

Straw Rope Furniture Design by Macramé Techniques for Housing Decorations

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Abstract

The purposes of this research were (1) to design at least 5 styles of straw rope furniture by macramé techniques for housing decorations; (2) to evaluate the straw rope furniture prototypes produced by macramé techniques based on the community products standard criteria. Development stages were employed as the research processes; which are development of furniture prototypes (State 1), experiment of innovation (Stage 2), and conclusion of experiments/ report writing (stage 3). The results offered the straw rope furniture prototypes based on macramé techniques for housing decorations on the following criteria. (1) General features should present fineness, beautiful style and shape, proper functional size without any damage (no distortion nor bending, no prominent seam nor burning mark on straw rope). (2) The straw ropes should be strong and durable and be uniformed size. (3) Weaving, intertwining, binding, and knotting should be formed in even spaces and patterns without any overhanging nor projecting rope ends. (4) Assembly should be neatly aligned between each seam without broken seams. (5) Other combined materials should be neat, tightly fastened, durable, and fit in harmony with function and work piece; additionally, metal materials should be stainless. (6) Varnishing should be smooth and even without any damage (no spot, no stain, no brittle, no fracture, no flake, nor peel) and not too thick. Evaluation results of the furniture suggested excellent level in every aspect of these criteria.

Keywords: furniture, Staw Rope, Macrame Technique

1. Introduction

Furniture provides decoration and function to serve the use of users in various activities. Selecting furniture styles to decorate any rerorts particularly affects the promotion of their overall image and uniqueness. There is a wide range of decorating styles to choose from for resorts depending on the preference of owners. They include contemporary style, modern style, natural style, for example. The researcher realized the importance of furniture design in terms of its shape, selected materials, and effective use. There is a diversity of materials used for furniture design. Those materials easily found and available in locality are interesting alternatives to be utilized, and to add new body of knowledge and jobs to communities. Materials available in the central part such as straw rope used by the agriculturists to bind straws for animal feeding can be found in use by the group of people doing straw rope basketry. The straw rope has the properties of strength and durability without turning fray and moldy. It is washable as it is partly made of synthetic fibers (nylon). With these properties, straw rope can be put into the Japan macramé work to produce patterns, and with its strength, the rope can also be used to create a variety of products such as bag, basket, rack, home decorative items, lamp, including furniture. Various types of furniture such as those for indoor and outdoor uses vary by materials and environments. The researcher observed that furniture for home decoration is less in styles, so there should be product development that offers more of functional styles to serve the need for different activities such as day resting, drink sitting, view sitting. Moreover, with our existing local materials, furniture design with macramé technique for housing decorations will add the value and new look to local materials and weaving skills of communities in the country.

Straw rope products refer to the products made or invented from straw rope by weaving, intertwining, binding, knotting or cutting and sewing into products of different types. Other materials may be used such as wood, plastic, metal, fabric, and leather as combined parts, for example, using fabric, leather, and plastic as liner, or using varnishes for coating. In this study, the test of general features, straw rope, weaving, intertwining, binding, knotting, assembling, other combined materials, and varnishing were conducted by a designated group of

