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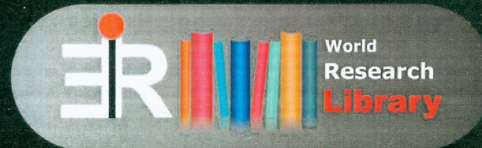


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EDITORIAL

It is my proud privilege to welcome you all to the TheIRES International Conference at Oxford, United Kingdom. I am happy to see the papers from all part of the world and some of the best paper published in this proceedings. This proceeding brings out the various Research papers from diverse areas of Science, Engineering, Technology and Management. This platform is intended to provide a platform for researchers, educators and professionals to present their discoveries and innovative practice and to explore future trends and applications in the field Science and Engineering. However, this conference will also provide a forum for dissemination of knowledge on both theoretical and applied research on the above said area with an ultimate aim to bridge the gap between these coherent disciplines of knowledge. Thus the forum accelerates the trend of development of technology for next generation. Our goal is to make the Conference proceedings useful and interesting to audiences involved in research in these areas, as well as to those involved in design, implementation and operation, to achieve the goal.

I once again give thanks to the Institute of Research and Journals, TheIIER, TheIRES & University of Management and Technology (Sialkot) for organizing this event in Oxford, United Kingdom. I am sure the contributions by the authors shall add value to the research community. I also thank all the International Advisory members and Reviewers for making this event a Successful one.

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THE SUSTAINABLE DEVELOPMENT OF COMMUNITY PRODUCT AND PACKAGING BY CREATIVE ECONOMY FOR ANGTHONG PROVINCE

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Abstract - This research was aimed to study 1) the need of the community products encompassing accessories and souvenirs, the problem in design technology and product development in Angthong province 2) design and product development as well as a packaging that were workable, unique and attractive. 3) consumers' attitudes towards the prototype product and the prototype packaging. The incorporated respondents in this study were those in Bang Chocha woman co-op group. Using an opened questionnaire, the received data were applied as a guideline to sketch a design. The process of this research consisted of drafting the sketch design which was evaluated by 3 design specialists, constructing the prototype, and assessing consumers' satisfaction by sampling on 150 respondents and tourists. The finding showed that a handbag was the most popular product in the market. Nevertheless, it still had some weak points which were typical problems to those found in a so-called OTOP—lack of uniqueness and lack of attractiveness. The bag handle and its accessories were perceived as way too ordinary since the materials and the appearances were not different from those of the other OTOPs. The study pointed out that the prototype 4 was the most successful particularly in the development in order to upgrade the product to become the identity of the Angthong province community group, comparing with other OTOPs from other communities. The decorating material, the combination of knitting wool and wicker illustrated the uniqueness of the product. Most consumers were attracted to such product. Additionally, the logo in the prototype2 with the BOHEMIAN ESCAPE Trend was pragmatic at a high level. The shape of the product was designed and developed to form the product logo representing its image which was also easy to remember, together with expressing the group characteristics. The packaging in the prototype1 was satisfying at a high level as the structure of the product was relatively practical in terms of logistics and function. All in all, the satisfaction level on both types of handbags was immensely high.

Index Terms - Product development, Community Product, Packaging, Creative economy.

I. INTRODUCTION

Developing community products played a significant role in boosting the learning among the people living in the community. Such development process required the people to brainstorm how to make a product that worked in the markets with the use of their local raw materials. Besides, they had to help one another to strategize in promoting the product to be successful in various markets both regionally and nationally. Furthermore, they had to structure to increase their capabilities so as to export their community product to the global markets.

All these activities resulted in increasing the overall income within the community as well as systematically strengthening the community economy. Flourishing community products to have pleasant looks, high quality, practical function that met the expectation of the markets made the products well-established in the minds of the consumers. This process required professionals who understood both product design and product development. Using suitable manufacturing technology along with understanding of the needs lying within different markets led to community learning which integrated product development with original local wisdom. Such integration elevated the value of the community product in various market levels.

Angthong province was one of the upper central regions with hundreds of years in history. The areas of this province were mostly low lands shaped like a big sink. There were no mountains, forests, or minerals in the area. 2 main rivers including the Chao praya river, and the Noi river were the main stream of the community. People relied on both rivers for farming, consuming, and transporting all along. Well-know community enterprise products included basketry of Baan Chaocha, Poe Thong district, drums and court dolls of Pamok district, as well as replica household items.

