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Research Article

Community Empowerment: Improving Human Resource by Training Program for the Utilization of Palm Tree Raw Materials in Dayeuhkolot, Subang Regency

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Abstract.
Dayeuhkolot is one of the villages in Subang Regency which has tourism potential, such as go'ong waterfall, offroad rides, etc. In the first program in 2021, 150 sugar palm trees were planted in Dayeuhkolot, making it the village with the most palm trees in Subang Regency. Based on information from local stakeholders, the utilization of palm trees so far has not been maximized because people only focus on palm sugar products. Therefore, the author proposes a Community Empowerment program with training on the use of palm trees to become a selling value product. This training program aims to increase public knowledge regarding products that can be produced from palm trees, and have high economic value. This study aims to analyze the impact of the palm tree utilization training program on people's knowledge of the types of products that can be produced from palm trees and the effectiveness of the training method on the use of oil palm in the community. The first method is using a live demonstration and the second is by showing a video tutorial. The study was conducted in Dayeuhkolot, Subang Regency, and consisted of 12 respondents. The analysis method used paired sample T-test and independent sample T-test. Based on research, the training program has had a positive and significant impact on increasing people's knowledge about various products derived from palm trees and there is a difference in the average effectiveness of the training method between the direct demonstration method and the video tutorial method.

Keywords: palm tree utilization, paired sample T-test, independent sample T-test, community empowerment

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1. Introduction

Rural development is rural-based development by prioritizing local wisdom in rural areas which include the structure of social-cultural characteristics, community demographics, geographical characteristics, patterns of agricultural business activities, patterns of rural-urban economic linkages, village institutional sectors, and characteristics of residential areas [1].

Dayeuhkolot in Subang Regency, West Java Province is a village where the main activity of the community is farming. The natural environment is still beautiful, with many springs, and various natural resources, making Dayeuhkolot very potential to become an ecotourism village. There are several tourist attractions, such as go'ong waterfall, cigorowong reservoir, vineyards, and many others.

As a form of the tourism village program, in Dayeuhkolot there is now a café called "DUKOPI". This cafe belongs to a local investor who sees the potential of a tourist village. Quoted from [2] DUKOPI is a new cafe with a natural café design with lots of open space and cool air. This cafe is 30 KM from downtown Subang, but this doesn't stop tourists from visiting DUKOPI cafe. In addition to the café, there is a vineyard as a natural tourist spot. In this place, visitors can buy grapes by picking them directly from the tree and also buy superior grape seeds. the existence of cafes, vineyards, and several natural attractions are potential places for local people to sell local products to tourists and will boost the economy.

The thing that is in the spotlight of stakeholders is the reduced number of palm trees in Dayeuhkolot, while the existence of this palm tree is to support the design of a tourist village. The reasons for this issue are various, such as the felling of palm trees for personal use and the inability of the community to plant new palm tree seedlings. In 2021, there is a program with the success of planting 150 palm tree seedlings. This activity received appreciation from stakeholders and also the community for planting a large number of palm trees. This activity also makes dayeuhkolot become the village with the most palm trees in Subang district [3]. Furthermore, monitoring was carried out for five months to see the growth of palm trees, and it turned out that the average growth was 10% every month [4].

One of the village's leading commodities is the production of palm sugar sourced from palm tree sap. This palm sugar is produced by small household scale industries. Based on information from local stakeholders, the palm tree is used only for the sap. Meanwhile, other parts of the palm tree such as palm fiber, fruit, leaves, etc. only used for personal purposes and have no economic value. This became the basic idea for

further community empowerment activities in Dayeuhkolot. The author intends to create community empowerment activities by utilizing raw materials produced from palm trees. This activity is expected to support community skills in processing palm tree products and has a good impact on the economy of the Dayeuhkolot community.

This research is expected to reveal and analyze the increase in community knowledge through empowerment programs in Dayeuhkolot Village, Yogyakarta district to strengthen and develop concepts related to the use of palm trees to improve the local economy. In this study, the author will compare the two training methods used when providing material to the community using T test statistics, this aims to see the effectiveness of the existence of the community's knowledge.

