

New Product Development from Radish of Ban Phayom Community, Wang Noi district, Phra Nakhon Si Ayutthaya province, Thailand

Metharat Chantanee

Faculty of Management Science, Phranakhon Si Ayutthaya Rajabhat University, Thailand, 1300

E-mail: metharat18@gmail.com

Article History: Received: 10 January 2021; Revised: 12 February 2021; Accepted: 27 March 2021; Published online: 20 April 2021

Abstract: This research paper aims to develop new products from the radish, Ban Phayom community, Wang Noi District, Phra Nakhon Si Ayutthaya Province which is operated using a Qualitative Research process and Participatory action research (PAR). The operating was (1) In-depth interviews and data collection from 50 citizens and stakeholders in the Phayom community, (2) A group meeting to brainstorm and analyze a SWOT from Participatory action research (PAR), which uses a process of involvement by the community and associated networks. The research was found that: (1) the community market survey found that there is a need to transform radish products, which want to modernize packaging design, be able to sell products to different groups of customers, and develop distribution channels to be able to sell products in multiple channels. (2) the community opinions, brainstorming, and analyzing SWOT in order to create a plan for developing new products to truly meet the needs of all groups of customers. (3) the producing a prototype product, it was found that the community has tried to transform radish products to be up to date with the current era and to improve their ingredients and materials to meet the needs of new target customers who have developed new products. was the Korean pickled radish. (4) Market testing, it was found that the community had put the product on sale at the community flea market before improving the product to be sold. (5) the sales were found that the community has developed Korean pickled radish products to be sold both offline and online, which are sold at stores in the Phayom community and on the Facebook page of Phayom Community Products.

Keywords: New product development, Radish, Ban Phayom Community

1. Introduction

Phayom Subdistrict, Wang Noi District, Phra Nakhon Si Ayutthaya Province Located between the road along the canal 26 and the road along Klong Raphiphat, about 20 kilometers away from Wang Noi District, has the shape of a parallelogram, the topography is lowland, flooded houses mostly located along the canal, north, adjacent to Lam Sai sub-district, Wang Noi district, Phra Nakhon Si Ayutthaya province. South next to Klong Nueng Subdistrict, Khlong Luang District, Pathum Thani Province. East next to Tambon Wang Noi, Amphoe Wang Noi, Phra Nakhon Si Ayutthaya Province. West adjacent to Chiang Rak Noi Subdistrict, Bang Pa-in District, Phra Nakhon Si Ayutthaya Province. The number of households with electricity in the sub-district administrative organization area has 3,908 households, 1,520 houses with telephone, or 75.00 percent of the number of houses. The community products such as tangerine, silk, bird's nest beverage, pow radish, and most villagers are farming. (Phayom District Information: 2019).

Most of the Phayom communities work in farming, which after the farming season people will become unemployed, so they try to form a group to create a career in order to generate income in the community in order to strengthen the economy. Government agencies try to encourage communities to produce products for sale to generate income. From the survey of the Phayom community area, encountered a problem, the people wanted to do additional careers to earn income and the community products that were produced were unable to create popularity with their customers and the number of products was not diverse. Moreover, the packaging of the community products is not beautiful, not attractive, the brand is not up more standard, the lack of technology used in packaging, and the distribution is still in a narrow range, that is, it is only available in shops, communities and community markets, and people are interested in developing new products to satisfy customers.

For this reason, the researcher is interested in research to develop new products from the radish of Ban Phayom community, Wang Noi District, Phra Nakhon Si Ayutthaya Province, which is a study and development of new products that are diverse, which are sought after by many target groups and focuses on developing new products, packaging, branding, and distribution channels. Operate with a career development plan for the community and allow the community to participate in the development of new products to create a community business group to drive the community economy and generate income for the people in the community. This will benefit the community in being self-reliant and will result in the community economy having sustainable growth in the future.

2. Research Objectives

This research aimed to develop new products from radish of Ban Phayom community, Wang Noi District, Phra Nakhon Si Ayutthaya Province.

3. Definition Of Research Terms

New product development, defined as a product that is either reconstructed or improved, modified from an existing product to have better features or an altered design with radical development as Korean pickle radish.

