A Combining Packaging Design and Culinary Technology to Enhance Marketing of Peanut Ingredient Products by Community-based Housewives

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Abstract: - In product marketing, success often hinges on attention to detail, and minor aspects can have significant impacts. Product marketing problems can be traced to minor aspects rarely explored by other research. Aspects of packaging design and culinary technology are two independent variables that have strong potential to influence the marketing of processed peanut products for community-based housewives in Gunungkidul Regency, Indonesia. Surveys with a quantitative approach dominate the research method. The respondents were housewives who were community members who owned a peanut processing business. The research results show a strong relationship between packaging design and culinary technology in product marketing. Partially, moderation of packaging design strengthens the relationship between culinary technology and product marketing, and conversely, culinary technology weakens it when it becomes a moderating variable. By paying attention to these and other seemingly minor aspects of product marketing, community-based housewives can gain a competitive edge and increase their chances of success in the marketplace.

Key-Words: - Packaging Design, Culinary Technology, Marketing Strategic, Community-based Housewives, Experimental Method, One-shot Case Study, Training Program.

1 Introduction

The trend in the creative culinary industry in Indonesia is highly promising. Within the tourism and creative economy sectors, the culinary subsector boasts the highest percentage of businesses at 43.60%, followed by crafts at 18.68%, fashion at 18.08%, publishing at 4.04%, and entertainment and recreation organization at 3.02%, [1]. According to data from the Central Statistics Agency, the growth rate of Gross Domestic Product (GDP) for the creative economy industry is increasing by 5% annually. In 2015, it stood at 355,505.50 billion rupiahs, rising to 382,446.10 billion in 2016, and further to 410,239.60 billion in 2017. Notably, the workforce within the culinary sector has experienced consistent growth over the years, with figures reaching 8,651,740 in 2017, 9,076,096 in 2018, and 9,530,683 in 2019.

Indonesia has a wide variety of culinary delights and a large market potential. Continuing to hone your innovation skills in the culinary business will help you survive and make it easier to achieve maximum success, [2]. Indonesian culinary management is under the Ministry of Tourism and Creative Economy (Kemanparekraf). This ministry has provided a positive perception of its focus on developing innovation and entrepreneurial networks, supporting research and development, financial incentives, and exposure to creative products internationally, organizing networking events, and facilitating collaboration between creative entrepreneurs, [3]. Developing at the national and international levels and increasing the competitiveness of the creative economy at the regional level also needs to be done, namely by involving MSME actors and activists in the strategic formulation of creative economy development, [4].

MSMEs are growing rapidly, especially in the culinary sector, because culinary is a promising and profitable business in which food is a basic human need, [5]. Besides that, culinary tourism has a positive and significant influence on the number of tourists, where culinary tourism is one of the targets of tourists, [6]. However, 96.01% of culinary products are only marketed within the district/city, only 3.97% outside the district/city, and 0.02%

abroad, [1]. Culinary growth is starting to spread to the household sector. Many parents sell all kinds of culinary delights for their daily needs.

Sporadic, less organized culinary fields make it difficult to get the characteristics of a particular culinary delight. The tendency is that developed culinary products can only last for a short time due to a lack of innovation, product quality, and marketing strategies. Food quality is the most influential factor in creating tourists' culinary experiences, [7]. So, general strategies that might be applied are market penetration, product development, and market development, [8]. Apart from that, it is also necessary to maintain a typical food menu. Culinary MSMEs generally have a main menu, an icon of a region, [9]. Thus, culinary growth shows a wiser direction. Local wisdom grows through communities in each village. This community accommodates the talents and skills of its members in honing their culinary abilities.

One of the tourist and culinary destinations in Indonesia is Yogyakarta. One of the areas often visited to enjoy holiday moments is Gunungkidul Regency. This district has unique community is the Prosperous Family Empowerment Group (PKK) in Pacarejo Village. This community has a culinary product pioneered by Universitas Negeri Yogyakarta (UNY): processed peanuts. PKK Pacarejo is a group empowering prosperous families that, together with the University, contributes to the economic growth of the Pacarejo Village community by developing one of the superior local food products, Kacang Umpet, a peanut-covered spring roll skin. Peanuts, as one of the regional agricultural products, are processed into peanuts with various sweet and spicy flavors. Kacang Umpet produced by PKK Pacarejo and UNY is starting to be known and in demand by the local market.

