Training The Utilization Of Palm Oil Waste Supporting Village Community Economy

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Abstract.
There are still a lot of environmentally friendly waste that has not been used. Like palm oil fronds that rot because they are not used. This is due to the lack of knowledge about the benefits of oil palm frond waste. The purpose of this research is to provide insight to the community about processing oil palm frond waste, through training. Specifically, this study aims to measure the level of training in the utilization of palm oil frond waste against the results of activities in making products from environmentally friendly waste. It is hoped that this research can help the farming community in utilizing palm oil frond waste into a high-value product. The research sample consisted of 25 members of community organizations (PKK women's groups and youth youth groups). The method used is true experimental design by conducting training on the manufacture of products from oil palm frond waste. The results show that the informant independent variable (X1) has a significance of 0.175, material (X2) has a significance of 0.099, facilities (X3) has a significance of 0.956, behavior (X4) has a significance of 0.000. and innovation (X5) significance of 0.397. The significance value of the F test is 0.000. and all variables have an effect on Activity Results (Y). However, when tested individually, the behavior variable accepts the hypothesis while other independent variables reject the hypothesis. there are still many influences from other variables (R Squre = 66.7%) that affect the results of activities. Further research can use other methods, to find the effect of training on the results of activities.

Keywords: *Training, oil palm frond waste, Small and Medium Enterprises*

I. INTRODUCTION

Advances in technology need to give developed countries a quantum leap in economic status. According to Chaturvedi [6] if we understand technological progress, we will become one of the leaders in the world, therefore there is a need for creative leadership to support innovation. The complexities and dynamics of ecological and economic challenges in the context of production and service performance cannot be met with standard solutions. Design activities are needed that offer new and creative ways of looking at problems, from different perspectives, with the aim of providing new options for products, services, and processes, therefore creativity is required [12]. The process of developing new products for cost-effective innovation requires economical and good innovation techniques. Since frugal innovation is an emerging phenomenon, there has been little research on how to develop new products for frugal innovation. It is important to generate ideas in new product development for frugal

innovation. The role when entrepreneurs apply creative ideas that produce successful technology enables start-ups to emerge. Constant and significant technological changes present several challenges in entrepreneurship.

There are many challenges to failure when trying to implement creative and innovative learning in the context of sustainability, because it depends on students, problem settings, the availability of the resources needed and those stated by the teacher[5], in his study of student creativity related to modeling the new economic system[27]. In the 2020 Vision, student results are quite creative. Mortati & [23] views creativity as one of the main triggers for innovation. More importantly, the profound change that is taking place demands the need to give a new meaning to what a company is. Local wisdom, such as embroidery in the creative economy of the modern era, has become a leading commodity for the community. The results of [7] show that Tasikmalaya embroidery as women's creativity to pass the time has become a creative economy based on local wisdom that is adaptive to development in the modern era. Embroidery is one of the mainstay choices for leading economic commodities that can improve the economic development of the people of Tasikmalaya. The operation of the embroidery trade is quite unique and difficult to imitate by others, because it occurs along with traditional education by families and craftsmen from generation to generation.

In a rapidly changing global economic landscape, sustainable entrepreneurial enterprise development is seen as an important mechanism that will enable businesses to introduce new innovative products to market faster and more effectively than their competitors. Various themes such as innovation, work experience, idea generation, education and partnership formation have been explored to assess their impact on entrepreneurship. The main influences of entrepreneurial success include the formation of partnerships, iterative cycles, and certain types of education, secondary influencers including the origin of ideas, use of innovation, organizational culture and work experience[31]. Diverse environments consisting of people, technology and business, require the mixing of different elements from various fields to produce better science.