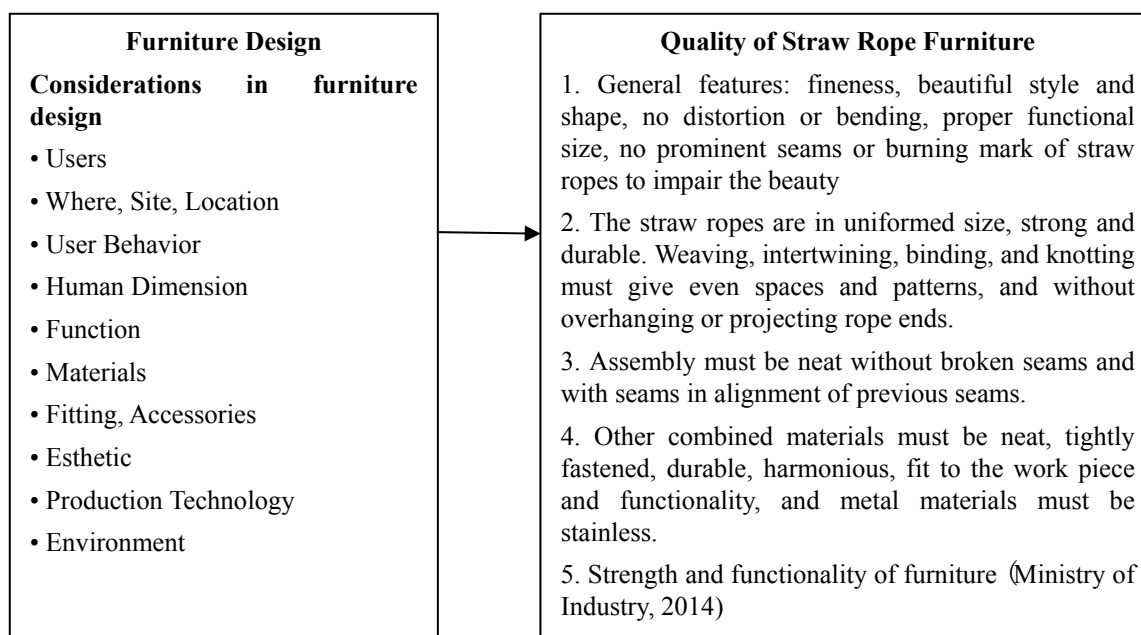
examiners comprising at least 5 specialists with expertise in reviewing straw rope products, each of which separately and independently reviewed and scored based on defined scoring criteria (Ministry of Industry, 2014). To develop any community products, the designer or producer are required to explore different criteria to guide their work for standardized products. Straw rope product, for example, has to meet the standards of general features which include fineness, beautiful style and shape, no distortion or bending, proper functional size, no prominent seams or burning mark of straw rope to impair the beauty of work piece. The straw ropes must be in uniformed size, strong and durable. Weaving, intertwining, binding, and knotting must give even spaces and patterns, and without overhanging or projecting rope ends. Assembly must be neat without broken seams and with seams in alignment of previous seams. Other combined materials (if any) must be neat, tightly fastened, durable, harmonious, fit to the work piece and functionality, and metal materials must be stainless. The design of straw rope furniture using macramé techniques for housing decorations is to redesign the local rope weaving art to add value to the product. Other than its strength and durability, the straw rope woven as furniture allows for good ventilation which suit well to the topographic and climatic conditions like Thailand as well as those countries in tropical areas where macramé work for housing decoration in contemporary style is preferred.

2. Research Objectives

- (1) To design at least 5 styles of straw rope furniture by macramé technique for housing decorations.
- (2) To evaluate the quality of straw rope furniture prototypes produced by macramé technique based on the standard criteria of community products.

3. Research Conceptual Framework

Hypothesis: The quality of straw rope furniture prototypes produced by macramé technique meets the standard criteria of community products.



4. Research Methodology

4.1 Research Procedure

Stage 1: Investigation of general situation of the rope wickerwork groups. The researcher searched documents, texts, research, and websites for relevant information to develop an initial draft conceptual framework. The researcher explored general situation of products of the rope wickerwork group at Phrom Phiram district of Phitsanulok province, the production process and distribution, the product and furniture designs in Thai contemporary style. The researcher obtained an initial conceptual framework covering these 3 main areas. Interviews were conducted with experts in the jute rope wickerwork groups. The researcher purposively selected specialists according to the research objectives.

Stage 2: Field data collection. Collecting data under the conceptual framework derived from documentary study

and websites in the straw rope products sites.

Stage 3: Examination of data on general situation of the straw rope products sites to guide the product design.

Stage 4: Design and creation. The design focuses on rope furniture by collecting information as baseline data to design straw rope furniture.

Stage 5: Presentation of research result. Conclusion, discussion, and recommendations by descriptive analysis of field data according to the theme, i.e. straw rope furniture product design.