This pioneering peanut product is produced on a home scale using simple production equipment but does not reduce the taste that represents a regional culinary icon. The current state of processing technology is still manual, the quality and packaging design do not yet reflect the uniqueness of the product, there are complaints from customers due to the uncertain production schedule, and consumers are limited to local areas; these are obstacles that are still often faced by PKK Pacarejo MSMEs. Of course, if we take the explanation above, the essence of PKK's business activities is packaging design and product marketing.

Product packaging design is very important to attract consumers and create an impression on consumers to buy because of its appearance. This packaging design functions as a powerful marketing tool. The product packaging design must reflect the identity and type of culinary offered and be easy for consumers to read and understand, [10]. PPK Pacarejo processed peanut products must have a product identity with characteristics and information to attract consumer attention. The packaging design must also contain important information such as expiration date, ingredient composition, and nutritional information and be visible. The attractiveness of the appearance of the product packaging is an important factor in selling the product and can be a determining factor in consumer purchasing decisions, [11].

Product marketing is important when introducing PKK Pacarejo processed products to consumers. Product marketing can increase product sales because it provides motivation and information to buyers about the product, [12]. So far, we still use conventional marketing techniques through word of mouth and family relations. So, it needs to be upgraded using digital-based marketing. Through social media, PKK Pacarejo can carry out promotions/marketing and disseminate information related to hide-and-seek peanut products to potential consumers effectively and efficiently. With social media, producers can continue to improve the sustainability of product marketing that can be enjoyed by potential consumers wherever they are, [13].

This research will likely reveal the ideal marketing implementation of processed peanut products, supported by packaging design and culinary technology. This research has a proposed hypothesis as follows:

H1 There is a joint positive and significant influence between packaging design and culinary technology and the marketing of processed peanut products belonging to the PKK community.

H2 Partially, there is a strong relationship between packaging design and product marketing, as well as culinary technology, as moderation, and vice versa.

H3 There were changes in self-perception before and after being given training on packaging design, culinary technology, and product marketing.

H4 There are differences in the quality of packaging design, culinary technology, and product marketing before and after the training is given.

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2 Research Method

The research type is double-quantitative, with a survey approach to detect multiple causal relationships and an experimental approach as part of the training implementation. The survey method was used to obtain an overview of the causal relationship between packaging design variables (X1), culinary technology (X2), and marketing of processed peanut products (Y). However, to find out partially, both packaging design and culinary technology variables can be used in moderation as proof of testing.

The experimental method was used to see to what extent training in packaging design, culinary technology, and product marketing made a difference and improved results. The experimental design used is a one-shot case study. This research design involves a group of participants studied on one occasion after experiencing an event, treatment, or intervention, [14]. The research location is in the PKK Group in Pacarejo Village, Gunungkidul Regency, Indonesia. The number of respondents was 30, with the overall gender being housewives. The reason for using this location and subject is to evaluate unique products from processed peanuts through a training program that researchers have prepared.

The data collection technique uses a questionnaire. The questionnaire is used to distribute self-perception questionnaires regarding packaging design, culinary technology, and marketing of processed peanut products. Instrument development begins with the preparation of research indicators. Indicators for each variable can be seen in Table 1.

Table 1. Pacarejo Village PKK Community Profile

No	Variable	Indicator
1	Design of Packaging (X1)	Packaging design
		Packaging quality
		Packaging innovation
		Packaging production
		Attractiveness
2	Culinary Technology (X2)	Achievement of understanding the material
		Technology demonstration
		Organization of training time
		Complete training facilities
		Training product results
3	Product marketing (Y)	Product Quality
		Sales price
		Promotion
		Point of sale

Data analysis techniques use descriptive and inferential statistics. Descriptive is used to get the mean, total score, and standard deviation to see the normal distribution of variables, histograms, and other descriptive information. Inferential is used to bring the significance value closer to the final result of hypothesis testing.

3 Results

3.1 Community Profile

PKK mothers with diverse educational backgrounds, occupations, and ages dominated the profile of the research respondents. To show an overview of the profile of the PKK community that develops processed nuts (Table 2).

Table 2. Pacarejo Village PKK Community Profile

Subject	Age		
	20 – 35 years	36 – 55 years	>55 years
Education Background			
- Primary High School	0	2	4
- Senior High School	4	7	5
- Diploma/ Bachelor	8	0	0
Bean Processing Experience			
- < 1 year	10	0	0
- 1 – 3 years	2	8	0
- > 3 years	0	1	9
Occupation			
- Housewife	4	4	5
- Entrepreneurs	5	3	4
- Public/private workers	3	1	0

Based on the community profile data in Table 2, it can be seen that the distribution of members in the community is very distributive, as seen from the even distribution of the ages involved. It can also be seen that the trend for younger members (20-35 years) to receive higher education is far greater than that of other ages. However, those of a productive age still need experience making processed nuts an economically valuable snack. The job map is also spread evenly, dominated by jobs such as housewives and entrepreneurs.

