Challenges of Implementing Packaging Design in Rural Food Entrepreneurship Owned by Underprivileged Women – A Case Study

ABSTRACT

This project was implemented to help low-income and underprivileged women grow their small businesses. This project aims to identify and analyse the problems faced by underprivileged women, focusing on food packaging. The participants were from Kampung Pinggan Jaya, Kuching Sarawak in Malaysia, who run small and medium food businesses. The food categories were based on dry and frozen foods, which were mainly homemade. The participants were housewives aged between 30 and 45 years with low monthly household incomes ranging from US \$45 (MYR 200) to US \$168 (MYR 750). Thus, the project's main objective is to improve product packaging to establish itself in the local market. Empathy mapping was the technique of choice as it demonstrates collaborative visualisation. Consequently, an entrepreneurship workshop was organised to identify potential products and participants interested in the project. Some problems and constraints during project implementation were due to financial concerns, attitudes, and illiteracy.

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Introduction

Growth and poverty reduction are the common ultimate goals of all development endeavours. International development, financial, and trade organisations, practitioners, and academics attest to this assertion (Akoum, 2008). Opposite Balsas (2017) explained that most economic revitalisation of suburban areas relies on neighbourhoods and their dynamic community rather than central resources and political attention.

Meanwhile, Vicino (2008) explained similar issues relating to suburban decline with municipal urban decentralisation. He maintains to enforce local autonomy by strengthening them and thus eliminating decentralisation decisions and barriers regarding revitalisation projects.

Likewise, this article relates several similarities to other projects by policymakers, local governments, and NGOs worldwide to increase the livelihood of deprived communities in suburban areas. Furthermore, Yayasan Sejahtera Foundation welcomed any assistance from welfare bodies and NGOs to help the poor community in Sarawak, Malaysia and identified potential economic activities that could be implemented in the area before rendering the appropriate assistance (Borneo Post, 2015).

This project explains the economic revitalisation of a suburban village by assisting the villagers in increasing their income by educating them about the importance of marketing strategies in product sales.

Therefore, one of the marketing strategies is to improve product packaging, which is the main purpose of this project. Revitalisation development in the village is categorised as a part of the service design project in which the plan provided extensive solutions for the *Kampung Pinggan Jaya* villagers with education, information on cleanliness, and food preparations. It also extends educational marketing skills for the village community as a sustainable means of support. The project was conducted to help low-income and underprivileged women to grow their small businesses. Those involved were from *Kampung Pinggan Jaya*, Kuching Sarawak, who run small and medium food businesses. The food categories were based on dry and frozen foods, mainly homemade.

Hence, this project aims to understand the participants' attitudes, participation, and acceptance of the packaging design project.

Kampung Pinggan Jaya

Kampung Pinggan Jaya is located about 45 minutes from Kuching, Sarawak of Malaysia. The village could be developed as a local gula apong (Nypa fruticans) industry centre. The villagers are experts in harvesting the nipa sap to produce gula apong and promote the location as a business hub.

Due to its high commercial value, the Sarawak state government views this as potential and plans to expand the nipa palm sugar industry. In supporting this industry, 17 selected entrepreneurs were assisted under the guidance of the Agriculture Department and generated an income estimated at US \$273 thousand (MYR 1.2 million) for the Sarawak state in 2012 (Borneo Post, 2014).

Project Approach

Selections of Potential Products and Participants

The research team discovered a variety of products produced locally by the villagers. The participants were housewives aged 30 to 45 with monthly household incomes ranging from US \$45 (MYR 200) to US \$168 (MYR 750). Participants in the program must be born and raised in the neighbourhood. There were just six (6) participants in this project. Early investigations revealed that one of the volunteers was illiterate, while the rest were high school graduates. The products chosen as listed in Table 1 are in demand and have the potential to be marketed.

The marketing team identified the participants and their potential products for this research. The participants had agreed to attend the marketing group's entrepreneurship classes and workshops.

Furthermore, the packaging design team was invited to participate in the workshop activities to understand better the product that would be featured and improved. The design team also initiates an empathy approach to acquire feedback from participants on their backgrounds, their level of knowledge, education, and motivation to participate in the program.

Throughout the event, participants expressed enthusiasm to take their businesses to the next level.

They learned the significance of packaging design, product labelling, and branding.

Project Details and Method

The objectives of the packaging design project are to:

Design the brand identity (logo), and Propose a new packaging design.