2. Research Method

This type of research is a quasi-experimental pretest-posttest control group design. This research was conducted in Dayeuhkolot Village, Sagala Herang District, Subang Regency, on April 9, 2022. The community was given counseling and also training on the use of palm tree raw materials. This self-development training is expected to increase people's insight, change attitudes, and develop their personality [5]. The training method used is the demonstration method and video tutorial method. The demonstration method is a method that uses demonstrations to explain or show how to do something to other participants. Demonstration is an effective learning method, because participants can see and try directly the application of the material [6].

The selection of respondents was carried out by local stakeholders and 15 respondents were selected. The data in this study used bivariate analysis of paired T-test to see the difference in public knowledge before and after training. The independent T-test is used to see the difference in the work of the community in making goods if it is done with a live demo or through a video tutorial.
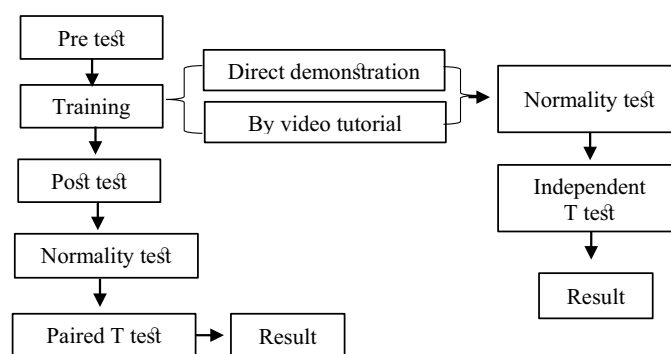

Figure 1: Flowchart method analysis.

2.1. Normality Test

Normal distribution test is a test to measure whether our data has a normal distribution or not. Normally distributed data is one of the requirements for parametric (inferential) statistical tests. Paired sample T test requires the assumption that the data must be normally distributed. In this study, the Shapiro-Wilk test was chosen. The normality test using the Shapiro-Wilk method is due to the number of samples being less than 50 [7]. The Shapiro-Wilk test was carried out by looking at the significant value. If the significant value is less than 0.05, then the residual value in regression is not normally distributed [8]. In other words, the data is said to be normal if the significant value is greater than 0.05. Conversely, if the significant value is less than 0.05, then the data is said to be abnormal [9].

2.2. Paired sample T test

Paired sample t-test is a test of different parameters on two paired data. Paired data is a condition where the second sample is a difference or change from the first sample data. In this study, the t-test was used to compare the knowledge of the community before attending the training with the knowledge of the community after attending the training. According to [9] the paired t-test is formulated as follows:

$$t_0 = \frac{D}{sd/\sqrt{n}} \quad (1)$$

According to equation (1), the value of D is the average of the difference in each paired data in the two groups, sd is the standard deviation value of the difference between each data, and n is the number of data. The t_0 value is then compared with the t table value. If value $|t_0| > t(\alpha/2, n-1)$ then the decision is rejecting the null hypothesis. The null hypothesis is rejected indicating that the mean value of the difference between the groups being compared is significantly different at a significant level of α, with α used of 0.05 [10] . The hypothesis is stated as follows:

H_0: $\mu_{pretest} \leq \mu_{posttest}$

H_1: $\mu_{pretest} > \mu_{posttest}$

2.3. Independent sample T test

Independent sample T test is a test used to compare the average of two independent samples. This test can be used provided that the variables reach metric measurements

and are normally distributed [11]. The two samples that were compared through this T test were the scores of the results of making goods made from palm trees with demonstrations and scores of the results of making goods made from palm trees with video tutorials. The hypothesis is stated as follows:

H_0: $\mu_{demontration} = \mu_{video\ tutorial}$

H_0: $\mu_{demontration} \neq \mu_{video\ tutorial}$

3. Result and Discussion

Respondents in this study were people who were invited by dayeuhkolot stakeholders in the training event "Community Empowerment: Utilization of palm Tree Raw Materials" as many as 12 respondents. 15 questions were given in the pre-test and post-test to each participant. The majority of respondents are female, as many as 9 people or 75%, and the remaining 3 respondents, or 25% are male.