The instruments that 30 research respondents filled in were then described in detail through the respondents' self-perceptions. This perception refers to research variables, namely profiles related to personal quality in packaging design, use of culinary technology, and marketing of processed peanut products. The following is a description of each research variable profile.

3.1.1 Profile of Packaging Design

Fundamental descriptive statistical analysis must be known to see an initial picture of the PKK community's self-perception of its packaging design. This self-perception is an effort to encourage quality

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achievements in the ability of the PKK community to design packaging by referring to the distribution of the researcher's questionnaire. These results can be visualized through the histogram in Figure 1.
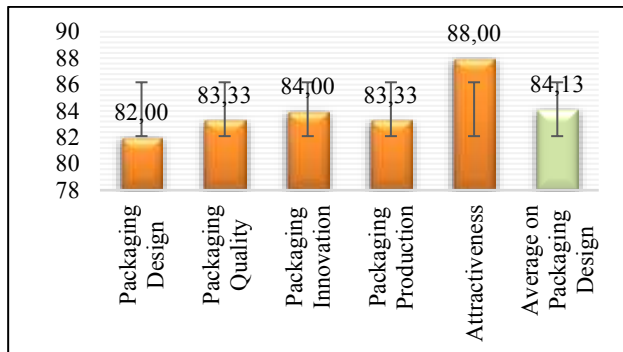

Fig. 1: Community self-perception of packaging design

Based on the results of the breakdown of each packaging design indicator (Figure 1), it can be seen that packaging design according to the community can increase maximum attractiveness. Even though there are still extraordinary opinions, it is necessary to maximize the packaging design to strengthen the product's appearance. The average perception value is 84.13%, which is included in the excellent category. These results show the relevance of the PKK community's essential ability to design processed peanut packaging, which shows satisfactory results. If we look at the distribution of standard deviations, consistency, and harmony are found in the attractiveness indicator, while a relatively broad distribution of perceptions based on the standard deviation is in the packaging design indicator. These results indicate that a tight range indicates harmonious commitment, while a sporadic range needs to be evaluated to unify one's perspective on packaging design.

3.1.2 Profile of Culinary Technology

Culinary technology based on the PKK community's self-perception can be identified as a quality achievement found in these variables. As supported by relevant metrics, each indicator's accomplishments have been depicted through histogram visualizations in Figure 2.

Based on the results of identifying each indicator in culinary technology (Figure 2), the overall average self-perception of culinary technology with a score of 84.80 is included in the excellent category. These results indicate that the technological needs in processed peanut culinary delights managed by the PKK community have shown high results. In terms of indicators, the effect

of providing training for the transfer of culinary technology gives the highest score in the culinary technology variable. At the same time, the technology demonstration and organization of training time still need to be improved. The distribution of instrument entries can also be seen from the standard deviation resulting from each research indicator. A consistent distribution was found in the processed peanut production training indicator. These results indicate that the community needs training needs based on self-perception.
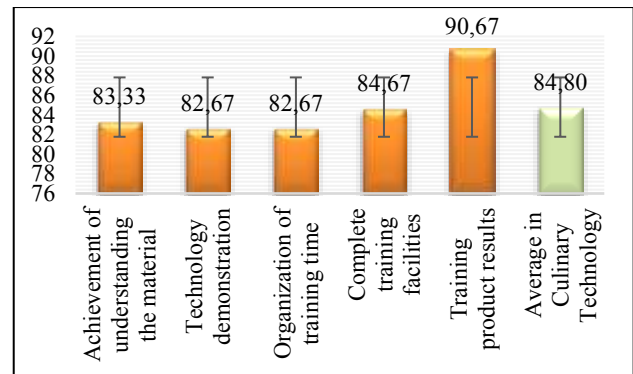

Fig. 2: Community self-perception of culinary technology

3.1.3 Profile of Marketing of Processed Peanut Products

The marketing profile of processed peanut products in the PKK community can be determined by distributing questionnaires with predetermined research indicators. The marketing of these products is a self-image of the community's condition regarding the marketing strategy and implementation of processed peanut products. Descriptively, the tabulated results of the product marketing questionnaire data are presented visually in the histogram shown in Figure 3.
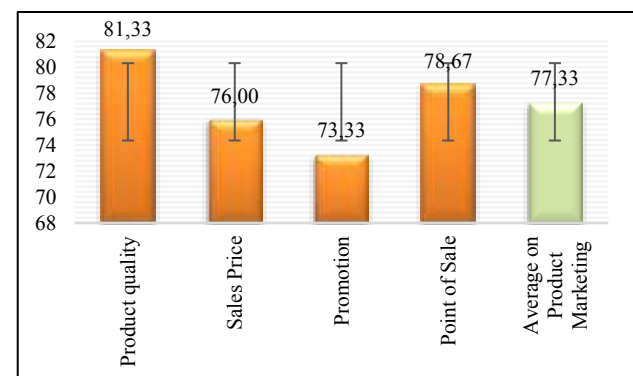