Packaging design is one of the elements in the marketing process; it is considered a vital part of the whole marketing program (Calver, 2004).

Therefore, the brand of the community gives a vital impression that becomes an instrument of product recognition. The graphic elements such as logo, colour, and illustrations must be visibly displayed on the packaging.

Secondly, each product's packaging was examined to see how it could be improved. The selection of packaging materials, functionalities, cost, and availability are key considerations. The timeframe and activities for the packaging design project are shown in Table 2.



» Figure 1: Nipa trees and gula apong producer at the village

Table 1 (part 1)

List of local potential products

Participants	Products	Price (RM/MYR)
Category 1: Gu	la Apong-Based Product	
Participant 1	Keretop (Rice cracker)	US \$0.22 (MYR1) for 3 pieces
Participant 2	Gula Apong (Nypah sugar)	US \$1.79 (MYR8) for 1 kg
Category 2: Fr	ozen Food	
Participant 1	Frozen curry puff	US \$0.45 (MYR2) for 6 pieces
Participant 2	Pau Bun	US \$0.22 (MYR1) for 3 pieces
Category 3: Ti	tbits/ Chips	
Participant 1	Popia Kacang Merah	US \$0.45 (MYR2) for 6 pieces
Participant 2	Kerepek Keladi (Yam chips)	Not specified (new proposed product)
Participant 3	Bahulu	US \$0.65 (MYR2.50) for 10 pieces

Table 1 (part 2)

List of local potential products

Participants	Products	Price (RM/ MYR)
Participant 4	Rempeyek	US \$0.22 (MYR1) for 4 pieces
Participant 5	Biskut Koyong	US \$2.68 (MYR12) per container

Note: MYR is the currency code for the Malaysian Ringgit. MYR1 = US\$ 0.22 (money currency as of February 2023).

Table 2

Project timeline and activities

Activities (Year 2017)	Jan	Feb	Mar	Apr	May	lun	Inl	Aug	Sep	Oct	Νον	Dec
Find potential products (Table 1)		•	•	•	•	•	•					
Product analysis & Workshop								•	٠			
Brand identity design									٠			
Packaging design									•	•		
Mock-up presentation											٠	
Refinement & distribution											•	•

Note: Packaging distribution was done in March 2018

Product samples were collected and evaluated at an earlier stage of the research. Some products were packaged in low-cost packaging, while others were newly planned products that were not packaged.

In order to gain better knowledge of the items and other issues, the researchers employed the empathy mapping technique whereby participants were interviewed and asked what they liked or disliked as well as what they hoped or feared about the product or other scenarios. According to Marsden (2017) & Brand Genetics (2020), empathy is an experiential insight in which we can feel and experience things from someone else's point of view. Furthermore, Gibbons (2018) stated that empathy maps are commonly used in design communities, and they are defined as a collaborative visualisation used to explain the sort of person. In this regard, it provides us with an awareness of the individual's needs, allowing us to make decisions on pertinent concerns. The questions were on packaging design, namely what challenges they were experiencing and their future expectations. Table 3 contains the indications for Say & Do, Hear, Think & Feel, See, and Pains and Gains.

Table 3

The indicator of Empathy Map's section (Gibbons, 2018)

Section	Indicator			
Say & Do	Defining the problem to be solved, a product they are looking for, or things they might mention in general conversation. It also relates to a participant's actions and how they will affect the project.			
Hear	Includes everything they hear others saying. A way to identify the community that they live in.			
Think & Feel Think				
See Document what participants observe in their immediate environment.				
Brainstorm what the participantsGainwould gain from the project. How would it make their life better?				
Pain Brainstorm all the pains that they might have and how they can be solved.				

Observation and Result

Empathy Map

All six (6) participants provided feedback and information during the interview. The interview activities were conducted in a group setting, so the conversations may be spontaneous and relaxed (Figure 2). Since most of them are shy and quiet, this strategy is effective. Using the empathy map observation and results, we assessed the six (6) sections where the subjects answered. The outcome from this session is shown in the empathy map in Figure 3.



» Figure 3: Empathy map

Say and Do

Participants stated they were housewives who wanted to supplement their husbands' income by starting small businesses. As a result, they are involved in producing and selling homemade food. Three (3) participants are working on *gula apong-based* food products (nipa sugar).

Their income is derived from the nipa trees that grow in the settlement area. Housewives who had completed high school were among those who took part. One of them is a high school dropout and illiterate. They enjoy getting together and doing activities other than cooking.