4.2 Research Instrument

The researcher carried out documentary study and interviews with specialists to obtain the concept for constructing instruments to collect field data which will be used with the straw rope wicker group, as described below.

4.2.1 In-depth Interview Form

The researcher conducted formal interviews as reference data in the research, along with research papers and interviews with experts to be used to construct the guiding questions for the data on production process and distribution of straw rope products.

4.2.2 Participatory and Non-Participatory Observations

The researcher collected initial data to capture basic information about the general situation, the design concept, the production process and distribution of straw rope products, limitations of straw rope wickerwork, through informal interviews based on documentary study and interviews.

4.2.3 Population and Sample

The population in this study comprised 2 groups, i.e. straw rope furniture consumers and wicker production experts, Khun Wad Khumkean of Baan Klong Maplaeb wickerwork group, Sriphirom sub-district, Phrom Piram district, Phitsanulok province.

4.2.4 Data Collection

For field data collection, the researcher undertook the fieldwork in the community during October 2015 to September 2016. To collect data, the researcher began with self-introduction and explained the research objectives, and then asked for cooperation in the interviews. The conversations were based on the key informants' willingness to respond. The interviews were partly formal and partly informal that allowed for the same understanding of the researcher and the interviewees in every issue at the time.

5. Data Analysis

5.1 Documentary Analysis

The researcher examined academic documents on ergonomics as a science that covers multiple disciplines; a research work on participatory action research to develop the standards of straw rope furniture products; the environment of study sites, the straw rope product designs; and the strength of straw rope.

5.2 Field Data Analysis

The researcher looked into the data needed from the interviews and taking note on key issues as a preparation prior to field data collection. During the actual interviews, video recording had been taken to later check against the interview data.

5.3 Test of Furniture Quality

The test included general features, the straw rope, weaving, intertwining, binding, knotting, assembling, other combined materials, and varnishing. The designated examiners group comprised at least 5 straw rope product review specialists, each of which had checked and scored separately and independently. From the full score of 4, the scoring criteria included 4: excellent, 3: good, 2: fair, and 1: required improvement.

6. Conclusion of Research Result

For the background of hea jute rope, the word "hea" as a local language means "dry grasses" that were put into binding with jute. Accordingly, hea jute rope was made from the rope to bind dry grasses preserved for animal feeding. Jute rope contains synthetic fibers (nylon) and jute, making it strong, durable, without turning fray and moldy, and is washable as well. Today, hea jute rope can be purchased from available manufacturers both in Bangkok and provinces. The weaving patterns currently in use are Lai Thai Sam Chan, Lai Pisuer, Lai Baimai, for example.

6.1 Summary of Production Process

- (1) Assemble metal pieces into a desired frame, draw a certain length of rope out of its roll without the plastic bag unwrapped to keep the rest from dirt and dust, use a scissors to cut the portion out and twine the rope 1 time around each metal piece of the frame.
- (2) Once finish twinning, draw out the rope about 90 cm. long to make weaves in a pattern.
- (3) Cut the rope in a needed length depending on the size of each side of furniture, for example, a 20 cm. high backrest will need about 100 cm. long rope. Weave the rope into the desired patterns, each with different spacing.
- (4) To make patterns with woven rope for furniture, start weaving from the top to the bottom parts to keep the rope straight and ensure evenly woven patterns without distortion. Continue to finish every side of the frame.
- (5) Once the jute rope weaves cover the whole area, then keep, cut, and singe the rope end to seal off and prevent any unraveling, making the work neat, strong and durable.

