benja Rong.
4. Show the created patterns to professionals so they may assess the designs' appropriateness and design for making real things.

Data Gathering

1. The experts on flowers were questioned through structured interviews, in-depth interviews, and group interviews to get information on the significance, symbolism, pattern analysis, and inventive pattern design of Lignum Vitae flowers.
2. Customers' opinions about the incorporation of the Lignum Vitae Flower into the creative pattern and porcelain design were gathered through a closed-ended questionnaire.
3. To educate producers and specialists about the design concept and to gather their feedback on the creative pattern and porcelain design, a questionnaire with pictures of the innovative items was utilized. In addition to assisting researchers in gathering trustworthy and legitimate comments, the image-based questionnaire also assisted manufacturers in creating goods that precisely matched the study's goals.
4. To serve as a model for porcelain manufacturers manufacturing porcelain in the future, the evaluation form was utilized to gauge the degree of customer satisfaction with the created porcelains.

Analyzing Data

1. To explore the link of Lignum Vitae Flower in cultural dimensions in terms of meaning, belief, ritual, wisdom, and tradition, data collected from documents and pertinent research were descriptively examined.
2. To create a model for planning and developing the goods, statistics of percentage, mean, and standard deviation were used to assess the questionnaire and evaluation form.

Research Results

This study which aimed to investigate the relationship of Lignum Vitae Flower in cultural dimensions in terms of meaning, belief, ritual, wisdom as well as tradition, to construct a creative connection to develop products from cultural capital of Lignum Vitae Flower, and to synthesize the patterns of Lignum Vitae Flower to design creative patterns and products as well as evaluate the designed products by the experts and customers to make the designed product consistent to the customers' demand. The opinions from different perspectives will help producers understand customers' need as well as able to produce suitable products for them (Hsiao, Hsiao, & Liang, 2016). Customers can be counted as a key factor of design procedure (Mahr, Lievens, & Blazevic 2014). Furthermore, the participation of customers can enhance the result of designing products in terms of originality as well as usability (Trischler, Pervan, SKelly, & Scott, 2017). According to Clemmensen, Ranjan, and Bødker (2017), if there is no questionnaire to survey about customers' satisfaction or the producer does not understand customers' background, the designed products will not get an attention. Therefore, designers should conduct the satisfaction survey and product evaluation with experts and customers in order to obtain the best result. The results of this study can be explained as followed: Lignum Vitae Flower Cultural Dimensions and Pattern Design for Product

Implementation Suan Sunandha Rajabhat University was a part of Suan Sunandha Park where was in Dusit Palace built in the reign of King Chulalongkorn the Great to be resting place while the King was visiting provinces. The King wanted this park to be a woodlot; therefore, different great and rare kinds of flower and fruit tree were grown here. Conforming to the investigation on relationship of Lignum Vitae Flower in cultural dimensions in terms of meaning, belief, ritual, wisdom as well as tradition, the results presented as followed:

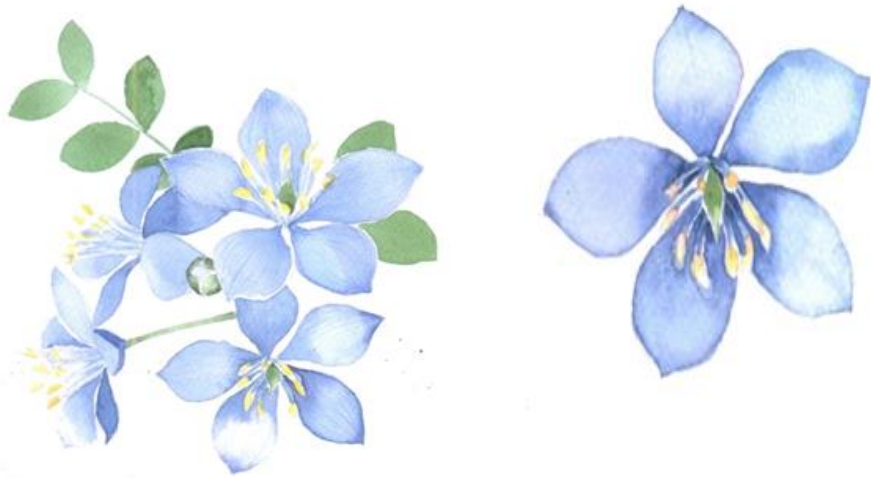


Figure 1: Lignum Vitae Flower

Source: Drawing of Rodjana Chandhasa and Atcharaporn Yodkiri

Meaning: The name of Lignum Vitae Flower in Thai is “Kaew Chao Chom” which means my sweetheart.

Belief: This flower is called “Kaew Chao Chom” because it is the tree of Chao Chom (i.e., the title of a woman who serve the King or King’s wife) of King Rama V. The Lignum vitae was a rare tree which The King Rama V brought from Indonesia when The King visited the country at that time. Later, The King told people in charge to grow the Lignum vitae in Suan Sunandha Park for reminding of The Queen in King Rama V. Nowadays, the Lignum vitae ages more than 100 years old, and it is still only one Lignum vitae in Thailand. The Lignum vitae is a hard and durable wood with two compound leaves on each branch, and it is ranked as the highest of the trade woods due to its density and strength. Besides, it has been ranked as a conservation plant in the Account 2 under the Plant Variety Act B.E. 1982.

Wisdom: Lignum Vitae Flower is extensively used as herbal medicine. In Indian folk medicine, Lignum Vitae Flower is used to reduce inflammation and prevent rheumatoid arthritis (Maneechai & Pikulthong, 2017). Moreover, it also treats chronic rheumatism, rheumatoid arthritis, menstrual cramps, asthma, diabetes and gout, and it is used as a substance for blood testing called “Gum Guaiacum” in forensic medicine field in South America, India, West India and Florida. In Europe, Lignum Vitae Flower was well-known for treating syphilis in the 16th century (Eppenberger, Galassi, & Rühli, 2017). Besides, other parts of Lignum vitae can benefit medical community in various ways. For example, the sap of Lignum vitae can clear out phlegm, expel urine or perspiration, reduce arthritis as well as cure bronchitis. The juice squeezed from the leaves relieve indigestion, the shell can be a laxative, and the powder of dried Lignum Vitae Flower can be a analectic.

Table 1: The Review of Relationship of Lignum Vitae Flower in Cultural Dimensions

Relationship of Lignum Vitae Flower in Cultural Dimensions						
Flower	Belief	Ritual	Wisdom	Tradition	Relationship	Strong points for Utilization
Guaiacum flower	✓	-	✓	-	4 areas: <ul style="list-style-type: none"> • Belief • Ritual • Wisdom • Tradition 	1. The flower appears in three worlds (heaven, earth and hell). 2. The flower represents “Queen” of flower 3. The flower illustrates mental culture of Thai people as well as covers all dimensions of culture.

According to the Table 1, Lignum Vitae Flower had a relationship in two cultural dimensions including belief and wisdom. The strong points of Lignum Vitae Flower were that it represents love, sorrow and miss. It is also a representative of sweetheart who is truly loved.

Table 2: Flower Classification Based on Craft Technique

Craft	Technique	Flower Used
Flower Arrangement	Bunching, Intertwining, knotting and Putting in	Lignum Vitae Flower

It is presented in Table 2 that Lignum Vitae Flower was the main flower that the royal florists used in making fresh-flower decorations in auspicious ceremonies in the past. The Lignum Vitae Flower could be categorized based on its color as presented in Table 3.

