

DEVELOPMENT OF INNOVATIVE PACKAGING DESIGN FOR MADURA CASSAVA CHIPS TO IMPROVE PRODUCT COMPETITIVENESS

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Abstract

This research aims to develop the design and packaging of Madurese Cassava Chips products at Mrs X's UMKM. The research method used is a research and development model using the ADDIE model. The sample used in this study totalled 55 respondents. The data collection instrument used is a questionnaire sheet in the form of a google form. There are validation results from design experts and business practitioner experts, which are very feasible. The product was then tested on 55 respondents who were divided into two groups, namely 31 respondents were consumers of Madura Cassava Chips products who had purchased the product before development with the results being quite feasible to use and 24 respondents were consumers of Madura Cassava Chips products who had purchased the product after development with the results being very feasible to use. From the results of the pretest and posttest, it was found that there were differences in product packaging design on the competitiveness of Mrs X's MSMEs before and after developing the Madura Cassava Chips product packaging design. Based on the results that have been obtained, the development of the Madura Cassava Chips product design and packaging is very feasible to use.

Keywords: *MSMEs, Design, Packaging, Competitiveness*

1. INTRODUCTION

Micro, Small and Medium Enterprises are productive business units that have stood alone and are only carried out by individuals or business entities in all economic sectors (Dewi, 2021). MSMEs play an active role in helping regional income and individual income. MSMEs are currently required to be able to develop and innovate the products produced. Malang City is one of the Tourism Cities in Indonesia which has MSMEs that have great and good potential in the culinary field (Iqbal & Kurniawan, 2017). One of the MSMEs in Malang City is Bu X MSME, which sells and produces culinary businesses in the form of souvenir products, namely Madura Cassava Chips products. However, problems were found in this MSME in product development and innovation, so the products currently sold are not widely known by the public and do not have good competitive value with similar products. Based on interviews conducted with Mrs X's MSME business actors, information was

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obtained that many consumers suggested using more attractive product packaging because the cassava chips purchased by consumers are not only consumed personally but sometimes become souvenirs when visiting relatives. According to data from interviews with several consumers, it is unfortunate if this cassava chip product is only sold with simple packaging, even though this product is very interesting to be made as a souvenir product with unique and attractive packaging. This product is currently sold with a kilo system and then packaged using plastic packaging. Packaging of Madura Cassava Chips when no development has been done can be seen in Figure 1



Figure 1. Packaging of Madura Cassava Chips

A business is supposed to be able to package its products well and attractive because this can help a business to be able to increase the marketing of its products so that it can compete with similar products. Packaging is the first thing that is seen by buyers of a product. Product packaging can attract and exclude customers. Because of that, many manufacturers make the packaging as unique as possible. Producers are eager to create a first impression through product packaging by creating a packaging design that is different from competing products. Theophany (2014) says that good product packaging will be able to attract buyers' interest in a product. In making good packaging, it is necessary to design a good packaging design as well, so that the product in the form of packaging that has been designed will produce good packaging.

Packaging is a very important component of the product, packaging can help consumers choose whether the product is worth buying or not because through packaging consumers can also know the characteristics and the taste of the product. Several indicators must be considered in making packaging according to Harminingtyas, R. (2013), namely: food safety, effectiveness, ergonomic design, beauty factor, ease of sending and ease of recognising. Good packaging must have a good packaging design as well. Kotler (2004: 332) in Kusumasari & Supriono, (2017) argues that design will affect the appearance and function of a product, so in making packaging design must also pay attention to several indicators,

namely graphic design, design structure and product information (Permadi et al., 2017). When a business can develop and innovate its products, the business is said to have the ability to sell its products to maintain the survival of the company. The development of product innovation needs to be done so that the business can continue to grow and increase its competitiveness. Competitiveness has 3 main indicators (Putra, 2020), namely: product uniqueness, product quality and competitive price.