Fig. 3: Community self-perception of product marketing

Based on the tabulation in Figure 3, the overall average for product marketing is an average score of

77.33. This score is still good with somewhat complicated dynamics because the community's pattern of selling products still uses displays, less massive online marketing, and products that are only just becoming known to the public. The lowest score for the research indicator lies in product promotion efforts, while the highest score is product quality. This result is quite contrasting because the community's quality production capabilities still need to align with the ability to promote products. Observing the distribution of standard deviations depicted in the histogram, it becomes evident that the emphasis on producing high-quality products outweighs the consistency among research respondents regarding the marketing of processed peanut products.

3.2 Hypothesis Prerequisite Test

The prerequisite hypothesis test determines the researcher's assumptions to ensure statistical tools can be used to infer and describe. This hypothesis prerequisite test is necessary for quantitative research so that the sample data used can be prepared for the next significance stage. The tests carried out were data normality tests, linearity tests, and multicollinearity tests. To test data normality using Kolmogorov-Smirnov and Shapiro-Wilk analysis with a minimum threshold of 0.5. The results of the calculation analysis using SPSS are summarized in Table 3.

Table 3. Data Normality Test Results

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Stat.	df	Sig.	Stat.	df	Sig.
Design of Packaging	.154	30	.066	.938	30	.082
Culinary Technology	.151	30	.079	.933	30	.059
Product Marketing	.138	30	.150	.953	30	.203

Based on the data normality test, as stated in Table 3, the statistical tools that can be used are parametric statistics, where the data produced is above a significance value of 0.05. Both tests using Kolmogorov-Smirnov and Shapiro-Wilk agreed that the data collected supported the next stage, namely testing parametric statistical requirements to support the following analysis.

Steps to achieve linearity in the relationship between causal variables can be done by conducting linearity test analysis. This test is a prerequisite assumption in multiple regression analysis. The linearity test is also supported by multicollinearity to ensure no relationship between the independent variables. The results of the linearity test analysis can be presented in Table 4.

Table 4. Linearity Test for Each Research Variable

Causal Relationships	df	Deviation from Linearity (Sig.)
X1 – Y	9	0,602
X2 – Y	9	0,740

The results of the linearity test in Table 4 explain that the basic assumption of the relationship between causal variables as a whole meets the requirements of the initial linear test. These two causal relationships are proven by deviation values from linearity above 0.05. With these values, test the prerequisites for the first and second formulations.

To establish a strong relationship among independent variables, validating it through a multicollinearity test is essential. Test results using SPSS produced a tolerance value of 0.669 and a VIF of 1.495. If it is said that there is no strong relationship between the independent variables, then the resulting value with a tolerance below 1 and a VIF value in the range 1-10 concludes that there is no strong relationship with the independent variable.

All initial assumption tests to strengthen the research hypothesis have been conducted with appropriate results. The criteria formulated as conditions for fulfilling the hypothesis have been fulfilled. It means that further analysis to prove all hypotheses can be carried out in systematic and measurable stages.

3.3 The Influence of Packaging Design and Culinary Technology on the Marketing of Processed Peanut Products

3.3.1 The Causal Relationship between Packaging Design and Culinary Technology with Product Marketing

The challenge of obtaining confirmatory research results based on developing research hypotheses can be proven through simple correlation analysis. The causal relationship between packaging design (X1) with product marketing (Y) and culinary technology (X2) with product marketing (Y) requires an appropriate analytical description so that the PKK community can get an idea to strengthen the results of the processed bean products they have produced. Carrying capacity in this analysis refers to a simple correlation technique analyzed using SPSS. The processed results are listed in Table 5.