Marketing mix refers to a marketing tool that a business uses in determining to achieve a marketing objective which was considered in doing business include products, prices, distribution channels, and marketing promotion.

Product refers to a variety of products or merchandise such as Style, Quality, Design, Shape, Branding, Package or Case, Warranty, Size, and Service, etc.

Price refers to the amount of money used in an exchange in order to obtain a product (goods and/or services) as agreed by the buyer and seller, however, price is one of the factors of the marketing mix that will create satisfaction with the product price consists of a price tag, selling price, product price discount, payment period, and the price specified on the product, etc.

Distribution Channels, referring to places to sell products, including shops, flea markets, product booths, online media, online marketing channels, etc.

Marketing Promotion, defined as a promotional tool consisting of advertising, public relations, direct sales, dealer promotion, reduction, exchange, distribution, giveaway, etc.

4. Literature Review

1. New product development concept

Cheewan Charoensook (2017) said New Product Development, refers to products that are newly developed or improved, the existing products of the business to have better properties, new products can be divided into 3 types: (1) Innovated product is the first innovative research and development product that has not yet been released on the market. (2) Modified product is the original product that has been improved in any way, making it a new product to market again. (3) Me-too product refers to a new business product that mimics the products of competitors that already exist in the market.

McCarthy, E. Jerome, and Perreault, William D. (1991) say three new product developments are: (1) Innovation Product is a new product that has never been introduced in the market before or a concept that consumers may not yet be able to imagine. (2) Replacement Product of Modify Product is the development, change, improvement, the adaptation of the existing products that are already on the market, enabling them to meet the needs and satisfaction of consumers more than ever before. (3) Imitative of Me-too Product is a new product for an enterprise, but not new to the market, arising from the fact that an entity sees it as a product, product, or service that is well-established and popular with consumers or mainstream customers until giving the business an opportunity to make high profits.

Kotler (2006) has listed six new product developments: (1) New-to-the world-product, the first product of the world that was created with certain characteristics, or a new product created exclusively for entering a new market. Thus, making it not the same as any product currently available. (2) New product lines are the company's new incremental product line, but not new to the market. (3) Additions to existing product lines, new products the company produces, but on existing product lines that must be fairly new for the company. (4) Improvements and revision of existing products are improvements of existing products in terms of their appearance and value, most often on the market, often through renovations and changes. (5) Repositioning is the introduction of an existing product into a new market or new target group, or is it the exploitation of a new product. (6) Cost Reductions are new products to replace existing products that retain their usefulness and performance.

Conclusion the new product development concept was developing products both form and packaging or constantly improving products to meet customer needs for satisfaction, including branding, packaging, and product quality.

2. Marketing mix concept

Siriwan Serirat, et al (2009) discusses the idea of a marketing mix 4P's, born of a concept before starting a business or marketing, businesses should or should take into account the availability and use it as a marketing guideline for business operations by using controlled marketing variables such as (1) Product is something offered for sale by a business, which can be a product or service created by the business in order to meet needs or to deliver to customers or consumers must consider appropriate and clear target groups, with details including things that can be touched and cannot be touched such as packaging, color, price, quality, brand, service, and reputation. (2) Price is the price or what a customer has to pay in return for the sale of a product or service, perhaps not just money,

It may include some time or action; therefore, the pricing must be reasonable, calculate the cost price and profit that it is worthwhile or not, how much profit is. (3) Place is a channel for selling products or services that customers can access our products and services such as distribution channels, service channels, including locations for distributing products and services to customers, should be convenient, secure, efficient and accessible quickly, can result in profits from distributing products to customer groups to meet the target group. And (4) Promotion is a communication tool to create satisfaction for a brand or service or an idea or to an individual by using it to motivate, marketing promotion is a marketing communication to enable businesses to communicate to target groups such as reduction, redemption, giveaway, promotion.

Wheelen, L., Thomas, and Hunger, J., David (2012) says that marketing mix refers to a combination, especially the important variables under the organization's control, that can be used to generate demand, and benefit from the competition these variables are Product, Place, Promotion, and Price.