Table 3: The Synthesis of Lignum Vitae Flower Based on Its Color

Name of Flower	Color	Types of Fresh-Flower Decorations	Connection between Floristry Techniques and Arts
Lignum Vitae Flower	Light Violet	Vase and Flower Tray	Fine Arts and Crafts

The Construction of Creative Connection to Develop Products from Cultural Capital of Flower

The cultural product design involves modern product design which is influenced by traditional local culture (Winschiers-Theophilus, Zaman, & Stanley, 2017). The researcher designed porcelains by applying patterns inspired by Guaiacum flower, which is the flower that has relationship in cultural dimensions on local belief and wisdom, on them. The designed porcelains were tableware which is one of functional products. In addition, the researcher analyzed the original products of the porcelain producers at 32/1, Don Kai Di Village Lane 6, Don Kai Di Subdistrict, Krathum Baen District, Samut Sakhon, 74110.

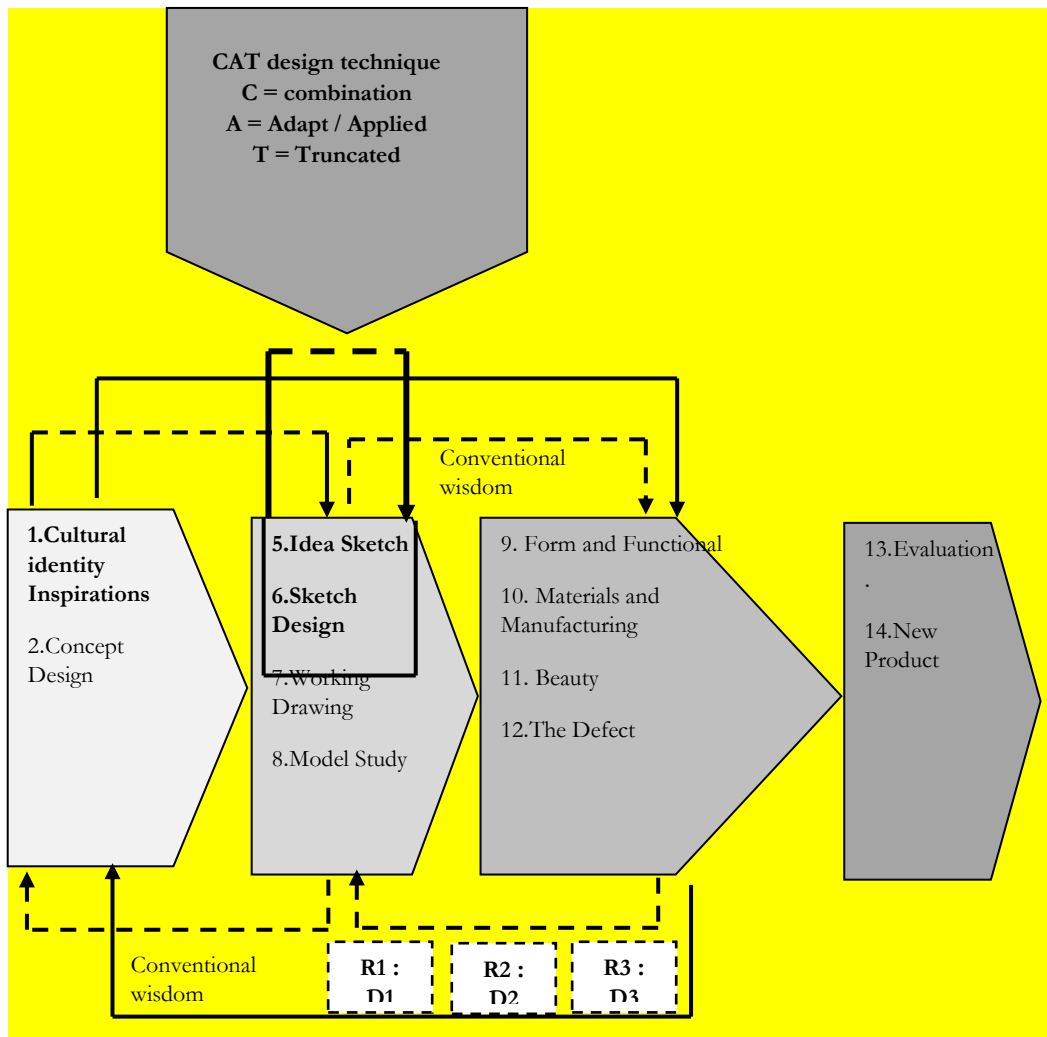


Figure 3: The Process of Pattern and Product Design

Source: Rosjana Chandhasa (2018)