Aside from that, they claim that many groups of researchers are visiting their villages to research nipa trees. They have been advised several times to sell their products more appropriately due to discussions with the group of researchers who came and discovered the potentiality of the products.



» Figure 2: The interview, discussion, and brainstorming session with the participants

Hear

As a result of this section, the findings found that participants are unlikely to be able to increase product sales revenue. This is because their businesses are small and only sold to neighbours in the village.

However, one participant selling *gula apong* products obtained more comprehensive coverage as it is popular among large-scale restaurants and food operators. The participant does not have to go out to sell and distribute the products in the market because the customers will self-pick up their orders.

The *gula apong* products sold are packaged in rectangular plastic containers. Sometimes entrepreneurs reuse plastic containers or get free containers from other sources. Generally, all food products sold inconsistent use of the same packaging. As expected, entrepreneurs need the initiative to brand and label their products, which can expand product visibility in the market.

The participants also need help with financial management, where the profit from sales is too small and spent on unnecessary things.

See

As a result of the group discussion, it was found that one of the participants frequently changed their phone numbers. This has made contacting the participants difficult. Another challenge is the village's remote location from the city, making it harder to advertise products to a larger audience.

This can be evident when participants need more awareness of the procedures and the importance of product promotion. Aside from that, limitations in kitchen facilities and equipment are a big issue, particularly in terms of food preparation hygiene.

Finally, the lack of personnel and assistants is another crucial reason the product cannot be produced in large quantities.

Think and Feel

Based on the discussion, the participants wanted to increase their salary to assist the family financially.

However, their primary issue is more ideas and techniques for expanding the business. Furthermore, upgrading packaging is critical, and consulting with professionals is crucial.

Finally, they know that the product generated has potential but are concerned about competition in the external market.

Gain

The participants have gained optimistic hopes for better packaging as a result of this project. They have received professional feedback and are ready to move on to the next level.

The attitude demonstrated must be cooperative. They must be aware of the commitment made to the project. This project must be completed and deliver benefits to entrepreneurs in the form of knowledge and company sustainability.

Pain

The pain experienced is from insufficient capital for marketing and product promotion. It is because packaging design is one of the ways to market a product.

Moreover, the adequacy of cooking equipment, a conducive kitchen, and packaging machine equipment is very much needed for growing their business.

On top of that, competition from other entrepreneurs who produce the same product is of great concern to them. Hence, consistency and commitment are essential to sustain their business.

Product Sample Analysis

On 12th – 13th August 2017, an entrepreneurship workshop was organised to identify the participants interested in participating in the project. They were among those who volunteered to join this program.

On the first day of the program, six (6) participants showed their interest in product packaging. More products were brought in on the second day of the program.

Overall, a total of nine (9) products were received to be packaged. The products were clustered into three categories: frozen food, titbits/chips, and *gula apong-based* products. The producer will only prepare the product based on customer orders. According to them, the product is sold within the neighbourhood community.

Table 1 displays the nine (9) products that need to be marketed. Based on the images in Table 1, all products were packed in plastic material. The entrepreneur used standard cheap packaging such as poly bags, plastic containers, disposable clamshell plastic, and printed IPP bag (Isotactic polypropylene). The participant's reluctance to improve their packaging format due to financial constraints.

Table 4 indicates the type of material used to pack the product. Other than that, there were no labels and brands implemented on the packaging.

Table 4

Analysis of the packaging material and format

Product	Material and format				
Category 1: Gula Apong-Based Product					
Gula apong	Rectangle plastic container				
Keretop	Poly plastic bag				
Category 2: Frozen Food					
<i>Karipap</i> (Curry puff)	Disposable clamshell plastic				
Pau bun	No specific packaging (depending on the quantity), sometimes using disposable clamshell plastic				
Category 3: Titbi	its/ Chips				
<i>Kerepek keladi</i> (Yam chips)	Printed IPP bag				
Popia Kacang Merah	Disposable clamshell plastic				
Bahulu	Printed IPP bag				
Rempeyek	Printed IPP bag/ cylindrical plastic container (depend on the quantity)				
Biskut koyong	Cylindrical plastic container				

Based on the analysis of the product samples and empathy map, it should be noted that the participants showed inadequate knowledge of packaging design. As a result, they rely on researchers to help them design packaging suitable for their products.