Goi Lee Chai (2009) discusses the elements of a marketing mix including products, prices, distribution channels, and marketing promotions.

Kotler, Phillip (2012) discusses a marketing tool or an integral component of a marketing strategy called Marketing Mix or called 4P's for short, consisting of Product, Price, Place, Promotion.

Related research, Amenah Hmadsa (2013), Lalita Puttachat (2018), states that marketing mixes include products, prices, sales channels, and marketing promotions. Supattanee Piamsuwannakit and Sutthiporn Piamsuwannakit (2007) said that developing a new product is a transformation of an existing product into a new one. Jittapon Chumkate (2017) says that a newly developed product that conveys a product born from local wisdom and can add value to the product, make the products look valuable, standardized, unique, highlighting the stories, lifestyle of the villagers. Thanyachanok Pawala (2017) noted that a strategy to promote and develop banana products by developing a production technology that can produce higher volumes, which requires a market strategy segmented by 4Ps: Product Development of bananas to have a wide variety of products. Price: Setting the price that is suitable for the quality according to the market price. Place sells the roadside area that is a tourist route, public and private sector fairs and exhibitions, grocery stores, souvenir shops, as well as tourist attractions. Promotion participates in fairs and exhibitions of government and private sectors, public relations through local and provincial community radio stations, as for the new product development strategy, we have developed products from bananas to add a variety of flavors such as Butter Banana, Honey Banana, and Chocolate Flavored Banana. The financial strategy focuses on reducing production costs by analyzing every step of the production process in order to reduce waste and improve production technology to produce faster.

Conclusions for researchers from the synthesis of related concepts and research, developing new products means enhancing, changing from existing products to different from the original, or creating a new product with 5 steps or processes for developing a new product as follows: Market survey, brainstorming, prototype product creation, market testing, and actual distribution. Therefore, the concept was used to define it as a variable in the research and development of new products through a 5-step process as follows;

5 Research Methods

A. Scope of research

This research is a Qualitative Research and Participatory action research - PAR, which uses the participation process of the community and the Participation Network of the Phayom community. Research scope It consists of (1) the target population is 50 people in the Phayom community, which is a group of people selected from the interested group to do business, the community consists of community leaders, group leaders, members, and relevant people. (2) The research area is Phayom Community, Wang Noi District, Phra Nakhon Si Ayutthaya Province, Thailand. (3) Academic content consists of one group of variables, namely basic information. The second group of variables is the five stages of new product development: Market survey, Brainstorming, Product development, Marketing examination, and Actual sale. The three group variables are Result / Effect was New product, Group Formation, create career, increase income, and Gain new knowledge. (4) The research period from October 2018 to September 2019 includes a period of 1 year, which can define the research concept framework as shown in Figure 2;



Figure 1 New product development process Source: Synthesis by researcher



Figure 2 Research Conceptual Framework

B. Research Process

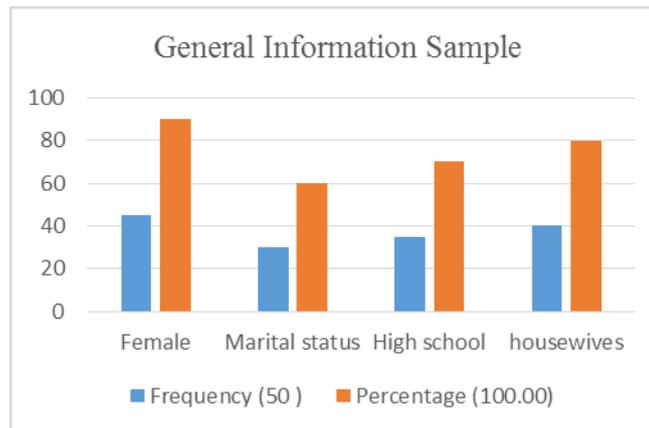
The research process is as follows (1) In-depth interviews and data collected from 50 people and stakeholders in the Phayom community. SWOT based on the results of the Participatory action research (PAR), which uses a process of involvement by the community and the relevant network partners. (3) New product development is a new product development process based on the radish of the local community by testing and processing new products. (4) Experimenting with the market and developing sales channels, with the community being able to bring knowledge to the market, actually distribute products both online and offline, enabling them to generate income to drive the economy in the community sustainably.