The design technique of C - CAT: FMB is a process in designing and developing products which is used to design patterns and products in the current study. The C - CAT: FMB in this study means integrating cultural identity into the process of product design and development. It is a design technique in developing product which could be illustrated as followed:

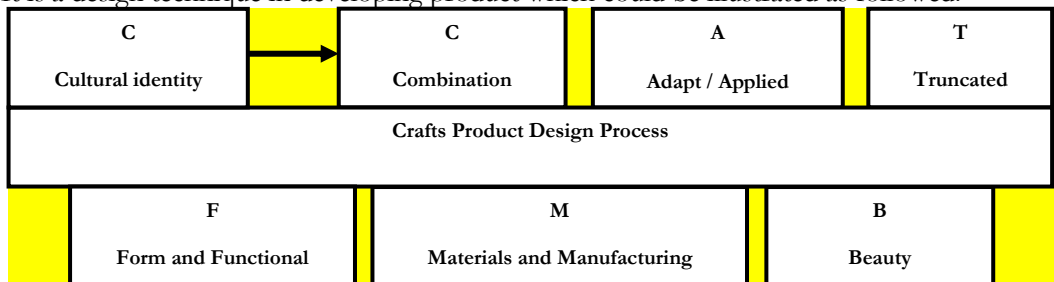


Figure 4: Integrating Cultural Identity into the Process of Product Design and Development

Source: Rosjana Chandhasa (2018)

Table 4: The Summary of C - CAT: FMB Product Design and Development Process

C	Cultural identity involves the cultural capital which is Lignum Vitae Flower.
C	Combination is an integration between shape used in designing as well as materials used in producing.
A	Adapt/Applied relates to using pattern and shape of flower as an inspiration in developing product.
T	Truncated is a is a reduction of appearance of what is used as an inspiration to maintain the structure and inspiration when design product.
The principles based on the conceptual framework should be focused in the process of product design	
F	Form and Functional concern about the usability which corresponds to the product.
M	Materials and Manufacturing relate to managing materials and production process in order to avoid difficulty as well as adjustment of the original production process.
B	Beauty focuses on the attractiveness of pattern and product as well as the representation of identity of cultural capital used.

According to the investigation of the relationship of Lignum Vitae Flower, the researcher selected the relationship in cultural dimension on wisdom in designing patterns which applied on porcelains. To represent the symbol of Lignum Vitae Flower, the shape of Lignum Vitae Flower was used in designing patterns by integrating with the visual design method and composition principles (i.e., repetition, movement, balance, emphasis of using geometric forms and lines to create weight and rhythm).

The use of colors employed 20% of warm colors including orange, red and yellow on graphic pattern and background, 80% of cold colors including blue and violet on the shape of Lignum Vitae Flower to emphasis the flower representing jollity and movement.