3.1. Paired Sample T Test result

Before performing a parametric test, perform a distribution test on the data. This is because the Paired sample t-test is a parametric test and requires the assumption that the data is normally distributed. If the data is not normally distributed, it needs to be handled. A non-parametric test is a solution for data that is not normally distributed.
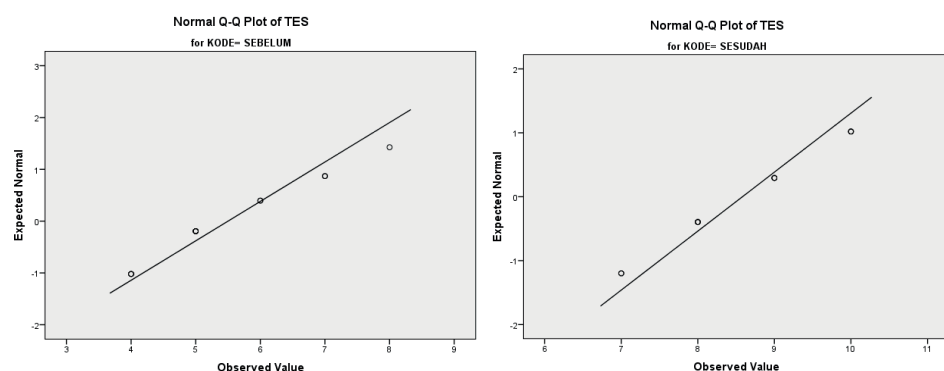

Figure 2: normal Q-Q Plot for data pre-test and post-test.

Q-Q Plot (Quantile – Quantile plot) is a scatter plot that compares the empirical distribution with a distribution that corresponds to the value of a variable. This plot is useful for seeing whether the distribution of a sample or data follows a particular distribution. In this case, it is checked whether the data distribution follows the normal distribution. If the data is normally distributed then the plot distribution will approach

the model (straight line), otherwise if the data distribution is not normally distributed then the plot distribution will move away from the model (straight line). From the Q-Q Plot graph above, it can be seen that both pre-test and post-test data spread along a straight line and are shown to be normally distributed. To support this assumption, a normality test was conducted using the Shapiro-Wilk test with 12 samples.

TABLE 1: normality test shapiro wilk.

Periode	Uji Shapiro-Wilk		
	Statistic	df	Sig.
pre-test value	.903	12	.174
post-test value	.890	12	.118

Based on Table 1, it can be seen that the pre-test and post-test data were normally distributed. The significance value for the pre-test is 0.174, which is greater than the significance level of 0.05, which means that the pre-test data is normally distributed. The significance value for the post-test is 0.118, which is greater than the 0.05 level of significance, which means that the post-test data is normally distributed. based on the normality test, the data is feasible to do paired sample T-test. Then do a paired T-test of two samples on both data.

TABLE 2: Paired sample T test results on the respondent sample.

test statistics	Before training	After training
Mean	5.500	8.580
Standard deviation	1.314	1.083
correlation	0.862	
p-value	0.000	

Based on the results of the t-test of two paired samples in the case sample, it can be seen that community knowledge before and after receiving training on the use of palm tree raw materials has increased. This is evidenced by the statistical value of the t-test (P-Value) of 0.00. The probability value is smaller than the 5% (0.05) level of significance, which means that there is a significant difference in the knowledge of the community on the use of palm tree raw materials before and after the training.

The average knowledge score of the community before the training was 5.5, while the average knowledge score of the community after the training was 8.5. The average knowledge score of the community has increased by 56%. Respondents said that with this training program, they could find out how to process various kinds of products based on palm tree. The correlation value is 86.2%, which means that there is a positive relationship between the score before the training and score after the training. This means that the training program has a positive impact on people's knowledge.