Utilization of community waste has recently been carried out by the community, such as Mohana et al., (2021)[22] Nano industrial waste can be modified with grain sizes such as nano silica and nano fly ash which will produce better microstructure and mechanical behavior than ferro nano charging. From plantations It also produces excessive waste and is usually left as waste in the natural environment or as fertilizer around the plantations. According to Susanti and Wijaya[21] rotting Palm Oil (OPF) fronds, rather than being left alone, it is better to use them into products of economic value. The palm oil industry has produced around 83 million tonnes (wet weight), from which a considerable amount of Oil Palm Fronds (OPF) is obtained. Thus, OPF which is abundantly available as solid agrowaste creates environmental problems and an economically attractive approach is required to utilize OPF waste effectively and efficiently. Soloi & Hou[32] examined the potential of oil palm leaves to be used as

raw material for non-timber resources in the paper-making industry. Rasat et al., [29] used palm frond waste as a board, phenol resin and urea formaldehyde composite were used as a binder. Elephant grass and oil palm fronds (OPF) plus soybean waste can make goat growth better than feeding with OPF alone [28]. Palm fronds and kenaf can be used as potential carbon sources [19]. Make palm oil frond waste as a dinner plate as a product of small and medium-sized businesses, plates whose raw material are made from oil palm fronds can be products of Small and Medium Enterprises (UKM) that can help the economy of rural communities[33]. That the leaves of crude palm oil are used as cellulase and xylanase production by Trichoderma asperellum UC1[33], oil palm frond biomass contributes more than 24% of total palm oil waste [3]. Oil palm fronds are a material for cell immobilization and solvent production by non-growing cells which are incubated in nitrogen-free media [18]. Palm oil frond waste can be a source of silica and can provide a sustainable alternative[25]

Oil palm fronds are the most abundant but not fully utilized biomass waste in Indonesia. How many researchers have used oil palm frond waste such as Hasan [11] in his research Oil palm fronds treated with egg shells (EG-OPF) as a low-cost adsorbent to remove methylene blue. The new adsorbent (oil palm frond treated with egg shell (EG-OPF)) prepared from the waste was evaluated for removal of methylene blue (MB). Oil palm frond ash can be used as biomass fuel for the gasification process using a single throat downdraft gasifier [9]. The use of oil palm fronds to produce activated carbon uses Sodium Carbonate (Na2CO3) as an activator [20]. Utilize oil palm frond ash through an acid leaching treatment as a precursor for silica synthesis [25]. Increased the use of oil palm fronds as animal feed with biological early processing methods [4]. Transformed oil palm fronds into pentose sugar using copper (II) sulfate pentahydrate with the help of chemical additives [17]. Stated that oil palm stems and fronds can be used as biomass thermochemical fuel [36]. Feeding beef cattle with 60% concentrate and 40% palm fronds (OPF) results in higher nutrient digestibility and increased mineral bioavailability and reduces mineral deficiency [38]. Utilize palm frond fiber (OPF) as a filter media material to treat wastewater produced by the palm oil mill itself; known as palm oil mill effluent (POME) [14]. Palm Oil Frond (OPF) waste from the palm oil industry can affect the environment if it is released without proper processing. Converted palm frond fibers to reducing sugar in Solid State Fermentation (SSF) using Aspergillus fumigatus culture to provide an alternative use of this biomass [36]. In their research on palm oil fractionation of hemicellulose (OPF) using dilute nitric acid for the production of xylitol fermentation [1]. The fermentation test carried out for xylitol production using the OPF hydrolyzate showed that the maximum yield was 0.35 g xylitol per g sugar. The use of hydrolysis with dilute nitric acid as an effective and environmentally friendly approach to xylitol production based on a biorefinery. OPF (oil palm fronds) has a high potential as a fuel for gasification [3]. Transformed biomass waste into highly crystalline graphite [30]. Palm oil fronds

(OPF) are used as carbon precursors because of their abundant availability. Oil palm fronds are often an obstacle for farmers in managing land to increase the productivity of oil palm trees. One of the visions of oil palm frond waste is as shown below:

Fig 1. Oil Palm Fronds Waste

Palm fronds are one of the untapped wastes among farmers. This causes the frond waste to interfere with production results. One of the efforts to reduce this waste is by using it as a basic material for making products that have a sale value. Utilization of palm oil waste can be done by making products such as: plates, fruit containers, mats, and other products. So it is necessary to improve the community to manage palm oil waste to be processed into products that have a sale value.