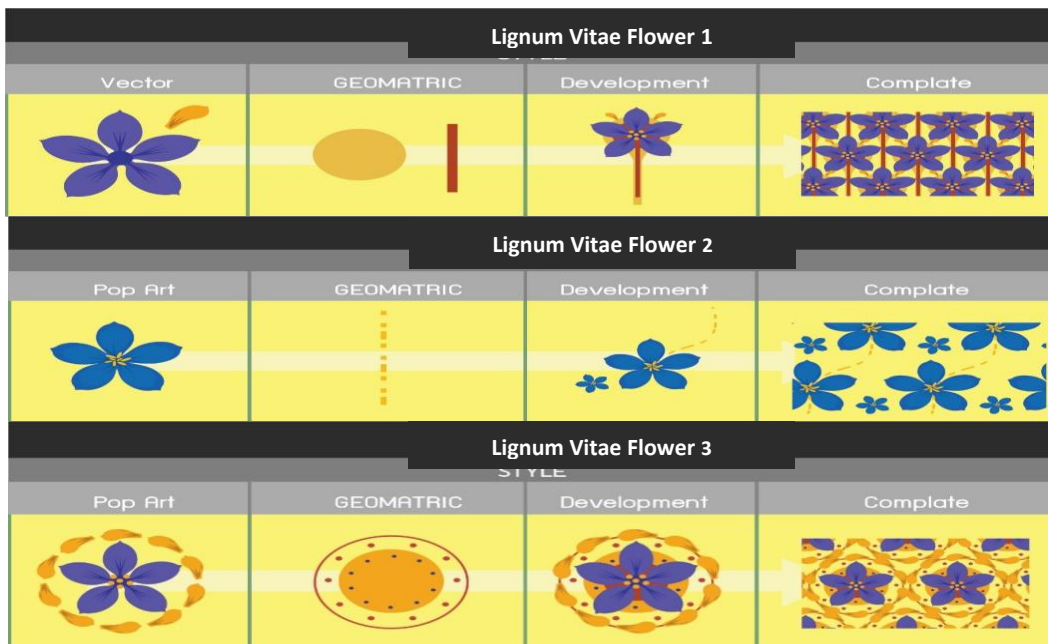
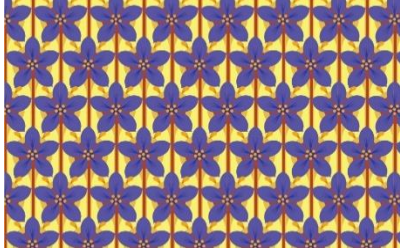

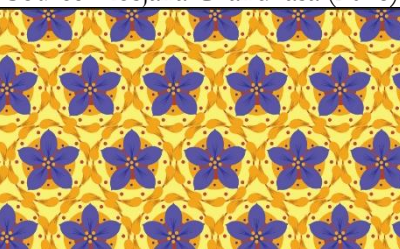


Figure 5: Synthesizing Symbol of Lignum Vitae Flower to Pattern Composition
Source: Rosjana Chandhasa (2018)

The Results of Lignum Vitae Flower Pattern Design Synthesis

The patterns of Lignum Vitae Flower which were designed as well as proposed to register on the patent by the researcher. The results evaluated by the experts could be presented as followed:

Table 5: The Evaluation Result of the Pattern Design by Experts (N=6)

No.	Pattern Inspired by Guaiacum Flower	Mean	SD	Level of Satisfaction
1	 <p>Source: Rosjana Chandhasa (2018)</p>	4.33	0.47	High
2	 <p>Source: Rosjana Chandhasa (2018)</p>	4.17	0.37	High
3	 <p>Source: Rosjana Chandhasa (2018)</p>	4.67	0.47	Highest

According to the Table 5, the designed patterns inspired by Lignum Vitae Flower were evaluated by experts and flower experts (N=6), and the results showed that there was a high level of satisfaction towards the first pattern and second pattern as evidenced by the mean of 4.33 and 4.17 respectively. In addition, there was the highest level of satisfaction towards the third pattern with the mean of 4.67.

The Synthesis of the Lignum Vitae Flower Patterns to Use in Designing Creative Patterns and Evaluating Designed Products

Regarding the analysis and selection of Lignum Vitae Flower pattern by design experts and flower experts, it was agreed that the pattern should be applied on Benja Rong porcelains.