Packaging Design Project

The packaging design project is to 1) design the brand identity for the community products and 2) propose a new packaging design for each of the products. A group of five (5) graphic design students from the Universiti Malaysia Sarawak participated in this project. Their participation in this project was to gain experience in working with the community and demonstrate their practical skills and talent in packaging design. A community logo for *Kampung Pinggan Jaya* was initially designed as an indicator to promote community projects and products. The brand name is 'Pinggan Jaya Community Product', and the logo will appear on packaging, social media, and other marketing platforms. The Nipa fruticans flower inspired the concept of the logo (Figure 4).

Shades of green were used for the logo because this colour is associated with nature and symbolises ecology and the environment (Color Matters, 2019).

The logo design process began with brainstorming to identify the most appropriate features to represent the community of *Kampung Pinggan Jaya*. Then, the rough ideas were sketched and rendered as vector graphics in Adobe Illustrator. Finally, the ideas were presented to the community group, and the final logo was selected, as shown in Figure 4.



» Figure 4: Logo design

A few challenges will influence the researchers' decisions during the project.

The first challenge was to educate participants on the importance of packaging and how to make it more sustainable. Indeed, they agreed that having adequate packaging may enhance sales. The participants were ecstatic at the prospect of designing packaging for their products. They looked forward to selling their product at the local mini-mart.

However, the budget constraint may limit the packaging format, materials, design elements, and printing output. In this case, the researcher had proposed affordable packaging for them. As a result, the quantity and price of their product must be revised.

It is observed that participants employed conventional low-cost packaging materials such as poly bags, plastic containers, disposable clamshell plastic, and printed IPP bags (Isotactic polypropylene). It should be noted that the packaging is chosen and purchased subject to availability from the closest supplier.

Furthermore, the packaging material and format options are limited. As a result, logistics, location, and material selection affect production costs. Furthermore, a lack of understanding of the significance of label use and branding makes marketing the products challenging. Most participants believe their products can still be sold without the brand and labelling.

Therefore, they do not have to spend unnecessarily. At first glance, they are correct because their market and location only encompass the immediate neighbourhood. However, they could consider implementing a more robust business strategy, such as giving the product a brand name, labelling it, and utilising good packaging.

Products, such as *Biskut Koyong* and *Kerepek Keladi* were poorly packed. On the other hand, the *Pau Bun* is a new proposed product that requires packaging.

According to the participant, they usually make the food depending on the customer's request and allow the customer to self-pick up using the container that they brought from home.

As soon as the researchers learned about the participants' obstacles and challenges, assistance was provided to satisfy some of these criteria.

The 4 criteria include economical packaging design, locally acquired packaging material and format, creating a single brand for all items (as described in diagram 2), and design labels for each product.

Due to financial constraints, the participants were advised to pursue low-cost packaging solutions where the materials and supplies are easily obtained nearby.

Table 5 shows the proposed container for each product. The solution was made based on the practicality, resistance, and size that can store the food adequately.

According to ChemicalSafetyFacts.org (2022), plastic food containers are strong, lightweight, and resistant to bacteria.

Therefore, plastic containers are commonly used for packaging many types of food to protect them from damage, ensure food safety and prolong food freshness.

For aluminium food containers, AskUSDA (2019) notes that this material is suitable for freezing food to keep the air out and protect the food from freezer burn for more extended storage.

Table 5

Proposed packaging / food container

Product	Suggested packaging format
<i>Gula apong</i> (grade A)	Plastic Disposable Food Container with lid
Keretop	Clear food plastic bag
<i>Karipap</i> (Curry puff)	Disposable plastic food container / Aluminium food container
Pau bun	Disposable plastic food container / Aluminium food container
Kerepek keladi	Resealable Plastic Bag (zipper)
Popia Kacang Merah	Disposable plastic food container (clamshell)
Bahulu	Plastic Disposable Food Container with lid
Rempeyek	Resealable Plastic Bag (zipper)
Biskut koyong	Resealable Plastic Bag (zipper)

Figure 5 depicts the *Keretop bar* label design process and design recommendation. *Keretop* is a popular food among the locals. It is made of rice and flavoured with *gula apong* (nipa sugar). This crispy snack is a promising good for widespread distribution.

As seen in Figure 5, the 'Pinggan Jaya Community Product' logo is applied on the label as a symbol or sign of ownership to the *Kampung Pinggan Jaya* community. While Figure 6 shows the rest of the products; *Pau Bun* and *Karipap* packed in aluminium containers, *Bahulu* and *Gula Apong* packed in a plastic container with a lid, *Popia Kacang Merah* packed in a clamshell plastic container, and *Kerepek Keladi*, *Rempeyek* and *Biskut Koyong* packed in resealable zipper plastic bag. The packaging chosen meets the participants' expectations and is suitable for use as food packaging.