Table 5. Simple Correlation Analysis

Variables	X1	X2	Y
X1	1	0,576	0,519
X2	0,576	1	0,582
Y	0,519	0,518	1

Based on the analysis resulting from this simple correlation, it can be seen that the relationship established between packaging design and product marketing is included in the relatively strong category, where the determination value is 26.93%. This positive contribution indicates that product packaging design has a reasonably high contribution to accelerating product marketing, although other internal and external supporting factors can be predictors. Determination is also considered in the relationship between culinary technology and product marketing, which contributes 33.87%, higher than packaging design. These results show that technology transfer in culinary arts is essential for improving product quality, which impacts quality in product marketing. Other predictors outside the research domain can also contribute to this percentage. However, the results developed in Table 4 are significant at error levels of 0.01 and 0.05, so the confidence level is very high.

3.3.2 Joint Correlation to Product Marketing
The two independent variables, namely packaging design and culinary technology, can be combined into one in a causal relationship to product marketing. The results of this analysis can be a reference for the PKK Community to anticipate it based on the value of relationships and determinants together—results from correlational analysis of packaging design and culinary technology with the marketing of processed peanut products. The results of this analysis are summarized in Table 6.

Table 6. Multiple Correlation Analysis

R	R Square	Adjusted R Square	Std. Error of the Estimate
.624[a]	.389	.344	2.026

The results of the multiple correlation analysis in Table 6 explain that the resulting correlation value is 0.624 in the relatively strong category. Apart from that, the determinant value of the two independent and dependent variables together is 0.389, with a conversion percentage of 38.9% as an essential factor influencing product marketing quality. Other predictors can contribute to the remaining percentage.

In the context of product marketing, joint correlation can be crucial in understanding how different factors interact and influence each other, ultimately affecting marketing outcomes. Understanding the joint correlation between various factors in product marketing enables marketers to make data-driven decisions, optimize resource allocation, and ultimately enhance the effectiveness of their marketing efforts.

3.3.3 Prediction and Regression Formulation
The forecasting of the relationship between packaging design and culinary technology with the marketing of processed peanut products can be predicted through regression analysis. The results of the linearity prerequisite assumption test proved that the data collected had a linear hypothesis. This challenge not only encourages the PKK community to become more active but also emphasizes the importance of variable quality and the fact that its relationships can be regulated according to the expected conditions.

The results of regression analysis using SPSS produce a unique prediction formulation, namely $Y=1,953+0,240X_1+0,399X_2$. Packaging design and culinary technology variables are supported in monitoring developments in product marketing quality. This equation has been identified at a significance value of 0.557 with a significance threshold above 0.05.

3.4 Product Marketing Conditions Moderate Packaging Design and Culinary Technology
Understanding how much other variables on the dependent variable moderate the independent variable requires partial analysis. The partial analysis will take into account the marketing conditions of PKK community products with a moderate comparison of packaging design and culinary technology.

3.4.1 Partial Analysis of Marketing of Processed Nut Products with Moderation in Packaging Design
The first partial analysis was carried out with packaging design as a moderation in the influence of culinary technology on product marketing. Processed data refers to questionnaires that all respondents have filled in. The results of the comparative analysis are tabulated in Table 7.

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Table 7. Partial Analysis of Packaging Design Moderation

Control Variables			X2	Y	X1
-none-[a]	X2	Correlation	1.000	.582	.576
		Sig. (2-tailed)	.	.001	.001
		df	0	28	28
	Y	Correlation	.582	1.000	.519
		Sig. (2-tailed)	.001	.	.003
		df	28	0	28
	X1	Correlation	.576	.519	1.000
		Sig.(2-tailed)	.001	.003	.
		df	28	28	0
X1	X2	Correlation	1.000	.406	
		Sig.(2-tailed)	.	.029	
		df	0	27	
	Y	Correlation	.406	1.000	
		Sig. (2-tailed)	.029	.	
		df	27	0	

Table 7 shows that there is a moderating variable, namely packaging design, which strengthens the relationship between culinary technology and product marketing. The simple correlation value proves this result before moderation, which is 0.582, and after moderation, it becomes 0.406. Even though the packaging design is strong enough to support the quality of product marketing, the PKK community needs to consider this moderation variable. This result is proven valid because the 2-tailed moderation significance value is 0.029 below 0.05.

3.4.2 Partial Analysis of Product Marketing Moderated by Culinary Technology

The second partial analysis is the use of culinary technology as a moderation that influences product marketing. Data refers to the questionnaire data source used in data collection. The results of the comparative analysis are tabulated in Table 8.