6. Research Results

The results of research and development of new products from radish Ban Phayom community are as follows:

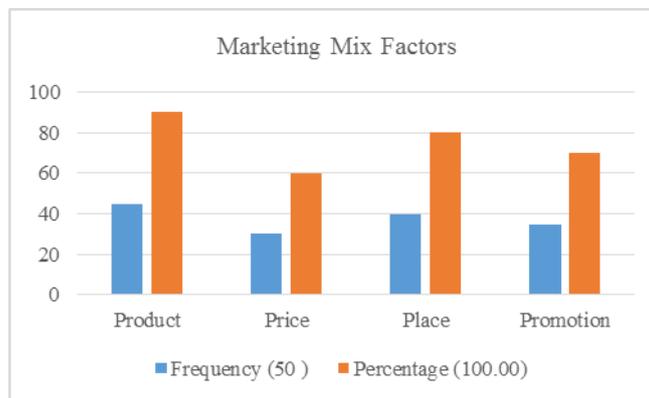
6.1 Market survey

6.1.1 General information



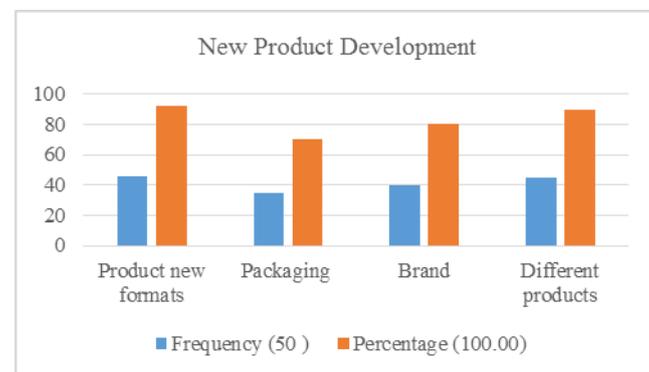
From picture 3, it was found that most of them were female, accounting for 90.00%, with housewives occupying 80.00%, graduated from secondary education 70.00%, and marital status 60.00%

6.1.2 Marketing mix



From Figure 4, it is found that most of them want to develop (1) new product development, (2) diversify sales channels, (3) marketing promotion by developing attractive packaging and brands, and (4) developing a suitable price system, respectively.

6.1.3 New product development



From Figure 5 it is found that (1) the need for product development, (2) new packaging development, (3) brand development, and (4) product development to be different from the original.

6.2 SWOT Analysis of Phayom Community

The results of the group meeting for stakeholders to brainstorm and analyze the environment using SWOT techniques are as follows.

Strength (S)	Weakness (W)
<ul style="list-style-type: none"> - There are radish ingredients in the area. - There is integration of livelihood groups. - Skilled in making radish, sewing, basketry - The community is near the Thai market and near the source of raw materials. - Community leaders and people participate 	<ul style="list-style-type: none"> - Lack of Market survey - Lack of ideas for designing new products - Few marketing channels, only selling in the community - The product does not have a wide variety. - Lack of knowledge in digital marketing - Insufficient production equipment
Opportunity (O)	Threats (T)
<ul style="list-style-type: none"> - There are government agencies to support and provide knowledge - Community, convenient transportation, near the capital - Community leaders help to support 	<ul style="list-style-type: none"> - Lack of group management - Lack of marketing network

From the table it was found that: (1) Strength (S) were there are radish ingredients in the area, there is the integration of livelihood groups, skilled in making radish, sewing, basketry, the community is near the Thai market and near the source of raw materials, and community leaders and people participate. (2) Opportunity (O) were there are government agencies to support and provide knowledge, community convenient transportation, near the capital, and community leaders help to support. (3) Weakness (W) were Lack of Market survey, Lack of ideas for designing new products, few marketing channels, only selling in the community, the product does not have a wide variety, Lack of knowledge in digital marketing, Insufficient production equipment. (4) Threats (T) were Lack of group management, and Lack of marketing network.