Providing training to the community is a way of empowering human resources. Argue that virtual reality and artificial intelligence support intelligence training in the future [15]. Provided training to village communities in utilizing oil palm frond waste, the results found that there was an increase in innovation and creativity [33]. Based on the description above, it is known that there is still a need to increase public knowledge about processing waste, especially oil palm fronds to become products that have a sale value. The solution to this problem is to increase public understanding by training the use of palm oil waste as a creative endeavor. So that the provisional assumption in this study is that there is a significant influence between training and community motivation.

Through training for the community, it is hoped that it can help SMEs in creating innovative products with economic value so that the training provided can increase motivation to use waste as products of economic value. The purpose of this study is to measure the level of training given to community motivation.

II. METHODS

The method used in this research is true experimental design by conducting training on the manufacture of products from oil palm frond waste. The research carried out aims to see the influence between resource persons, material, facilities, training participants' behavior, skills / expertise, on the results of the activity. The research implementation method is descriptive quantitative, namely describing the results of the distribution of questionnaires. The sample of this study were 25 members of community organizations (PKK) who have oil palm plantations in Cahaya Negeri or

Cengri Village, Sukaraja District, Seluma Regency. The location selection was due to the fact that most people work as farmers who own oil palm plantations.

Product Manufacturing Stages

a. Material Collection, Material collection is carried out by selecting fresh palm fronds in the farmers' gardens when the farmers harvest. Palm fronds are selected and cut as needed. At this stage the participants are invited directly to sort out the materials used.
b. Formation of Material, At this stage the palm stalk is separated between the stick and midrib. Separation is carried out to differentiate materials for making plates, mats. The shaping of the material is done by cleaning with a knife and smoothing it so that the material can be woven.
c. Pattern Making, At this stage the pattern is made according to the wishes. The material that has been refined is then woven according to the product you want to make. Such as: a stick woven for making plates for fruit and bags. Meanwhile, the palm fronds that have been cut are woven together to make mats.
d. Painting, the finished product is then polished so that the surface becomes soft. The next step is painting according to the required color.
e. Marketing, the last stage is product marketing. Marketing is carried out by entrusting it to traditional markets, on campuses in Bengkulu.

The stages of implementing activities / training

a. The initial survey was conducted to observe the condition of the community, especially the community's economy and micro-enterprises which the community could use as additional income. A preliminary survey was also conducted to review oil palm plantations owned by residents in the village area in Cahaya Negeri or Cengri Village, Sukaraja District, Seluma Regency.
b. Coordination, coordinating with the village head to take care of permits and determine the location where the training will be carried out.
c. Program socialization, the program socialization aims to provide information on a series of training plans and materials needed for training to the community who is the target of the training.
d. Implementation of the training, before the training is carried out, first a pretest is carried out to determine the respondent's initial ability.
e. Implementation of activities by providing a simulation of the process of making creative products to the community. People are asked to try directly in making products to finishing products.
f. Activity Evaluation, After being given training, the average person is given a response questionnaire which aims to find out the community's response to the training that has been given. The questionnaire analysis used the Linkert scale criteria with 5 criteria; Very High, High, Fair, Low, and Very Low.

Data collection technique

1. Observation, observation activities are carried out to observe the activities of participants in participating in training activities. Observations were made by researchers to observe the activeness and participation of participants in making products in training.
2. Interview, the interview is a data collection tool which generally consists of questions or statements that are used to collect the desired research information (Toha, 2008). Interviews were used to gather information about the participants' responses to the training in making products from oil palm frond waste.
3. Documentation, documentation is done to strengthen the data obtained in the observation. Documents are used to provide a concrete description of the activities that students undertake in participating in training. To describe the atmosphere during the program implementation, a document in the form of a photo of the activity is used.
4. Preparing the Report. The final stage is the preparation of the activity report.

Data analysis technique

1. Descriptive statistical analysis

   This descriptive analysis was conducted to assess the characteristics of the data. Such as assessing the value of the minimum, maximum, average, standard deviation, and so on.
2. Infrential statistical analysis, consisting of;
   a) Test the validity and test reliability

      Before doing the normality test, all the questions are tested first for the level of validity and reliability.
   b) Multicollinearity Test
   c) Determination Test
   d) T test
   e) F test

   Paired sample t-test and F test were carried out with the assistance of the SPSS program. The basis for the decision to accept or reject the hypothesis in the paired sample t-test, namely: (1) If the probability < 0.05, the hypothesis is accepted. (2) If the probability > 0.05 then the hypothesis is rejected.