Table 8. Partial Analysis of Culinary Technology Moderation

Control Variables			Y	X1	X2
-none-[a]	X2	Correlation	1.000	.519	.582
		Sig. (2-tailed)		.003	.001
		df	0	28	28
	Y	Correlation	.519	1.000	.576
		Sig. (2-tailed)	.003		.001
		df	28	0	28
	X1	Correlation	.582	.576	1.000
		Sig.(2-tailed)	.001	.001	
		df	28	28	0
X1	X2	Correlation	1.000	.276	
		Sig.(2-tailed)		.147	
		df	0	27	
	Y	Correlation	.276	1.000	
		Sig. (2-tailed)	.147		
		df	27	0	

Table 8 shows that the moderating variable, namely culinary technology, has a quite weakening influence in partially linking packaging design with product marketing. The correlation results were compared, wherein the initial correlation without moderation, the correlation value was 0.582, and after moderation, it became 0.276. In terms of significance, the partial value of culinary technology moderation indicates that moderation diminishes the relationship. However, its significance cannot be analytically proven due to the obtained score being 0.147, which is above the threshold of 0.05.

Partial analysis of product marketing moderated by culinary technology involves examining the relationship between marketing strategies for food products and the influence of advancements or trends in culinary technology. By conducting a partial analysis of product marketing moderated by culinary technology, marketers can better understand how to adapt their strategies to capitalize on emerging trends, meet consumer demands, and maintain a competitive edge in the food industry.

3.5 Effectiveness of Training on the Quality of Packaging Design, Culinary Technology and Product Marketing

This research also tested differences in the quality of packaging design, culinary technology, and product marketing both before and after training was provided. This step was taken as an effort to evaluate whether providing training provided visible changes in performance based on the perceptions of the PKK community. Before the training was carried out, respondents were given a pretest and at the end of the training topic session, respondents were given a posttest. Analysis used a t-test with paired samples on 30 training participants. Table 9 below provides the correlation score for the variance between paired samples, indicating the extent of correlation between these paired samples.

Table 9. Paired Samples Correlation for All Research Variables

Variables Correlation		N	Correlation	Sig.
Pair 1	X1_before & X1_after	30	.829	.000
Pair 2	X2_before & X2_after	30	.694	.000
Pair 3	Y1_before & Y2_after	30	.810	.000

Based on Table 9 above, it can be seen that the overall relationship before and after the three operational variables used all have a strong correlation. Although there is still a fairly strong correlation, namely culinary technology, this result could be influenced by modern culinary technology. Most of the training participants have experience in

food processing. Table 10 presents the results of the paired samples t-test analysis and their significance, illustrating the assessment of differences before and after training on the three main variables identified.

Table 10. Paired Sample T-test for Training Effectiveness

Paired Test	Mean	Std. Deviation	t	df	Sig.(2-tailed)
X1_before - X1_after	-2.300	1.601	-7.870	29	.000
X2_before - X2_after	-1.533	1.995	-4.209	29	.000
Y1_before - Y2_after	-2.400	1.476	-8.905	29	.000

Based on the results of the analysis in Table 10, it can be concluded that training can improve the performance of the PKK community. Effectiveness can be seen in the variables of packaging design, culinary technology, and product marketing, all of which have a significance value of 0.000. It means that there are significant differences as a trigger for increasing the performance of training participants. The supporting capacity for improving this quality is due to the existence of main and supporting training facilities, expert human resources, high motivation from training participants, as well as the completeness of interactive teaching materials.

4   Discussions

This research was conducted to determine the influence of packaging design and culinary technology on the marketing of processed peanut products. Several important factors that influence the quality of product marketing are packaging design and culinary technology. Attractive, high-quality, and innovative packaging can increase the attractiveness of the product and encourage consumers to buy. Competent culinary technology can improve product quality, thereby making consumers more confident in buying the product.

In this research, attractive packaging design can maximize attractiveness. Where when the product is displayed to consumers on the shelf, along with other similar products, only the packaging is accessible to consumers. So, a packaging design that is unique and has certain characteristics will easily attract the attention of consumers, [15]. Premium packaging design has a strong and positive impact on brand equity and consumer choice of brand through perceived quality (i.e., cognitive response), [16]. Packaging design can arouse customer curiosity under certain conditions. The influence of

packaging design creativity differs significantly in a retail context and an advertising context, so packaging designers must be able to understand how creativity influences customer decision-making, [17].

Apart from that, culinary technology also plays an important role in the marketing process of a product. The application of technology in the food industry recommends saving large amounts of capital by maximizing resource utilization and reducing human errors, thereby improving the quality of the food, [18]. Culinary tourism is seen as a relevant and significant factor in facilitating interactions between destination communities and their stakeholders. It is a meaningful element that, when communicated and technologically enhanced, will strengthen the perception and brand image of a destination, [19].

Based on the research results, it was found that product design and technology have a significant influence on the quality of product marketing. The results of this research are consistent with previous research, which states that packaging design and culinary technology have a significant influence on product marketing, [20], [21].