6.3 Prototyping products

From the group meeting and brainstorming of the community, Phayom chose to develop a new product, radish, Korean dong, to increase product variety and meet more groups of customers, whose product development process is as follows.

6.3.1 Korean pickled radish products processing steps



Figure 6 New product development "Korean pickled radish"

6.3.2 Brand and packaging development process



Figure 7 Brand development and packaging

6.4 Market test

After the Phayom community has successfully assembled a group to develop a new product, "Korean pickled radish products", the community has therefore applied the products to market testing with customers in the Phayom community market in order to bring back the customer proposals to improve the product to meet the standard.



Figure 8 Market testing

6.5 Actual sale

After the Phayom community has tested the market and brought the product to improve the quality, then the product is actually sold, which has chosen a distribution channel, both offline, that is, setting up a shop in the community and selling it in the Community Flea Market, and online is creating digital marketing channels through Facebook pages to sell community products, details are as follows:

6.5.1 Offline marketing



Figure 9 Actual sales in community stores

6.5.2 Online Marketing

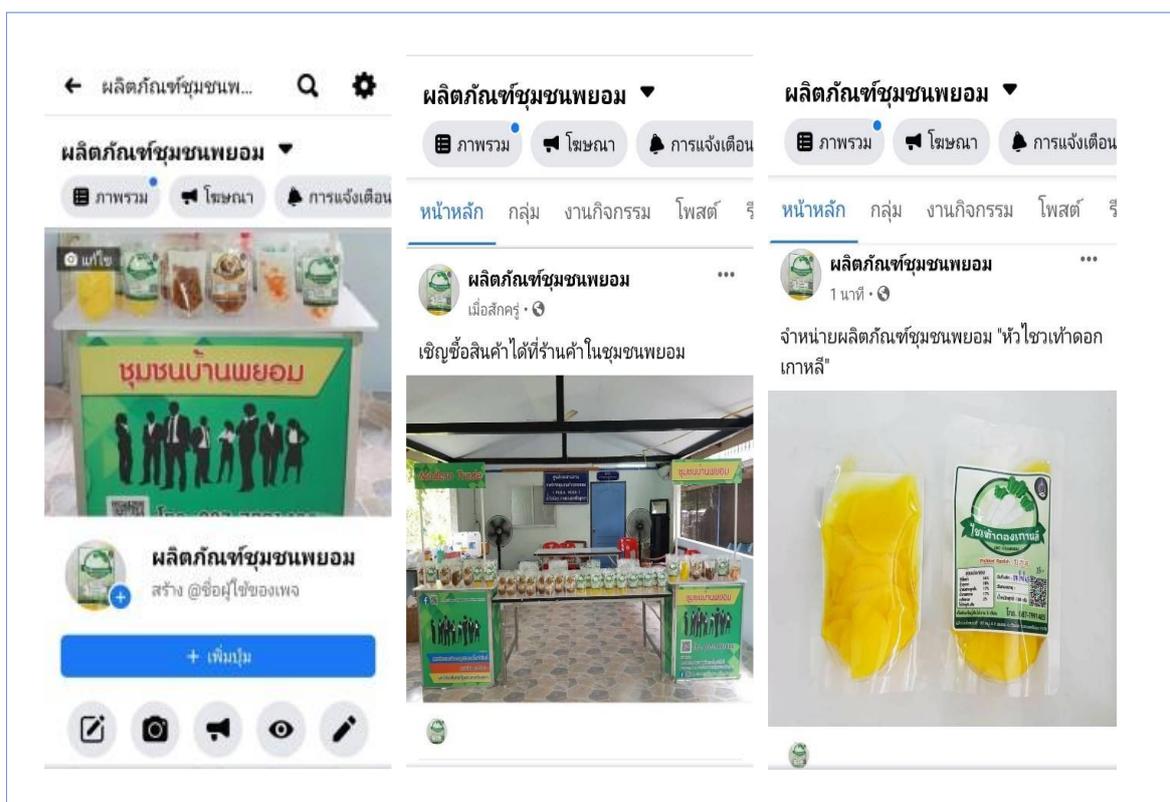


Figure 10 Online marketing channels

7. Discussions

7.1 From the group meeting to brainstorm and analyze the environment with SWOT technique, it was found that (1) Community weaknesses are lack of Market survey, lack of new product design ideas, few marketing channels, only local sales, lack of product diversity, lack of digital marketing knowledge, insufficient production equipment. (2) The obstacles are the lack of group management and the lack of a marketing network. From the weaknesses and obstacles that arise, the researchers and the community, therefore, take these points to proactively formulate a strategy to jointly develop the weaknesses and barriers of the community by developing new products with new product designs and new packaging that add value to the community. Products and packaging resulted in increased product variety, increased customer demand, and improved sales channels which use the digital marketing network and marketing to assist in its development, the research results are consistent with the concept of Kotler (2006: 344-345) found that new product development must develop both product form and packaging or constantly improve the product in order to be able to meet customer needs to be satisfied, including brand development, packaging, and product quality. And in line with the research of Thanyachanok Pawala (2017), it said that strategies for promoting and developing banana products by developing a production technology that can produce higher volumes using a

market strategy divided by 4Ps; Product is the development of banana products to have a wide variety of products. Price is the setting of a price that is suitable for quality according to the market price. Place is a roadside sale that is a route for tourists, fairs, and exhibitions of government and private agencies, selling convenience stores, souvenir shops, as well as tourist attractions. Promotion is a participant in public and private sector fairs and exhibitions, promoting publicity through the community, local, and provincial radio stations.

7.2 New product development, it was found that the community was willing to summarize the issue of further development to improve from the original product to develop new products was the Korean pickled radish, which has the following process:

7.2.1 the community market survey has a radish need for converting new products, a modern packaging design, able to sell products to multiple groups of customers, and develop multiple sales channels to sell products.

7.2.2 the Community brainstorming, brainstorming and analyzing through SWOT techniques to analyze strengths, weaknesses, opportunities, obstacles, and used mechanical planning to develop new products to meet the needs of customers thoroughly.

7.2.3 Prototyping products: The community is experimenting with modernizing radish products, and the ingredients and materials are being improved to meet the needs of the new target customers. The community has developed new products, the Korean pickled radish. This is consistent with the concept of Cheewan Charoensook (2017) said that developing new products, developing new ones, or improving existing business products to better qualify them will make the business more competitive. In line with research by Thanyachanok Pawala (2017), it is said that new product development strategies, which are banana-based products, are to add a variety of flavors such as buttered bananas, honey roasted bananas, and chocolate-flavored bananas with analysis of every production process to reduce waste and improve the production technology to produce faster. And in line with the research of Supattanee Piamsuwannakit and Sutthiporn Piamsuwannakit (2007) and Pornsanong Vongsingthong (2002), It is said that the development of a new product is a transformation of an existing product into a new one to meet customer needs.

7.2.4 Market test: The community has put products on sale at the community market before improving the products that will be released in real-time.

7.2.5 Actual sales: The community has developed new products from the Korean pickled radish products to be sold both offline and online, with sales at the Phayom community store and on the Phayom Community Facebook page, in line with Eternal Research by Amenah Hmada (2013), found that the marketing mix factor influencing product buying behavior is Facebook online sales, it makes consumers more convenient in choosing to buy products and services.

7.3 Results and impact on the community It was found that the results of the Phayom community research had developed a new product, Korean pickled radish products, which can be seen as a new generation of people who have been influenced by Korean food trends, such as pickled vegetables, various side dishes, and paired with Korean food. Therefore, the consumer groups are increasingly demanding to purchase products, the community develops products to meet consumer demand. The implications include (1) business policy: communities are grouped, create careers, increase income, and create value and prominence in community products, and the concept of marketing 4.0 era has been used as a channel for selling community products. These are the use of information technology, a new service, is fast, easy to reach to consumers, thus making the community more competitive, the community adapted, develop businesses to survive in today's economic challenges, and apply new research knowledge to the business expansion and development in the community. (2) Social: community participation, a good relationship between the community and visitors, leaders have a broad vision. There are a business and career development in the community, resulting in people in the community sharing and learning together until the people can live a sufficient life according to the philosophy of a sufficiency economy. And there is a development of community network, marketing network, as well as promoting career creation, creating value, and generating a sustainable income to the community.