As in the research of Setiawan & Oemar (2015) entitled "Development of Cassava Chips Packaging Design UD. Aji Jaya Makmur in Cerme District in Gresik Regency" that the packaging design developed is adjusted to the existing problems, where the packaging is redesigned so that consumers are not only certain groups, but with a new packaging design UD cassava product can be used as souvenirs. Theophany (2014) says that good product packaging will be able to attract buyers' interest in a product. By developing good packaging, MSMEs can show excellence in various aspects in ways and conditions that can be adjusted to conditions that can benefit the company and its work can be compared with other competitors (Elfahmi & Jatmika, 2019).

Based on the background of the problems that have been described, namely regarding the packaging design that is less attractive on Madura Cassava Chips products, the author will help business actors to create unique and attractive packaging designs so that these Cassava Chips products can be recognized by the wider community and have a broad market so that this product can compete with similar products. Therefore, the author will conduct research entitled "Development of Innovative Packaging for Madura Cassava Chips to Increase Product Competitiveness".

2. IMPLEMENTATION METHOD

This research on Madura Cassava Chips product packaging uses the R&D research model with the ADDIE research method (Branch, 2019), which are (Analysis, Design, Development, Implementation, and Evaluations). The ADDIE research model can be seen in Figure 2 below.

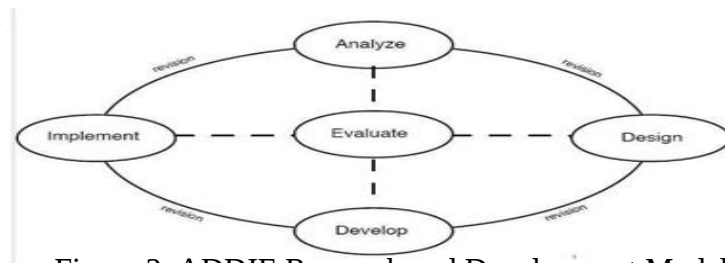


Figure 2. ADDIE Research and Development Model

The development of this product packaging was carried out to find out how consumers respond to product packaging innovations and also to help Mrs X's MSMEs find out the percentage of competitiveness of this Madura Cassava Chips product. The implementation of this development research was carried out with the initial stage Analysis, where at this

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initial stage it looks for and finds the main problems that exist, and analyses the needs of the problem in terms of consumers and also in terms of MSMEs. The initial analysis carried out at this stage was to conduct interviews with MSME owners and also conduct interviews with several consumers of Madura Cassava Chips. Then determine the main problem, namely that the packaging for this product is still simple, it does not contain information about the product at all. In the second stage, the design stage is carried out or a design is carried out to design and design product packaging that is appropriate and follows the procedures for making good product packaging so that it will produce unique and attractive packaging and is suitable for marketing. In this stage, the preparation of research instruments and the making of initial packaging designs are also carried out. Then the third stage, namely Development, where this stage includes packaging design validation and validation by business practitioners and making revisions according to the suggestions and input provided by the validators.

The development of Madura Cassava Chips product packaging involves two validators, one validator of packaging design is a lecturer majoring in DKV, Faculty of Letters, State University of Malang and one person as a business practitioner validator is the Director of PLUT (Integrated Business Centre for Cooperatives and Micro, Small and Medium Enterprises) Batu City. The subjects in this study were consumers of Madura Cassava Chips products totalling 55 people, which were divided into two groups of questionnaires, namely the first 31 people were consumers who had bought Madura Cassava Chips before packaging development and the remaining 24 people were consumers who had bought Madura Cassava Chips products after packaging development. Determination of the number of subjects in this study is adjusted and based on the opinion of Singarimbun & Effendi, 2008 (Sari et al., 2018) that the minimum limit of the number of respondents in a study is 30 people. The types of data used in this study are quantitative data and qualitative data. Quantitative data uses the results of questionnaire validation scores by design experts and limited trial questionnaires. Qualitative data in the form of results from interviews with MSME owners and obtained from criticism and suggestions from design experts. Then for the development of the validation sheet a Likert scale, while to find out how feasibility of the development of Madura Cassava Chips packaging through the assessment of scores on each indicator, the value is calculated using the percentage formula according (Kristianti, D. & Julia, 2017), as follows:

$$Sv = \frac{Sr}{Sm} \times 100\%$$

Description

Sv	:	The average percentage score of the validation results.
Sr	:	Average score of the validation assessment.
Sm	:	The maximum score that can be obtained.
100%	:	Constant

There are value criteria for the percentage of validation scores according to (Nasution & Oktaviani, 2020) in table 1 as follows

Table 1. Criteria for the value of the validation score percentage

No	Interval	Criteria
1.	80-100%	Very good/very feasible.
2.	60-79%	Good/Eligible.
3.	40-59%	Fairly Good/Moderately Appropriate.
4.	20-39%	Not Good/Not Feasible.
5.	0-19%	Not Very Good/Very Inappropriate.