III. RESULT AND DISCUSSION

Description of Research Implementation

The training on the use of oil palm fronds as a basic material for the manufacture of productive goods in the village of Cahaya Negri (Cengri) was attended by 25 participants. Participants consisted of PKK mothers in Cahaya Negri (Cengri), Sukaraja sub-district, Seluma district, Bengkulu Province. Research implementation begins with coordination activities with village officials or administrators related to licensing arrangements. The second stage was carried out by the survey, namely

inviting participants to visit the oil palm plantation and directly choosing the materials to be used for the manufacture of the product. The third stage was carried out by training using powerpoint media to explain directly the process of making the product. The fourth stage is assisting in the manufacture of the product.

Fig 1. Third Stage of Material Delivery

Fig 2. Product Development Assistance Stage

Description of Research Subjects

The subjects in this study consisted of the community in Nakau Village consisting of the PKK and Karang Taruna. The selection of research targets was based on an invitation given through the coordination of the village head, the PKK chair, and the head of the youth organization. The characteristics of the 25 research subjects were described based on gender, age, and education level. An overview of the characteristics of the subject in this service is summarized in Table 1 below:

Table 1. Characteristics of Research Subjects

No	Characteristics of Respondents	Number of people	Percentage (%)
1	**Gender**		
	Man	4	16
	Women	21	84
2	**Age**		
	> 25 Year	1	4

	25-30 Year	4	16
	30-40 Year	14	56
	> 40 Year	6	24
3	**Level of education**		
	Bachelor (S1 / Diploma)	6	24
	SMA / SMP	17	64
	Elementary school	2	8

Source: Research Data, 2021

An overview of the distribution of questionnaires to training participants

After the training and simulation, participants are given a questionnaire measuring their response. The questionnaire is a statement consisting of five assessment criteria, namely: Very High, High, Fair, Low, Very Low. Questionnaires were distributed to 25 participants after analyzing those who met the criteria. A questionnaire is given to see the participant's response after being given the training. The questionnaire used contains statements about participant responses consisting of 22 statement items. Data from the distribution of participant response questionnaires can be seen in the following figure;

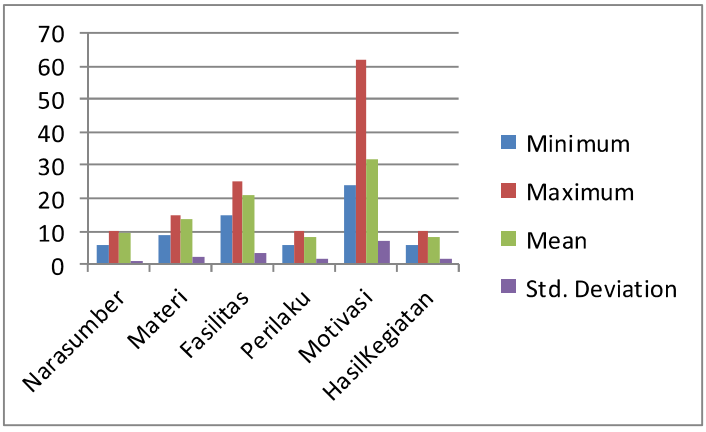

Fig. 3. Distribution Of Questionnaires

In the picture above, it explains that each variable has a different value. There are differences in the value of each variable. Such as differences in maximum, minimum, average value, standard deviation for each of the different variables.