Product and packaging development in this research heavily involved a participation research. The target group was a group of handicrafter in Angthong province. The study started out with the effort to pick up basic information about the group and the products they made, followed by workshops, logo design, and then public relations to publicize the products to the markets. Then the products were brought to a market test at provincial level, regional level, national level, and of course global level if they had high potential. All of these processes came from the collaborations among manufacturers, researchers, and a government sector who tried to drive the well-being of the community following the philosophy of sufficient economy which could grow further along the guideline of the creative economy.

II. OBJECTIVES AND SCOPE OF THE RESEARCH

A. Research objectives

1. To study the need and the problems incurred in technology design as well as the product development for handicraft home décor and souvenir in Anghong.
2. To design and develop products and their packaging that were appealing and unique for Anghong community.
3. To gain consumers' perspectives towards the 2 designed and developed products and their packaging.

B. Scope of the research

1. Organizing meetings in order to notify activities, planning programs, and execution plans to the selected target group.
2. Studying categories of products to be developed as a prototype product by focusing on in-house design, marketing, manufacturing, and development of innovation for that particular product which enhanced its value to match the market trends. Conducting field data collection to derive necessary information from the manufacturers through structured interviews, observation, Participate Action Research so as to gain their awareness of the existing problems, possible solutions, feasible development, and analysis on potential market trends that were relevant to the participating products.
3. Developing products by engaging in design and development of innovation along with logo and packaging designs that met the market needs—for at least 5 new product designs and at least 1 prototype product and its prototype packaging.
4. Organizing workshops to empower manufacturers to understand the trends of the target market aligned with raw materials, manufacturing techniques, and price competitiveness. Combining resources among each group to form manufacturing group value chain. Developing products to be competitive in the market by focusing on function, design, raw material, and technology along with the unique culture. With the mentioned 5 elements, the value of the products were introduced and measured with other products for price comparison to determine their competitiveness. All these stemmed from the collaboration among the group members together with the advice from professionals.

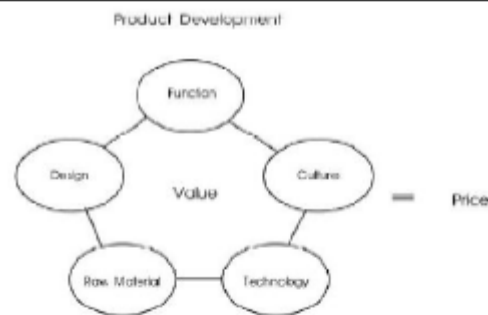


Figure 1 Product development process

5. Improving manufacturing techniques to fit manufacturers' capabilities in order to produce products and packagings that stood out in the markets.
6. Making prototype products and packagings that already went through the development to be product samples for sale, at least 1 product and 1 packaging per product category. Manufacturers released 3-5 models of prototype products and packagings and then selected one of them to serve as a prototype product of their community.
7. Testing developed products in regional market as well as national market, and evaluating the feedback through statistical analysis.

II. RESEARCH EXECUTION PROCESSES

There were 3 stages in the research implementation including field research for group data collection, product development, and market test. In-depth interview was employed to obtain group data collection, and structured interviews was deployed to gain information from the group managers.

1. Develop products by uncovering their unique selling points particularly on production, raw material, manufacturing technology, and product models. Then take all those mentioned to be considered against the market needs, then pick the most relevant information from the 2 portions to establish a product development concept. After that bring the concept into use to make a complete prototype product. Then inspect it, and modify till it was well-settled.
2. Bring product out for market test through an assessment form evaluated by consumers in Anghong and tourists, in total of 150 people. This number was judged based on the provincial tourism statistics derived from the records of accommodation bookings, and attraction visits during weekends and public holidays.

III. RESEARCH FINDINGS

The findings were broken down into 3 parts as follows;

Part 1. Field research for group data collection: as a result of interview and data analysis, the findings were summarized as follows;

Raw material Bamboos from Chonburi province was in shortage at some seasons like rainy season because of difficulty in transportation from the forest to the land and their prices were inconsistent from sellers.