During the design stage, packaging prototypes were presented and discussed with participants. The initial design was created based on the participants' suggestions, which were then taken into account and modified as applicable. In addition, they learned how to pack the product.

Finally, each participant was given a packaging label. Packaging materials or containers were not provided to them as it is essential to observe their commitment to their business. Participants must take responsibility for their businesses and learn how to manage their budgets, especially those for packaging and label printing. The excitement and acceptance of the design motivate them to take their business more seriously (Figure 7).

This event took place at the community shop in the exact location where their product will be sold and displayed.



» Figure 5: Label design ideas and prototype for Keretop bar

Discussions and Conclusions

Several issues and limits have arisen during this undertaking. This financed project was primarily intended to assist small businesses in learning about entrepreneurship, particularly marketing strategy. It is envisaged that the participants will be able to operate independently and strategically. However, this project has limitations due to financial concerns, attitudes, and illiteracy. In addition, participants' reliance on funders and project coordinators will make it difficult for them to work independently.



» Figure 6: Label design ideas and prototypes for the products



» Figure 7: Discussion and presentation of the packaging prototypes

Many small businesses are still not registered with the Malaysian Companies Commission (SSM). It is due to illiteracy in paperwork preparation, financial management, and the inability to consistently produce food supplies. As a result, they only produce a small volume of food. Furthermore, the food preparations were done at home with insufficient cooking equipment, an unfriendly environment, and unhygienic practices. This stumbling block makes it impossible for them to sustain themselves in the food industry, further increasing the number of unregistered businesses.

Indeed, many food products from local small businesses are packed without labels that should contain important information such as nutrition facts, net weight, expiration date, brand name with logo, manufacturing address, contact information, and others. A product without a brand name imparted a negative perception and thus a bad reputation for the product (Shaharuddin, 2007). Therefore, branding and packaging are seen as important tools for marketing, promotion, and advertisement.

Financial knowledge is the most concerning problem for small business owners. They would rather spend the money on more critical things like debts and household necessities. As a result, they should have noticed corporate growth, including branding and marketing strategy. Nonetheless, investing in branding and packaging is a long-term investment. According to Shaharuddin (2007), the first batch of packaging manufacturing will undoubtedly be more expensive. However, it will remain less expensive than subsequent production due to economies of scale and a consistent fixed cost.

Another significant challenge is the attitude and mindset of local entrepreneurs, particularly in small-scale businesses. They work on their own time and are limited by the availability of resources because they are self-employed. Once the resources are accessible, they can process and create the goods. For example, the *gula apong* can only be prepared once the sap from the nipah tree is ready to be extracted. A nipah tree may typically yield optimal sap for 6-7 months. Manufacturing *gula apong* is traditionally done in a "large crater" where the nipah sap is cooked for 3-4 hours. Moreover, the manufacture of *gula apong* requires less workforce. The findings suggest that a lack of manpower, cooking utensils, space, and logistics will limit production capacity. As a result, this influences their view and decision to forego good branding and packaging. Furthermore, they intend to sell in a local market.

The final challenge that occurred in this project is the issue of illiteracy. All participants ran their businesses without legal and documentation knowledge, such as obtaining permission from industry authorities. They need to learn how to manage the business, the documents needed, financial records, and tedious company registration. Due to this problem, they could not apply for *halal* certification and other forms of endorsement from the related agencies.

Other than that, the participants also take things for granted when packing their products. The net weight or the size of each of the products was unequal. Proper packaging machinery is necessary to maintain consistency and product quality, affecting customers' trust.

Unfortunately, for many unexpected reasons, this project could not be continued after the distribution of the packaging label. Thus, the sales, income, and customer feedback data could not be provided. The commitment and attitude of the participants are the main concerns that will be discussed in future studies.

In conclusion, an in-depth study must be conducted to solve the above issues. Importantly, business agencies should take the opportunity to become a partner or mentor small business entrepreneurs to operate their businesses.

For example, the partners can buy the products from small entrepreneurs, repackage, plan for the branding, and market them. It is one of the Malaysian government's missions to expand business opportunities among the poorer communities so that they can generate income and open job opportunities for others.

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