From a total sample of 25, there are differences in the minimum, maximum, average and standard deviation values. The source variable in this study shows the minimum value given by the sample is 6, the maximum value is 10, the average value is 9.32, while the standard deviation is 1.10755. In the material variable in this study, the minimum value given by the sample is 9, the maximum value is 15, the average value is 13.44, while the standard deviation is 2.12289. The facility variable in this study shows the minimum value given by the sample is 15, the maximum value is 25, the average value is 20.76, while the standard deviation is 3.50333. The behavioral variable in this study shows the minimum value given by the sample is 6, the

maximum value is 10, the average value is 8.1600, while the standard deviation is 1.70000. The motivation variable in this study shows the minimum value given by the sample is 24, the maximum value is 62, the average value is 32, while the standard deviation is 6.92820. In the variable of activity results in this study, the minimum value given by the sample is 6, the maximum value is 10, the average value is 8.36 while the standard deviation is 1.70489.

Normality test

Normality test is a test that is carried out with the aim of assessing the distribution of data in a group of data or variables, whether the distribution of the data is normally distributed or not. Normality test is useful for determining data that has been collected is normally distributed or taken from the normal population. Data with more than 30 digits (n> 30) can be assumed to be normally distributed. Usually said to be a large sample. However, in this study, the sample used was only 25 people, so to find out whether the research data was normally distributed can be seen in the following table;

Table 2. Normality test

		Unstandardized Residual
N		25
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.98429295
Most Extreme Differences	Absolute	.172
	Positive	.066
	Negative	-.172
Test Statistic		.172
Asymp. Sig. (2-tailed)		.054[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Dari hasil uji normalitas diperoleh tingkat signifikansi lebih sebesar dari 0.05 yaitu sebesar 0.054 maka nilai residual berdistribusi normal.

Multicollinearity Test

Multicolinearity is a condition where there is a strong correlation between the independent variables. The relationship of the independent variables is strong if the VIF value is <10 and Tolerance> 0. The following are the tolerance values and VIF for all independent variables;

Table 3. Multicollinearity Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF

1	(Constant)	7.033	2.609		2.695	.014		
	Narasumber	-.317	.225	-.206	-1.409	.175	.823	1.215
	MATERI	-.326	.188	-.406	-1.735	.099	.320	3.121
	FASILITAS	-.004	.079	-.009	-.056	.956	.671	1.491
	PERILAKU	1.188	.250	1.184	4.757	.000	.283	3.533
	MOTIVASI	-.029	.034	-.119	-.866	.397	.923	1.083

a. Dependent Variable: HASILKERJA

Source: Research Data, 2021

VIF value <10 and Tolerance> 0.10. The VIF Resource Person variable is 1,215 and tolerance is 0.823, the VIF MATERIAL variable is 3,121 and the tolerance .320 is the VIF, the FACILITY 3 variable is 2,041,491 and the tolerance .671 is the VIF, the BEHAVIOR variable is 3.533 and the tolerance is 0.283, the VIF is the MOTIVATION variable of 1.083 and the tolerance .923, there is no multicollinearity among the independent variables.

F Statistic Test

This test is carried out to see the effect of the variables and the dependent, the model can be accepted by a significance value of less than 0.05. The results of significance can be seen in the following table;

Table 4. F Statistic Test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.508	5	9.302	7.601	.000[b]
	Residual	23.252	19	1.224		
	Total	69.760	24			

Source: Research Data, 2021

Regression shows a significance value of less than 0.05, it can be concluded that the narrator, the material provided, the facilities, behavior, motivation jointly care for the results of the activity. F count> F table then accept Ho and reject Ha.

Determination Coefficient Test (Adjusted R)

This analysis is used to determine the effect of the independent variables simultaneously on the dependent variable. The value of R Square shows the percentage of other variables that affect training. The results of the analysis can be seen in the following table;

Table 5. Determination Coefficient Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.817[a]	.667	.579	1.10625

a. Predictors: (Constant), MOTIVASI, Narasumber, FASILITAS, MATERI, PERILAKU

Source: Research Data, 2021

The R Square value of 0.667 shows the magnitude of the contribution of the influence of the independent variable on the dependent variable. The rest is influenced by other variables outside the research, which is 0.333. Standard Error of the Estimate 1.10625 is a measure of the number of errors in predicting the Y value.