Budget Basketry weavers used their own money to invest in raw materials and labors.

Labour 2 types; one was skilled laborers who were capable of preparing raw materials, assembling raw materials into a complete products, decorating the products to a finished goods; whereas the other was those beginners who were not fully skilled in weaving.

Marketing There was no concrete marketing plan yet. Most products were made based on their popularity or custom-made inquiry. Model information was available on the OTOP website (<http://www.thaitambon.com>). Distribution channels included 1. Local community stores 2. Selling on consignment to the co-op groups 3. Selling through the co-op groups 4. OTOP Exhibitions held twice a year 5. Anghongred cross fair.

- The majority of the buyers were those from Lampoon, Udonthani, and Bangkok. The percentage ratio between men and women were 20: 80 aged from 30 and beyond.
- Most foreign customers were Japanese.

Logistics The products were dispatched by train and mail parcels.

From the analysis, the unique selling points of the product were characterized as described below;

- 1) They were 100% hand-made products and perceived as high value and high price.
- 2) They were bamboo weaving products which required lots of consistency and accuracy in manufacturing.
- 3) The laborers were those lived within the community.

Part 2. Product development

This process generated a unique trademark logo the belonged to the group, packaging with logo, and new products as pointed out below.



Figure 2. Logo used on prototype products



Figure 3. Prototype products and packaging.



Figure 4. Weaving handbag prototypes made by coloring the bamboos and Trend AQUAGRAPHIC



Figure 5. Weaving handbag prototypes made from decorating knitting wools with Trend BOHEMIAN ESCAPE

Part 3. Bringing products out for market test

The finding showed that the knitting handbag prototype using knitting wools for decoration with Trend BOHEMIAN ESCAPE was at the highest satisfaction level in terms of beautiful appearance, and practical function. The runner-up was the weaving handbag prototype made by coloring the bamboos and Trend AQUAGRAPHIC.

CONCLUSION

As seen from the research on industrial crafts and design products organized by the female co-op group of Bang Chaocha district, it was essential to have other developments together with the design and the development of the product and packagings. These developments were described as follows;

5.1) Production

- Bamboo handicraft weaving could be part of the academic chapters in the community vocational institutions. The group representatives were the educators who provided knowledges to the youngsters.
- Reduction of foreign raw materials could be achieved through the increment of bamboo plantations in the community.
- Decoration accessories were available within the community like coconut shells, cereals, etc, and they helped to promote occupations and income to the group apart from their routine weaving works.
- **5.2) Marketing**
- Expansion of distribution channels from adult group to teenager group could be accomplished with the Trend AQUAGRAPHIC products. Such products were eye-catching due to striped woven, and tinted bamboo weaving. The expansion to the early adult could also be done through the Trend BOHEMIAN ESCAPE products.
- Marketing channels were enlarged by frequently attending product exhibitions held in the province and in the country. This was aimed to create awareness of the products in the consumers' minds as well as market the products at various levels with the local co-op groups. This approach helped to efficiently optimize the marketing cost.
- **5.3) Design**
- It is crucial to encourage the community people to work closely with professional

designers through education networks and government organizations.

- The design is strengthened by deploying uncommon style of the design to be part of the work and using home décor trends allow designers to clearly visualize the overview of color, materials, and surface. All these result in individually unique design which is trendy at all time.
- Eco-design should play a significant role. For instance, packagings made from recycled papers help growing the lifespan of the packaging. A unit box is modified to a storage box, paper basket, postcard and so forth.

SUGGESTION

By virtue of the required condition and the technological issues from industrial crafts product design and development for décor products and souvenirs in Anghong province, the suggestions are illustrated as follows;

- 1) Weaving handbags generate the highest community revenue as the producers are highly skilled in weaving, and making artwork and color. This skill is a stepping stone to further additional new products in the future, such as weaving home décor like lamps, bamboo curtain, and furniture, to name a few.
- 2) Other decorating materials can be combined altogether to continuously form new products. Raw material from coconut shells, buttons, knitting wool used in this research generate other compelling raw materials like engraved silver plate, silks from weaving, and so on.
- 3) The group is able to diversify their products and builds up an outstandingly unique identity that differentiates it from the others.

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