This research also has limitations. This research was conducted on MSMEs on a small scale, so the results of this research may need to be more generalizable to a wider population. Apart from that, this research only tested two variables, namely packaging design and culinary technology. Other factors may also influence the marketing of processed peanut products.

The results of this research have important implications for MSMEs producing processed peanut products. MSMEs need to pay attention to packaging design and culinary technology to improve the marketing of their products so they can continue to grow. MSMEs can use attractive, high-quality, and innovative packaging designs to increase product branding, consumer interest, and purchase intentions. Packaging must be able to attract consumer attention.

MSMEs also need to use culinary technology to improve the texture and taste of processed peanut products. Culinary technology can be used to make delicious and crunchy processed peanut products. Attention to packaging design and culinary technology can improve product marketing and increase sales.

5   Conclusion

The causal relationship between packaging design variables (X1), culinary technology (X2), and

marketing of processed peanut products (Y) has been studied and proven in Pacarejo's community-based housewives. The research results show that there is a strong relationship between packaging design and culinary technology in product marketing. Partially, moderation of packaging design strengthens the relationship between culinary technology and product marketing, and conversely, culinary technology weakens it when it becomes a moderating variable.

Based on the results of research that has been carried out, several challenges need to be considered for further research. Future research can broaden the scope to include additional control variables beyond those examined in this study, encompassing both intrinsic and extrinsic factors. The limitation of this research is that it is limited to researching the influence of packaging design factors and culinary technology on product marketing. Despite its limitations, research has emerged as a new frontier in vocational education within the realm of applied economics, facilitating scientific engagement that increasingly addresses the need for revitalizing micro-business methodologies at the PKK community level. Hence, future research needs to add more diverse variables that can support and influence the achievement of massive product marketing in the community.

References:
[1]   Ministry of Tourism and Creative Economy, "Tourism Industry and Creative Economy Statistics 2020," 2021 (Kementerian Pariwisata dan Ekonomi Kreatif, "Statistik Industri Pariwisata dan EKonomi Kreatif 2020,"), [Online]. https://kemenparekraf.go.id/statistik-pariwisata-dan-ekonomi-kreatif/statistik-pariwisata-dan-ekonomi-kreatif-2020 (Accessed Date: April 4, 2024).
[2]   B. Surodjo, P. Astuty, and L. Lukman, "Creative Economic Potential of The Fashion, Crafts and Culinary Sub Sector in The New Normal Era," in *Proceedings of the 2nd International Conference on Law, Social Science, Economics, and Education, ICLSSEE 2022, 16 April 2022, Semarang, Indonesia*, EAI, 2022. doi: 10.4108/eai.16-4-2022.2319729.
[3]   E. Rachmawati, J. Majid, C. H. S. A., and R. Elizabeth, "The Role of the Minister of Tourism and Creative Economy in Encouraging Innovation and Entrepreneurial Networks in the Creative Economy Sector in Indonesia," *West Science Journal Economic and Entrepreneurship*, vol. 1, no. 09, pp. 235–243, Sep. 2023, doi: 10.58812/wsjee.v1i09.218.
[4]   S. Rosyadi, A. S. Kusuma, E. Fitrah, N. A. Zayzda, and T. Pimoljinda, "Barriers of public policy faced by SMEs of creative economy in Indonesia," *International Journal of Law and Management*, vol. 64, no. 1, pp. 32–48, Jan. 2022, doi: 10.1108/IJLMA-02-2020-0061.
[5]   E. Tria Wahyuningtihas, Y. Giri Sucahyo, and A. Gandhi, "Driving Factors for MSMEs in Indonesia to Adopt Information Technology on Culinary," in *2021 The 5th International Conference on E-Commerce, E-Business and E-Government*, ACM, April 28-30, 2021, pp. 79–84, https://doi.org/10.1145/3466029.3466055.
[6]   R. Hamzah, J. Meliza, I. Adelia, R. Siagian, and Z. Zainuddin, "Acceleration of Tourism Development in the Process of Achieving an Increase in the Number of Tourists," in *International Conference on Science, Technology, Health, Education, and Social Science (ICOSTHES)*, Asahan, Sumatera Utara, Indonesia, November 2022, pp. 26–29.
[7]   R. Jokom, D. C. Widjaja, M. Kristanti, and S. Wijaya, "Culinary and destination experiences on behavioral intentions: an insight into local Indonesian food," *Journal of Foodservice Business Research*, pp. 1–18, Jun. 2023, doi: 10.1080/15378020.2023.2229574.
[8]   I. M. Wardana, I. P. G. Sukaatmadja, and M. Setini, "Formulation of Business Strategies to Improve Business Performance by SWOT and SQSPM Approach in Era Pandemic: A Study on Culinary MSMEs," *Quality - Access to Success*, vol. 23, no. 188, Jan. 2022, doi: 10.47750/QAS/23.188.07.
[9]   D. N. Jannah and B. Arvianto, "Local Culinary Travel Pattern Development Model in Lerep Tourism Village, Semarang Regency," *Tourism Research Journal*, vol. 6, no. 2, pp. 268–276, Oct. 2022, doi: 10.30647/trj.v6i2.151.