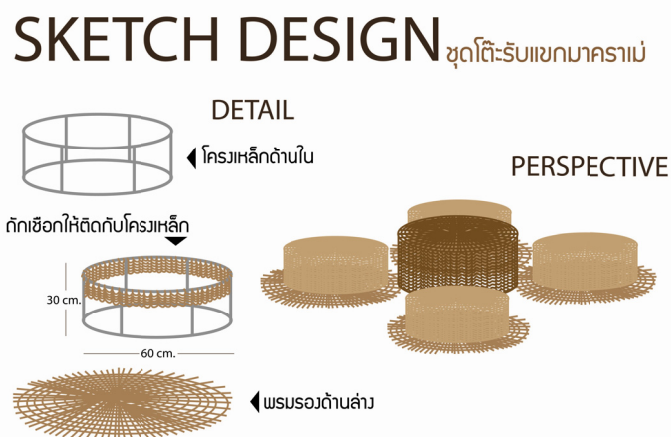


Figure 1. Sketch design of a living room furniture set of 4 chairs and a table



Figure 2. Cut and solder metal pieces into frames for making weaves as designed



Figure 3. Twine rope around the frame's metal pieces and make weaves in the designed patterns



Figure 4. Make weaves as designed to cover every side of the frame in even spacing and patterns



Figure 5. Patterns on the living room furniture



Figure 6. A set of metal frame-living room furniture with brown seating on the top for more comfortable. The design work by Nirat Soodsang

To design furniture with proper functionality, fineness, beauty, including decoration purpose, the researcher designed a living room furniture set of 4 chairs, 1 common table, 2 styles of easy chair, and 3 styles of lamp. They differed from but add to those original product lines of the wicker group, with the straw rope weaving skill as essential to the designs. Side liners offer more strength, along with wooden backrest, and with soft and comfortable sponge seating in leather cover.



Figure 7. Table lamp, wall lamp, and floor lamp, using macramé forming technique, with each single petal woven with white rope and arranged in bouquet, and connected with electric wire and switch ready to use. Design works by Nirat Soodsang and Chaiwat Poolklai



Figure 8. Box frame chair with rope weaves and seating



Figure 9. Box frame chair, with 3 sided rope weaves in white and brown colors on the left, right, and backrest



Figure 10. A chair design work by Nirat Soodsang and Pornsawan Chanrod



Figure 11. Side view of metal frame chair



Figure 12. Front view of metal frame chair with cream color rope weaves from the backrest down to the seat, and patterns on the backrest



Figure 13. Front view of metal frame chair, designed by Nirat Soodsang and Nattapol Nukul

Table 1. Test results of general features, straw rope, weaving, intertwining, binding, knotting, assembling, other combined materials, full score 4, by 5 specialists based on TCPS 418-2547 (2004) (Thai): STRAW ROPE PRODUCTS

Examined Features	Specified Criteria	Test Result		Interpretation
		\bar{X}	S.D.	
1. General features	Fineness, beautiful style and shape, no distortion or bending, proper functional size, no prominent seam or burning mark of straw rope to impair the beauty of work piece	3.87	0.12	Excellent
2. Straw rope	Uniformed size, strength, durability	3.65	0.45	Excellent
3. Weaving, intertwining, binding, knotting	Even spaces and patterns, no overhanging or projecting rope ends	3.85	0.14	Excellent
4. Assembling	Fineness, no broken seams and the seams aligned with previous seams.	3.56	0.16	Excellent
5. Other combined materials	Neat, tightly fastened, durable, harmonious, fit to the work piece and functionality, and stainless in case of metal part	3.64	0.41	Excellent
6. Varnishing	Smooth, even, no spot, stain, brittle, fracture, flake or peel, not too thick to impair the beauty.	3.57	0.14	Excellent
Total		3.69	0.23	Excellent

As suggested in Table 1, the overall features of the furniture meet the criteria with a total score of 3.69 or at excellent level. The highest score was for weaving, intertwining, binding, and knotting, followed by the general feature in fineness, beauty, even size, strength, and durability, respectively.