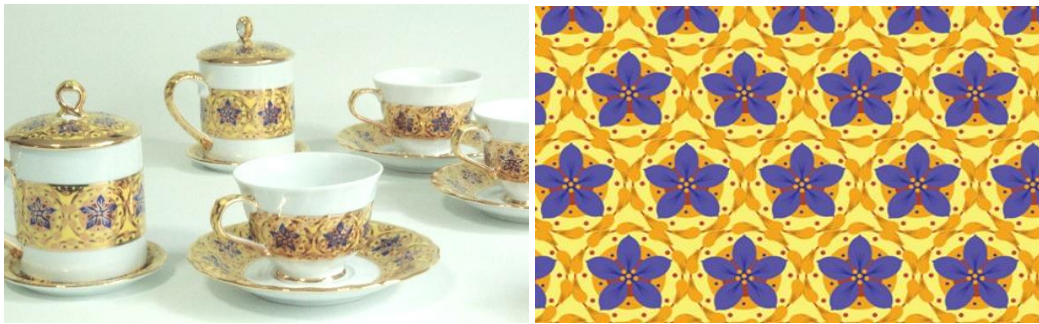


Figure 6: Applying Lignum Vitae Flower Pattern on a Set of Benja Rong Porcelain Coffee Cups and Mugs.




Figure 6: Applying Lignum Vitae Flower Pattern on a Set of Benja Rong Porcelain Tableware

Table 6: The Result of the Evaluation of Customers’ Satisfaction towards the Prototype of Benja Rong Porcelains (N=100)

No.	Topic	\bar{X}	SD.	Level of Satisfaction
1	The Representation of the Identity of Lignum Vitae Flower			
	1.1 The shape and pattern of products represent the identity of Lignum Vitae Flower.	4.71	0.45	Highest
	1.2 The shape and pattern of products are exotic and suitable for applying into the product design.	4.74	0.44	Highest
	1.3 The use of colors is suitable to the design.	4.10	0.30	High
	1.4 The shape and pattern of products are suitable for the production process and could increase the product value.	4.45	0.50	High
	Total	4.50	0.54	Highest


It was presented in the Table 6 that on the representation of the identity of Lignum Vitae Flower, 100 customers had the highest level of satisfaction on the shape and pattern of products are exotic and suitable for applying into the product design with the mean of 4.74, and followed by the highest level of satisfaction on the shape and pattern of products represent the identity of Lignum Vitae Flower as well as a high level of satisfaction on the shape and pattern of products are suitable for the production process and could increase the product value as evidenced by the mean of 4.71 and 4.45 respectively.

Table 6 (continued)

No.	Topic			Level of Satisfaction
		\bar{X}	SD.	
	Suitability of Beauty			
	2.1 The shape and pattern of products are beautiful and suitable for the product design.	4.67	0.47	Highest
2	2.2 The composition of pattern is suitable and beautiful.	4.73	0.44	Highest
	2.3 The pattern is are beautiful and suitable for the products and the material used is beautiful.	4.48	0.50	High
	Total	4.63	0.48	Highest

According to the evaluation on suitability of beauty by the customers, experts and producers on the Table 6, there was the highest level of satisfaction on the composition of pattern is suitable and beautiful having the mean of 4.73, and followed by the highest level of satisfaction on the shape and pattern of products are beautiful and suitable for the product design with the mean of 4.67. Lastly, there was a high level of satisfaction on the pattern is are beautiful and suitable for the products and the material used is beautiful having the mean of 4.48.

Table 6 (continued)

No.	Topic			Level of Satisfaction
		\bar{X}	SD.	
3	The Suitability of Physical Usability			
	3.1 The product can be used suitably and conveniently.	4.47	0.50	High
	3.2 The product is suitable to user's ergonomics.	4.57	0.50	Highest
	3.3 The product corresponds to the safety in use.	4.61	0.49	Highest

No.	Topic			
	3.4 The product is suitable for maintaining and cleaning.	4.38	0.49	High
	3.5 The product is suitable in term of durability.	4.49	0.49	High
	Total	4.50	0.50	Highest
4	The Suitability of Material and Process	\bar{X}	SD.	Level of Satisfaction
	4.1 The material used is suitable to the production.	4.43	0.50	High
	4.2 The production process suitably operates.	4.75	0.43	Highest
	4.3 The material used is durable.	4.56	0.50	Highest
	4.4 The material used is exotic and easy to produce.	4.54	0.50	Highest
	Total	4.57	0.50	Highest