Sutopo, Virda Hersy Lutviana Saputri,
Beni Tri Sasongko, Bayu Rahmat Setiadi,
Tri Adi Prasetya, Chrisna Tri Harjanto

[10] I. Y. F. Baptista and H. N. J. Schifferstein, "Milk, mylk or drink: Do packaging cues affect consumers' understanding of plant-based products?," *Food Quality and Preference*, vol. 108, no. May, p. 104885, 2023, doi: 10.1016/j.foodqual.2023.104885.

[11] E. Romeo-Arroyo, H. Jensen, A. Hunneman, and C. Velasco, "Assessing the influence of packaging design symmetry, curvature, and mark on the perception of brand premiumness," *International Journal of Gastronomy and Food Science*, vol. 31, no. August 2022, p. 100656, 2023, doi: 10.1016/j.ijgfs.2022.100656.

[12] M. H. Shoukat, K. M. Selem, I. Elgammal, H. Ramkissoon, and M. Amponsah, "Consequences of local culinary memorable experience: Evidence from TikTok influencers," *Acta Psychologica*, vol. 238, no. November 2022, p. 103962, 2023, doi: 10.1016/j.actpsy.2023.103962.

[13] C. K. Primastahta and L. W. Evelina, "Digital Marketing Communication Strategy Virtual Tourism in 5 Super Priority Destinations On The Covid-19 Pandemic," *J Theor Appl Inf Technol*, vol. 100, no. 21, pp. 6572–6586, Dec. 2022.

[14] M. A. Lobo, S. H. Kagan, and J. D. Corrigan, "Research Design Options for Intervention Studies," *Pediatric Physical Therapy*, vol. 29, pp. S57–S63, Jul. 2017, doi: 10.1097/PEP.0000000000000380.

[15] J.-V. David, M.-R. Ana, F.-B. Santiago, and A.-V. Faustino, "Aspects of Industrial Design and Their Implications for Society. Case Studies on the Influence of Packaging Design and Placement at the Point of Sale," *Applied Sciences*, vol. 11, no. 2, p. 517, Jan. 2021, doi: 10.3390/app11020517.

[16] J. Hwang and S. Kim, "The effects of packaging design of private brands on consumers' responses," *Psychol Mark*, vol. 39, no. 4, pp. 777–796, Apr. 2022, doi: 10.1002/mar.21620.

[17] P. Shukla, J. Singh, and W. Wang, "The influence of creative packaging design on customer motivation to process and purchase decisions," *J Bus Res*, vol. 147, pp. 338–347, Aug. 2022, doi: 10.1016/j.jbusres.2022.04.026.

[18] I. Kumar, J. Rawat, N. Mohd, and S. Husain, "Opportunities of Artificial Intelligence and Machine Learning in the Food Industry," *J Food Qual*, vol. 2021, pp. 1–10, Jul. 2021, doi: 10.1155/2021/4535567.

[19] D. Vrontis, G. Basile, M. Tani, and A. Thrassou, "Culinary attributes and technological utilization as drivers of place authenticity and branding: the case of Vascitour, Naples," *Journal of Place Management and Development*, vol. 14, no. 1, pp. 5–18, Jan. 2021, doi: 10.1108/JPMD-03-2020-0024.

[20] N. D. Steenis, E. van Herpen, I. A. van der Lans, T. N. Ligthart, and H. C. M. van Trijp, "Consumer response to packaging design: The role of packaging materials and graphics in sustainability perceptions and product evaluations," *Journal of Cleaner Production*, vol. 162, pp. 286–298, Sep. 2017, doi: 10.1016/j.jclepro.2017.06.036.

[21] J. Wyrwa and A. Barska, "Packaging as a Source of Information About Food Products," *Procedia Engineering*, vol. 182, pp. 770–779, 2017, doi: 10.1016/j.proeng.2017.03.199.

Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

The authors equally contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

Conflict of Interest

The authors have no conflicts of interest to declare.