Statistical t test

The test was conducted to determine the effect of each independent variable on the dependent variable. The test results using the SPSS tool are as follows:

Tabel 6. Hasil Uji t Statistik

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	7.033	2.609		2.695	.014
	NARASUMBER	-.317	.225	-.206	-1.409	.175
	MATERI	-.326	.188	-.406	-1.735	.099
	FASILITAS	-.004	.079	-.009	-.056	.956
	PERILAKU	1.188	.250	1.184	4.757	.000
	MOTIVASI	-.029	.034	-.119	-.866	.397

a. Dependent Variable: Total_Y

Source: Research Data, 2021

From the results of the count shows that the t value of the informants is lower than the t table, this means that there is no significant relationship between the informants and the results of the study. The t value of the material is lower than the t value of the table, this means that there is no significant relationship between the material and the results of the study. The t value at the facility is lower than the t table value, this means that there is no significant relationship between the facility and the results of the study. The value of t count on behavior is higher than the value of t table, this means that there is a significant relationship between behavior and research results.

IV. CONCLUSIONS AND SUGGESTIONS

Oil palm is an agricultural product that is still being cultivated by the community and business entities. From a large palm oil plantation, of course, it will produce waste. The waste from oil palm plantations is usually in the form of dry palm fronds which have no economic value in abundant quantities. Through the love for the environment movement that uses goods that have only been turned into trash or waste to be re-empowered to become products that have a selling value where one of the main goals of this movement is to create creative movements that have economic value in society, so that society not only waiting for help from the government, but also trying to move for their own lives.

The development of more varied and quality-oriented products based on local resources is a strategy in innovative environmental development, this study is in line with Susatya's research [35], which states that narrators, programs, academic facilities, support facilities, services, evaluation functions affect outcomes rather than training. . The model used is in line with Glaser's [10] research which starts from analyzing

training problems, formulating training objectives, selecting training materials, methods, techniques, and media, then assessing the training results. Providing training to the community is a way of empowering human resources. Li et al., [15] found the results in their research that virtual reality and artificial intelligence support future intelligence training. Gave training on the utilization of palm oil waste in Nakau village, the results showed that there was an increase in community creativity [34]. So the findings of this study are in line with the findings of research by M. Susanti [33] namely that there is a significant influence between sources, materials, schedules, facilities, behavior affecting the results of activities. All independent variables have a significant effect on the given devendents. With the training, it can add insight to the community to create their own jobs. With the training on the use of oil palm fronds, it can increase the knowledge / skills of the community. So that research by providing training to the community can help run government programs in reducing poverty in rural areas, reduce unemployment in rural areas and assist Small and Medium Enterprises in creating innovative products.

The results of the hypothesis test show that the resource person variable (X1) does not have a significant effect on the results of training activities. Material variable (X2) does not have a significant effect on the results of activities. Facility variable (X3) does not have a significant effect on the results of training activities. Behavior variable (X4) has a significant effect on the results of training activities. Motivity variable (X5) does not have a significant effect on the results of training activities. However, the simultaneous test results show that all variables have an effect on the training results.

It is hoped that the community will further increase support for developing the potential of small and medium enterprises by making local products sourced from nature and environmentally friendly materials, maintaining and improving services for training. It is hoped that the community, especially PKK participants, will carry out increased training on other community waste utilization. It is hoped that the State Civil Apparatus will pay more attention to community activities so that village PAD can increase through activities that are beneficial to the community. Given the importance of human resource management, it is hoped that the results of this study will be useful for adding insight and deepening the study of knowledge about human resources, local wisdom, especially on the issue of training, work ability and performance, and can be used as a follow-up study for other researchers interested in the same field. In addition, the results of this study are also expected to be useful as a reference for further researchers to develop this research by considering other variables such as the understanding of the training participants, the availability of materials and so on.

Subsequent research can create even more innovative products, by utilizing other local resources through training in increasing people's insights and creating opportunities for village independence.

V. ACKNOWLEDGMENTS

The author would like to thank RISTEKDIKTI INDONESIA who have supported and financed this project, the Seluma District Civil Servant Apparatus (ASN), and the Village Head who have provided the village hall building as a place for us to provide training. We also thank the LPPM team from Muhammadiah University Bengkulu, and Dehasen University Bengkulu.

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