The evaluation on suitability of physical usability evaluated by customers, experts and producers elucidated that there was the highest level of satisfaction on the product corresponds to the safety in use with the mean of 4.61, and followed by the highest level of satisfaction on the product is suitable to user's ergonomics having the mean of 4.57. Besides, the lowest level of satisfaction was on the product is suitable for maintaining and cleaning with the mean of 4.49. For the evaluation on suitability of material and process, there was the highest level of satisfaction on the production process suitably operates as evidenced by the mean of 4.75, and followed by the highest level of satisfaction on the material used is durable having the mean of 4.56. Furthermore, the lowest level of satisfaction was for the material used is suitable to the production with the mean of 4.43. As observed, the evaluation of the prototype of Benja Rong porcelains on the representation of the identity of Guaiacum flower, suitability of beauty, suitability of physical usability as well as suitability of material and process manifested the highest and high level of satisfaction. This was possible that the products could be produced and sold as a souvenir as well as tableware in the future.

Conclusions

The Outcome of Lignum Vitae Flower Relationship in Cultural Dimensions: Significance, Belief, Ritual, Wisdom, and Tradition It was demonstrated that the Lignum Vitae Flower, which translates to "my sweetheart," has a connection to belief and knowledge in two cultural dimensions. Its strong aspect is that it stands for the sweetheart's love, grief, and miss. The Outcome of Building a Creative Link to Create Products from Flower Culture's Cultural Capital Figure 7 provides an illustration of the structure for the creative connection to produce goods.