Based on this table, the development research on packaging design is said to be successful if the questionnaire results obtained are in the range of 80% - 100%, 60% - 79% and 40% - 50% or if the criteria are very feasible, feasible, and quite feasible. Meanwhile, if it is not successful, the value is in the range of 20%-39% and 0%-19%.

3. RESULTS AND DISCUSSION

3.1 Analysis

The analysis stage is carried out to find out how to analyse the research needs, namely determining and defining the requirements in development research. The analysis stage is carried out in several stages, namely: Initial analysis, design analysis, competitor analysis, and goal specification, so that the results of the analysis stage are obtained, namely: At this stage, the analysis is carried out by interviewing the Madura Cassava Chips business actors and some consumers of Madura Cassava Chips products, then determining the problems associated with product packaging. In conducting a design analysis of product packaging, it was found that the Madura Cassava Chips product design did not have a good packaging design. The packaging design does not contained anything about the indicators of making good packaging design, such as graphic design, design structure, and product information. The design and packaging of the Madura Cassava Chips product are still simple and do not contain any product information at all so the data found in the field states that consumers want innovation in the packaging of this product because the current packaging does not have aesthetic value when made as souvenirs.

The existing packaging is too large and long, making it impractical for consumers. The form of packaging used is made from clear plastic and the use of bottles for petis storage will take up a lot of space because it is too large and not neatly arranged and also if sold to be used as souvenirs. This product packaging does not have any information related to the product, thus reducing the intention of consumers to buy, because good packaging will create an impression of consumers where they will assume that the product inside will also be

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attractive. Therefore, packaging must be designed as well as possible to attract many consumers so that consumers make purchases of products so that consumers are willing to pay higher prices to get special packaging. Besides In addition to conducting interviews with MSME actors, interviews were also conducted with several consumers of this Madura Cassava Chips product, so that the analysis was not only from the view of MSME actors but also an analysis of consumer needs.

3.2 Design

After conducting the analysis stage of the main problem to be examined, the design stage is then carried out. At this stage, the preparation of a suitable and appropriate product packaging design is carried out. At this stage, a validation sheet is also made by design experts and business practitioners as well as making and preparing questionnaires for respondents in the form of pretests and posttests. There are several stages involved in making packaging design plans. The first thing to do is to make a picture of the packaging design on paper commonly referred to as the thumbnail method After that, the design editing process is carried out using software on a computer in the form of a computer with two applications, namely using Photoshop and also using Corel Draw, this stage is called tight issue. The last stage in design is the packaging design visualisation stage. This visualisation process is done by compiling and matching the packaging design with the use of colours, shapes, illustrations, fonts and other parts related to the design that has been designed. At this stage, the initial packaging has been designed for the Madura Cassava Chips product, which produces a size 10 cm wide, 40 cm long, and 10 cm high. The use of colour, namely black as the base colour, is added with a mixture of yellow and red as a complementary element.

3.3 Development

The Development step is a stage where it will produce a new product that has been innovated and developed, namely in the form of Madura Cassava Chips product packaging.

The following are the results of the development and innovation of Madura Cassava Chips product packaging. The pictures below are the results of the initial packaging design framework to the end.