3.2. Independent Sample T Test result

Same as paired sample T test, need to do distribution test on data. This is because the Independen sample t-test is a parametric test and requires the assumption that the data is normally distributed.
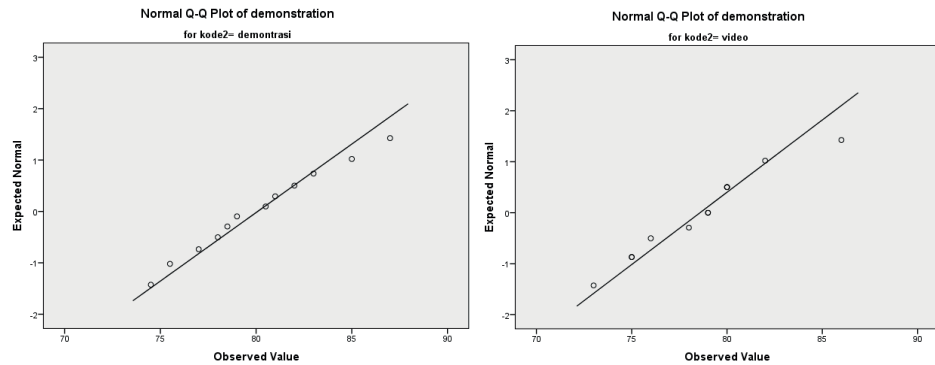

Figure 3: normal Q-Q Plot for data demontration score and data video score.

From the Q-Q Plot graph above, it can be seen that both demontration method and video tutorial method data spread along a straight line and are shown to be normally distributed. Next we do the normality test using Shapiro Wilk.

TABLE 3: normality test shapiro wilk.

Periode	Uji Shapiro-Wilk		
	Statistic	df	Sig.
Demonstration	.980	12	.984
Video tutorial	.955	12	.718

Based on Table 3, it can be seen that the demontration score and video score were normally distributed. The significance value for the demontration method is 0.984, which is greater than the significance level of 0.05, which means that the demontration method is normally distributed. The significance value for the video tutorial method is 0.718, which is greater than the 0.05 level of significance, which means that the video tutorial method is normally distributed. based on the normality test, the data is feasible to do independent sample T-test.

To find out whether the variance of the two populations is the same using the Levene's test. This test is used to test the variance of the two data populations, in this case the demonstration method population variance and the video tutorial method population variance. Levene's test result calculated F value = 0.160 with a significance of 0.690, because the significance is > 0.05, it fails to reject H0, meaning that the two population

variances are the same. Furthermore, the independent t-test analysis with the same variance.

TABLE 4: independent sample T test.

test statistics	Demonstation method	Video tutorial method
Mean	80.0833	78.5833
Standard deviation	3.75278	3.52803
p-value	0.324	

Based on the results of the t-test of two independent samples, it can be seen that the score comes from the demonstration method and the score comes from the video tutorial method has not much different. This is evidenced by the statistical value of the t-test (P-Value) of 0.324. The probability value is bigger than the 5% (0.05) level of significance, which means that there is no significant difference in scores between the demonstration method and the video tutorial method. The average score of demonstration method was 80.08, and the The average score of video tutorial method was 78.58.

Based on the results of the analysis conducted on the training activities, it turned out to have a positive impact on the community. Basically, the community has often used the raw material for palm trees, although the amount is limited. With this training, the community can recognize the types of outputs that can be produced from palm trees. The success of training activities can be measured by increasing community knowledge as evidenced by a t-test analysis and this empowerment activity has proven to be successful in increasing community knowledge.

The methods used in providing training are distinguished with the aim of helping tutors to explain the steps of making work to participants. This is due to the limited number of tutors and time constraints during the training process. Based on the results of the analysis carried out on the training method, it turns out that the direct demonstration method and video tutorial do not differ much in providing understanding to the participants. The community is given the video so that it can be reopened in the future.

4. Conclusion

The analysis carried out proves that this program is going well according to plan because it is proven to be able to increase the knowledge of residents to be able to utilize raw materials for palm trees in Dayeuhkolot, Sagalaherang District, Subang Regency. This is evidenced by a paired two-sample t-test analysis. This analysis shows that there

is a significant difference between the average knowledge scores after receiving the training and before receiving the training. The training method used was the demo method and the video tutorial method, and both did not show a significant difference in the ability to make goods from palm trees. This is evidenced by a two-sample t-test analysis which shows that there is no significant difference between the two methods.

Acknowledgements

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