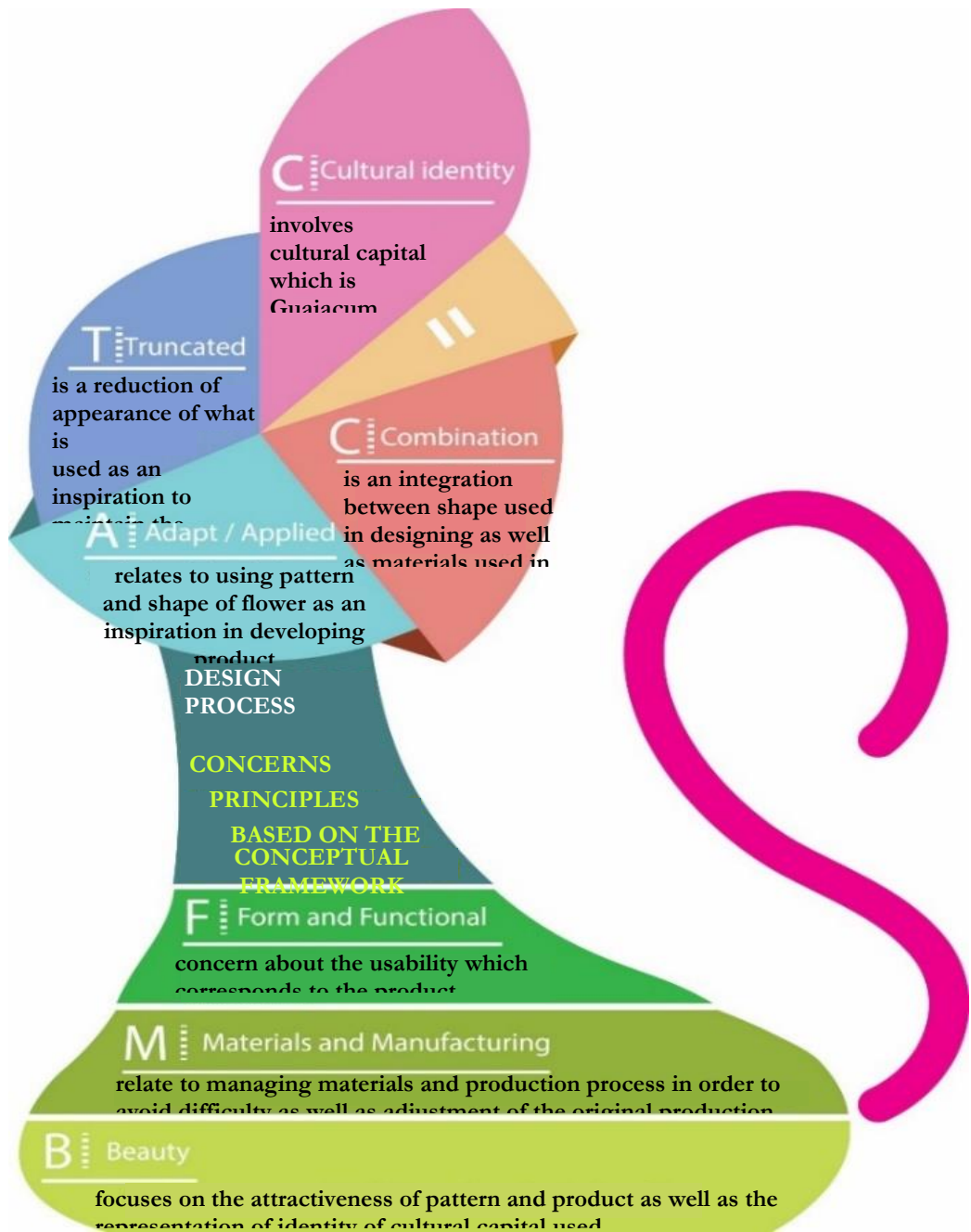


Figure 7: The Product Development Process

The concept of C - CAT: FMB, a product development process that includes C = Cultural identity involving cultural capital, which is the Lignum Vitae Flower, C = Combination, which is an integration between shape used in designing and materials used in producing, was utilized in the design of Benja Rong porcelains in this study. A = Adapt/Applied refers to the process of creating a product by drawing inspiration from the design and shape of flowers. T = Truncated, which is a decrease in the Lignum Vitae Flower's look and used as inspiration while

producing Benja Rong porcelains; F = Form and Functional, which is concerned with the product's utility. M = Materials and Manufacturing which relate to managing materials and production process to avoid difficulty as well as adjustment of the original production process as well as B = Beauty focusing on the attractiveness of pattern and product as well as the representation of identity of cultural capital used.

The outcome of synthesizing the Thai Lignum Vitae flower pattern to the creative pattern, product design, and designed product evaluation the evaluation's findings indicated that consumers were generally satisfied with designed goods, and that the Benja Rong porcelains' applied design pattern could both enhance and improve their aesthetic appeal. Furthermore, the Benja Rong porcelain's design suited both the manufacturing process and use.

Discussion

According to the findings of study goal 1, which looked at the link between Lignum Vitae Flower and cultural dimensions such as meaning, belief, ritual, wisdom, and tradition, Lignum Vitae Flower was found to have some relationship with belief, wisdom, and tradition. It was demonstrated by the research objective 2's result that the creative connection of symbol, meaning, belief (representing in the form of inspiration or cultural capital), color, and composition of Lignum Vitae Flowers could be adjusted and adapted into the pattern design to develop products from the cultural capital of the Guaiacum flower. To accommodate the production process, materials, usefulness, and aesthetics, there should also be a truncation to lessen form and pattern. As a result of the research's third objective, which involved combining Lignum Vitae Flower patterns to create new patterns and products and evaluating the results, it was clear that the Lignum Vitae Flower pattern could be applied to Benja Rong porcelain tableware as well as cups and mugs. The manufacturer proposed that decorating Benja Rong porcelains with Lignum Vitae Flower designs would complement their aesthetic, practicality, and manufacturing method.

Acknowledgment

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