Figure 1. Results of the First Madura Cassava Chips Packaging Design Framework



Figure 2. Madura Cassava Chips product packaging design framework before revision



Figure 3. Result of Madura cassava chips packaging

The characteristics of the packaging to be used are in the form of Secondary Package packaging, where the packaging used is additional packaging that can protect the basic packaging or packaging in a product. The shape of the packaging used is box-shaped with a packaging size of length = 15 cm, width = 13 cm, and height = 9 cm. The characteristics of the material used are Glossy cardboard which is not too thick but can load the contents of the product. The packaging shape is adjusted to the contents of the product which has been changed to be more practical and does not take up much space. The concept of using red and yellow colours symbolises the contents of the Madura Cassava Chips product, namely Madura chips and petis. The illustration adds a beautiful impression to the packaging as a symbol of the product. The shape of the packaging made with the front part which is only covered by plastic will reveal the product inside the packaging. The information about the product such as product name, expiration, halal logo and other information points add elements to the packaging. Packaging petis, which was originally a large plastic bottle, was then replaced with clear plastic with a thin size, but still using plastic with a fairly thick material.

After producing a product in the form of packaging, validation is carried out. The validation stage was carried out by two experts, namely design experts who are competent in the field of design. Where the design validator is a lecturer from the Faculty of Sasra, State University of Malang, namely Mr Fariza Wahyu Arizal, S.Sn., M.Sn. Validation

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conducted by business practitioner experts is focused on presenting packaging design and processing MSMEs that are good and correct. Validation of business practitioner experts is carried out by experts who are competent in the field of MSMEs. This business practitioner expert is the Director of PLUT (Integrated Business Centre for Cooperatives and Micro, Small and Medium Enterprises) Batu City, namely Mr. Yossi Hendrawan S.St. The validation assessment carried out is to find out the feasibility of the products that have been developed. The validation assessment resulted in suggestions and criticisms that will be used as a reference in revising the Madura Cassava Chips packaging.

Table 2: Validation results of design experts and business practitioners.

No	Components	Result
1	Expert Validation	
	a. Design Expert Validation	- From the results of the design expert validation, the results obtained were 92%, so the design and packaging were very feasible to use. - Overall, the packaging has used a good design and is pleasing to the eye, the use of colours and product illustrations already represent the contents of the product. - The selection of font types can be chosen more clearly so that consumers will find it much easier to read information about the product, especially the font type in writing the type of product or product brand.
	a. Business Practitioner Expert Validation	- From the results of design expert validation, the results obtained are 90.6%, so the design and packaging are very feasible to use. - Overall, the packaging is suitable for use, but revisions still need to be made, especially the addition of product brands. - Regarding product information that has not 100% fulfilled the requirements of what is contained in product information, one of which is the product brand.

Based on the results of the calculation of the validation score that has been carried out, there is an assessment score from validation by design experts, namely 69 out of a maximum score of 75. The assessment score from validation by business practitioner experts is 68 out of a maximum score of 75. Calculation of the percentage of design expert validation obtained using quantitative data obtained an average percentage score of 92%. Based on the results of these calculations, adjusted to the percentage validity criteria, the percentage results are stated in very good criteria / very suitable for use. In the percentage calculation of the validation of business practitioner experts obtained using quantitative data, the average percentage score is 90.6%. Based on the results of these calculations, adjusted to the criteria for the validity of the percentage, the percentage results are declared in very good criteria / very suitable for use. The revision results obtained from this validation in general are to change the illustrations on product packaging so that good illustrations can convey the contents of the product, and also pay attention to the use of fonts and pay attention to what information must be contained in the packaging of a food product. Based on the validation results of the two validators, it is stated that the calculation results are adjusted to the assessment criteria that the packaging is very feasible to use.

3.4 Development

After validating by experts, the next stage is to implement the products that have been produced or conduct product trials. At this stage, the product in the form of a packaging design that has been validated by design and packaging experts is implemented to consumers. In this stage, the implementation is carried out to 55 consumers. Where divided into two groups, namely 31 subjects or respondents are consumers who have bought this product but have not yet developed and innovated packaging and 24 respondents are consumers who have bought the product when the development and innovation of packaging has been carried out. This stage is carried out by filling out an assessment of the product through a google form in the form of a questionnaire as a tool for respondents to provide an assessment of the product that has been distributed. The results of validation by respondents before development can be seen in table 3 below