7. Discussion of Research Result

The general features of the work pieces being developed in 3 styles of chairs and 3 styles of lamp took on the mixed form of handcraft work and industry work of metal frame. They had fineness, beautiful style and shape, no distortion or bending, proper functional size, no prominent seam or burning mark of straw rope. The work piece looked esthetically. The straw ropes were in uniformed size, strong and durable. The weaving, intertwining, binding and knotting gave even spaces and patterns. The weaves and metal frame were neatly combined without broken seams and with aligned seams. Other materials were finely assembled, tightly fastened, durable, harmonious, and fit to the work piece and functionality, and with stainless metal part. They are all outstanding features of the present design works. According to Ruangsombat (2013) in her study on reed mat making process for development of Thai contemporary art furniture design, using experimental approach, it was found that the three types of furniture designs for different functions shared the same inspiration from the shape of blossom lotus petals in Lai Thai works. The first type was a coach, the second was an arm chair, and the third was an end table. The results on the effectiveness, utilization, and function of the reed mat for furniture designs showed that the first type or the couch provided mean of 4.39, at good level. It was thus considered the most suitable choice for development of reed mat furniture for its strong structure and capacity to carry heavy load. With the above property and function, the reed mat was thus used to serve this purpose by modifying its shape into wave to make unsmooth and curve surface which helps in back massage while laying on it, giving a relaxing and comfortable sense. It is a way to best promote its functionality. This couch with Thai contemporary art design also best signifies Thai art and received most satisfaction. It supported Thai art and culture and can be developed into modern shape to match the current trend. Sanjanthai (2015) developed water hyacinth furniture of Baan Wongkong water hyacinth basketwork club at Lankrabue district of Kamphaengphet province, aiming to explore water hyacinth furniture production and development process, and to assess consumers' satisfaction towards the new developed water hyacinth furniture designs. The population included consumers who were satisfied with the developed water hyacinth furniture designs of Baan Wongkong. The results showed that the development of water hyacinth furniture prototype applied geometric shapes with the size in parallel with human dimension, and focused on functionality. The specialists' evaluation result on the standards of water hyacinth furniture prototype, and the satisfaction evaluation result on the development new designs of water hyacinth furniture prototype were at high level, with mean $x = 4.52$, $S.D.=0.01$.) Sangwalpetch (2012) studied the style, wisdom, and rationale of the creation of Thai mural paintings as a guideline for living room furniture design. The study was conducted through the interviews with 30 Thai mural painting experts from a Petchburi local arts clan, focusing on the characteristics, values and properties of mural painting work in Wat Yai Suwannaram at Petchburi. It was found that the Tepchumnum story most clearly reflects the identity of Wat Yai Suwannaram mural painting style. The story contained an outstanding element of art, i.e. Sintao line, with 50 % white background, 25 % vermilion red, 15 % gold (gold leaves), and 10 % dim green. Other outstanding elements included 3 particular patterns, i.e. Thai pattern, Thai nature-imitated pattern, and nature pattern, with the sunlight shining through the 5 doorways. All of these arts elements can be applied to design living room furniture that articulates 2 types of emotional values, i.e. dignified elegance and faithfulness. They can also be developed and fit well for functional purpose of other living room activities. With respect to furniture design concept, Coontong (2012) explored and developed furniture applying the patterns of Esan weave handcrafts. The purposes were to study the patterns of Esan weave handcrafts; design and develop furniture with applied patterns of Esan weave handcrafts; and evaluate the suppliers' satisfaction toward the applied patterns of furniture designs. The result suggested that the local culture can provide inspiration for furniture design with good outcome. Treetrong (2015) suggested that any basic handcrafts being modified with new presentation, colors and ideas can become interesting, reflecting that Thai people, ASEAN, Asia have something in depth needed for the world to process and interpret them into innovations for the future

Concepts gained from this research can be applied to woods can be used for larger composition and dimension, more natural, increased natural adaptive technologies, mirroring the world in need of sustainment and relaxation from chaos. However, furniture design work should also reflect special need of elderly people for such as the floor, rounded table corners, strong sofa, light-weighted furniture in moderate size to be movable by the elderly people themselves independent of others. The growth of furniture and accessories market also depends on other factors such as investment on various projects by government sector, the government's policy to increase economic activity, the trust of private sector on the government policy, the real estate, condominium and townhome projects being launched, all are key elements in the development of different types of furniture designs.

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