8. Recommendations

A. Recommendations for Practices: (1) There should be a Market A survey with diverse consumer groups and enough samples to minimize discrepancies in developing new products. (2) Brainstorming should be more crowded with stakeholder groups and add business analysis tools such as Additional Business Model Canvas to gain more visibility into the business networks that will help you plan your business and support the business community. (3) Prototyping, radish products should be tested in a variety of ways, and the products are introduced into the community product standard in order to build consumer confidence. (4) Market testing, community products should be tested in various channels in order to improve the community products for the better. (5) Actual sales: There

should be more distribution channels, possibly going to exhibitions in other communities to increase the sales channels and to sell products on trusted pages and easily accessible to consumers like YouTube, etc.

B. Recommendations for Further Research: (1) The competitiveness development of the community business should be studied in order to determine the production, financial, marketing, and management strategies. And (2) Should study the development of career-building skills of the people in order to know the competencies of the individual and develop the career according to the individual skills.

References

1. Amenah Hmadsa. (2013). Marketing mix factors affecting Facebook shopping behavior of consumers in Hat Yai District, Songkhla Province. Independent Research Articles, Faculty of Business Administration: Ramkhamhaeng University.
2. Cheewan Charoensook. (2017). New Product Planning. [Online] <https://maymayny.wordpress.com/2014/12/05/บทที่-10-ผลิตภัณฑ์ใหม่-new-product-planning/> [14 July 2017]
3. Goi, C. L. (2009). A Review of Marketing Mix: 4Ps or More?. *International Journal of Marketing Studies*, 1(1), 2-15
4. Jittapon Chumkate. (2017). Product Development from Local Wisdom to Increase an Efficiency of Community-Based Management with Sustainability in Thai-Muslim Village, Amphur Cha Am, Phetchaburi Province. Research Report, Faculty of Management Science: Silpakorn University.
5. Kotler, P. (2012). *Marketing management upper Sanddle River*. New Jersey: Prentice Hall.
6. Kotler, P. and Keller, K. (2006). *Marketing Management*. 12th Edition, Prentice Hall, Upper Saddle River.
7. Lalita Puttachat, (2561). Marketing mix factors influencing decision to purchase supplementary products of listeners radio in Khet Bangbon, Bangkok. Independent Study of Master of Business Administration Program: Siam University.
8. McCarthy, E. Jerome and Perreault, William D. (1991). *Essential of Marketing*. (5th ed.). Boston: E. Jerome McCarthy and Associates.
9. Phayom District Information. (2019). Information about Phayom Subdistrict, Wang Noi District, Phra Nakhon Si Ayutthaya Province. [Online] <https://www.thaitambon.com/tambon/141106> [November 2019]
10. Pornsanong Vongsingthong (2002). *Product Design Research Methodology*. Bangkok: Chulalongkorn University Press.
11. Siriwan Serirat, et al. (2009). *Modern Marketing Management*. Bangkok: Thammasarn Company Limited
12. Supattanee Piamsuwannakit and Sutthiporn Piamsuwannakit. (2007). COMMUNITY PRODUCTS DEVELOPMENT FOR TOURISM OF TAMBON NANGLAE, MUANG DISTRICT, CHIANG RAI. The 2nd National Humanities Conference. Date 5-6 August 2019 at the 80th Birthday Anniversary Hall, 5 December 2007. Faculty of Humanities and Social Sciences: Songkhla Rajabhat University.
13. Thanyachanok Pawala. (2017). Promotion and development of banana products Hat Kham Sub-district, Pak Chom District, Loei Province. Research and Development Institute: Rajabhat Maha Sarakham University.
14. Wheelen, L., Thomas, and Hunger, J., David. (2012). *Strategic Management and Business Policy: Toward Global Sustainability*. 13th ed. Pearson Education