Table 3. Data Normality Test Table

Case Processing Summary							
	kemasan	Valid		Cases Missing		Total	
		N	Percent	N	Percent	N	Percent
respon responden	Pretest	31	100.0%	0	0.0%	31	100.0%
	Posttest	24	100.0%	0	0.0%	24	100.0%

Tests of Normality							
	kemasan	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
respon responden	Pretest	.243	31	.000	.851	31	.001
	Posttest	.153	24	.154	.940	24	.160

a. Lilliefors Significance Correction

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The first data measurement is by conducting a data normality test which is carried out to determine whether the data is normally distributed or not. Data that has a normal value is data that has a significance value ≥ 0.05 , while abnormal data is data that has a significance value (sig) ≤ 0.05 . The data obtained can be seen in the data normality test table, with pretest results on 31 consumers amounting to .000, where the value is said to be abnormal because it has a significance value (sig) ≤ 0.05 . While the posttest results on 24 respondents resulted in a value of 1, 54, which means that the data is normal because it has a significance value ≥ 0.05 .

Based on the data normality test table above, it can be seen that the posttest value is normal, namely 154 because (sig) ≥ 0.05 . While the value on pretests is abnormal, which is 0.00 because (sig) ≤ 0.05 . So when the value of the normality test results is not normal then to do a different test must use the Mann-Whitney test. To find out the results of the Mann-Whitney test can be seen in table 6 below

Table 4. Mann-Whitney Test Table

Ranks				
	kemasan	N	Mean Rank	Sum of Ranks
respon responden	Pretest	31	16.92	524.50
	Posttest	24	42.31	1015.50
	Total	55		

Test Statistics^a

	respon responden
Mann-Whitney U	28.500
Wilcoxon W	524.500
Z	-5.844
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: kemasan

To find out whether there is a difference between packaging that has not been developed with packaging that has been developed, a different test is carried out using the Mann-Whitney test. The Mann-Whitney test was conducted because when conducting the normality test, the results obtained were abnormal. By doing the Mann-Whitney test, the results of the average difference were obtained, where the pretest Mean Rank was 16, 92 and the posttest was 42, 31. So as seen from the Mann-Whitney results the value (sig) ≤ 0.05 , which means that there is a difference in product packaging design on the competitiveness of Mrs X's MSMEs before and after developing and innovating. In this development, it produces designs and packaging that are attractive and suitable for use in marketing this Madura Cassava Chips product.

The implementation stage is carried out by selling this product to 24 different consumers, selling this product using the Open Order system. Then the researchers and also the MSME players opened an Open Order for a week for the sale of this product after

innovation and development, the Open Order was carried out for a week to see if the sales of this product increased compared to before, and the results of this product sold twice as much as before the development was carried out.

3.5 Evaluations

Evaluations are the last stage in the development research on the Madura Cassava Chips packaging design. The evaluation stage aims to improve the shortcomings that exist in the packaging design. The deficiencies that exist in the packaging design of this Madura Cassava Chips product will be corrected again to improve its feasibility and quality before the implementation stage is carried out again to MSMEs.

4. CONCLUSION

In the research and development of this Madura Cassava Chips product using the ADDIE development model (Analysis, Design, Development, Implementation and Evaluation), several conclusions were obtained, namely: Design and Packaging of Madura Cassava Chips products are developed and innovated using the ADDIE development model. The final result that has been developed is a packaging product that has been validated by design experts and has also been tested on consumers, where the results of the product development are declared very feasible to use. The results of validation by design experts obtained a percentage value of 92%, which means that the packaging is very suitable for use. packaging is very suitable for use. The results of validation by business practitioners obtained a percentage value of 90.6%, which means that the packaging is very feasible to use. The results of the trial to consumers of Madura Cassava Chips on the pretest obtained a result of 16, 92, while the results of the trial to consumers of Madura Cassava Chips on the posttest obtained a result of 16, 92. Madura Cassava Chips on the posttest obtained a value of 42.31, where from the two test results it was stated that there were differences in product packaging design on the competitiveness of Mrs X's MSMEs before and after doing the packaging design development. development of Madura Cassava Chips product packaging design.

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